

# Catalogue 2014/2015





# Catalogue 2014/15



# About WERMA



## We make sure you are seen and heard

WERMA Signaltechnik is one of the world's leading companies for optical and audible signal devices. The international company located in South West Germany sets the tone technologically with its many state-of-the-art innovations.

Our signal devices make working environments safe and processes efficient - on machines, in factory halls or in the building services industry. With a broad line of over 3,500 products, WERMA offers solutions for an extremely wide range of signalling applications.



## We are there where you need us

With our own subsidiaries in many European countries as well as in China and the USA and a tightly woven network of international sales partners we ensure outstanding worldwide on-site support. Our customers benefit from exemplary service with fast, on-time delivery of all products and accessories. WERMA products can be easily ordered online at [www.werma.com](http://www.werma.com).

Our consistently high customer satisfaction ratings show that our customers feel WERMA takes good care of them.



## We are constantly developing

Innovation is the driving force for us to further expand our technological advantage. WERMA conducts both systematic core research and specific product development for which the most modern project management methods are employed.

We test all new developments in our own optical and acoustic laboratories. The success of this innovation policy is demonstrated in the many patents, design awards and positive customer evaluations we have received.



## Quality „Made in Germany“

We produce our own plastics, electronics and injection-mould tooling to guarantee that our products are truly "Made in Germany".

Our production engineering uses the advantages of lean production processes and intelligent automation to ensure we are consistently fast and flexible.

WERMA is DIN EN ISO 9001: 2008 certified. Our processes and products are the subject of rigorous testing to guarantee consistently high quality levels.



# Contents

## New Products and Awards

New Products .....	6
Awards.....	9

## Systems for Process Optimisation in Production, Assembly and Logistics areas

Page .....	11
------------	----

## Signal Towers · Modular

Page .....	29
------------	----

## Signal Towers · Completely pre-assembled

Page .....	71
------------	----

## Optical Signal Devices · Installation Beacons

Page .....	95
------------	----

## Optical Signal Devices · Free-standing Beacons

Page .....	119
------------	-----

## Optical-Audible Signal Devices

Page .....	187
------------	-----

## Audible Signal Devices

Page .....	225
------------	-----

## Ex Signal Devices

Page .....	267
------------	-----

## Technical Diagrams

Page .....	293
------------	-----

## Sales Network

Page .....	342
------------	-----

## General Information

Page .....	346
Product Number Index.....	364

# Where can I find ... ?

Customer satisfaction is our highest priority. Your wishes and requirements come first at all times and with this in mind we are constantly improving our service and product range.

To help find your way through our extensive catalogue we have compiled a navigation guide.

**In this way you can find everything you need in no time at all !**

## Technical data

The product specific technical data includes dimensions, fixing options, and connection possibilities.

This information can be found on the relevant product page in our catalogue under the heading "Technical specifications".



## Order specifications

The order number of a product is to be found after the technical data on the relevant page.

The order numbers for specific colours and voltages are listed here.



## Accessories

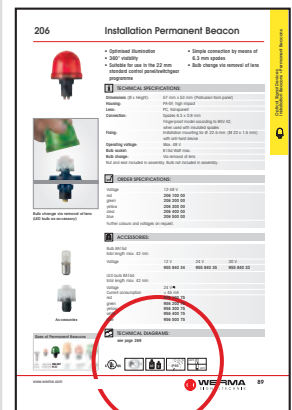
Our extensive range of product accessories can be found either immediately on the relevant catalogue page or on the following page.



## Weight, protection rating, temperature, sound output, approvals

Important data relating to our products can be found on the relevant catalogue page in form of pictograms.

The key to these icons is to be found on page 346 of this catalogue.







## Technical diagrams

A detailed drawing of each product can be found under the heading "Technical Diagrams" (from page 294 onwards).

The exact page number for the required drawing is given on the product page.



## Sales Network

In this section you can find details of our subsidiary companies and German agencies (page 343).

Details of our international sales network can be found on **www.werma.com**.



## General information

Basic information and explanations about our products and services can be found under the heading "Technical Information" (from page 346 onwards).

- Catalogue data
- Norms and marks of conformity
- Meaning of optical and audible signals
- Sound output
- Protection ratings
- Many other interesting pieces of information



General Information

## Looking for a specific product?

If you are looking for a specific product, the quickest way to find it is to look at our "Article Number Index" (page 364) or our "Contents" (page 3).



# New Products

## Signal Towers · Modular

### 645/844 Vocal element for KombiSIGN 70 and 71



- 102 dB high output vocal element
- Sound output level can be triggered externally

Page 41 + 56

### 640/840 Terminal element M12 for KombiSIGN 70 and 71



- With practical M12 connector
- Quick and easy installation

Page 43 + 58

### 845 Terminal element with CAGE CLAMP® technology for KombiSIGN 50



- Quick and easy wiring with CAGE CLAMP® technology
- Tube and single hole mounting without the need for accessories

Page 65

### 845 Terminal element for KombiSIGN 50



- Tube and single hole mounting without the need for accessories
- Quick and easy wiring

Page 65

## Signal Towers · Completely pre-assembled

### 698/699 LED Signal Tower KOMPAKT 37



- Pre-assembled signal tower with max. 5 tiers
- With or without buzzer

Page 74 + 75

## Optical Signal Devices · Installation Beacons

### 816 LED Permanent Beacon Multicolour with clear and opaque lens



- 7 colours in one beacon
- With clear or opaque lens

Page 111

### 239 LED permanent light Multicolour with lens raised



- 5 colours in one beacon
- Multiple status warnings can be signalled by one beacon

Page 102

## Optical Signal Devices · Free-standing Beacons

### 280 Low-intensity Obstacle Light Type B



- with optional monitoring function for the 230 V version

Page 145

### 281 Low-intensity Obstacle Light Type B



- With robust glass/metal housing
- Salt water resistant

Page 146

## Accessory

### 960 Corner Fixing Bracket



- For fixing on 90° corners
- Signal device is visible from two sides

Page 68

### 960 Foldaway base



- Signal tower can be folded away
- Positioning in 0° and 90°

Page 69

## Further information

The technical information, order specifications and accessories for our new products can be found on the relevant **product page**.

The **technical diagrams** of our new products are in the "Technical diagrams" section from page 294 onwards.

You are welcome to request the technical diagrams in digital form. The relevant **3D models**, **instruction leaflets** and **connection diagrams** can be obtained from us or downloaded from our homepage at any time.

The **sounds** of the audible and optical-audible signal devices can be played from our website [www.werma.com](http://www.werma.com).



## TIP

### Configurator

The Signal Device Site on the internet: [www.werma.com](http://www.werma.com)

You can select quickly and simply the required **KombiSIGN** signal tower, **Kompakt 37** or **traffic light types 890/853/153** using this tool. The tool guides you through the selection process with clear and concise images and questions and enables you to make your required selection in just a few mouse clicks.





# Customised products

## From your idea to the final product

Not without good reason do we claim to be European market and innovation leaders in signal technology. The customer is the focus of all our activities.

Putting the customer first means that we have to be able to meet special requirements both in terms of design, manufacture, service and availability. Our highly vertical manufacturing allows us to be very flexible and respond to your requests easily and quickly. It goes without saying that we deliver quality and all of our products meet ISO 9001:2008.

## Modular and pre-assembled signal towers



WERMA is well known for its large range of modular signal towers. We have an appropriate product/accessory for just about any application. The modular system of signal towers allows you to customise the design of the tower to your specific requirement. On request, products such as the KombiSIGN towers can be supplied fully assembled or provided with a cable or connector. This enables quick and simple installation on site.

### Further features of our modular range of towers:

- Products for **all common voltages**
- **Wide variety** of optical and audible signal elements
- **Mix and match** according to your requirements
- **Large selection** of accessories
- **Versatile and flexible** solution possibilities

## Customised design

Life in the modern industrial world is characterised by the fast pace of technological development. Guidelines for Corporate Identity and Corporate Design are being implemented and experienced in all walks of business life, including also in the design of machinery and equipment. The individual corporate design of a machine and its accessories conveys the manufacturer's quality statement to the customer. Design, colour and aesthetics are increasingly considered as important purchase criteria and the design of the product is increasingly becoming a strategic competitive factor and is the key to strong innovation.

We are able to offer individual colours, designs and voltages for almost every signal device. Uniform colour and design can enhance the overall appearance of the machine or equipment upon which the signal device is fitted.



## Design as a strategic competitive factor

The term design is of course fundamental to the development process of a piece of machinery and has mostly an effect on potential purchasers when it is regarded as unique and special in some way. It is very important that all components fit and work together perfectly, since signal devices are visible and form part of the design of the machine.

Simply specify us the design you want and we will do the rest. Experts will advise you on design options in order to get the best possible result: aesthetics and signal technology merged into your customised signal device.

# Award-winning design

## Design and function must be right - from the very start

From the outset, we ensure that only select and **high-quality materials** are employed to guarantee that our products operate safely and reliably. WERMA signal devices need to **stand out**. At the same time, they must blend into the background when non-operational. We therefore carefully create **optimum light and perfect sound** in all WERMA products - and dedicate considerable effort to making them look good.



Christian Höhler, WERMA R + D Director explains: „**Aesthetics and quality** are important. Both must enhance the products' **signalling function** in the best way possible! To this end, we frequently work with **external designers**. These designers ensure that WERMA products look attractive. Our engineers are then responsible for creating **the highest level of functionality**.

In this way we create an attractive form for the best possible signalling performance. We want our customers to benefit from their WERMA signal devices for a long time to come!”

## WERMA designer products provide many benefits

WERMA signal devices are attractive in design. In our opinion, good design means that:

- WERMA products are **aesthetically pleasing and innovative**
- **Designs for all tastes** are available to ensure our customers are in line with current trends
- WERMA signal devices are **ergonomic and function reliably**






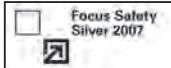










Customers benefit from a product that:

- is perfectly suited to their application
- either **blends into the background** or **purposely stands out**
- works perfectly and looks fantastic

The end result is a high-quality housing combined with the best of signalling functions for your machine - all designed to **increase the quality and reliability** of your application.

## Award-winning design by WERMA

Experts regularly assess the design quality of WERMA products. Products that meet the strict requirements are awarded the most highly-regarded **design prizes** from all over the world:

<b>LED Signal Tower deSIGN 42</b>  	<b>Rotating Mirror Beacon 885</b>  	<b>424/425 Combination</b>  	<b>444 Combination</b>  
<b>LED Traffic Light 894</b>  	<b>LED Signal Tower VarioSIGN 690</b>  	<b>434/435 Combination</b>  	<b>TOP 100</b>  







# Overview Systems for Process Optimisation in Production, Assembly and Logistics areas



## Machine Data Collection Systems (MDC Systems)

### WIN - Wireless Information Network



For KombiSIGN  
70 and 71  
Page 12

## Manual Call Systems

### AndonCONTROL



For KombiSIGN  
70 and 71  
Page 22

### AndonSWITCH



For signal towers  
Page 23

### AndonBOX



For signal towers  
Page 24

### Connection Set



For KombiSIGN  
70 and 71  
Page 25

## Wireless Call Systems

### KombiSIGN reflect



For KombiSIGN  
70 and 71  
Page 27

## Further Information

Further Information about „KombiSIGN signal towers“ can be found in the chapter „Signal Towers“ beginning on page 29.

**TIP**

You can find more information on these products at [www.werma.com](http://www.werma.com).



# MDC Systems

## Recognise the potential with WIN

Delivery performance, smaller batch sizes, increasing competition and pressure on costs are all common issues for companies nowadays. In order to deal with all of these issues greater attention has to be paid to flexibility, transparency and efficiency.

Without technical support it is virtually impossible to reduce downtime, shorten production times and at the same time install a comprehensive works monitoring system in order to make the best use of the capacity available.

## Machine Shop Monitoring quickly and simply with WIN



WERMA offers an easy to install simple low cost wireless monitoring system called **WIN** (Wireless Information Network) which can be fitted to virtually any piece of equipment or machinery, irrespective of age and specification. WIN combines signal tower technology with wireless technology and an ingenious software package. The common interface point on machines is a WERMA signal tower to which the WIN (MDC - Machine Data Collection) system can be easily fitted and commissioned.

## Analyse Productivity at the touch of a button with WIN

An additional element called the "WIN slave/transmitter" is fitted to the KombiSIGN signal tower. This transmitter transfers machine status information wirelessly to the "WIN master/receiver".

The "WIN master/receiver" is connected by USB to a PC and can receive data from up to 50 "WIN slaves/transmitter" each reporting a maximum of 8 different status conditions.

## Counter module with WIN slave performance/WIN transmitter performance

The second piece of hardware called "WIN slave performance/transmitter performance" offers a counting module alongside the traditional monitoring functions. This module monitors up to six different status conditions and counts the piece part output signal from a machine.



## Excellent transmission range with Wireless Technology

The WIN system has a transmission range (unobstructed line of sight) of 300 m although this will vary according to the construction of the building. In addition, as each "WIN slave/transmitter" acts as a repeater, effective transmission distances in a network of "WIN slaves/transmitter" can be extended to a maximum of

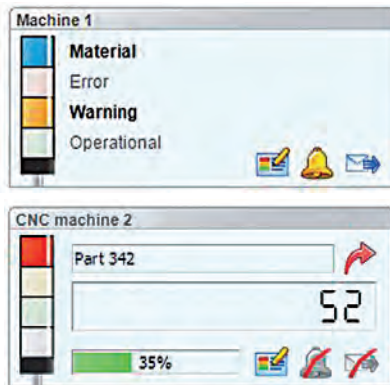
900 m distance between "WIN slave/transmitter" and "WIN master/receiver". The low frequency (EU: 868 MHz/USA: 915 MHz) the system uses provides better transmission characteristics than other systems such as WLAN and Bluetooth.

## The intuitive WIN software

The software supplied with the system is licence-free and easy to install. There is no restriction on the number of users who may wish to install and run the program.

The software displays the status condition of signal lights installed in the system and the user can select from three languages, German, English or French. The software enables the user to analyse runtimes, identify causes of disruption in operations and therefore improve efficiency.

# WIN - Software information and functions at a glance

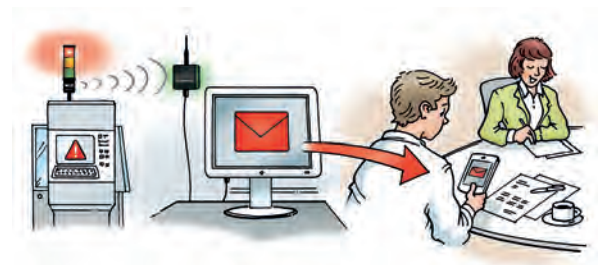


## React quickly with the Control Station

You can quickly see if a machine is in an error condition or running normally. This module helps you to quickly take action to reduce downtime.

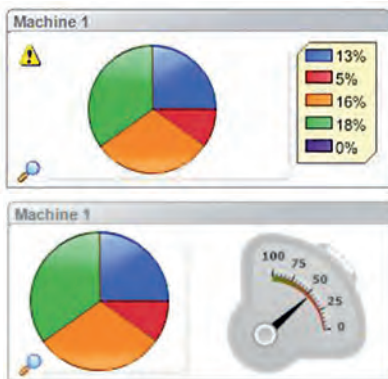
## The messaging function keeps you in touch all the time

It is no problem for WIN to keep you informed anytime anywhere about condition changes. For example a condition change can trigger an email to be sent automatically to a PC or smart phone. You can select for which machines and which condition changes an email is generated and also set a time delay before the email is sent.



## Increase efficiency with the Productivity Module

Using the Productivity Module you can check the productivity of your machines and workstations over any time period. You can look for example at the last working day, or define specific time periods such as shift patterns. Using this module it is possible to retrospectively analyse downtime and fault conditions and thus help improve efficiency in the future.



## Production transparency in the Runtime module

The Runtime Module allows you to check the operation and downtimes of your machines or workstations. Using this module you will quickly establish if there are patterns of downtime or fault conditions thus giving you a better transparency of production. This will then form the basis for improving the efficiency of your production processes.





# WIN - Software information and functions at a glance



## Document problems with the error analysis

Identify, comment and analyse the fault conditions. First of all define the most common reasons for fault status occurring, for example material shortage. Should this condition, or any other defined condition arise, once you have identified the reason for the fault condition this can be entered as a "note" in the Runtime Module.

The number of fault conditions will also be shown and thus will assist in resolving the reasons for the frequency of particular fault conditions.

## Include a range of users with the Multiple Operator Access

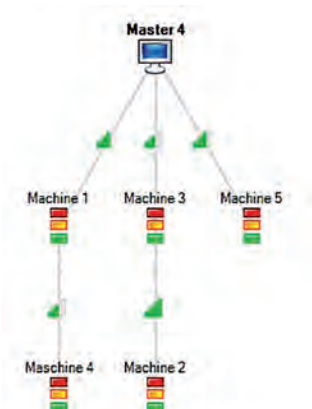
The software uses a structure based on a database and can be used by any number of users. The database needs to be copied over to a shared drive on your network to allow multiple users access to the system. There is no restriction on the number of users who can install the licence-free software and work with it. All users who have the software installed on their PC and have access to the shared drive database can see the performance of machines or workstations in real time and edit the views to their personal requirements.



Description	Status	Fulfillment level
Part 21	Completed	100%
Part 78	Completed	100%
Part 43	Completed	100%
Part 500	Completed	100%
Moulding part P20123	Completed	100%
Tool 556	Running	39%
Tool 25	Running	39%
Part 677	Waiting	0%
Part 322	Waiting	0%
Part 456	Waiting	0%

## Overview of jobs being run

The module gives you a comprehensive overview of which job is running on which machine and how the job is progressing. Future planned jobs are shown as "waiting" and can be initiated as soon as the machine required is available.



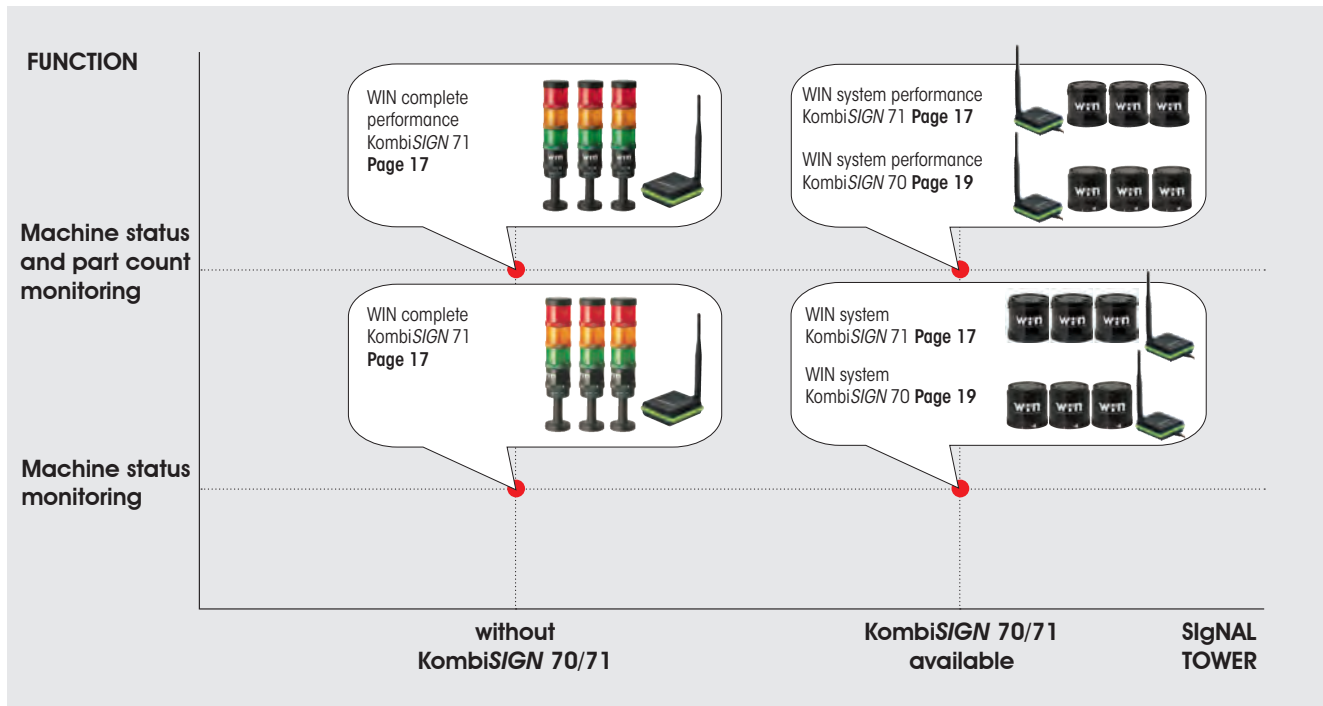
## Stability of the Network with the Routing Module

The Routing Module assists in setting up or adjusting the best network for WIN. The route network graphic shows the current set up of the WIN network and the signal strength of each "WIN slave/transmitter" or WIN slave performance/transmitter performance". Each "WIN slave/transmitter" will automatically select the best route back to the "WIN master/receiver" either directly, or indirectly.

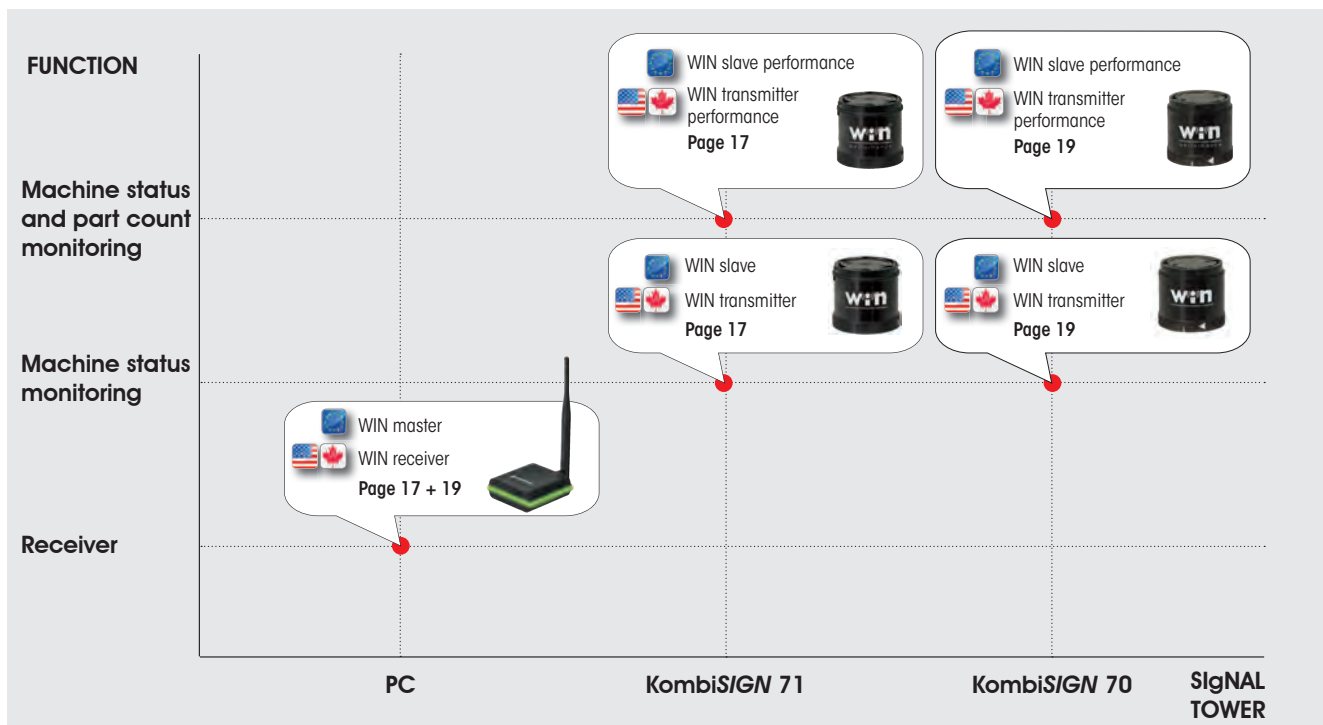


# Quick Finder - MDC Systems

## Starter Kits



## Additional Items



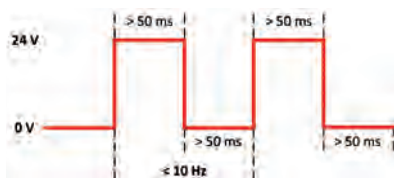
Please check the wireless frequency. In Europe the version with 868 MHz is used. In North America the version with 915 MHz is used. Please enquire about use in other countries.



WIN slave/transmitter and  
WIN slave performance/  
transmitter performance



The software package allows you to  
monitor a production area or  
individual workstations from  
the comfort of the PC



The counter impulse of the WIN slave/  
transmitter performance is max. 10 hz



Expandable at any time: With  
additional "WIN slaves/transmitter"  
up to 50 machines can be  
integrated into the network

- Economical wireless-based Machine Data Collection system (MDC system)
- Analyse and improve production processes
- Monitor the status of machines
- Easy to install, intuitive software



#### TECHNICAL SPECIFICATIONS:

Patent  
approved



##### WIN slave / WIN transmitter

Dimensions (Ø x Height):	70 mm x 65.5 mm
Housing:	PC, black
Connection:	Bayonet
Operating voltage:	24 V AC/DC
Current consumption:	40 mA, max. 430 mA



##### WIN slave performance / WIN transmitter performance

Dimensions (Ø x Height):	70 mm x 65.5 mm
Housing:	PC, black
Connection:	Bayonet
Operating voltage:	24 V AC/DC
Current consumption:	40 mA, max. 430 mA
Counter input:	Max. 10 Hz



##### WIN master / WIN receiver

Dimensions (L x H x W):	76 mm x 30 mm x 80 mm (without antenna)
Housing:	ABS, black
Connection:	Via USB
Operating voltage:	Via USB (5 V DC)
Current consumption:	< 100 mA
Counter input:	Windows XP SP 3, Windows Vista SP 2, Windows 7, Windows 8, Windows Server 2003 SP 2, Windows Server 2008

#### Wireless connection

##### ISM frequency:



868 MHz  
(WIN conforms to the EU's  
EN 300220 harmonised  
standard and can thus be  
used in all EU member



915 MHz  
(only for use in  
North America)

countries.)

Further countries upon request

##### Transmission range:

Up to 300 m (unobstructed line of sight)  
Every WIN slave (performance) / WIN transmitter  
(performance) simultaneously functions as a "repeater",  
enabling the transmission range to be significantly increased.



"WIN complete" is immediately ready for use and consists of three signal towers, three WIN slaves/transmitters (performance) and the WIN master/receiver



Fit WIN slaves/transmitters to an existing WERMA signal tower and connect the WIN master/receiver to the PC



Machine status and part count monitoring in one element:  
WIN slave performance/  
WIN transmitter performance



## ORDER SPECIFICATIONS:



### STARTER KITS

WIN complete for KombiSIGN 71 860 640 03 860 640 06

Assembly: WIN master/receiver, 3 WIN slaves/transmitters  
KombiSIGN 71 (pre-configured), 3 signal towers  
KombiSIGN 71 (LED permanent light elements in red, yellow and green, terminal element, base with integrated tube), software, USB cable

WIN complete performance KombiSIGN 71 860 640 13 840 640 16

Assembly: WIN master/receiver, 3 WIN slaves/transmitters  
performance KombiSIGN 71 (pre-configured),  
3 signal towers KombiSIGN 71 (LED permanent light elements in red, yellow and green, terminal element, base with integrated tube), software, USB cable

WIN system for KombiSIGN 71 860 640 01 840 640 04

Assembly: WIN master/receiver, 3 WIN slaves/transmitters  
KombiSIGN 71 (pre-configured), software, USB cable

WIN system performance for KombiSIGN 71 860 640 11 840 640 14

Assembly: WIN master/receiver 3 WIN slaves/transmitters  
performance KombiSIGN 71 (pre-configured), software, USB cable

### ADDITIONAL ITEMS

WIN slave for KombiSIGN 71 860 640 02 -

Assembly: WIN slave (not pre-configured)  
Both networks can be fitted with up to 50 WIN slaves.

WIN transmitter for KombiSIGN 71 - 860 640 05

Assembly: WIN transmitter (not pre-configured)  
Both networks can be fitted with up to 50 WIN transmitters.

WIN slave performance for KombiSIGN 71 860 640 12 -

Assembly: WIN slave performance (not pre-configured)  
The network can be expanded to up to 50 WIN slaves performance per network as required.

WIN transmitter performance for KombiSIGN 71 - 860 640 15

Assembly: WIN transmitter performance (not pre-configured)  
The network can be expanded to up to 50 WIN transmitter performance per network as required.

WIN master 860 000 00 -

Assembly: WIN master with USB cable, software

WIN receiver - 860 000 01

Assembly: WIN receiver with USB cable, software



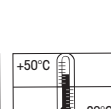
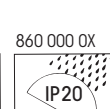
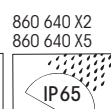
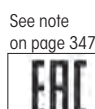
### ADDITIONAL INFORMATION:

Please check the wireless frequency. In Europe the version with 868 MHz is used.  
In North America the version with 915 MHz is used. Please enquire about use in other countries.



### TECHNICAL DIAGRAMS:

see page 322







WIN slave/transmitter and  
WIN slave performance/  
transmitter performance

- Economical wireless-based Machine Data Collection system (MDC system)
- Analyse and improve production processes
- Monitor the status of machines
- Easy to install, intuitive software



#### TECHNICAL SPECIFICATIONS:

Patent  
approved



#### WIN slave / WIN transmitter

Dimensions (Ø x Height):	70 mm x 65.5 mm
Housing:	PC, black
Connection:	Bayonet
Operating voltage:	24 V AC/DC
Current consumption:	40 mA, max. 430 mA



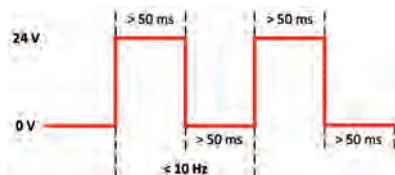
#### WIN slave performance / WIN transmitter performance

Dimensions (Ø x Height):	70 mm x 65.5 mm
Housing:	PC, black
Connection:	Bayonet
Operating voltage:	24 V AC/DC
Current consumption:	40 mA, max. 430 mA
Counter input:	Max. 10 Hz



#### WIN master / WIN receiver

Dimensions (L x H x W):	76 mm x 30 mm x 80 mm (without antenna)
Housing:	ABS, black
Connection:	Via USB
Operating voltage:	Via USB (5 V DC)
Current consumption:	< 100 mA
Counter input:	Windows XP SP 3, Windows Vista SP 2, Windows 7, Windows 8, Windows Server 2003 SP 2, Windows Server 2008



The counter impulse of the WIN slave/  
transmitter performance is max. 10hz



The WIN system has a transmission  
range (unobstructed line of sight)  
of 300 m

#### Wireless connection

##### ISM frequency:



868 MHz  
(WIN conforms to the EU's  
EN 300220 harmonised  
standard and can thus be  
used in all EU member



915 MHz  
(only for use in  
North America)

countries.)

Further countries upon request

##### Transmission range:

Up to 300 m (unobstructed line of sight)  
Every WIN slave (performance) / WIN transmitter  
(performance) simultaneously functions as a "repeater",  
enabling the transmission range to be significantly increased.





Plug and play with WIN system:  
Fit WIN slaves to an existing WERMA  
signal tower and connect the WIN  
master/receiver to the PC



The software shows the status  
of signal towers connected  
to the system



Expand the network at any time.  
You can monitor up to 50 machines  
within the WIN system



## ORDER SPECIFICATIONS:



### STARTER KITS

WIN system for KombiSIGN 70	860 840 01	840 840 04
Assembly: WIN master/receiver, 3 WIN slaves/transmitters KombiSIGN 70 (pre-configured), software, USB cable		

WIN system performance for KombiSIGN 70	860 840 11	840 840 14
Assembly: WIN master/receiver 3 WIN slaves/transmitters performance KombiSIGN 70 (pre-configured), software, USB cable		

### ADDITIONAL ITEMS

WIN slave for KombiSIGN 70	860 840 02	-
Assembly: WIN slave (not pre-configured) Both networks can be fitted with up to 50 WIN slaves.		

WIN transmitter for KombiSIGN 70	-	860 840 05
Assembly: WIN transmitter (not pre-configured) Both networks can be fitted with up to 50 WIN transmitters.		

WIN slave performance for KombiSIGN 70	860 840 12	-
Assembly: WIN slave performance (not pre-configured) The network can be expanded to up to 50 WIN slaves performance per network as required.		

WIN transmitter performance for KombiSIGN 70	-	860 840 15
Assembly: WIN transmitter performance (not pre-configured) The network can be expanded to up to 50 WIN transmitter performance per network as required.		

WIN master	860 000 00	-
Assembly: WIN master with USB cable, software		

WIN receiver	-	860 000 01
Assembly: WIN receiver with USB cable, software		



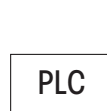
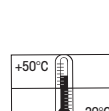
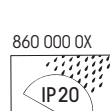
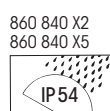
## ADDITIONAL INFORMATION:

Please check the wireless frequency. In Europe the version with 868 MHz is used.  
In North America the version with 915 MHz is used. Please enquire about use in other  
countries.



## TECHNICAL DIAGRAMS:

see page 323



# Manual Call Systems



## Andon products for process optimisation

Production and logistics experts are increasingly focussing on the implementation of lean management methods. The aim of a holistic approach to lean management is to optimally coordinate every activity within the value creation chain and thus eliminate all types of waste.

WERMA now offers an optimal solution for lean production implementation:  
**The Andon Products for Signal Towers.**

## What does “Andon” stand for?

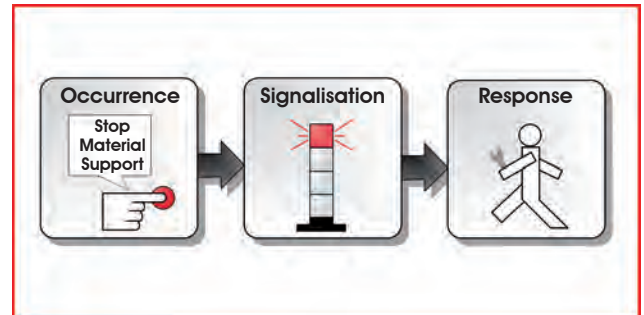
The term “Andon” originates from Japan. A signal tower or beacon mounted in a prominent position signals that a problem has arisen and requests an immediate response.

WERMA'S manual call systems function according to the same principle: when an optical or audible signal is activated the supervisor or logistics employee is made aware of the fact that an immediate response is required. Each workstation that is equipped with these products enables the employee to precisely and instantaneously signal which type of issue has occurred at the touch of a button. With the aid of optical and/or audible signals the system then displays the corresponding information.

## Flexible call system

The use of call systems not only improves the efficiency of production processes but decisively contributes to the effective use of resources, creates cost savings and increases the ability to flexibly respond to market changes.

WERMA'S manual call systems can be used in a wide range of applications: from optimising kanban processes to production workstations or packaging areas in shipping departments.



## AndonCONTROL streamlines the delivery of material to manual workstations





# Quick Finder - Manual Call Systems

Quick Finder: Installation type, position of signal tower and number of status conditions that can be activated

TYPE OF INSTALLATION	POSITION OF THE SIGNAL TOWER			NUMBER OF STATUS CONDITIONS
	Signal tower mounted directly on Andon product	Signal tower mounted separately from Andon product	Signal tower mounted separately from Andon product	
Base mounting	AndonCONTROL Page 22 	AndonSWITCH Page 23 	AndonBOX Page 24 	
Wall mounting	AndonCONTROL + Bracket 975 883 01 Page 22 	AndonSWITCH + Bracket 975 883 01 Page 23 	AndonBOX Page 24 	
Mounting on aluminium profile	AndonCONTROL + Bracket 975 883 01 Page 22 	AndonSWITCH + Bracket 975 883 01 Page 23 	AndonBOX Page 24 	
	8 States	8 States	4 States	

## Wireless technology provides a complete overview

In larger production areas several workstations are often outside of the supervisor's line of sight. For situations such as these WERMA offers an optimal solution: a combination of manual call systems and MDC systems creates a central overview of the current status of up to 50 workstations at the same time.

Simple integration of the "WIN slave/transmitter" into the signal tower enables this supplementary function to be used. The WIN slave/transmitter transmits data via wireless technology to the WIN master/receiver, which is connected to a central PC.



## Process optimisation and greater efficiency

With the help of the user-friendly WIN software, various productivity analysis tools can also be implemented. The concise software display interface enables intuitive operation and helps to gain a good overview of the integrated workstations.

The WIN system is also equipped with a messaging functionality. WIN sends occurrence-specific e-mails so that information is reliably and punctually transmitted to the correct person, independent of their location. The main aim is to achieve shortened response times and greater efficiency for specifically defined processes whilst ensuring clearly defined areas of responsibility amongst production staff. In large production departments, the reduction in workload and inestimable time and cost benefits are particularly valuable.



860

# AndonCONTROL for KombiSIGN 70 and 71



AndonCONTROL is a simple call system for a wide variety of applications



Instant status activated by push button



The four push buttons can be individually labelled

- Instant status display at the touch of a button to aid process optimisation
- Smart electronics enable the activation of up to eight different states
- For use with an integral signal tower
- Universal power supply and interchangeable adaptors enable worldwide use



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	KombiSIGN 70: 136 mm x 49.5 mm KombiSIGN 71: 136 mm x 45.5 mm
Housing:	Base: PC/ABS Terminal element: PA-GF, shock resistant
Fixing:	Base mounting, Bracket mounting (accessory)
Number of signal elements:	Max. 4 additional signal elements possible
Assembly:	AndonCONTROL, power supply unit with connection cable (length 1.8 m), interchangeable adaptors for EU, UK, North America, rubber feet, cable connection



## ORDER SPECIFICATIONS:

Voltage power supply unit	100-240 V AC
Voltage signal elements	24 V DC
Current consumption	Max. 1 A
AndonCONTROL for KombiSIGN 70	<b>860 840 07</b>
AndonCONTROL for KombiSIGN 71	<b>860 640 07</b>



## ACCESSORIES:

Mounting bracket, metal	<b>975 883 01</b>
-------------------------	-------------------



## ADDITIONAL INFORMATION:

The smart electronics in AndonCONTROL can activate up to eight different status conditions (permanent or blinking light). A signal tower mounted directly on the AndonCONTROL product can signal the different states.

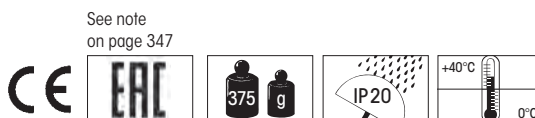
Suitable for all KombiSIGN 70 and 71 signal towers.

Further information and order details for KombiSIGN 70 and 71 can be found in the chapter "modular signal towers" on page 29.



## TECHNICAL DIAGRAMS:

see page 324



See note  
on page 347





AndonSWITCH helps visualise the active state via illuminated switches



The mounting bracket can be used to fix AndonSWITCH to an aluminium profile and activate a remote signal tower



Interchangeable adaptors (included in assembly) and wide input voltage range make the Connection Set suitable for worldwide use

- A simple call system for various applications such as manual workstations
- Smart electronics with illuminated switches enable the activation of up to eight different states
- For use with a signal tower installed away from the Andon product
- Universal power supply and interchangeable adaptors enable worldwide use



#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	136 mm x 19 mm
Housing:	Base: PC/ABS Terminal element: PA-GF, shock resistant
Fixing:	Base mounting, Bracket mounting (accessory)
Connection:	Via M12 plug (8 pole)
Number of signal elements:	Max. 4 additional signal elements possible
Assembly:	AndonSWITCH, power supply unit with connection cable (length 1.8 m), interchangeable adaptors for EU, UK, North America, rubber feet, cable connection



#### ORDER SPECIFICATIONS:

Voltage power supply unit	100-240 V AC
Voltage signal elements	24 V DC
Current consumption	Max. 1 A
AndonSWITCH	860 000 04



#### ACCESSORIES:

Mounting bracket, metal	975 883 01
Cable 5 m with M12 plug (8 pole)	960 860 01
Cable 5 m with M12 connector and plug (8 pole)	960 000 46



#### ADDITIONAL INFORMATION:

The smart electronics and illuminated switches of AndonSWITCH can activate up to eight different status conditions (permanent or blinking light). A signal tower installed away from the Andon product using a connection cable can signal the different states.

Suitable for all KombiSIGN signal towers.

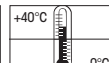
Further information and order details for the modular KombiSIGN 70 and 71 can be found in the chapter "modular signal towers" on page 29 and for the "pre-assembled" signal towers on page 71.



#### TECHNICAL DIAGRAMS:

see page 321

See note  
on page 347



**WERMA**  
SIGNALTECHNIK





AndonBOX for use in industrial applications



The switch caps can be easily clicked into place; space is also available for additional labelling



Coloured coded switch caps in five different colours: yellow, red, green, blue, white

- Instant status display at the touch of a button to aid process optimisation
- The robust AndonBOX is ideally suited to meet the demands of industrial applications
- For use with a signal tower installed away from the Andon product
- Universal power supply and interchangeable adaptors enable worldwide use



#### TEChNICAL SPECIFICATIONS:

Dimensions (B x H x T):	161 mm x 79 x 138 mm
Housing:	PA
Fixing:	Base mounting, Wall mounting
Connection:	Via M12 plug (8 pole)
Number of signal elements:	Max. 4 additional signal elements possible
Assembly:	AndonBOX, power supply unit with connection cable (length 1.8 m), interchangeable adaptors for EU, UK, North America, coloured switch caps (red, yellow, green, white, blue)



#### ORDER SPECIFICATIONS:

Voltage: power supply unit	100-240 V AC
Voltage: signal elements	24 V DC
Current consumption	Max. 1 A
AndonBOX	<b>860 000 03</b>



#### ACCESSORIES:

Cable 5 m with M12 plug (8 pole)	<b>960 860 01</b>
Cable 5 m with M12 connector and plug (8 pole)	<b>960 000 46</b>



#### ADDITIONAL INFORMATION:

Up to four different status changes can be activated using the four push button switches on the robust AndonBOX. A signal tower installed away from the box using a connection cable can signal the different states.

Suitable for all KombiSIGN signal towers.

Further information and order details for the modular KombiSIGN 70 and 71 can be found in the chapter "modular signal towers" on page 29 and for the "pre-assembles" signal towers on page 71.

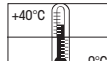


#### TEChNICAL DIAGRAMS:

see page 321



See note  
on page 347





The Connection Set is available for KombiSIGN 70 and 71 signal towers



With the aid of the connection set, the master/receiver from KombiSIGN reflect can be used wherever an electrical socket is available



Interchangeable adaptors (included in assembly) and wide input voltage range make the Connection Set suitable for worldwide use

- Ideal supplement to "WIN" (Wireless Information Network) to expand the transmission range
- Signal Tower "reflection" to any location with the aid of KombiSIGN reflect
- Simple installation as no additional cable is required
- Universal power supply and interchangeable adaptors enable worldwide use



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	KombiSIGN 70: 136 mm x 49.5 mm KombiSIGN 71: 136 mm x 45.5 mm
Housing:	Base: PC/ABS Terminal element: PA-GF, shock resistant
Fixing:	Base mounting, Bracket mounting (accessory)
Number of signal elements:	Max. 4 additional signal elements possible
Assembly:	Connection Set, power supply unit with connection cable (length 1.8 m), interchangeable adaptors for EU, UK, North America, rubber feet, cable connection



## ORDER SPECIFICATIONS:

Voltage power supply unit	100-240 V AC
Voltage signal elements	24 V DC
Current consumption	Max. 1 A
Connection Set for KombiSIGN 70	<b>860 840 08</b>
Connection Set for KombiSIGN 71	<b>860 640 08</b>



## ACCESSORIES:

Mounting bracket, metal	<b>960 860 01</b>
-------------------------	-------------------



## ADDITIONAL INFORMATION:

- **Use with KombiSIGN reflect:** The KombiSIGN reflect master/receiver in conjunction with the Connection Set can be used anywhere an electrical socket is available. In this way, the status warning displayed by a remote signal tower can be "reflected" for example to an office location.

Information and order details for KombiSIGN reflect can be found on pages 26 and 27.

- **Use with WIN:** Together with the Connection Set each WIN slave/transmitter can be installed as a "repeater" anywhere an electrical socket is available, thus expanding the transmission range.

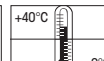
Further information on WIN can be found on page 12.



## TECHNICAL DIAGRAMS:

see page 323

See note  
on page 347



# Wireless Call Systems



## get your machines in view - with KombiSIGN reflect

Do you want

- to monitor machines that are out of view?
- to improve the productivity and efficiency of your machines?
- to react quickly and safely in the event of malfunctions?
- to save costs?

Then WERMA has the solution for you!

## Signal tower „reflection“

WERMA Signaltechnik provides a simple solution for the remote wireless monitoring of machinery.

KombiSIGN reflect **“reflects” the status of the machine** to a signal tower within your line of sight. This enables you to wirelessly monitor machines situated at a greater distance and respond quickly to malfunctions. With KombiSIGN reflect, even machines which were not previously network-capable can now be remotely monitored.

KombiSIGN reflect is available for the WERMA KombiSIGN 70 and 71 signal tower ranges. The kit consists of two elements that transmit and receive the data via wireless signal (**slave/transmitter and master/receiver**).

\*  slave and master  transmitter and receiver



KombiSIGN reflect consists of  
a slave/transmitter and a master/receiver

## KombiSIGN reflect: Simple „plug & play“ integration

The two KombiSIGN reflect elements are synchronised and **ready for immediate operation**. The signal towers located on the machines can simply be fitted with the KombiSIGN reflect slave/transmitter. A second identical signal tower, which you have previously selected from WERMA's KombiSIGN product range, is fitted with the KombiSIGN reflect master/receiver and placed within view.

The status of the first tower is then **immediately transmitted** to the second tower, where it is reflected one-to-one.

The system uses the **868 MHz (EU) or 915 MHz (North America)** frequency band and has a transmission range of up to 300 m (unobstructed line of sight). The indoor range may be less depending on the characteristics of the building.



The slave/transmitter sends the status directly to the master/receiver, and reflects the status of the signal tower installed on the machine

- Simple monitoring of signal towers out of view
- Signal tower "reflection" to a central location
- No additional wiring costs
- Simple commissioning due to pre-configured modules

### TECHNICAL SPECIFICATIONS:

#### Slave / Transmitter

Dimensions (Ø x Height):	70 mm x 65.5 mm
Housing:	PC, black
Connection:	Bayonet
Operating voltage:	24 V AC/DC
Current consumption:	40 mA

#### Master / Receiver

Dimensions (Ø x Height):	70 mm x 65.5 mm (without antenna)
Housing:	PC, black
Connection:	Bayonet
Operating voltage:	24 V DC
Current consumption:	40-900 mA

#### Wireless connection ISM frequency:



868 MHz (KombiSIGN reflect conforms to the EU's EN 300220 harmonised standard and can thus be used in all EU member countries).



915 MHz  
(only for use in  
in North America)

Further countries upon request

Transmission range: Up to 300 m (unobstructed line of sight)



### ORDER SPECIFICATIONS:



KombiSIGN 70 reflect	861 840 01	861 840 02
KombiSIGN 71 reflect	861 640 01	861 640 02



### ADDITIONAL INFORMATION:

Please check the wireless frequency. In Europe the version with 868 MHz is used. In North America the version with 915 MHz is used. Please enquire about use in other countries.



### TECHNICAL DIAGRAMS:

see page 324



Simple monitoring of  
signal towers out of view



Simply fit the KombiSIGN reflect  
slave/transmitter to the signal tower  
on the machine

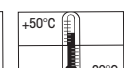


861 X40 02  
receiver: class 2

See note  
on page 347

861 640 0X

861 840 0X



**WERMA**  
SIGNALTECHNIK





# overview Signal Towers • modular

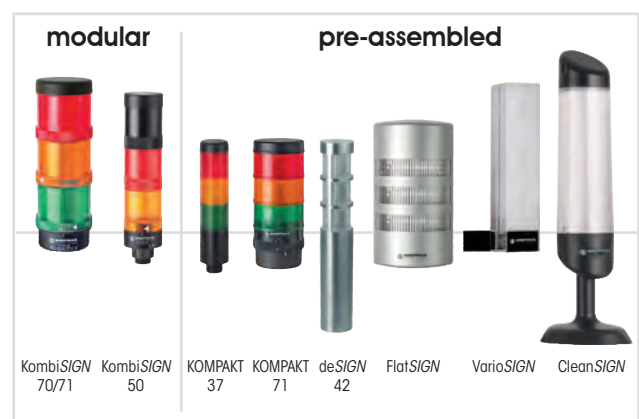
## Modular Signal Towers



## Accessories for KombiSIGN 50, 70 and 71



## Size comparison • Signal Towers



## Sound



The sounds can be played from our website [www.werma.com](http://www.werma.com) under the heading „Signal Towers“.

## Further Information

Further Information and applications for "Signal Towers" can be found in the chapter "Systems" beginning on page 11.

### TIP

The Signal Devices Site on the internet: [www.werma.com](http://www.werma.com)

With our "Configurator" you can put together a signal tower quickly and easily according to your requirements. The configurator interactively guides the user through a series of pictures and questions to create an individual signal tower solution in just a few clicks.





# KombiS/GN 70 and 71 Signal Towers



## Simple operation thanks to bayonet mechanism

WERMA was the first signal beacon manufacturer to offer a bayonet mechanism allowing elements to be mechanically and electrically connected within seconds.

- ✓ Simple mounting and removal of the elements
- ✓ New combinations at the twist of a hand
- ✓ Tool-free bulb change



## The advantages at a glance

- ✓ Signal elements in every common voltage
- ✓ Modular system allows combination as required
- ✓ High protection rating IP 54 or IP 65
- ✓ Wide range of optical and audible elements
- ✓ LED technology ensures even better visibility
- ✓ Attention-grabbing light effects (e.g. EVS)
- ✓ Wide range of terminal elements



# KombiSIGN 71 Signal Tower

## The Highlights for KombiSIGN 71

### 644 LED Permanent light element ultrabright



- Up to 20 times brighter than conventional LED elements
- Maximum brightness via intelligent LED control

See page 35

### 644 LED EVS element



- Attention-grabbing flickering light
- Extremely powerful signal effect
- Random sequence of light signals prevents acclimatisation effect

See page 36

### 644 LED Permanent light element multicolour



- 7 colours in one beacon
- Multiple status warnings can be signalled by one beacon
- High light intensity

See page 37

**NEW**

### 645 Vocal element



- 102 dB loud vocal element with excellent tone and sound quality
- Sound output level can be triggered externally

See page 40 + 41

### 645 Siren element with self-adjusting sound output



- Sound output is automatically adjusted to the background noise level
- Warning tone can be heard without being irritatingly loud

See page 42

**NEW**

### 640 Terminal element M12



- Quick and easy installation
- With practical M12 connector

See page 43

### 640 Terminal element with USB Interface



- Direct triggering of signal tower elements via USB Interface
- Easy activation

See page 43

### 646 AS-Interface element



- LEDs indicate current status
- 31 or 62 addresses
- Available with standard or A/B technology

See page 45

### Machine Data Collection Systems (MDC Systems)



- Wireless based machine data collection
- Monitoring and counting system for multiple machines

See page 12

### Manual Call Systems



- Improve the efficiency of production processes your operation.
- Indicate status conditions and problems at the touch of a button.

See page 20

## Further information

Further Information and applications for "Kombi SIGN Signal Towers" can be found in the chapter "Systems" beginning on page 11.





# Signal Towers KombiSIGN 71

## This is how you can assemble your KombiSIGN 71 signal tower

### ► STEP 1

Select the required optical or audible elements in the correct voltage (for details see page 33).

Many KombiSIGN highlights are also available (for details see page 31).



### ► STEP 2

Select the appropriate mounting option for your application.

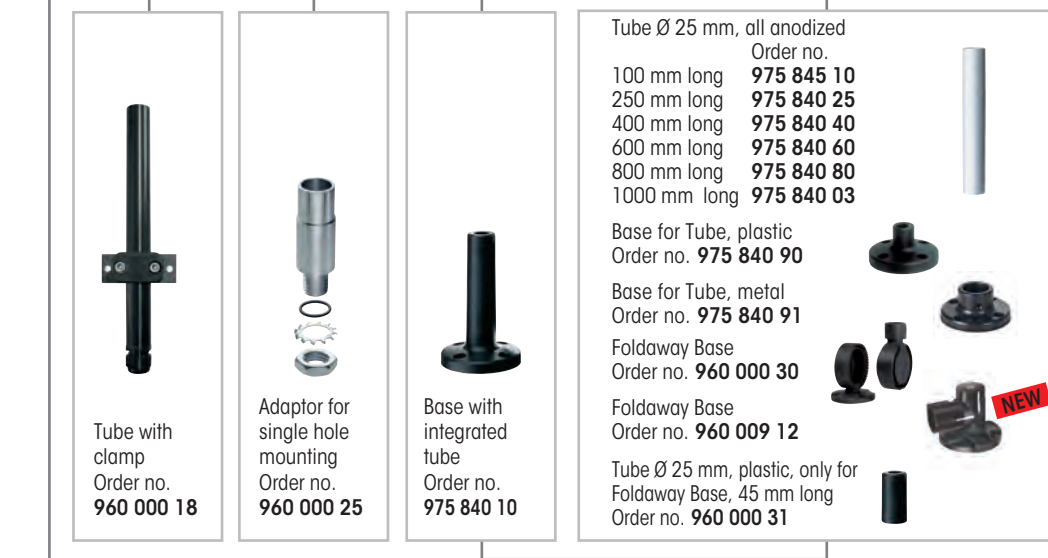
### ► STEP 3

Select the correct terminal element for your mounting option (for details see page 43).



### ► STEP 4

Where appropriate, select a base and the desired tube length (only for tube mounting) (For details see page 67).



### ► STEP 5

Where appropriate, select the bracket and the contact box (for details see page 67).



### TIP

The Signal Devices Site on the Internet: **www.werma.com**

With new **signal tower configurator** you can put together your own individual signal tower.



KombiSIGN signal tower  
with bracket (accessory)



Base with tube (accessory)

- Signal tower system 70 mm Ø  
with modular construction

- Improved illumination

### **i** TECHNICAL SPECIFICATIONS:

<b>Dimensions (Ø x Height):</b>	70 mm x 65.5 mm
<b>Lens:</b>	PC, transparent
<b>Socket:</b>	Bayonet, BA15d, for bulbs max. 5 W
<b>Element seal:</b>	Pre-mounted with each module
<b>Protection rating:</b>	IP 65

<b>Permanent light element</b>	12-240 V AC/DC Bulb not included in assembly. Life duration: Dependent upon the bulbs used
--------------------------------	---

<b>LED Permanent light element</b>	24 V AC/DC	115 V AC	230 V AC
Current consumption:	< 30 mA	< 20 mA	< 20 mA
Life duration:	50,000 hrs		

<b>LED Permanent light element ultrabright</b>	24 V DC
Current consumption:	Max. 195 mA
Life duration:	Up to 50,000 hrs
Technical specifications see page 35.	

<b>Flashing light element (Xenon)</b>	24 V DC	115 V AC	230 V AC
Current consumption:	125 mA	22 mA	15 mA
Life duration:	4 x 10 <sup>6</sup> flashes		
Reduced for AS-Interface:	80 mA		
Flash frequency:	C. 1 Hz		

<b>LED Flashing light element</b>	24 V DC
Current consumption:	< 30 mA (red/yellow) < 25 mA (green/ clear/blue)
Life duration:	50,000 hrs
Flash frequency:	C. 1 Hz (Double Flash)

<b>LED EVS* element</b>	24 V AC/DC
Current consumption:	350 mA (red/yellow) 250 mA (green/ clear/blue)
Life duration:	50,000 hrs

\* EVS = Enhanced Visibility System

Technical specifications see page 36.

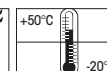
<b>LED Blinking light element</b>	24 V AC/DC	115 V AC	230 V AC
Current consumption:	25 mA	25 mA	25 mA
Life duration:	50,000 hrs		
Blink frequency:	C. 1 Hz		

<b>LED Rotating light element</b>	24 V AC/DC
Current consumption:	40 mA
Life duration:	50,000 hrs
Rotation frequency:	C. 120 r.p.m.

<b>LED Permanent light element multicolour</b>	24 V DC
Life duration:	50,000 h
Current consumption:	< 120 mA
Possible colours:	Red, yellow, green, white, blue, violet, turquoise
Technical specifications see page 37.	

643 X10 55  
Class 2

See note  
on page 347



24 V





(LED) Permanent/Flashing element

Permanent light element,  
clear with infoPatent  
approved

LED EVS element

Life duration  
up to 50,000 hrs

LED element



LED element (multicolour)



## ORDER SPECIFICATIONS OPTICAL ELEMENTS:

Permanent light element	12-240 V AC/DC
red	641 100 00
green	641 200 00
yellow	641 300 00
clear	641 400 00
blue	641 500 00

Bulb not included in assembly. Accessories see page 67.

LED Permanent light element	24 V AC/DC	115 V AC	230 V AC
red	644 100 75	644 100 67	644 100 68
green	644 200 75	644 200 67	644 200 68
yellow	644 300 75	644 300 67	644 300 68
clear	644 400 75	644 400 67	644 400 68
blue	644 500 75	644 500 67	644 500 68

LED Permanent light element ultrabright	24 V DC
red	644 180 55
green	644 280 55
yellow	644 380 55
clear	644 480 55
blue	644 580 55

Flashing light (Xenon)	24 V DC (ASI)	24 V DC	115 V AC	230 V AC
red	643 110 55	643 100 55	643 100 67	643 100 68
green	643 210 55	643 200 55	643 200 67	643 200 68
yellow	643 310 55	643 300 55	643 300 67	643 300 68
clear	643 410 55	643 400 55	643 400 67	643 400 68
blue	643 510 55	643 500 55	643 500 67	643 500 68

Compare the prices  
and advantages of  
an LED Flashing light

LED Flashing light element	24 V DC
red	644 120 55
green	644 220 55
yellow	644 320 55
clear	644 420 55
blue	644 520 55

LED EVS element	24 V DC
red	644 140 55
green	644 240 55
yellow	644 340 55
clear	644 440 55
blue	644 540 55

LED Blinking light element	24 V AC/DC	115 V AC	230 V AC
red	644 110 75	644 110 67	644 110 68
green	644 210 75	644 210 67	644 210 68
yellow	644 310 75	644 310 67	644 310 68
clear	644 410 75	644 410 67	644 410 68
blue	644 510 75	644 510 67	644 510 68

LED Rotating light element	24 V AC/DC
red	644 130 75
green	644 230 75
yellow	644 330 75
clear	644 430 75
blue	644 530 75

LED Permanent light element multicolour	24 V DC
multicolour	644 450 55

Further voltages on request.



TECHNICAL DIAGRAMS: see page 309

# LED Permanent Light Element ultrabright for KombiSIGN 71



- Up to 20 times brighter than conventional LED elements
- Extremely good visibility - even in direct sunlight
- Maximum brightness via intelligent LED control

Life duration  
up to 50,000 hrs



## TECHNICAL SPECIFICATION S:

Dimensions (Ø x Height):	70 mm x 65.5 mm
Lens:	PC, transparent
Seal:	Pre-mounted with each element
Number of modules possible:	5, with 2-sided bracket max. 10



## ORDER SPECIFICATION S:

Voltage	24 V DC
Current consumption	Max. 195 mA
red	<b>644 180 55</b>
green	<b>644 280 55</b>
yellow	<b>644 380 55</b>
clear	<b>644 480 55</b>
blue	<b>644 580 55</b>



## ADDITIONAL INFORMATION:

### Sophisticated triggering

Thanks to its sophisticated triggering, the innovative LED element "ultrabright" is up to 20 times brighter than conventional LED elements - making it almost certainly the brightest permanent light that the world of signalling technology currently has to offer.

Further information can be found in the chapter "General Information" beginning on page 366.



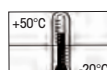
## TECHNICAL DIMENSIONS:

see page 309



The high level of brightness  
guarantees good visibility -  
even in direct sunlight

Maximum brightness via  
intelligent LED control



See note  
on page 347







644

## LED EVS\* Element for KombiSIGN 71

Patent  
approved

Integrated into the KombiSIGN  
Signal Towers, the LED EVS\*  
Element generates a highly  
attention-grabbing signal

- Attention-grabbing flickering light
- Extremely powerful signal effect
- Random sequence of light signals prevents acclimatisation effect
- For signalling extremely hazardous situations and the need for immediate action



## TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	70 mm x 65 mm
Lens:	PC, transparent
Seal:	Pre-mounted with each element
Number of modules possible:	5, with 2-sided bracket max. 10



## ORDER SPECIFICATIONS:

Voltage	24 V DC	24 V DC
Current consumption	350 mA	250 mA
red	644 140 55	-
green	-	644 240 55
yellow	644 340 55	-
clear	-	644 440 55
blue	-	644 540 55



## ADDITIONAL INFORMATION:



\* EVS = Enhanced Visibility System

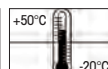
Further Information can be found in the chapter "General Information" on page 352.

Please note the photosensitive epilepsy warning on page 352.



## TECHNICAL DIAGRAMS:

see page 309



See note  
on page 347



The LED permanent light element multicolour offers a life duration of up to 50,000 hrs



7 colours in one beacon: red, yellow, green, white, blue, violet and turquoise



The Multicolour Element can be combined with up to 2 additional signal elements

- Seven colours in one beacon
- Multiple status warnings can be signalled by one beacon
- Different colours can be triggered via the pins in the terminal element
- Positive and negative control logic
- The three basic colours (red/yellow/green) can be triggered using only two PLC outputs
- High light intensity



## TECHnICAL SPECIFICATIOnS:

Life duration  
up to 50,000 hrs

Dimensions Terminal Elements (Ø x Height):	70 mm x 65.5 mm
Lens:	PC, transparent
Light effect:	LED permanent
Possible Colours:	Red, yellow, green, white, blue, violet, turquoise
Seal:	Pre-mounted with each element
Number of modules possible:	Max. 3 (including multicolour element)



## orDEr SPECIFICATIOnS:

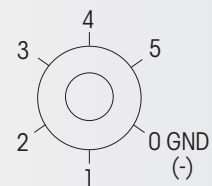
Voltage	24 V DC
Current consumption	< 120 mA
LED permanent light multicolour	<b>644 450 55</b>



## ADDITIonAL InForMATIon:

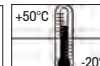
Simple external activation via the pins in the terminal element.

Pin 1	Pin 2	Pin 3	Function
24 V	-	-	Red
-	24 V	-	Green
24 V	24 V	-	Yellow
-	-	24 V	Blue
24 V	24 V	24 V	White
24 V	-	24 V	Violet
-	24 V	24 V	Turquoise



## TECHnICAL DIAGrAMS:

see page 309



See note  
on page 347





Bracket (accessory)

Three tier signal tower with vocal  
element and tube with integrated  
base (accessory)

- Audible element sound output up to 105 dB
- Plays back pre-recorded music files or customised audio files



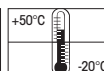
## TECHNICAL SPECIFICATIONS:

Life duration  
up to 5,000 hrs

<b>Dimensions (Ø x Height):</b>	See below		
<b>Lens:</b>	PC		
<b>Element seal:</b>	Pre-mounted with each module		
<b>Protection rating:</b>	IP 65 (Order no. 645 830 55 = IP 40)		
<b>Buzzer element</b>	24 V AC/DC	115 V AC	230 V AC
Current consumption:	25 mA		
Dimensions (Ø x Height):	70 mm x 72 mm		
Sound output:	85 dB		
Number/Tone type:	Continuous or pulse tone		
<b>Siren element</b>	24 V DC		
Current consumption:	150 mA		
Dimensions (Ø x Height):	70 mm x 79 mm		
Sound output:	105 dB		
Number/Tone type:	Continuous tone alternating		
Further Information:	No UL approval		
<b>Multi-functional Siren</b>	24 V AC/DC	115 V AC	230 V AC
Current consumption:	80 mA	40 mA	40 mA
Dimensions (Ø x Height):	70 mm x 72 mm		
Sound output:	100 dB, adjustable sound output		
Number/Tone type:	8 tones adjustable		
<b>Multi-functional Siren, with external control</b>	24 V DC		
Current consumption:	80 mA		
Dimensions (Ø x Height):	70 mm x 72 mm		
Sound output:	100 dB, adjustable sound output		
Number/Tone type:	Number of tones dependent on the number of optical elements		
Further Information:	No UL approval		
Tone triggering:	7 diff. tones can be triggered externally		
<b>Siren element with self-adjusting sound output</b>	24 V DC		
Technical specifications see page 42.			
<b>Vocal element</b>	24 V DC		
Technical specifications see page 40.			
<b>High output vocal element</b>	24 V DC		
Further Information:	No UL approval		
Technical specifications see page 41.			



ORDER SPECIFICATIONS AUDIBLE ELEMENTS: see next page

See note  
on page 347

24 V





Audible element



Siren element with self-adjusting sound output



Vocal element with up to 88 dB



High output vocal element with up to 102 dB



#### orDER SPECIFICATIOnS AUDIBLE ELEMEnts:

Buzzer element	24 V AC/DC 645 800 75	115 V AC 645 800 77	230 V AC 645 800 68
Siren element	24 V DC 645 830 55		
Multi-functional Siren	24 V AC/DC 645 820 75	115 V AC 645 820 67	230 V AC 645 820 68
Multi-functional Siren, with external control	24 V DC 645 850 55		
Siren element with self-adjusting sound output	24 V DC 645 810 55		
Vocal element	24 V DC (max. 88 dB) 645 840 55		
<b>NEW</b> High output vocal element	24 V DC (max. 102 dB) 645 860 55		



#### TECHnICAL DIAGRAMS:

see page 309 onwards







645

## Vocal Element for KombiS/GN 71

german utility  
model approved

The vocal element can  
be combined with up to  
4 signal elements

- Plays customer-specific audio files in mp3 format (signal tones, music or spoken text)
- Enables clear instructions to be given in a range of foreign languages
- Outstanding tonal and sound quality
- Easy transfer of audio files and simple operation
- Setting of individual playlists and playback mode possible

Life duration  
up to 5,000 hrs

## TECHNICAL SPECIFICATION S:

Dimensions (Ø x Height):	70 mm x 111 mm
Housing:	PC
Number of signal elements:	Max. 4 additional signal elements possible
Sound output:	Adjustable, up to 88 dB
File Transfer:	Via USB connection and provided software
Possible data format:	Mp3 and wav files
Number of sequences:	15 files can be remotely triggered depending on the number of signal elements used or one sequence with max. 50 files
Suitable for:	Windows 2000 SP 4, Windows XP, Windows Vista, Windows 7
Assembly:	Vocal element, USB connection cable and software



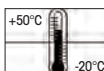
## ORDER SPECIFICATION S:

Voltage	24 V DC
Current consumption	< 500 mA
Vocal element	645 840 55



## TECHNICAL DIAGRAMS:

see page 310

See note  
on page 347



The vocal element can be combined with up to 4 signal elements



User-friendly software ensures easy transfer of audio files and simple operation

- 102 dB high output vocal element with excellent tone and sound quality
- Plays customer-specific audio files (signal tones, music and spoken text)
- Easy transfer of audio files and simple operation
- Sound output level can be triggered externally
- Creation of individual playlists and playback modes possible



#### TECHnICAL SPECIFICATION S:

Dimensions (Ø x Height):	125 mm x 118 mm
Housing:	PC/ABS Blend
Lens:	PC
Number of signal elements:	Max. 4 additional signal elements possible
Sound output:	Adjustable, up to 102 dB
File Transfer:	Via USB connection and provided software
Possible data format:	Mp3 and wav files
Number of sequences:	15 files can be remotely triggered depending on the number of signal elements used or one sequence with max. 50 files
Suitable for:	Windows 2000 service pack 4, Windows XP, Windows Vista, Windows 7, Windows 8
Assembly:	Vocal element, USB connection cable and software

Life duration up to 5,000 hrs



#### or DER S PECIFICATION S:

Voltage	24 V DC
Current consumption	≤ 400 mA
Vocal element	645 860 55



#### ADDITIon AL InFor MATIon:

##### Further installation examples:



To ensure IP protection it is recommended that the vocal element is fitted with the sound outlet facing downwards.

Optimum distribution of sound is thus ensured.



#### TECHnICAL DIAGr AMS:

see page 310



See note on page 347





645

# Siren Element with self-adjusting sound output for KombiS/GN 71

Patent  
approved



- Automatic sound output adjustment between 80 and 100 dB
- Continual measurement of the ambient noise level
- Sound output is c. 5 dB louder than the background noise level
- Ideal for applications with changing ambient sound levels



## TECHNICAL SPECIFICATION S:

Dimensions (Ø x Height):	70 mm x 110 mm
Housing:	PC
Tone type:	Pulse tone
Tone frequency:	2.5 KHz
Sound output:	80 dB - max. 100 dB

Life duration  
up to 5,000 hrs

Loud enough  
yet  
not disturbing!



## ORDER SPECIFICATION S:

Voltage	24 V DC
Current consumption	< 150 mA
Siren element	645 810 55



## ADDITIONAL INFORMATION:

The siren element adjusts its sound output through continual measurement of the ambient noise level. The emitted tone is c. 5 dB louder than the background noise level. The warning signal can always be heard without being irritatingly loud for people in the sounder's vicinity.



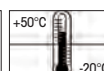
The siren element can be combined with up to 4 signal elements



## TECHNICAL DIAGRAMS:

see page 310

See note  
on page 347





Screw terminal with cap

Terminal element with practical  
M12 connection socket in baseDirect triggering of the signal tower  
elements via USB Interface

- Bayonet locking mechanism enables quick and easy assembly of the signal tower
- The ideal solution for every installation

### **i** TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	See below
Housing:	Terminal element: PA fibreglass, high-impact Cap: PC
Fixing:	Base mounting Tube mounting, for tube Ø 25 mm Bracket mounting (accessory)
Cable entry:	Cable diameter max. 14 mm
Element seal:	Pre-mounted with each module
Protection rating:	IP 65
Number of modules possible:	Max. 5

	<u>Tube mounting</u>	<u>Base mounting</u>
<b>Screw terminal</b>		
Dimensions (Ø x Height):	70 mm x 42,5 mm	70 mm x 42,5 mm
Connection:	Screw terminal max. 2,5 mm <sup>2</sup>	
Voltage:	12-240 V AC/DC	12-240 V AC/DC
	Incl. cap	Incl. cap and seal

### **CAGE CLAMP® technology**

(see picture page 44)		
Dimensions (Ø x Height):	70 mm x 42,5 mm	70 mm x 42,5 mm
Connection:	CAGE CLAMP® technology max. 2,5 mm <sup>2</sup>	
Voltage:	12-240 V AC/DC	12-240 V AC/DC
	Incl. cap	Incl. cap and seal

**NEW**

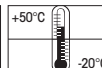
### **Terminal element M12**

Dimensions (Ø x Height):	70 mm x 56 mm	70 mm x 50 mm
Connection:	M12 connector (8 pole)	
Voltage:	12-24 V DC	12-24 V DC
Current carrying capacity:	≤ 2 A	≤ 2 A
	Incl. cap	Incl. cap and seal
	No UL approval	No UL approval

### **Terminal element with**

<b>USB Interface</b>	No UL approval	-
Dimensions (Ø x Height):	70 mm x 36 mm	
Fixing:	Tube mounting (accessory)	
Connection:	Via USB	
Voltage:	Terminal element: Via USB (5 V DC)	
Voltage:	24 V DC	
Current carrying cap. $\Sigma$ I <sub>max</sub> :	90 mA at 24 V	
Assembly:	Assembly includes installation software, drivers, handbook and USB connection cable (length 1.8 m)	
Suitable for:	Windows 2000 service pack 4, Windows XP, Windows Vista or Windows 7. Also for Windows Server und Windows CE operating systems	

- Direct triggering of signal tower elements via USB Interface
- Actuation via DLL (Dynamic Link Library) or VCP (Virtual-COM-Port)
- Simple integration into any customer-specific software
- No additional power supply or Hardware necessary
- Up to five signal towers with a maximum of five elements each can be connected

**ORDER SPECIFICATIONS:** see next page640 8X0 00  
x = 0,1,2,3See note  
on page 347

24 V







640

## Terminal Elements for KombiSIGN 71



## orDer SPECIFICATIOnS:

	Tube mounting	Base mounting
Screw terminal	640 830 00	640 820 00
CAGE CLAMP®	640 810 00	640 800 00
Terminal element M12	640 860 55	640 850 55
Terminal element with USB interface	640 840 00	-

NEW



## ACCESSORIES:

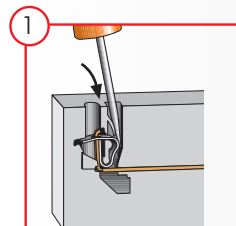
Base with integrated tube	975 840 10
Base for tube (metal)	975 840 91
Tube Ø 25 mm, Aluminium eloxiert	
100 mm long	975 845 10
250 mm long	975 840 25
400 mm long	975 840 40
600 mm long	975 840 60
800 mm long	975 840 80
1000 mm long	975 840 03

Suitable accessories can be found on page 67.

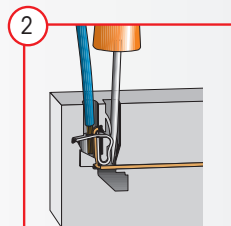


## ADDITIONAL INFORMATION:

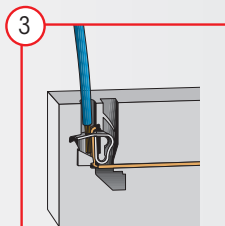
Terminal elements with CAGE CLAMP® technology enable leads to be quickly and easily wired, guaranteeing a secure and reliable contact.



1 Insert screwdriver at a slight angle into opening as far as possible.



2 Open spring-loaded clamp with the help of the screwdriver and insert wire as far as possible



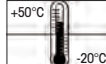
3 Remove screwdriver - the wire is firmly clamped.

CAGE CLAMP® is a registered trademark of WAGO Kontakttechnik GmbH.



## TECHNICAL DIAGRAMS:

see page 308

See note  
on page 347



Cable not included in assembly



LEDs display the current status

- LEDs indicate current status
- 31 or 62 addresses
- Available with standard or A/B technology
- Voltage supply switchable from internal bus supply to additional external voltage supply
- With addressing socket

### **i** TECHNICAL SPECIFICATION S:

	Standard Slave	A/B-Slave
Number of addresses:	Max. 31	Max. 62
Number of signal elements:	Max. 4	Max. 3
IO-Code:	8 <sub>HEX</sub>	8 <sub>HEX</sub>
ID-Code:	F <sub>HEX</sub>	A <sub>HEX</sub>
ID2-Code:	N/A	E <sub>HEX</sub>
Outputs:	4 semiconductor relays	3 semiconductor relays
Approved in accordance with:	Spec. V 3.0	Spec. V 3.0
<b>Specif. Power supply</b>		
AS-Interface Element:	Via bus conduction	
Operating voltage:	18.5 V ... 31.6 V according to the AS-Interface specification	
Reverse battery protection:	Integrated	
Watchdog:	Integrated	
Additional external voltage:	24 V DC	
	<b>With internal add. voltage</b>	<b>With external add. voltage</b>
Current carrying cap. $\Sigma$ I <sub>max</sub> :	200 mA	200 mA per signal element
Current consumption max:	210 mA	≤ 50 mA
Voltage at signal element:	20 V ... 30 V DC	24 V +/- 10%
Short circuit/overload protection:	Integrated	Pre-fuse M 1.6 A

### **🛒** ORDER SPECIFICATION S:

AS-Interface Element	Standard Slave	A/B-Slave
	<b>646 830 55</b>	<b>646 810 55</b>

### **⚠** ADDITIONAL INFORMATION:



The KombiSIGN Signal Tower 71 with AS-Interface Element are capable of total communication: Through simple integration of an AS-Interface Element the actuators are connected to the networking system Actuator-Sensor-Interface - this considerably reduces complex wiring. The necessary power supply (supply via bus or external) can be selected with a switch. This element is mounted as the first tier of the individual signal tower directly on top of the terminal element. (Further Information see page 351).

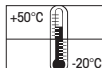
### **📏** TECHNICAL DIAGRAMS:

see page 311

Class 2



See note on page 347





# KombiSIGN 70 Signal Tower

## The Highlights for KombiSIGN 70

### 843 LED Permanent light element ultrabright



- Up to 20 times brighter than conventional LED elements
- Maximum brightness via intelligent LED control

See page 50

### 843 LED EVS element



- Attention-grabbing flickering light
- Extremely powerful signal effect
- Random sequence of light signals prevents acclimatisation effect

See page 51

### 843 LED Permanent light element multicolour



- 7 colours in one beacon
- Multiple status warnings can be signalled by one beacon
- High light intensity

See page 52

NEW

### 844 Vocal element



- 102 dB loud vocal element with excellent tone and sound quality
- Sound output level can be triggered externally

See page 55 + 56

### 844 Siren element with self-adjusting sound output



- Sound output is automatically adjusted to the background noise level
- Warning tone can be heard without being irritatingly loud

See page 57

NEW

### 840 Terminal element M12



- Quick and easy installation
- With practical M12 connector

See Seite 58

### 840 AS-Interface element



- LEDs indicate current status
- 31 or 62 addresses
- Available with standard or A/B technology

See page 59

### Machine Data Collection Systems (MDC Systems)



- Wireless based machine data collection
- Monitoring and counting system for multiple machines

See Page 12

### Manual Call Systems



- Improve the efficiency of production processes your operation
- Indicate status conditions and problems at the touch of a button

See Page 20

## Further Information

Further Information and applications for "KombiSIGN Signal Towers" can be found in the chapter "Systems" beginning on page 11.

## This is how you can assemble your KombiSIGN 70 signal tower

### ► STEP 1

Select the required optical or audible elements in the correct voltage.

Many KombiSIGN highlights are also available (for details see page 46).



#### Audible Signal Elements

- Buzzer element
- Siren element
- Vocal element

#### Optical Signal Elements

- (LED) Permanent light
- LED Permanent light ultrabright
- (LED) Flashing light
- LED EVS element
- LED Blinking light
- LED Rotating light
- LED Permanent light element multicolour

### ► STEP 2

Select the appropriate mounting option for your application.

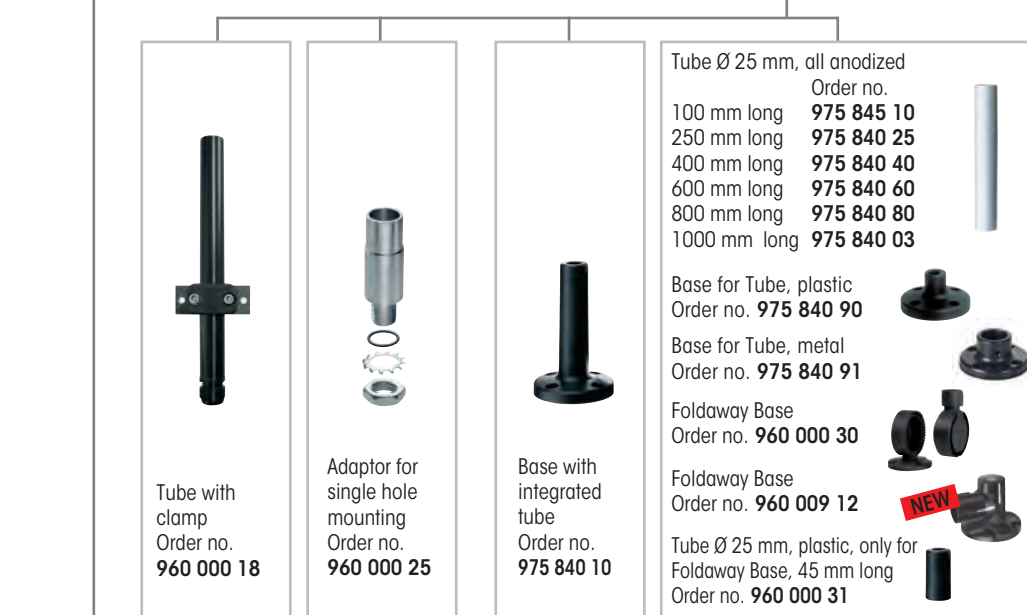
### ► STEP 3

Select the correct terminal element for your mounting option.



### ► STEP 4

Where appropriate, select a base and the desired length (only for tube mounting).



### ► STEP 5

Where appropriate, select the bracket and the contact box.



**TIP**

The Signal Devices Site on the Internet: [www.werma.com](http://www.werma.com)

With our new **signal tower configurator** you can put together your own individual signal tower.



# 840/843 optical Signal Elements for Kombi SIGN 70



Bracket (accessory)



Tube mounting (accessory)

- Clear signalling, even in unfavourable light conditions

- LED light elements have an extremely long life and low current consumption

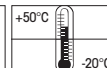
## TECHNICAL SPECIFICATIONS:

<b>Dimensions</b> (Ø x Height):	70 mm x 65.5 mm		
<b>Lens:</b>	PC, transparent		
<b>Socket:</b>	Bayonet, BA15d, for bulb max. 5 W		
<b>Element seal:</b>	Pre-mounted with each module		
<b>Protection rating:</b>	IP 54		
<b>Permanent light element</b>	12-240 V AC/DC Bulb not included in assembly Life duration: Dependent upon the bulbs used		
<b>LED Permanent light element</b>	24 V AC/DC Current consumption: Life duration:	115 V AC < 20 mA	230 V AC < 20 mA
<b>LED Permanent light element ultrabright</b>	24 V DC Current consumption: Life duration: Technical specifications see page 51.	Max. 195 mA Up to 50,000 hrs	
<b>Flashing light element (Xenon)</b>	24 V DC Current consumption: Life duration: Reduced for AS-Interface: Flash frequency:	115 V AC 22 mA	230 V AC 15 mA
<b>LED Flashing light element</b>	24 V DC Current consumption: Life duration: Flash frequency:	< 30 mA (red/ yellow) < 25 mA (green/ clear/blue) 50,000 hrs C. 1 Hz (Double Flash)	
<b>LED EVS* element</b>	24 V DC Current consumption: Life duration: * EVS = Enhanced Visibility System Technical specifications see page 51.	350 mA (red/ yellow) 250 mA (green/ clear/blue) 50,000 hrs	
<b>LED Blinking light element</b>	24 V AC/DC Current consumption: Life duration: Blink frequency:	115 V AC 25 mA	230 V AC 25 mA
<b>LED Rotating light element</b>	24 V AC/DC Current consumption: Life duration: Rotation frequency:	40 mA 50,000 hrs C. 120 r.p.m.	
<b>LED Permanent Light Element multicolour</b>	24 V DC Life duration: Current consumption: Possible colours: Technical specifications see page 52.	50,000 hrs < 120 mA Red, yellow, green, white, blue, violet, turquoise	

842 X10 55  
Class 2



See note  
on page 347



24 V





(LED) Permanent/  
Flashing light element



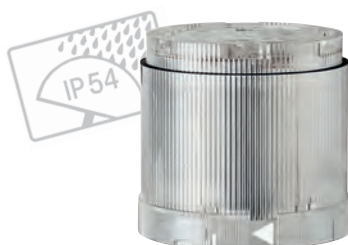
Permanent light element,  
clear with info



LED EVS element



LED element



LED element multicolour



## ORDER SPECIFICATIONS OPTICAL ELEMENTS:



<b>Permanent light element</b>	12-240 V AC/DC
red	840 100 00
green	840 200 00
yellow	840 300 00
clear	840 400 00
blue	840 500 00
Bulb not included in assembly. Accessories see page 67.	

<b>LED Permanent light element</b>	24 V AC/DC	115 V AC	230 V AC
red	843 100 55	843 100 67	843 100 68
green	843 200 55	843 200 67	843 200 68
yellow	843 300 55	843 300 67	843 300 68
clear	843 400 55	843 400 67	843 400 68
blue	843 500 55	843 500 67	843 500 68

<b>LED Permanent light element ultrabright</b>	24 V DC
red	843 180 55
green	843 280 55
yellow	843 380 55
clear	843 480 55
blue	843 580 55

<b>Flashing light (Xenon)</b>	24 V DC (ASI)	24 V DC	115 V AC	230 V AC
red	842 110 55	842 100 55	842 100 67	842 100 68
green	842 210 55	842 200 55	842 200 67	842 200 68
yellow	842 310 55	842 300 55	842 300 67	842 300 68
clear	842 410 55	842 400 55	842 400 67	842 400 68
blue	842 510 55	842 500 55	842 500 67	842 500 68

<b>LED Flashing light element</b>	24 V DC
red	843 120 55
green	843 220 55
yellow	843 320 55
clear	843 420 55
blue	843 520 55

<b>LED EVS element</b>	24 V DC
red	843 140 55
green	843 240 55
yellow	843 340 55
clear	843 440 55
blue	843 540 55

<b>LED Blinking light element</b>	24 V AC/DC	115 V AC	230 V AC
red	843 110 55	843 110 67	843 110 68
green	843 210 55	843 210 67	843 210 68
yellow	843 310 55	843 310 67	843 310 68
clear	843 410 55	843 410 67	843 410 68
blue	843 510 55	843 510 67	843 510 68

<b>LED Rotating light element</b>	24 V AC/DC
red	843 130 55
green	843 230 55
yellow	843 330 55
clear	843 430 55
blue	843 530 55

<b>LED Permanent light element multicolour</b>	24 V DC
multicolour	843 450 55

Further voltages on request.



## TECHNICAL DIAGRAMS:

see page 318 onwards





843

# LED Permanent Light Element ultrabright for KombiS/GN 70



Maximum brightness via  
intelligent LED control

- Up to 20 times brighter than conventional LED elements
- Extremely good visibility - even in direct sunlight
- Shock-proof and vibration-resistant
- Maximum brightness via intelligent LED control
- Low current consumption and maintenance-free



## TECHnICAL SPECIFICATIOn S:

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	70 mm x 65.5 mm
Lens:	PC, transparent
Seal:	Pre-mounted with each element



## or DER S PECIFICATIOn S:

Voltage	24 V DC
Current consumption	Max. 195 mA
red	<b>843 180 55</b>
green	<b>843 280 55</b>
yellow	<b>843 380 55</b>
clear	<b>843 480 55</b>
blue	<b>843 580 55</b>



## ADDITIon AL InFor MATIon :

### Sophisticated triggering

Thanks to its sophisticated triggering, the innovative LED element "ultrabright" is up to 20 times brighter than conventional LED elements - making it almost certainly the brightest permanent light that the world of signalling technology currently has to offer.

Further Information can be found in the chapter  
"General Information" beginning on page 354.



## TECHnICAL DIAGr AMS:

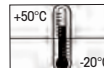
see page 319



The high level of brightness  
guarantees good visibility -  
even in direct sunlight

Class 2

See note  
on page 347



PLC

Patent  
approved

Integrated into the KombiSIGN  
Signal Towers, the EVS\*  
LED Element generates a highly  
attention-grabbing signal

- Attention-grabbing flickering light
- Extremely powerful signal effect
- Random sequence of light signals prevents acclimatisation effect
- For signalling extremely hazardous situations and the need for immediate action

**TECHNICAL SPECIFICATIONS:**Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	70 mm x 65.5 mm
Lens:	PC, transparent
Seal:	Pre-mounted with each element
Number of modules possible:	5, with 2-sided bracket max. 10

**ORDER SPECIFICATIONS:**

Voltage	24 V DC	24 V DC
Current consumption	350 mA	250 mA
red	843 140 55	-
green	-	843 240 55
yellow	843 340 55	-
clear	-	843 440 55
blue	-	843 540 55

**ADDITIONAL INFORMATION:**

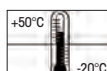
\* EVS = Enhanced Visibility System or Enhanced Visibility System  
Further Information can be found in the chapter "General Information" on page 352.

Please note the photosensitive epilepsy warning on page 352.

**TECHNICAL DIAGRAMS:**

see page 319

Class 2

See note  
on page 347





843

# LED Permanent Light Element multicolour for KombiS/GN 70



The LED permanent light element multicolour offers a life duration of up to 50,000 hrs

- Seven colours in one beacon
- Multiple status warnings can be signalled by one beacon
- Different colours can be triggered via the pins in the terminal element
- Positive and negative control logic
- The three basic colours (red/yellow/green) can be triggered using only two PLC outputs
- High light intensity



## TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	70 mm x 65.5 mm
Lens:	PC, transparent
Colours:	LED permanent
Possible Colours:	Red, yellow, green, white, blue, violet, turquoise
Seal:	Pre-mounted with each element
Number of modules possible:	Max. 3 (including Multicolour element)



## ORDER SPECIFICATIONS:

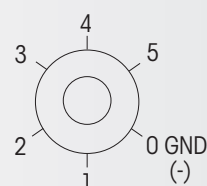
Voltage	24 V DC
Current consumption	< 120 mA
LED permanent light multicolour	<b>843 450 55</b>



## ADDITIONAL INFORMATION:

Simple external activation via the pins in the terminal element.

Pin 1	Pin 2	Pin 3	Function
24 V	-	-	Red
-	24 V	-	Green
24 V	24 V	-	Yellow
-	-	24 V	Blue
24 V	24 V	24 V	White
24 V	-	24 V	Violet
-	24 V	24 V	Turquoise



7 colours in one beacon: red, yellow, green, white, blue, violet and turquoise



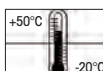
## TECHNICAL DIAGRAMS:

see page 319



The Multicolour Element can be combined with up to 2 additional signal elements

See note  
on page 347





Bracket (accessory)



Tube mounting (accessory)

- Audible element sound output up to 105 dB



## TECHNICAL SPECIFICATIONS:

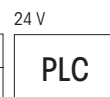
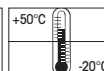
Life duration  
up to 5,000 hrs

<b>Dimensions</b> (Ø x Height):	see below		
<b>Lens:</b>	PC/ABS		
<b>Element seal:</b>	Pre-mounted with each module		
<b>Protection rating:</b>	IP 54 (Order no. 844 123 55 = IP 40)		
<b>Buzzer element</b>	24 V AC/DC	115 V AC	230 V AC
Current consumption:	25 mA		
Dimensions (Ø x Height):	70 mm x 72 mm		
Sound output:	85 dB		
Number/Tone type:	Continuous or pulse tone		
<b>Siren element</b>	24 V DC		
Current consumption:	150 mA		
Dimensions (Ø x Height):	70 mm x 79 mm		
Sound output:	105 dB		
Number/Tone type:	Continuous tone alternating		
Further Information:	No UL approval		
<b>Multi-functional Siren</b>	24 V AC/DC	115 V AC	230 V AC
Current consumption:	80 mA	40 mA	40 mA
Dimensions (Ø x Height):	70 mm x 72 mm		
Sound output:	100 dB, adjustable sound output		
Number/Tone type:	8 different tones		
<b>Multi-functional Siren, with external control</b>	24 V DC		
Current consumption:	80 mA		
Dimensions (Ø x Height):	70 mm x 72 mm		
Sound output:	100 dB, adjustable sound output		
Number/Tone type:	Number of tones dependent on the number of optical elements		
Tone triggering:	7 diff. tones can be triggered externally		
<b>Siren element with self-adjusting sound output</b>	24 V DC		
Technical specifications see page 57.			
<b>Vocal element</b>	24 V DC (max. 88 dB)		
Technical specifications see page 55.			
<b>High output vocal element</b>	24 V DC (max. 102 dB)		
Further Information:	No UL approval		
Technical specifications see page 56.			



## ORDER SPECIFICATIONS AUDIBLE ELEMENTS :

see next page

See note  
on page 347



844

## Audible Elements KombiS/GN 70

Siren element  
844 123 55Vocal element  
with up to 88 dBHigh output vocal element  
with up to 102 dB

## orDER SPECIFICATIOnS AUDIBLE ELEMEnts:

Buzzer element	24 V AC/DC 844 118 55	115 V AC 844 118 67	230 V AC 844 118 68
Siren element	24 V DC 844 123 55		
Multi-functional Siren	24 V AC/DC 844 126 55	115 V AC 844 126 67	230 V AC 844 126 68
Multi-functional Siren, with external control	24 V DC 844 126 95		
Siren element with self-adjusting sound output	24 V DC 844 810 55		
Vocal element	24 V DC (max. 88 dB) 844 840 55		
<b>NEW</b> High output vocal element	24 V DC (max. 102 dB) 844 860 55		



## TECHnICAL DIAGrAMS:

see page 319 onwards

german utility  
model approved



The vocal element can  
be combined with up to  
4 signal elements

- Plays customer-specific audio files in mp3 format (signal tones, music or spoken text)
- Enables clear instructions to be given in a range of foreign languages
- Outstanding tonal and sound quality
- Easy transfer of audio files and simple operation
- Setting of individual playlists and playback modi possible



#### TECHNICAL SPECIFICATIONS:

Life duration  
up to 5,000 hrs

Dimensions (Ø x Height):	70 mm x 110 mm
Material:	PC
Number of signal elements:	Max. 4 additional signal elements possible
Sound output:	Adjustable, up to 88 dB
File Transfer:	Via USB connection and provided software
Possible data format:	Mp3 and wav files
Number of sequences:	15 files can be remotely triggered depending on the number of signal elements used or one sequence with max. 50 files
Suitable for:	Windows 2000 service pack 4, Windows XP, Windows Vista, Windows 7
Assembly:	Vocal Element, USB connection cable and software



#### ORDER SPECIFICATIONS:

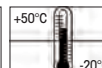
Vocal element	24 V DC
Current consumption	< 500 mA
Vocal element	844 840 55



#### TECHNICAL DIAGRAMS:

see page 319

See note  
on page 347







844

## Vocal Element for KombiSIGN 70



The vocal element can  
be combined with up to  
4 signal elements



User-friendly software ensures  
easy transfer of audio files  
and simple operation

- 102 dB high output vocal element with excellent tone and sound quality
- Plays customer-specific audio files (signal tones, music and spoken text)
- Easy transfer of audio files and simple operation
- Sound output level can be triggered externally
- Creation of individual playlists and playback modes possible

### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	125 mm x 118 mm
Housing:	PC/ABS Blend
Lens:	PC
Number of signal elements:	Max. 4 additional signal elements possible
Sound output:	Adjustable, up to 102 dB
File Transfer:	Via USB connection and provided software
Possible data format:	Mp3 and wav files
Number of sequences:	15 files can be remotely triggered depending on the number of signal elements used or one sequence with max. 50 files.
Suitable for:	Windows 2000 service pack 4, Windows XP, Windows Vista, Windows 7, Windows 8
Assembly:	Vocal element, USB connection cable and software

Life duration  
up to 5,000 hrs

### ORDER SPECIFICATIONS:

Voltage	24 V DC
Current consumption	≤ 400 mA
Vocal element	<b>844 860 55</b>

### ADDITIONAL INFORMATION:

Further installation examples:



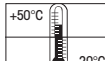
To ensure IP protection it is recommended that the vocal element is fitted with the sound outlet facing downwards.

Optimum distribution of sound is thus ensured.

### TECHNICAL DIAGRAMS:

see page 320

See note  
on page 347



# Siren Element with self-adjusting sound output for KombiSIGN 70



- Automatic sound output adjustment between 80 and 100 dB
- Sound output is c. 5 dB louder than the background noise level
- Continual measurement of the ambient noise level
- Ideal for applications with changing ambient sound levels



## TECHnICAL SPECIFICATION S:

Dimensions (Ø x Height):	70 mm x 110 mm
Housing:	PC
Tone type:	Pulse tone
Tone frequency:	2.5 KHz
Sound output:	80 dB - max. 100 dB

Life duration  
up to 5,000 hrs

Loud enough  
yet  
not disturbing!



## or DER S PECIFICATION S:

Voltage:	24 V DC
Current consumption:	< 150 mA
	<b>844 810 55</b>



## ADDITIon AL InFor MATIon :

The siren element adjusts its sound output through continual measurement of the ambient noise level. The emitted tone is c. 5 dB louder than the background noise level. The warning signal can always be heard without being irritatingly loud for people in the sounder's vicinity.



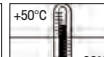
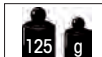
## TECHnICAL DIAgr AMS:

see page 319



Patent  
approved

See note  
on page 347





840

## Terminal Elements for KombiSIGN 70



Terminal element with cap

- Bayonet locking mechanism enables quick and easy assembly of the signal tower
- The ideal solution for every installation

**i** TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	See below
Lens:	Terminal element: PA-GF, high-impact Cap: PC
Fixing:	Base mounting Tube mounting, for tube Ø 25 mm Bracket mounting (accessory)
Cable entry:	Cable diameter max. 14 mm
Element seal:	Pre-mounted with each module
Protection rating:	IP 54 (with cap)
Number of modules possible:	Max. 5

	Tube mounting	Base mounting
<b>Screw terminal</b>		
Dimensions (Ø x Height):	70 mm x 42,5 mm	70 mm x 42,5 mm
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>	
Voltage:	12-240 V AC/DC Incl. cap	12-240 V AC/DC Incl. cap and seal

<b>NEW</b>	<b>Terminal element M12</b>		
	Dimensions (Ø x Height):	70 mm x 56 mm	70 mm x 50 mm
	Connection:	M12 connector (8 pole)	M12 connector (8 pole)
	Voltage:	12-24 V DC	12-24 V DC
	Current carrying capacity:	≤ 2 A	≤ 2 A
		Incl. cap No UL approval	Incl. cap and seal No UL approval

**shopping cart** ORDER SPECIFICATIONS TERMINAL ELEMENTS:

	Tube mounting	Base mounting
Screw terminal	840 080 00	840 085 00
<b>NEW</b> Terminal element M12	840 860 55	840 850 55

**A** ACCESSORIES:

Suitable accessories can be found on page 67.

**尺子** TECHNICAL DIAGRAMS:

see page 318



Terminal element with practical M12 connection socket in base

840 08X 00

See note  
on page 347

- LEDs indicate current status
- 31 or 62 addresses
- Available with standard or A/B technology
- Voltage supply switchable from internal bus supply to additional external voltage supply
- With addressing socket



## TECHNICAL SPECIFICATION S:

	Standard Slave	A/B-Slave
Number of addresses:	Max. 31	Max. 62
Number of signal elements:	Max. 4	Max. 3
IO-Code:	8 <sub>Hex</sub>	8 <sub>Hex</sub>
ID-Code:	F <sub>Hex</sub>	A <sub>Hex</sub>
ID2-Code:	N/A	E <sub>Hex</sub>
Outputs:	4 semiconductor relays	3 semiconductor relays
Approved in accordance with:	Spec. V 3.0	Spec. V 3.0

## Specif. Power supply

AS-Interface Element:	Via bus conduction
Operating voltage:	18.5 V ... 31.6 V according to the AS-Interface specification
Reverse battery protection:	Integrated
Watchdog:	Integrated
Additional external voltage:	24 V DC

	With internal add. voltage	With external add. voltage
Current carrying cap. $\Sigma$ I <sub>max</sub> :	200 mA	200 mA per signal element
Current consumption max:	210 mA	50 mA
Voltage at signal element:	20 V ... 30 V DC	24 V +/- 10%
Short circuit/overload protection:	Integrated	Pre-fuse M 1.6 A



## ORDER SPECIFICATION S:

AS-Interface Element	Standard Slave	A/B-Slave
	<b>840 830 55</b>	<b>840 810 55</b>



## ADDITIONAL INFORMATION:



The KombiSIGN Signal Tower 70 with AS-Interface Element are capable of total communication: Through simple integration of an AS-Interface Element the actuators are connected to the network - king system Actuator-Sensor-Interface - this considerably reduces complex wiring.

The necessary power supply (supply via bus or external) can be selected with a switch. This element is mounted as the first tier of the individual signal tower directly on top of the terminal element. (Further Information see page 351).



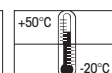
## TECHNICAL DIAGRAMS:

see page 318

Class 2



See note on page 347



Cable not included in assembly



LEDs display the current status





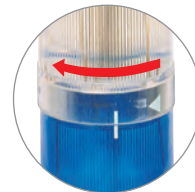
# Signal Tower KombiSIGN 50



## Simple operation thanks to bayonet mechanism

WERMA was the first signal beacon manufacturer to offer a bayonet mechanism allowing elements to be mechanically and electrically connected within seconds.

- ✓ Simple mounting and removal of the elements
- ✓ New combinations at the twist of a hand
- ✓ Tool-free bulb change



## Signals to combine - At the twist of a hand

- ✓ Signal elements in every common voltage
- ✓ Modular system allows combination as required
- ✓ Protection rating IP 54
- ✓ LED technology ensures even better visibility





## This is how you can assemble your KombiSIGN 50 signal tower

### ► STEP 1

Select the required optical or audible elements in the correct voltage.



**Audible Signal Elements**  
• Buzzer element



**Optical Signal Elements**  
• Permanent light  
• LED Permanent light  
• LED Flashing light  
• LED Blinking light

### ► STEP 2

Select the terminal element.



Terminal element

Order no.  
**845 000 00**



Terminal element with  
CAGE CLAMP® technology for  
single hole mounting

Order no.  
**845 010 00**

### ► STEP 3

Select the appropriate mounting option for your application.

### ► STEP 4

Select the appropriate accessory for your mounting option.

#### Base/Wall Mounting



Bracket for  
wall mounting

Order no.  
**975 845 02**



Base for surface  
mounting,  
incl. rubber seal

Order no.  
**975 845 01**

#### Tube Mounting

Tube Ø 25 mm, Aluminium  
Order no.  
100 mm long **975 845 10**  
250 mm long **975 840 25**  
400 mm long **975 840 40**  
600 mm long **975 840 60**  
800 mm long **975 840 80**  
1000 mm long **975 840 03**



Base for tube, plastic  
Order no. **975 840 90**

Base for tube, metal  
Order no. **975 840 91**

Foldaway base  
Order no. **960 000 30**

Foldaway base  
Order no. **960 009 12**



### ► STEP 5

Where appropriate, select the bracket and the contact box.

**TIP**

The Signal Devices Site on the Internet: [www.werma.com](http://www.werma.com)

With our new **signal tower configurator** you can put together your own individual signal tower.



Contact box for cable  
exit at side

Order no.  
**975 840 01**



Contact box with  
magnetic base and  
cable exit at side

Order no.  
**975 840 04**



Bracket for base mounting  
with concealed cable entry

Order no.  
**960 000 14**



Bracket for  
base mounting

Order no.  
**960 000 01**



Corner fixing  
bracket

Order no.  
**960 000 41**



846/848

## optical Signal Elements KombiS/GN 50



Tube mounting (accessory)



Bracket (accessory)



Base mounting (accessory)

- Clear signalling, even in unfavourable light conditions

- LED light elements have an extremely long life and low current consumption



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	52 mm x 67 mm
Lens:	PC, transparent
Protection rating:	IP 54
Number of modules possible:	Max. 4

Permanent light element	12-240 V AC/DC
Socket:	Bulb not included in assembly
Life duration:	Bayonet, BA15d, for bulb max. 5 W
	Dependent upon the bulbs used

LED Permanent light element	24 V AC/DC	115 V AC	230 V AC
Current consumption:	45 mA	25 mA	25 mA
Life duration:	< 50,000 hrs		

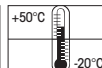
LED Flashing light element		
Current consumption:	Red, yellow 45 mA	Green, clear, blue 40 mA
Life duration:	< 50,000 hrs	
Blink frequency:	C. 1 Hz	

LED Blinking light element	24 V AC/DC	115 V AC	230 V AC
Current consumption:	25 mA	25 mA	25 mA
Life duration:	< 50,000 hrs		
Blink frequency:	C. 1 Hz		



## ORDER SPECIFICATIONS OPTICAL ELEMENTS:

see next page

See note  
on page 347

24 V





Permanent light element



LED element



## or DER SPECIFICATION S o PTICAL ELEMEnts:

Permanent light element	12-240 V AC/DC
red	846 100 00
green	846 200 00
yellow	846 300 00
clear	846 400 00
blue	846 500 00

Bulb not included in assembly. Accessories see page 67.

LED Permanent light element	24 V AC/DC	115 V AC	230 V AC
red	848 100 55	848 100 67	848 100 68
green	848 200 55	848 200 67	848 200 68
yellow	848 300 55	848 300 67	848 300 68
clear	848 400 55	848 400 67	848 400 68
blue	848 500 55	848 500 67	848 500 68

LED Flashing light element	24 V DC
red	848 120 55
green	848 220 55
yellow	848 320 55
clear	848 420 55
blue	848 520 55

Life duration  
up to 50,000 hrs

LED Blinking light element	24 V AC/DC	115 V AC	230 V AC
red	848 110 75	848 110 67	848 110 68
green	848 210 75	848 210 67	848 210 68
yellow	848 310 75	848 310 67	848 310 68
clear	848 410 75	848 410 67	848 410 68
blue	848 510 75	848 510 67	848 510 68



## TECHnICAL DIAgr AMS:

see page 320 onwards







849

## Audible Elements for KombiS/GN 50

- Buzzer with up to 80 dB

- Optional continuous or pulse tone



Buzzer element



Tube mounting (accessory)



Base mounting (accessory)



## TECHnICAL SPECIFICATIOn S:

Dimensions (Ø x Height):	52 mm x 72 mm
Lens:	PC/ABS-Blend
Protection rating:	IP 54
Number of modules possible:	Max. 4
Sound output:	80 dB
Number/Tone type:	Continuous or pulse tone, adjustable



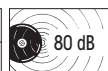
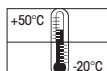
## or DER SPECIFICATIOn S AUDIBLE ELEMEnt:

Voltage	24 V AC/DC	115 V AC/DC	230 V AC
Current consumption	Max. 25 mA	Max. 25 mA	Max. 25 mA
Buzzer element	<b>849 000 75</b>	<b>849 000 77</b>	<b>849 000 68</b>



## TECHnICAL DIAGr AMS:

see page 320 onwards

See note  
on page 347

24 V



nEW



Screw terminal with cap

nEW

Terminal element CAgE CLAMP®  
Technologie with cap

- Bayonet locking mechanism enables quick and easy assembly of the signal tower
- The ideal solution for every installation

**TECHNICAL SPECIFICATION S:****Terminal element****Dimensions** (Ø x Height):

52 mm x 65 mm

**Material:**

Terminal element: PA + PC/ABS

Cap: PC

**Fixing:**

Tube mounting, for tube Ø 25 mm

Single hole mounting, Base and bracket mounting (accessory)

**Connection:**Screw terminal max. 1.5 mm<sup>2</sup>**Cable entry:**

Cable diameter max. 9.5 mm

**Terminal element with CAGE CLAMP® technology****Dimensions** (Ø x Height):

52 mm x 65 mm

**Material:**

Terminal element: PA + PC/ABS

Cap: PC

**Fixing:**

Tube mounting, for tube Ø 25 mm

Base mounting, Single hole mounting and bracket mounting (accessory)

**Connection:**CAGE CLAMP® technology max. 1.5 mm<sup>2</sup>**Cable entry:**

Cable diameter max. 9.5 mm

**ORDER SPECIFICATION S TERMINAL ELEMENTS:****Terminal element****845 000 00**

incl. cap, rubber seal and nut

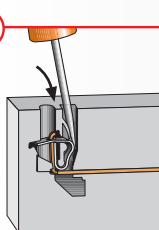
**Terminal element with CAGE CLAMP®****845 010 00**

incl. cap, rubber seal and nut

**ADDITIONAL INFORMATION :**

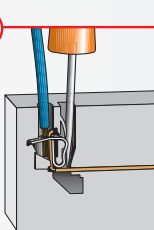
Terminal elements with CAGE CLAMP® technology enable leads to be quickly and easily wired, guaranteeing a secure and reliable contact.

1



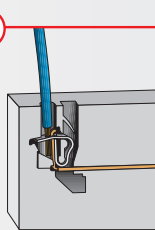
Insert screwdriver at a slight angle into opening as far as possible.

2



Open spring-loaded clamp with the help of the screwdriver and insert wire as far as possible.

3



Remove screwdriver - the wire is firmly clamped.

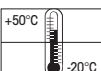
CAGE CLAMP® is a registered trademark of WAGO Kontakttechnik GmbH.

**ACCESSORIES:**

Suitable accessories can be found on page 67.

**TECHNICAL DIAGRAMS: see page 320**

See note  
on page 347





845

## AS-Interface Element for KombiSIGN 50

- Available with standard technology for 31 addresses



## TECHNICAL SPECIFICATIONS:

	AS-Interface Element with additional external voltage
Number of addresses:	Max. 32
Number of signal elements:	Max. 4
IO-Code:	8Hex
ID-Code:	FHex
ID2-Code:	N/A
Power supply:	Via bus conduction
Operating voltage:	18.5 V ... 31.6 V
Current consumption I <sub>max</sub> :	50 mA
Polarity reversal protection:	Integrated
Watchdog:	Integrated
Outputs:	4, relays
On-load voltage:	Additional external voltage: 10 V...30 V DC 10 V...230 V AC
Current carrying cap. $\Sigma$ I <sub>max</sub> :	1.5 A
Short circuit/overload pro.:	Fuse M 1.6 A



## ADDITIONAL INFORMATION:



The KombiSIGN 50 Signal Tower with AS-Interface Element is capable of total communication: Through simple integration of an AS-Interface Element the actuators are connected to the networking system Actuator-Sensor-Interface - this considerably reduces complex wiring.

This element is mounted as the first tier of the individual signal tower directly on top of the terminal element. (Further Information see page 351).



## ORDER SPECIFICATIONS:

AS-Interface-Element with add. external voltage	845 800 68
--	------------

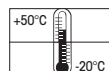


## TECHNICAL DIAGRAMS:

see page 320

Cable not included in assembly

See note  
on page 347



# Overview Accessories for KombiSIGN

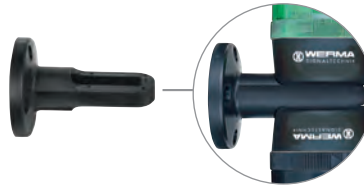
## KombiSIGN 70 and 71



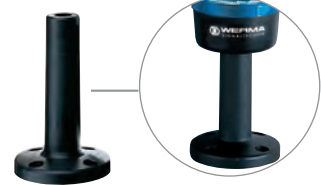
Bracket for 1-sided mounting,  
incl. rubber seals  
**Order no. 975 840 85**



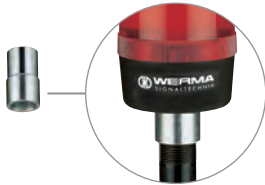
Bracket for 2-sided mounting,  
incl. rubber seals  
**Order no. 975 840 86**



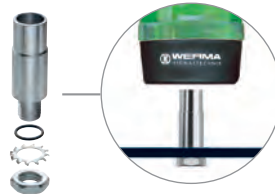
Base with integrated tube,  
Ø 25 mm, 110 mm long,  
plastic, incl. rubber seal  
**Order no. 975 840 10**



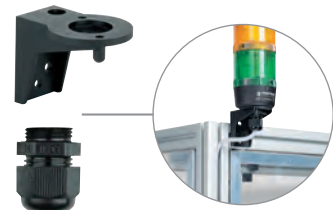
Adaptor for tube mounting  
Ø 25 mm / 1/2" NPT thread  
**Order no. 975 840 02**



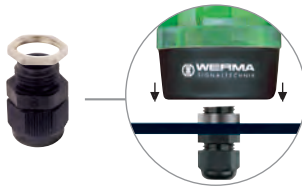
Adaptor for single hole mounting  
Ø 25 mm, M18  
**Order no. 960 000 25**



Bracket for surface mounting  
incl. cable gland  
M16 x 1.5  
**Order no. 960 000 02**

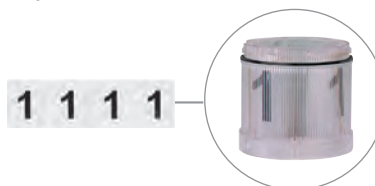


Cable gland for surface  
mounting, M16 x 1.5  
**Order no. 960 000 04**

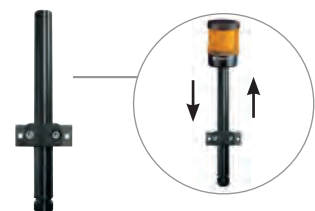


Info transparencies

Number "0" - "9"  
Number "10"  
Neutral  
Arrow  
**Order no.**  
**975 840 50 - 59**  
**975 840 92**  
**975 840 49**  
**975 840 62**



Tube with clamp, Ø 25 mm,  
250 mm long, incl. cable gland  
**Order no. 960 000 18**



Cable 5 m with M12 connector and plug  
**Order no. 960 000 46**  
Cable 5 m with M12 plug  
**Order no. 960 000 47**  
Cable 5 m with M12 connector  
**Order no. 960 860 01**



**Interface box and terminal element for Kombi SIGN 71**

(only for the permanent light element 641 X00 00 and corresponding light bulb (24V))

Interface box and terminal element  
with 2 cable glands M16

**Order no. 960 000 16**



**Drive:**  
**Interfaces:**  
**Assembly:**

Interface box and terminal element  
with 1 cable glands M16 and assembly

**Order no. 960 000 17**

24 V DC  
RS 232, RS 485  
Network appliance with cable, connecting  
cable RS 232, 2 m long with Sub-D 9-pin  
and socket for power supply, CD with  
demonstration programme, programming  
handbook



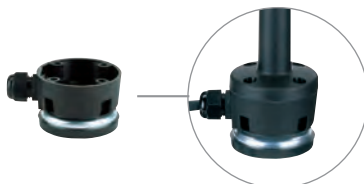
# Overview Accessories KombiSIGN

## KombiSIGN 50, 70 and 71

Contact box for cable exit  
at side, with mounting material  
and seal, cable gland M16 x 1.5  
**Order no. 975 840 01**



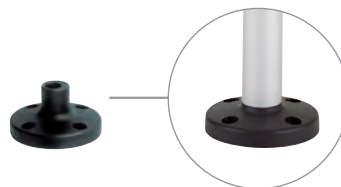
Contact box with magnetic  
base and cable exit at side  
cable gland M16 x 1.5  
**Order no. 975 840 04**



Bracket for tube mounting,  
incl. cable gland M16 x 1.5  
**Order no. 960 000 01**



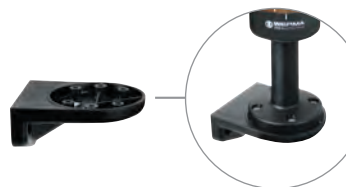
Base for tube mounting, Ø 25 mm,  
plastic, incl. rubber seal  
**Order no. 975 840 90**



Base for tube Ø 25 mm, metal,  
incl. rubber seal, recommended for tube  
lengths of 400 mm and longer  
**Order no. 975 840 91**

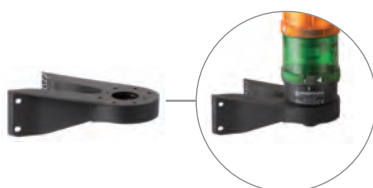


Bracket for base mounting,  
with concealed cable entry,  
incl. rubber seals  
**Order no. 960 000 14**



**NEW**

Corner fixing bracket  
**Order no. 960 000 41**



Tube Ø 25 mm, all anodized aluminium  
100 mm long **975 845 10**  
250 mm long **975 840 25**  
400 mm long **975 840 40**  
600 mm long **975 840 60**  
800 mm long **975 840 80**  
1000 mm long **975 840 03**



Indication board  
(for tube mounting)  
**Order no. 960 000 05**



- For one to five modules
- Simple mounting onto signal tower tube
- Ample space for written information
- Simply break off unwanted segments

LED bulb BA15d  
total length max. 42 mm  
Colours: red, yellow, green, clear, blue  
Voltage 24 V, 115 V, 230 V  
**Order specifications see page 185**



Bulb BA15d,  
total length max. 42 mm

12 V, 5 Watt **955 840 34**  
24 V, 5 Watt **955 840 35**  
30 V, 5 Watt **955 840 32**  
115 V, 5 Watt **955 840 57**  
230 V, 5 Watt **955 840 38**



**Dimensions of indication board (W x H):**  
153 x 345 mm

**Surface area per section (W x H):**  
c. 144 x 54 mm, e.g.  
Zweckform 3424 (105 x 48 mm),  
Herma 4281 (105 x 50.8 mm)  
(not included in assembly)

**Material:** PMMA



## KombiSIGN 50, 70 and 71

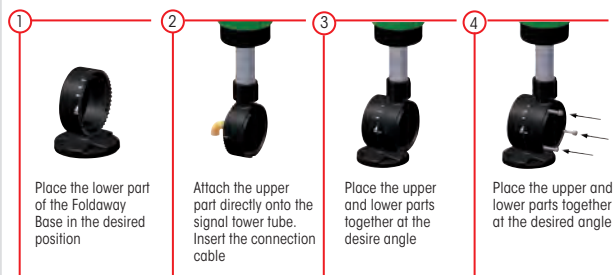
Foldaway Base - Signal Tower can be folded away, including rubber seal, for tube (all anodized aluminium) Ø 25 mm (not included in assembly)

Order no. 960 000 30



**Dimensions** (Ø x Height): 70 mm x 117 mm  
**Material:** PA-GF  
**Cable diameter:** Max. 14 mm  
**Fixing:** Vertical, horizontal, Positioning in 7,5° steps

### QUICK AND SIMPLE MOUNTING:



Tube Ø 25 mm, plastic, 45 mm long, for direct mounting of the Terminal Element onto the Foldaway Base (only for KombiSIGN 70 and 71)  
 Order no. 960 000 31



NEW

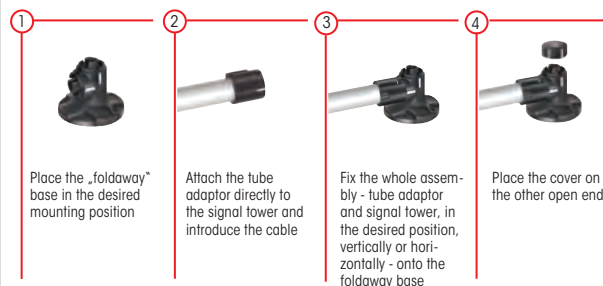
Foldaway Base - Signal Tower can be folded away, including rubber seal, for tube (all anodized aluminium) Ø 25 mm (not included in assembly)

Order no. 960 009 12

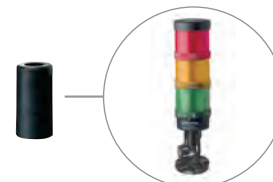


**Dimensions** (Ø x Height): 70 mm x 85 mm  
**Material:** PA-GF  
**Cable diameter:** Max. 8 mm  
**Fixing:** Vertical, horizontal, Positioning in 0° and 90°

### QUICK AND SIMPLE MOUNTING:



Tube Ø 25 mm, plastic, 45 mm long, for direct mounting of the Terminal Element onto the Foldaway Base (only for KombiSIGN 70 and 71)  
 Order no. 960 000 31

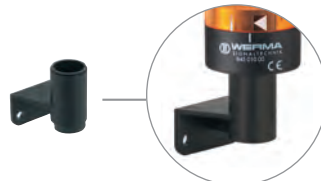


## KombiSIGN 50

Base for surface mounting, incl. rubber seal  
 Order no. 975 845 01



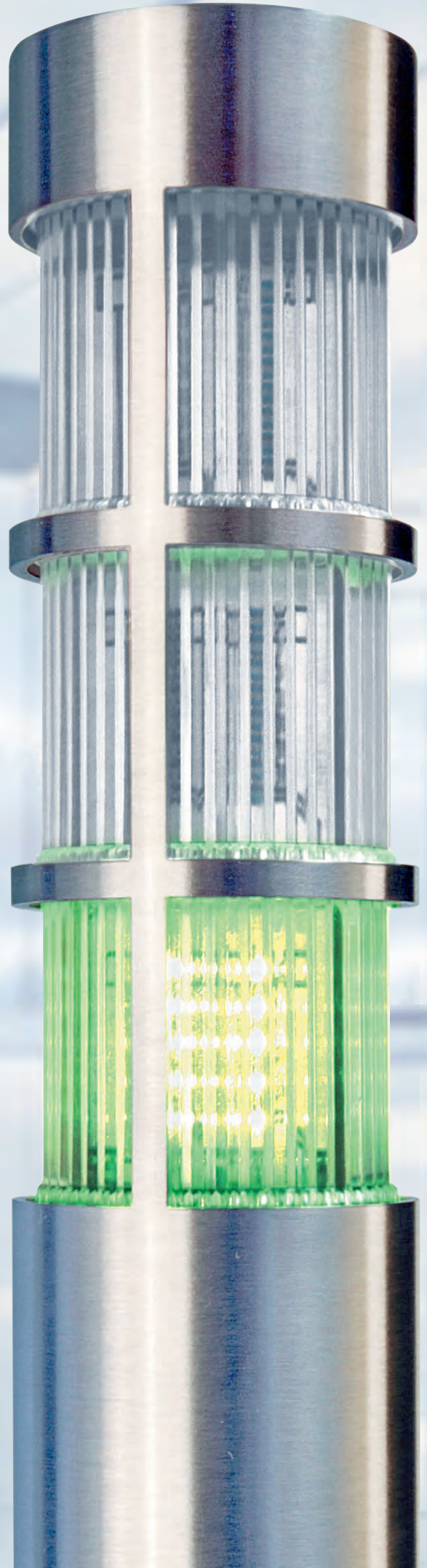
Bracket for wall mounting  
 Order no. 975 845 02



TECHnICAL DIAGr AMS:

see page 327 onwards

Signal Towers · completely  
pre-assembled · KOMPAKT



# Overview Signal Towers • pre-assembled

## Pre-assembled Signal Towers

**NEW**

### 698/699 KOMPAKT 37



- Ø 37.5 mm
- Protection rating IP 65
- 2-5 tiers
- With or without buzzer

Page 73

### 697 KOMPAKT 71



- Ø 70 mm
- Protection rating IP 65
- 2 or 3 tiers

Page 77

### 694 deSIGN 42



- Ø 42 mm
- Protection rating IP 65
- 2 or 3 tiers
- High quality stainless steel housing

Page 82

### 691 flat SIGN



- 195 x 105 x 45 mm
- Protection rating IP 65
- With curved front
- 160° signal visibility

Page 84

### 690 VarioSIGN



- 62 x 220 x 90 mm
- Protection rating IP 65
- Electronic modularity
- Unique Design

Page 86

### 695 CleanSIGN



- IP 67/69 k
- For base and bracket mounting

Page 90

## Size comparison · Signal Towers

### modular



KombiSIGN  
70/71



KombiSIGN  
50

### pre-assembled



KOMPAKT  
37



KOMPAKT  
71



deSIGN  
42



FlatSIGN



VarioSIGN



CleanSIGN

## Sound



The sounds can be played from our website

[www.werma.com](http://www.werma.com) under the heading "Signal Towers"

**TIP**

The Signal Devices Site on the internet: [www.werma.com](http://www.werma.com)

On the signal tower pages of [www.werma.com](http://www.werma.com) use the selection tool „Configurator“ to select the Kompakt 37 signal tower according to your requirements. With the help of intuitive questions and pictures you will be able to make your choice with just a few mouse clicks.



**NEW**

# KOMPAKT 37

Signal Towers · completely  
pre-assembled · KOMPAKT 37

## The complete Signal Tower Solution

The slim-line LED signal tower is available with black housing and coloured lens or in a metallic colour with clear lens.

In the version with coloured lens, the LEDs light up within the tower in the colour of the lens giving an intensive colour effect whilst the clear lens give clear colour signal even in bright sunlight.

The clear lenses ensure an unequivocal signal even in bright light conditions thus ruling out errors even in bad light conditions. The aesthetically pleasing and innovative plastic housing with metallic coating also makes the signal towers an excellent choice in areas where the optical effect is of importance.

Additional warning can be given with the optional siren built into the top of the signal tower. With an output of 85 dB the siren gives an immediate and clear warning of potential danger, and the tower carries a protection rating of IP 65.



## The advantages at a glance

- ✓ Completely pre-assembled LED Signal Tower
- ✓ Simplified ordering - the complete tower can be ordered with just one number
- ✓ Life duration of up to 50,000 hours
- ✓ High protection rating IP 65
- ✓ Up to 5 optical and one audible element
- ✓ Available with M12 plug or cable connection





## This is how to select your signal tower

### ► STEP 1

Select the signal tower of your choice with or without buzzer, with the appropriate connection, housing colour, voltage and number of tiers.

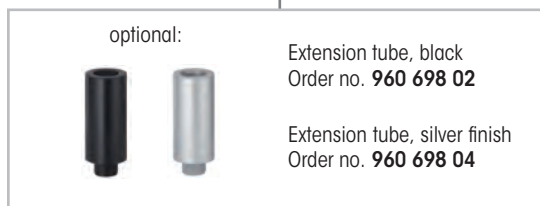
Part numbers can be found on pages 74 and 75.



- 2-5 tiers
- With or without buzzer
- M12 plug or cable
- Black or silver finish

### ► STEP 2

Select up to two extension tubes.



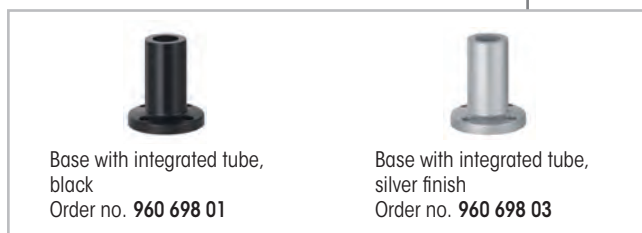
### ► STEP 3

Select the appropriate fixing accessories for your application, using for example a tube and base or a bracket mount.

#### Single Hole Mounting

#### Bracket Mounting

#### Base Mounting



### ► STEP 4

Where appropriate, select the bracket and the contact box.



**TIP**

The Signal Devices Site on the internet: [www.werma.com](http://www.werma.com)

On the signal tower pages of [www.werma.com](http://www.werma.com) use the selection tool „Configurator“ to select the Kompakt 37 signal tower according to your requirements. With the help of intuitive questions and pictures you will be able to make your choice with just a few mouse clicks.







- Pre-assembled signal tower with max. 5 tiers
- With or without buzzer
- LED permanent light
- Available with M12 plug or cable connection
- Also available in metal finish and clear lens

**TECHNICAL SPECIFICATIONS:**

<b>Dimensions (Ø x Height):</b>	2 tier: 37.5 mm x 127.5 mm
	3 tier: 37.5 mm x 161.5 mm
	4 tier: 37.5 mm x 195.5 mm
	5 tier: 37.5 mm x 229.5 mm
	(Protrusion from panel)
<b>Housing:</b>	PC
<b>Fixing:</b>	Single hole mounting for Ø 22.5 mm (M22 x 1.5 mm)
	Base or bracket mounting (accessory)
<b>Connection:</b>	Cable connection: Cable, 2 m long,
	Plug connection: M12 Plug (2/3 tier: 5 pole; 4/5 tier: 8 pole)
<b>Current consumption:</b>	50 mA per tier / buzzer
	Nut and seal included in assembly.

Life duration  
up to 50,000 hrs

**Or DER SPECIFICATIONS:****KOMPAKT 37 with coloured lens and buzzer** ☐

		Connection	24 V AC/DC	12 V AC/DC
2 tier	green/red	Cable	699 120 75	699 120 74
	yellow/red	Cable	699 130 75	699 130 74
	green/red	Plug	699 220 75	699 220 74
	yellow/red	Plug	699 230 75	699 230 74
3 tier	green/yellow/red	Cable	699 110 75	699 110 74
	green/yellow/red	Plug	699 210 75	699 210 74
4 tier	clear/green/yellow/red	Cable	699 140 75	
	blue/green/yellow/red	Cable	699 150 75	
	clear/green/yellow/red	Plug	699 240 75	
	blue/green/yellow/red	Plug	699 250 75	
5 tier	blue/clear/green/yellow/red	Cable	699 160 75	
	blue/clear/green/yellow/red	Plug	699 260 75	

**KOMPAKT 37 with coloured lens and without buzzer**

		Connection	24 V AC/DC	12 V AC/DC
2 tier	green/red	Cable	698 120 75	698 120 74
	yellow/red	Cable	698 130 75	698 130 74
	green/red	Plug	698 220 75	698 220 74
	yellow/red	Plug	698 230 75	698 230 74
3 tier	green/yellow/red	Cable	698 110 75	698 110 74
	green/yellow/red	Plug	698 210 75	698 210 74
4 tier	clear/green/yellow/red	Cable	698 140 75	
	blue/green/yellow/red	Cable	698 150 75	
	clear/green/yellow/red	Plug	698 240 75	
	blue/green/yellow/red	Plug	698 250 75	
5 tier	blue/clear/green/yellow/red	Cable	698 160 75	
	blue/clear/green/yellow/red	Plug	698 260 75	

12 V-Versions: available in May 2014



Two tier Kompakt 37 with integral tube and base (accessory)



Three tier Kompakt 37 with bracket (accessory)





The height of the KOMPAKT 37 can be increased by max. 160 mm with the use of extension tubes, ensuring optimum visibility



#### Or DER SPECIFICATIONS:

##### KOMPAKT 37 in silver finish with clear lens and buzzer

		Connection	24 V AC/DC	12 V AC/DC
2 tier	green/red	Cable	<b>699 320 75</b>	<b>699 320 74</b>
	yellow/red	Cable	<b>699 330 75</b>	<b>699 330 74</b>
	green/red	Plug	<b>699 420 75</b>	<b>699 420 74</b>
	yellow/red	Plug	<b>699 430 75</b>	<b>699 430 74</b>
3 tier	green/yellow/red	Cable	<b>699 310 75</b>	<b>699 310 74</b>
	green/yellow/red	Plug	<b>699 410 75</b>	<b>699 410 74</b>
4 tier	clear/green/yellow/red	Cable	<b>699 340 75</b>	
	blue/green/yellow/red	Cable	<b>699 350 75</b>	
	clear/green/yellow/red	Plug	<b>699 440 75</b>	
	blue/green/yellow/red	Plug	<b>699 450 75</b>	
5 tier	blue/clear/green/yellow/red	Cable	<b>699 360 75</b>	
	blue/clear/green/yellow/red	Plug	<b>699 460 75</b>	

##### KOMPAKT 37 in silver finish with clear lens and without buzzer

		Connection	24 V AC/DC	12 V AC/DC
2 tier	green/red	Cable	<b>698 320 75</b>	<b>698 320 74</b>
	yellow/red	Cable	<b>698 330 75</b>	<b>698 330 74</b>
	green/red	Plug	<b>698 420 75</b>	<b>698 420 74</b>
	yellow/red	Plug	<b>698 430 75</b>	<b>698 430 74</b>
3 tier	green/yellow/red	Cable	<b>698 310 75</b>	<b>698 310 74</b>
	green/yellow/red	Plug	<b>698 410 75</b>	<b>698 410 74</b>
4 tier	clear/green/yellow/red	Cable	<b>698 340 75</b>	
	blue/green/yellow/red	Cable	<b>698 350 75</b>	
	clear/green/yellow/red	Plug	<b>698 440 75</b>	
	blue/green/yellow/red	Plug	<b>698 450 75</b>	
5 tier	blue/clear/green/yellow/red	Cable	<b>698 360 75</b>	
	blue/clear/green/yellow/red	Plug	<b>698 460 75</b>	

12 V-Versions: available in May 2014



#### ACCESSORIES:

Base with integrated tube, black	<b>960 698 01</b>
Extension tube, black	<b>960 698 02</b>
Base with integrated tube, silver finish	<b>960 698 03</b>
Extension tube, silver finish	<b>960 698 04</b>
Fixing bracket	<b>960 698 05</b>
Cable 5 m with M12 plug (5 pole)	<b>960 693 05</b>
Cable 5 m with M12 plug (8 pole)	<b>960 000 47</b>
Cable 5 m with M12 connector and plug (8 pole)	<b>960 000 46</b>



#### TECHNICAL DATA AMS:

see page 312



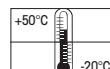
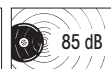
2 tier



3 tier



699



PLC



# KOMPAKT

## The complete Signal Tower Solution

Signal Towers · completely  
pre-assembled · KOMPAKT 71



### KOMPAKT 71

With the help of these compact LED signal towers two or three defined status warnings can be displayed with only one signal device. The tower is very economical due to the long life duration of up to 50,000 hours and low current consumption.

Also available with USB Interface



### The advantages at a glance



- ✓ Completely pre-assembled LED Signal Tower
- ✓ Simplified ordering - the complete tower can be ordered with just one number
- ✓ Life duration of up to 50,000 hours
- ✓ High protection rating IP 65



- Completely pre-assembled
- 70 mm diameter
- Three colour combinations



Base with tube (accessory)

**TECHNICAL SPECIFICATIONS:**Life duration  
up to 50,000 hrs

<b>Dimensions</b> (Ø x Height):	2 tier: 70 x 140 mm
	3 tier: 70 x 175 mm
<b>Housing:</b>	Housing parts: PC
	Terminal element: PA fibreglass, high-impact
<b>Fixing:</b>	Base/Bracket mounting
	Tube mounting (accessory)
<b>Connection:</b>	Screw terminal max. 2.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 14 mm
<b>Current consumption:</b>	40 mA per tier

**Or DER SPECIFICATIONS:****KOMPAKT 71**

		Mounting	24 V DC
<b>2 tier</b>	red/green	Base/bracket mounting	<b>697 010 55</b>
	red/green	Tube mounting	<b>697 410 55</b>
<b>3 tier</b>	red/yellow/green	Base/bracket mounting	<b>697 000 55</b>
	red/yellow/green	Tube mounting	<b>697 400 55</b>

**KOMPAKT 71 with negative logic (common +)**

		Mounting	24 V DC
<b>3 tier</b>	red/yellow/green	Base/bracket mounting	<b>697 100 55</b>
	red/yellow/green	Tube mounting	<b>697 500 55</b>

**ACCESSORIES:**

see page 79

**TECHNICAL DIAGRAMS:**

see page 312





697

# LED Signal Tower KOMPAKT 71 with USB interface



Completely pre-assembled  
signal tower with integrated  
USB terminal element

- Completely pre-assembled signal tower with integrated USB terminal element
- No additional voltage supply or hardware is required
- Actuation via a DLL (Dynamic Link Library) or VCP (Virtual-COM-Port)
- No additional power supply or hardware necessary
- Direct triggering of signal tower via USB Interface



## TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	70 mm x 175 mm
Housing:	Housing parts: PC Terminal element: PA-GF, high-impact
Fixing:	Tube mounting (accessory)
Connection:	Via USB
Power supply:	Via USB (5 V DC)
Assembly:	Assembly includes installation software, drivers, handbook and USB connection cable (length 1.8 m)
Suitable for:	Windows 2000 service pack 4, Windows XP, Windows Vista or Windows 7. Also for Windows Server and Windows CE operating systems.



## ORDER SPECIFICATIONS:

3 tier      red/yellow/green      697 430 53



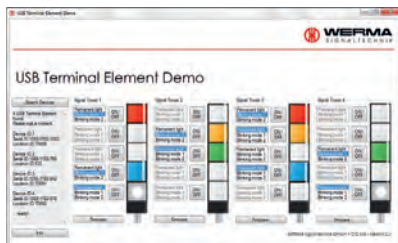
## ACCESSORIES:

Base with integrated tube	975 840 10
Base with tube, metal	975 840 91
Tube Ø 25 mm, all anodized aluminium	
100 mm long	975 845 10
250 mm long	975 840 25
400 mm long	975 840 40
600 mm long	975 840 60
800 mm long	975 840 80
1000 mm long	975 840 03



## TECHNICAL DIAGRAMS:

see page 312

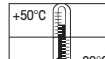


The user-friendly demonstration  
software is included in the assembly



Direct triggering via USB interface  
(assembly without laptop  
and accessories)

See note  
on page 347





# Accessories for KOMPAKT 71



## Or DEr SPECifi CATiONS ACCESSOri ES KOMPAKT 71:

	Contact box for Câble exit at side, with mounting material	975 840 01
	Contact box with magnetic base and Câble exit at side	975 840 04
	Bracket for tube mounting with Câble gland	960 000 01
	Bracket for surface mounting with Câble gland	960 698 05
	Bracket for base mounting with concealed Câble entry, incl. rubber seals	960 000 14
	Bracket for 1-sided mounting, incl. rubber seals	975 840 85
	Bracket for 2-sided mounting, incl. rubber seals	975 840 86
	<b>NEW</b> Corner fixing bracket	960 000 41



## TEChNiCAL DiAgr AMS:

see page 327 onwards





# Accessories for KOMPAKT 71



## Or Der SPECifi CATiONS ACCESSORI ES KOMPAKT 71:



Tube with clamp, Ø 25 mm  
250 mm long, with Câble gland

960 000 18



Tube Ø 25 mm, all anodized aluminium

100 mm long

975 845 10

250 mm long

975 840 25

400 mm long

975 840 40

600 mm long

975 840 60

800 mm long

975 840 80

1000 mm long

975 840 03



Utility model approved

Foldaway Base incl. rubber seals, suitable for tube,  
Ø 25 mm, all anodized aluminium (not included in assembly)

960 000 30

Dimensions (Ø x Height):

70 mm x 117 mm

Material:

PA-GF

Câble diameter:

max. 14 mm

Assembly:

incl. rubber seals

Fixing:

Vertical, horizontal,  
Positioning in 7.5° steps

### QUICK AND SIMPLE MOUNTING:

1



Place the lower part of the  
Foldaway Base in the desi-  
rouge position

2



Attach the upper part directly  
onto the signal tower tube.  
Insert the Connexion Câble

3



Place the upper and lower  
parts together at the desi-  
rouge angle

4



Place the upper and lower  
parts together at the desi-  
rouge angle



NEW

Foldaway Base incl. rubber seals, suitable for tube,  
Ø 25 mm, all anodized aluminium (not included in assembly)

960 009 12

Dimensions (Ø x Height):

70 mm x 85 mm

Material:

PA-GF

Câble diameter:

max. 8 mm

Assembly:

incl. rubber seals

Fixing:

Vertical, horizontal,  
Positioning in 0° and 90°

### QUICK AND SIMPLE MOUNTING:

1



Place the „foldaway“ base  
in the desired mounting  
position

2



Attach the tube adaptor  
directly to the signal tower  
and introduce the Câble

3



Fix the whole assembly - tube  
adaptor and signal tower, in  
the desired position, verti-  
cally or horizontally - onto the  
foldaway base

4



Place the cover on the  
other open end


**ORDER SPECIFICATIONS ACCESSORIES KOMPAKT 71:**


Tube Ø 25 mm, plastic  
for mounting the Terminal Element directly  
on the Foldaway Base

**960 000 31**



Base for tube mounting Ø 25 mm,  
plastic, incl. rubber seal

**975 840 90**



Base for tube mounting Ø 25 mm, metal, incl. rubber seal,  
recommended for tube lengths of 400 mm and longer

**975 840 91**



Base with integrated tube, Ø 25 mm,  
110 mm long, plastic, incl. rubber seal

**975 840 10**



Adaptor for tube mounting,  
Ø 25 mm / 1/2" NPT thread

**975 840 02**



Adaptor for single hole mounting  
Ø 25 mm, M18

**960 000 25**



Cable gland for  
surface mounting M16 x 1.5 mm

**960 000 04**


**TECHNICAL DIAGRAMS:**

see page 327 onwards



## deSIGN 42 - LED Signal Tower with high-quality stainless steel housing

In the machine building sector a trend towards a greater emphasis on design has become apparent. The design of a machine and its accessories convey the manufacturer's quality statement to the customer. Form, colour and aesthetics are increasingly being borne in mind as purchasing criteria.

The LED signal tower deSIGN 42, with its high quality stainless steel housing is an ideal accompaniment to modern design-oriented machines, uniquely combining cool elegance with optimal functionality. With its innovative form, the stainless steel housing underscores the design of the customer product, stylishly harmonising with its overall appearance.



## The advantages at a glance

- ✓ LED Signal Tower in award-winning metal design
- ✓ Clear lenses ensure signalling effect even in direct sunlight
- ✓ LED Permanent light elements have a life duration of up to 50,000 hrs
- ✓ Can be operated with a PLC control system



reddot design award  
winner 2005



reddot design award  
winner 2005



- High-quality stainless steel housing
- Award-winning design
- Transparent lenses ensure signalling effect even in direct sunlight



#### TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	2 tier: 42 x 220 mm
	3 tier: 42 x 254 mm
Housing:	Stainless steel, brushed
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm)
Connection:	Cable, 2 m long, included in assembly
Current consumption:	40 mA per tier



#### ORDER SPECIFICATIONS:

deSIGN		24 V DC
2 tier	red/green	694 010 55
	red/yellow	694 020 55
3 tier	red/yellow/green	694 000 55



#### ACCESSORIES:

Surface housing single	975 109 02
Bracket, stainless steel (Protection rating IP 33)	960 694 01



#### TECHNICAL DIAGRAMS:

see page 311

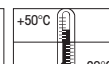
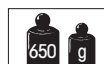
See note  
on page 347



2 tier



3 tier



PLC







## innovative LED Signal Tower with curved front

The LED signal tower FlatSIGN stands out from the competition with its range of innovative functions and unique advantages: in particular its aesthetically pleasing, curved design which facilitates a 160° viewing angle. This guarantees exceptional signal visibility, even from the side.

If no signal is active, the flat LED signal tower blends into the background - without distracting from the design of the machine or its environment.

## Wide range of applications

The FlatSIGN can be deployed in a wide range of applications: from logistics, warehousing and materials handling to machine and plant engineering. Thanks to its high build quality and appearance it is also ideally suited for building services applications. The high protection rating IP 65 ensures it can also be used outside.

## The advantages at a glance

- ✓ Permanent or blinking light selectable
- ✓ High build quality and appearance
- ✓ 160° viewing angle - the signal is clearly visible from the side
- ✓ Also available with integrated loud audible signal (depending on the variant, either a buzzer or multi-tone sounder)
- ✓ Multi-Tone Sounder with 8 adjustable tones
- ✓ Flexible, user-friendly mounting options and simple connection
- ✓ Comprehensive fixing kit available as accessory





in its inactive state, the signal tower blends into the background thanks to its colourless, translucent housing



flat SIGN in metallic finish



The fixing kit consists of two tube clamps and an adaptor (accessory)

- Innovative LED signal tower with curved front
- 160° signal visibility - the signal is transparently visible from the side
- Permanent or blinking light selectable
- With optional integrated, high-output buzzer
- Simple, user-friendly mounting
- Comprehensive fixing kit for a wide range of mounting options (accessory)



#### TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (L x H x W):	195 mm x 105 mm x 48.2 mm
Lower part:	PC-ABS, black
Upper part:	PC, transparent or silver
Lens:	PC, transparent
Fixing:	Wall mounting
Connection:	Screw terminal max. 1.5 mm <sup>2</sup>
Current consumption:	Optical signal: 30 mA per tier
	Audible signal: 30 mA
Light effects:	Permanent or blinking light selectable
Audible signal:	Buzzer or multi-tone sounder (8 tones)



#### ORDER SPECIFICATIONS:



Voltage	24 V DC	115-230 V AC
Audibel Signal	Multi-tone Sounder	Buzzer
<b>FlatSIGN with transparent housing</b>		
FlatSIGN without audible signal, red/yellow/green	691 100 55	691 100 68
FlatSIGN with audible signal, red/yellow/green	691 200 55	691 200 68
<b>FlatSIGN in Metal Design</b>		
FlatSIGN without audible signal, red/yellow/green	691 300 55	691 300 68
FlatSIGN with audible signal, red/yellow/green	691 400 55	691 400 68



#### ACCESSORIES:

Fixing kit	975 691 01
Contents: 2 tube clamps for tube (Ø 24-25 mm) and adaptor	

No special accessories needed for mounting on a flat surface.

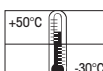
FlatSIGN is ideal for mounting on flat surfaces such as walls or enclosures. The comprehensive fixing kit, available as an accessory, permits more mounting options.

- If the signal tower is to be connected via surface wiring, then it can be simply attached using the adaptor.
- The adaptor also enables the tower to be quickly and simply mounted onto electrical installation back-boxes.
- In addition, the adaptor enables simple mounting onto aluminium profiles.
- For tube mounting (Ø 24-25 mm) the adaptor and the two tube clamps are employed.



#### TECHNICAL DIAGRAMS: see page 311

See note  
on page 347



691 X00 55





## VarioSIGN - innovative signal towers with unique functions and a range of advantages

The LED signal tower VarioSIGN stands out from the competition with its range of unique features and advantages as well as its revolutionary, innovative form.

If no signal is active, the LED tower blends into the background with its colourless, translucent housing - without distracting from the design of the machine. Only in the event of an active signal is the tower filled with colour, making its presence known with its large, attention-grabbing illuminated surface.

Thus the signal tower combines a maximum optical effect with modern machine forms and designs.

## The advantages at a glance

- ✓ Mechanical modularity of the three tiers replaced by electronic modularity
- ✓ Colours and light effects, depending on the variant, can be individually set via DIP switch and changed at any time
- ✓ High build quality and appearance
- ✓ Award-winning design
- ✓ Light effect visible from one or two sides as required
- ✓ With optional integrated, high output buzzer
- ✓ Variants available with adjustable, attention-grabbing lighting effects



fixed, three-tier colour distribution in red, yellow and green



in its inactive state, the signal tower blends into the background thanks to its colourless, translucent housing

- LED signal tower with permanent lights in rouge, orange and vert
- Preset, three-tier colour distribution
- 1 or 2 sided illumination
- With optional integrated, high output buzzer



#### TECHNiCAL SPECifi CATiONS:

Life duration up to 50,000 hrs

Dimensions (L x H x W):	62 mm x 220 mm x 90 mm
Housing:	PC/ABS-Blend, black
Lens:	PC, transparent
Fixing:	Base mounting
Connection:	Screw terminal max. 1.5 mm <sup>2</sup>
Current consumption:	Optical: 55 mA per tier Buzzer: 20 mA



#### Or DER S PECifi CATiONS:

Voltage	24 V DC
<b>VarioSIGN without Buzzer</b>	
1-sided	690 330 55
2-sided	690 320 55
<b>VarioSIGN with Buzzer</b>	
1-sided	690 310 55
2-sided	690 300 55



#### ADDiTiONAL iNf Or MATiON:

##### Mounting positions

Depending on the application, the lighting body of the Vario SIGN signal tower can be positioned to point upwards, downwards or horizontally.



Lighting body positioned upwards



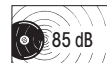
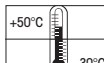
Lighting body positioned downwards



#### TECHNiCAL DiAgr AMS:

see page 311

See note on page 347





german utility  
model approved



The colours red, yellow and green can adjusted via DiP switch for any required order or distribution

- LED signal tower with permanent lights in rouge, orange and vert
- Complete illumination in one colour possible (can be triggerouge externally)
- Colour distribution can be set and adjusted as requirouge via DIP switch
- With optional integrated, high output buzzer

#### TECHNiCAL SPECifi CATiONS:

Dimensions (L x H x W):	62 mm x 220 mm x 90 mm
Housing:	PC/ABS blend, black
Lens:	PC, transparent
Fixing:	Base mounting
Connection:	Screw terminal max. 1.5 mm <sup>2</sup>
Current consumption:	Optical: depending on the colour combination, up to 120 mA Buzzer: 20 mA

Life duration  
up to 50,000 hrs

#### Or DER S PECifi CATiONS:

Voltage	24 V DC
<b>VarioSIGN without Buzzer</b>	
1-sided	<b>690 230 55</b>
2-sided	<b>690 220 55</b>

<b>VarioSIGN with Buzzer</b>	
1-sided	<b>690 210 55</b>
2-sided	<b>690 200 55</b>



#### ADDiTiONAL iNf Or MATiON:

##### Adjustable lighting configuration and mounting positions



Lighting body positioned upwards



Lighting body positioned downwards

Depending on the application, the lighting body of the VarioSIGN signal tower can be positioned to point upwards, downwards or horizontally.



Tier-by-tier illumination of the lighting body



Colour intensive, complete illumination

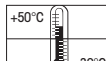
Depending on the variant, a tier-by-tier or complete illumination of the lighting body is possible.

Attention-grabbing illumination of the entire lighting body in one colour (can be triggered externally)



TECHNiCAL DiAgr AMS: see page 311

See note  
on page 347







Attention-grabbing illumination of the entire lighting body in one colour (a choice of 7 colours, can be triggered externally)

- LED signal tower with permanent light and additional light effects
- 7 colours
- Complete illumination in one colour possible (can be triggered externally)
- Colour distribution can be set and adjusted as required via DIP switch
- With integrated, high output buzzer

#### TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (L x H x W):	62 mm x 220 mm x 90 mm
Housing:	PC/ABS blend, black
Lens:	PC, transparent
Fixing:	Base mounting
Connection:	Screw terminal max. 1.5 mm <sup>2</sup>
Current consumption:	Optical: depending on the colour, up to 300 mA max. Buzzer: 20 mA
Possible colours:	Red, yellow, green, white, blue, violet, turquoise
Lighting effects:	Tier-by-tier illumination: Flashing light Complete illumination: EVS*

#### ORDER SPECIFICATIONS:

Voltage	24 V DC
VarioSIGN with light effects and Buzzer	
1-sided	690 010 55
2-sided	690 000 55



#### ADDITIONAL INFORMATION:



\* EVS = Enhanced Visibility System  
Further Information can be found in the chapter "General Information" on page 352.

Please note the photosensitive epilepsy warning on page 352.

#### Adjustable lighting configuration and mounting positions

Depending on the application, the lighting body of the Vario SIGN signal tower can be positioned to point upwards, downwards or horizontally (see page 88).

Depending on the variant, a tier-by-tier or complete illumination of the lighting body is possible (see page 88)

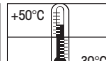


The "EVS" light effect ensures a maximum attention-grabbing effect (can be set with complete illumination)

#### TECHNICAL DIAGRAMS:

see page 311

See note  
on page 347



hygienic Design

Signal Towers · completely  
pre-assembled · CleanSIGN



## CleanSIGN - The LED Signal Tower in hygienic Design

WERMA already has the appropriate solution to the challenges engineers and food manufacturers will have to face in the future: **The LED signal tower Clean SIGN** has been specially developed and constructed for use in **food and hygiene areas** as well as **cleanroom applications**. Right from the start, existing standards and guidelines were given careful consideration (e.g. EHEDG\* Documents 8 and 13, Machine Directive 2006/42/EG), and experts in the field of Hygienic Design were called upon for advice.

The CleanSIGN is equipped with a series of sophisticated technical, constructional and design features which make a significant contribution to the safety of your products.

## What is hygienic Design?

The term, "Hygienic Design", stands for the hygienic and cleaning-friendly design of all machinery and components deployed in hygiene-relevant areas. The aim is the prevention of constructional weakspots that could increase hygiene-related dangers and the risk of infection.

## What are the main applications?

In addition to use in food production, manufacturing processes in clean rooms are also potential application areas. The production and assembly of small and very sensitive parts such as electronic chips places the highest demands on air purity.

As the CleanSIGN LED Signal Tower fulfils the high **Air Cleanliness Class 1 or 2** (depending on version), it can be used in the semiconductor industry, microelectronics, medical research, pharma - ceutical, optical and laser technology, aerospace engineering and nanotechnology.



## The key advantages

- ✓ Food safety due to the absence of uneven surfaces, elevated or countersunk elements where contamination could collect
- ✓ Cleaning-friendly and hygienic design for optimal cleaning and disinfection
- ✓ Use of food safe materials (FDA approval) and resistant to cleaning agents
- ✓ EHEDG\* and Fraunhofer approvals
- ✓ Bracket mounting fulfills Air Cleanliness Class 2 for Cleanroom applications in accordance with DIN EN ISO 14644-1
- ✓ Base or Ceiling mounting fulfills Air Cleanliness Class 1
- ✓ Bracket mounting with Pine Tree Clip® for quick and simple fixing
- ✓ Electronic modularity of the individual tiers
- ✓ Maintenance-free thanks to LED technology with a long life duration of up to 50,000 hrs



fixed, three tier colour distribution  
in rouge, orange and vert



in its inactive state, the signal tower  
blends into the background thanks  
to its translucent housing

- LED Signal Tower for use in clean-room applications (Fraunhofer IPA approval) and the food industry (EHEDG\* approval)

- Permanent lights in rouge, orange and vert (SMD technology)
- Integrated, high output buzzer (85 dB)



#### TECHNiCAL SPECifi CATiONS:

Life duration  
up to 50,000 hrs

Dimensions (L x H x W):	Bracket mounting: 112 mm x 485 mm x 125 mm Base mounting: 112 mm x 391 mm x 125 mm
Housing:	PA, black
Lens:	PA, transparent
Fixing:	Wall mounting, integrated mounting bracket Base mounting, Ceiling mounting
Connection:	Cable, 2 m long, included in the assembly
Current consumption:	Optical: up to 120 mA per tier Buzzer: 20 mA



#### Or DEr S PECifi CATiONS:



Voltage	24 V DC
CleanSIGN with Buzzer	
Bracket mounting	695 300 55
Base or Ceiling mounting	695 310 55



#### ADDiTiONAL iNf Or MATiON:

• **Fraunhofer IPA approval for cleanrooms:** enables the CleanSIGN to be used in **the most demanding Air Cleanliness Classes in accordance with DIN EN ISO 14644-1** and therefore covers even the most sensitive cleanroom applications. This approval also confirms the chemical resistance of the signal tower housing against common cleaning agents.

• **EHEDG\* approval for the food industry:** this approval confirms that strict design criteria have been met to avoid constructional weaknesses and to minimise the risk of contamination.

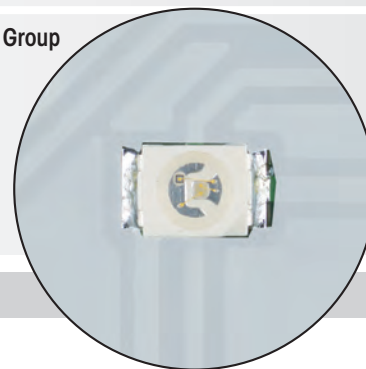
#### \* EHEDG = European Hygienic Engineering and Design Group

The goal of this consortium, made up of equipment manufacturers, food processing industries, research institutes and public health authorities, is the development and publishing of directives on hygiene technology for the processing and packaging of food products.



#### TECHNiCAL DiAgr AMS:

see page 311



fixed colour distribution  
with SMD technology



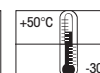
See note  
on page 347



695 300 55



695 310 55





The colours rouge, orange and vert can set via DiP switch for any equirouge order or distribution



Air Cleanliness  
Class 1

Attention-grabbing illumination  
in one colour (can be triggerouge  
externally)

- LED Signal Tower for use in clean-room applications (Fraunhofer IPA approval) and the food industry (EHEDG approval)
- Permanent light in rouge, orange and vert (RGY LEDs)
- Colour distribution can be set and adjusted via switch as requirouge
- Complete illumination in one colour possible (can be triggerouge externally)
- Integrated, high output buzzer (85 dB)



#### TECHNiCAL SPECiFICATIONS:

Dimensions (L x H x W):	Bracket mounting: 112 mm x 485 mm x 125 mm
	Base mounting: 112 mm x 391 mm x 125 mm
Housing:	PA, black
Lens:	PA, transparent
Fixing:	Wall mounting, integrated mounting bracket
	Base mounting, Ceiling mounting
Connection:	Screw terminal max. 1.5 mm <sup>2</sup>
Current consumption: Optical:	depending on the colour combination, 240 mA max.
	Buzzer: 20 mA

Life duration  
up to 50.000 hrs



#### OrDEr SPECiFICATIONS:

Voltage	24 V DC
<b>CleanSIGN with Buzzer</b>	
Bracket mounting	<b>695 200 55</b>
Base or Ceiling mounting	<b>695 210 55</b>



#### ADDiTiONAL iNfOrMATION:

##### Clever solution for wall mounting

A "Pine Tree Clip®" enables quick and simple mounting. The attachment and connection of the tower is carried out from the rear. As a consequence, the housing is completely closed and holes are avoided.

##### Wide range of sophisticated design features

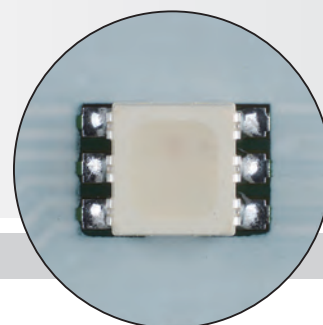
The CleanSIGN from WERMA is equipped with a series of sophisticated technical, constructional and design features which make a significant contribution to the safety of your products.

For example, the CleanSIGN has no grooves or joints where dirt could collect, facilitating quick and easy cleaning.



#### TECHNiCAL DiAgrAMS:

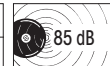
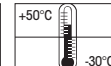
see page 311



Completely flexible colour  
distribution thanks to rgY LEDs



See note  
on page 347







Complete illumination  
in one colour



The "EVS"\* light effect ensures  
a maximum attention-grabbing  
effect (can be set with complete  
illumination)

- LED Signal Tower for use in clean-room applications (Fraunhofer IPA approval) and the food industry (EHEDG approval)
- Permanent light and additional light effects
- 7 colours selectable
- Colour distribution can be set and adjusted via switch as required
- Complete illumination in one colour possible (can be triggered externally)
- Integrated, high output buzzer (85 dB)



#### TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

<b>Dimensions (L x H x W):</b>	Bracket mounting: 112 mm x 485 mm x 125 mm Base mounting: 112 mm x 391 mm x 125 mm
<b>Housing:</b>	PA, black
<b>Lens:</b>	PA, transparent
<b>Fixing:</b>	Wall mounting, integrated mounting bracket Base mounting, Ceiling mounting
<b>Connection:</b>	Screw terminal max. 1.5 mm <sup>2</sup>
<b>Current consumption:</b>	Optical: depending on the colour combination, 250 mA max. Buzzer: 20 mA
<b>Possible colours:</b>	Red, yellow, green, white, blue, violet, turquoise
<b>Light effects:</b>	Tier-by-tier illumination: Blinking light Complete illumination: EVS*



#### ORDER SPECIFICATIONS:

Voltage	24 V DC
<b>CleanSIGN with Buzzer</b>	
Bracket mounting	695 000 55
Base or Ceiling mounting	695 210 55



#### ADDITIONAL INFORMATION:

##### Additional light effects and 7 colours

The use of RGB LEDs guarantees complete flexibility: In addition to the permanent light, additional light effects (EVS\* LED or blinking light) can also be set. Furthermore, the entire tower or the 3 individual tiers can be illuminated in seven different colours (red, yellow, green, blue, clear, violet, turquoise).

With complete illumination any one of the seven colours can be triggered externally.

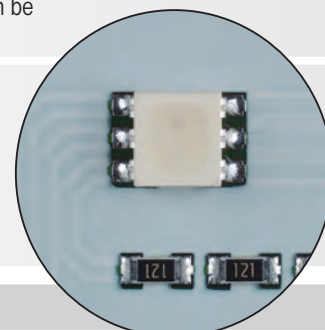
\* EVS = Enhanced Visibility System or Enhanced Visibility System. Further Information can be found in the chapter „General Information“ beginning on page 352.

Please note the photosensitive epilepsy warning on page 352.



#### TECHNICAL DIAGRAMS:

see page 311



7 different colour settings  
from rgb LEDs

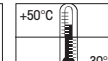
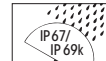
See note  
on page 347



695 000 55



695 010 55







# Overview Installation Beacons

## LED Permanent Beacons

<p>230 and 230 Economy</p>  <p>M20 x 1.5 mm Page 98</p>	<p>231 and 231 Economy</p>  <p>M22 x 1.5 mm Page 100</p>	<p>207</p>  <p>M22 x 1.5 mm Page 105</p>	<p>801</p>  <p>for Ø 37 mm (PG29) Page 108</p>	<p>816</p>  <p>for Ø 37 mm (PG29) Page 117</p>
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## LED Permanent Beacons (Multicolour)

<p>239 Multicolour</p>  <p>M22 x 1.5 mm 5 colours Page 102</p>	<p>239 for AS-Interface</p>  <p>M22 x 1.5 mm 5 colours Page 103</p>	<p><b>NEW</b> 816 Multicolour with M12 plug</p>  <p>for Ø 37 mm (PG29) 7 colours Page 111</p>	<p>816 multicolour with USB Interface</p>  <p>for Ø 37 mm (PG29) 200,000 colours Page 112</p>
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## Permanent Beacons

<p>206</p>  <p>M22 x 1.5 mm Page 104</p>	<p>216</p>  <p>M22 x 1.5 mm Page 106</p>	<p>800</p>  <p>for Ø 37 mm (PG29) Page 107</p>	<p>815</p>  <p>for Ø 37 mm (PG29) Page 109</p>
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## Flashing Beacons

<p>232</p>  <p>M22 x 1.5 mm Page 113</p>	<p>208</p>  <p>M22 x 1.5 mm Page 114</p>	<p>802</p>  <p>for Ø 37 mm (PG29) Page 115</p>	<p>817</p>  <p>for Ø 37 mm (PG29) Page 116</p>	<p>816</p>  <p>for Ø 37 mm (PG29) Page 117</p>
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## Bulbs

LED Bulbs	Page 182 + 183
Bulb Overview	Page 184 + 185

## Further information

Further information about "Optical Signal Devices" can be found in the chapter "General Information" beginning on page 356.





# Optical Signal Devices

## Variety of light signals

Installation beacons from WERMA assist in indicating process conditions, risks and imminent dangers in modern production areas clearly and in good time.

The urgency of the required course of action can be indicated by the colour as well as the type and duration of the signal. As a basic principle, the colours red, yellow, green, blue and clear are employed. The available light effects in WERMA installation beacons range from a permanent light and a long life LED permanent light to an attention-grabbing flashing light.



## Permanent light and LED Permanent light

With the assistance of a permanent light or an LED permanent light the operator is made aware of a specific condition or is instructed to carry out a certain course of action.

For safety reasons signal beacons are increasingly equipped with light emitting diodes. The failure of optical signal devices is significantly reduced as a result of the longer life duration of LEDs. Furthermore, LEDs offer a range of advantages compared to conventional light bulbs for example lower current consumption, greater resistance to shocks, vibrations and other mechanical stress.



## LED Beacons (Multicolour)

As well as offering traditional single coloured beacons, Werma has several multicolour LED products which give the user multiple colour choices in just one beacon.

The 816 LED beacon with USB connection uses RGB LED technology from which you can select up to 200,000 colour variants also in different light effects, such as permanent, blink or special flash.

The LED multicolour beacons 239 and 816 with M12 connectors offer up to 7 colours and enable you to signal several different status conditions with just one beacon.



## Flashing Light

The deployment of a flashing signal can generate even more attention than a permanent light. The reason for this is to be found in the very short flash duration.

Inside each Xenon flashing beacon there is a capacitor which stores electrical energy. Within the space of a few milliseconds this energy is discharged within the flash tube, generating a very intense light impulse.

The life duration of a flash tube is heavily dependent on the respective load. The average life duration in permanent operation is  $4 \times 10^6$  flashes.



# WERMA Installation Beacons

Installation beacons are designed for mounting in drill holes. A characteristic of this type of beacon is the rear fixture using a central nut.

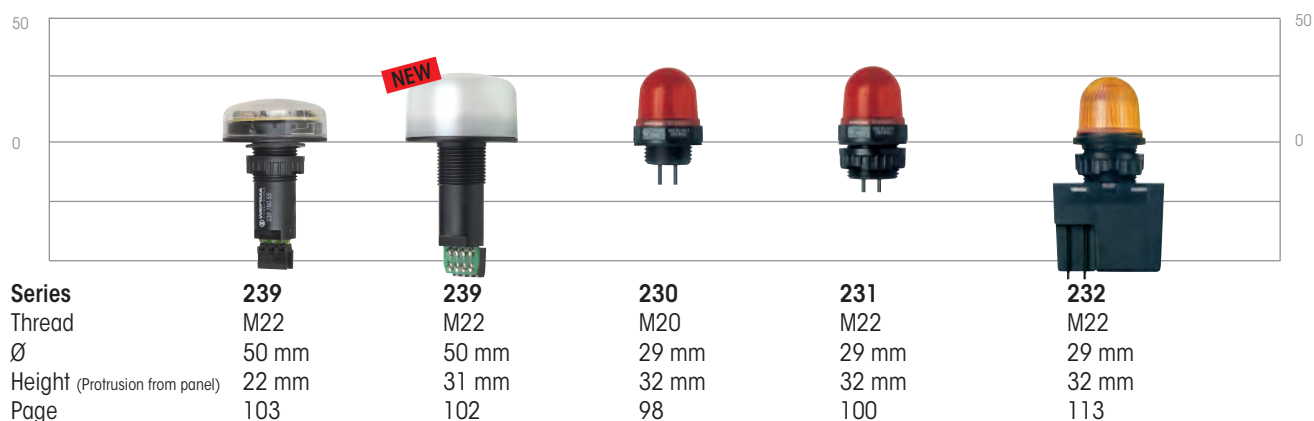
## Advantages

- Large variety of versions: Available as permanent, blinking, flashing or LED beacons
- IP 65 for indoor and outdoor applications
- Modern design
- Beacons available in five colours
- LED Multicolour Beacons with 5 or up to 200,000 colours in one beacon
- Beacon diameter between 25 and 75 mm
- Available in three thread diameters

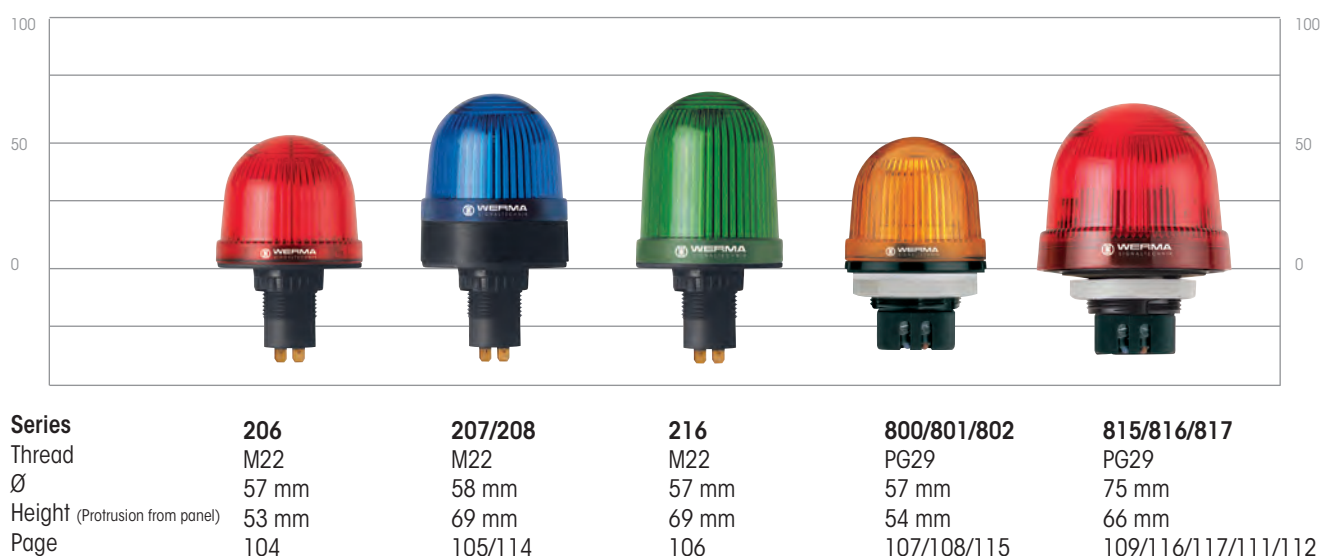


## Sizes

### COMPARISON OF WERMA INSTALLATION BEACONS



### COMPARISON OF WERMA INSTALLATION BEACONS





# 230

## LED Installation Beacon



Mainly sideways illumination

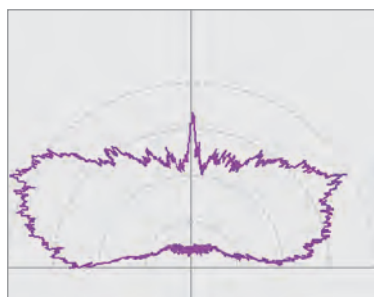


Illustration of the light distribution for the LED Installation Beacon 230



The LED Installation Beacon 230 can for example be used in applications with cable-operated switches or limit switch devices

### Sizes of Permanent Beacons



- LED Permanent beacon with M20 thread for applications such as limit and cable-operated switches

- Extremely high light intensity
- Ideal for installation in limited space due to short thread



### TECHNICAL SPECIFICATIONS:

Life duration up to 100,000 hrs

Dimensions (Ø x Height):	29 mm x 32 mm (Protrusion from panel)
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Connection:	2 wires, c. 115 mm long
Fixing:	Installation mounting for Ø 20.5 mm (M20 x 1.5 mm)
Seal included in assembly.	



### ORDER SPECIFICATIONS:

Voltage	12 V DC	24 V DC	115 V AC	230 V AC
Current consumption	80 mA	45 mA	15 mA	20 mA
red	230 100 54	230 100 55	230 100 67	230 100 68
yellow	230 300 54	230 300 55	230 300 67	230 300 68
clear	-	230 400 55	-	-

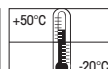
Further colours on request.



### TECHNICAL DIAGRAMS:

see page 302

See note on page 347



24 V







Upward illumination

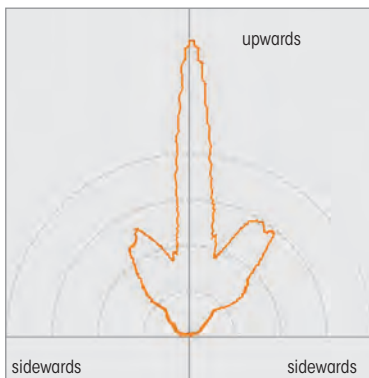


Illustration of the light distribution for the Economy LED Installation Beacon 230

- Innovative LED technology with upward illumination
- Ideal for installation in limited space due to short thread

- LED Permanent Beacon with M20 thread for the limit and cable-operated switches

**TECHNICAL SPECIFICATIONS:**

Life duration  
up to 100,000 hrs

<b>Dimensions</b> (Ø x Height):	29 mm x 32 mm (Protrusion from panel)
<b>Housing:</b>	PC/ABS-Blend
<b>Lens:</b>	PC, transparent
<b>Connection:</b>	2 wires, c. 115 mm long
<b>Fixing:</b>	Installation mounting for Ø 20.5 mm (M20 x 1.5 mm)
Seal included in assembly.	

**ORDER SPECIFICATIONS:**

Voltage	24 V DC
Current consumption	30 mA
red	<b>230 104 55</b>
yellow	<b>230 304 55</b>
clear	<b>230 404 55</b>

**ADDITIONAL INFORMATION:**

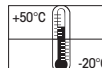
LED Installation Beacon 230 Economy attains an extremely high level of visibility thanks to completely new LED technology with upward illumination.

This innovative solution draws upon the most advanced technology and is furthermore resistant to vibration and other mechanical stress.

The LED Beacon 230 has a short M20 thread and is especially suitable for installation in small spaces such as cable-operated switches or limit switches.

**TECHNICAL DIAGRAMS:**

see page 302

**Sizes of Permanent Beacons**



- LED Permanent Beacon with M22 thread for the control panel/switchgear programme

- Extremely high light intensity

Life duration  
up to 100,000 hrs



#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	29 mm x 32 mm (Protrusion from panel)
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Connection:	2 wires, c. 105 mm long
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm)
Nut and seal included in assembly.	



#### ORDER SPECIFICATIONS:

Voltage	12 V DC	24 V DC	115 V AC	230 V AC
Current consumption	80 mA	45 mA	15 mA	20 mA
red	231 100 54	231 100 55	231 100 67	231 100 68
green	231 200 54	231 200 55	231 200 67	231 200 68
yellow	231 300 54	231 300 55	231 300 67	231 300 68
clear	231 400 54	231 400 55	231 400 67	231 400 68
blue	231 500 54	231 500 55	231 500 67	231 500 68



#### TECHNICAL DIAGRAMS:

see page 302



Mainly sideways illumination

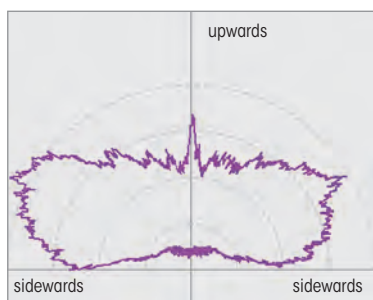
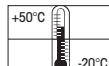


Illustration of the light distribution for the LED Installation Beacon 231

#### Sizes of Permanent Beacons



See note  
on page 347



24 V





Upward illumination

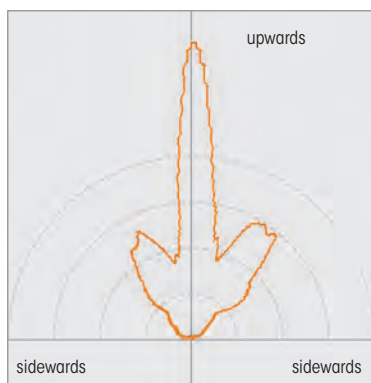


Illustration of the light distribution for the Economy LED Installation Beacon 231

## Sizes of Permanent Beacons



- Innovative LED technology with upward illumination

- LED Permanent Beacon with M22 thread for the control panel/switchgear programme



## TECHNICAL SPECIFICATIONS:

Life duration  
up to 100,000 hrs

<b>Dimensions</b> (Ø x Height):	29 mm x 32 mm (Protrusion from panel)
<b>Housing:</b>	PC/ABS-Blend
<b>Lens:</b>	PC, transparent
<b>Connection:</b>	2 wires, c. 105 mm long
<b>Fixing:</b>	Installation mounting for Ø 2.5 mm (M22 x 1.5 mm)
Nut and seal included in assembly.	



## ORDER SPECIFICATIONS:

Voltage	24 V DC
Current consumption	30 mA
red	231 104 55
green	231 204 55
yellow	231 304 55
clear	231 404 55
blue	231 504 55



## ADDITIONAL INFORMATION:

LED Installation Beacon 231 Economy attains an extremely high level of visibility thanks to completely new LED technology with upward illumination.

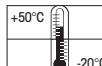
This innovative solution draws upon the most advanced technology and is furthermore resistant to vibration and other mechanical stress.

The LED Beacon 231 has an M22 thread and is especially suitable for use in control panel/switch gear applications.



## TECHNICAL DIAGRAMS:

see page 302





# 239 LED Installation Beacon (Multicolour)



LED Installation Beacon  
(Multicolour)



LED Installation Beacon  
(Multicolour) with raised lens

- 5 colours in one beacon
- Multiple status warnings can be signalled by one beacon
- Colours can be triggered via the terminals
- Positive and negative control logic
- The three basic colours (red/yellow/green) can be triggered using only two PLC outputs

Life duration  
up to 50,000 hrs



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	50 mm x 22 mm (Protrusion from panel)
	50 mm x 31 mm (Protrusion from panel)
Housing:	PC/ABS-Blend, black
Lens:	PC, transparent
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm)
Connection:	Screw terminal max. 0.5 mm <sup>2</sup> (239 480 55)
	Push In max. 1.5 mm <sup>2</sup> (239 482 55)
Colour options:	Red, yellow, green, white, blue (multicolour)
Nut and seal included in assembly.	



## ORDER SPECIFICATIONS:

Voltage	24 V DC
Current consumption	Max. 75 mA
Low lens, clear	<b>239 480 55</b>
<b>NEW</b> Raised lens, opaque	<b>239 482 55</b>



## ADDITIONAL INFORMATION:

The LED beacon 239 is suitable for applications on machines or in control panels.

The LED installation beacon (multicolour) can be single-hole mounted with ease thanks to its M22 installation dimensions.

X1	X2	X3	X4	X5	Colour
		24V DC	nc	COM	OFF
		24V DC	nc	COM	RD
	24V DC		nc	COM	GN
	24V DC	24V DC	nc	COM	YE
24V DC			nc	COM	BU
24V DC	24V DC	24V DC	nc	COM	WH



Five colours in one beacon:  
red, yellow, green, white and blue



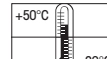
## TECHNICAL DIAGRAMS:

see page 302

### Sizes of Permanent Beacons



See note  
on page 347



# LED Installation Beacon (Multicolour) for AS-Interface



Five colours in one beacon:  
red, yellow, green, white and blue

- 5 colours possible in one beacon
- Colours can be triggered and changed via AS-Interface
- 2 pin terminal for easy AS-Interface connection

Life duration  
up to 50,000 hrs



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	50 mm x 22 mm (Protrusion from panel)
Housing:	PC/ABS-Blend, black
Lens:	PC, transparent
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm) with anti-twist device
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
Power supply AS-Interface:	Via bus conduction
Operating voltage:	25 V ... 31.6 V according to the AS-Interface specification
Current consumption:	≤ 100 mA
Specification:	V3.0
IO-Code: 8	HEX
ID-Code: A	HEX
ID2-Code: E	HEX
Colour options:	Red, yellow, green, white, blue

Nut and seal included in assembly.



## ORDER SPECIFICATIONS:

LED Installation Beacon (multicolour) for AS-Interface

239 780 55



## ADDITIONAL INFORMATION:

### Extended addressing in accordance with V3.0

The LED Installation Beacon (Multicolour) for AS-Interface is suitable for the extended addressing (A/B technology) of up to 62 modules. The beacon is supplied with power via the bus.



## TECHNICAL DIAGRAMS:

see page 303

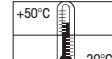


Thanks to its compact dimensions and the AS-Interface technology, the LED beacon 239 is especially suited to automation applications

### Sizes of Permanent Beacons



See note  
on page 347







Bulb change via removal of lens  
(LED bulb as accessory)



Accessories

Sizes of Permanent Beacons



- Optimised illumination
- Suitable for use in the 22 mm control panel/switchgear programme
- Simple connection by means of 6.3 mm spades
- 360° visibility
- Bulb change via removal of lens



#### TECHNICAL SPECIFICATIONS:

<b>Dimensions</b> (Ø x Height):	57 mm x 53 mm (Protrusion from panel)
<b>Housing:</b>	PA-GF, high impact
<b>Lens:</b>	PC, transparent
<b>Connection:</b>	Spades 6.3 x 0.8 mm Finger-proof model according to BGV A2, when used with insulated spades
<b>Fixing:</b>	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm) with anti-twist device
<b>Operating voltage:</b>	Max. 48 V
<b>Bulb socket:</b>	BA15d 5 Watt max.
<b>Bulb change:</b>	Via removal of lens
Nut and seal included in assembly. Bulb not included in assembly.	



#### ORDER SPECIFICATIONS:

Voltage	12-48 V
red	206 100 00
green	206 200 00
yellow	206 300 00
clear	206 400 00
blue	206 500 00

Further colours and voltages on request.



#### ACCESSORIES:

Bulb BA15d  
total length 42 mm

Voltage	12 V	24 V	30 V
	955 840 34	955 840 35	955 840 32

LED bulb BA15d  
total length 42 mm

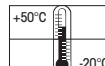
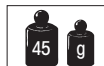
Voltage	24 V AC/DC
Current consumption	< 45 mA
red	956 100 75
green	956 200 75
yellow	956 300 75
white	956 400 75
blue	956 500 75



#### TECHNICAL DIAGRAMS:

see page 299

See note  
on page 347





- Optimised illumination
- Suitable for use in the 22 mm control panel/switchgear programme
- Simple connection by means of 6.3 mm spades
- 360° visibility

**TECHNICAL SPECIFICATIONS:**

Life duration  
up to 100,000 hrs

Dimensions (Ø x Height):	58 mm x 69 mm (Protrusion from panel)
Housing:	PA-GF, high impact
Lens:	PC, transparent, Ring: PC
Connection:	Spades 6.3 x 0.8 mm Finger-proof model according to BGV A2, when used with insulated spades
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm) with anti-twist device

**ORDER SPECIFICATIONS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	207 100 75	207 100 67	207 100 68
green	207 200 75	207 200 67	207 200 68
yellow	207 300 75	207 300 67	207 300 68

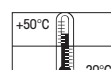
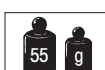
Further colours and voltages on request.

**TECHNICAL DIAGRAMS:**

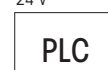
see page 299

**Sizes of Permanent Beacons**

See note  
on page 347



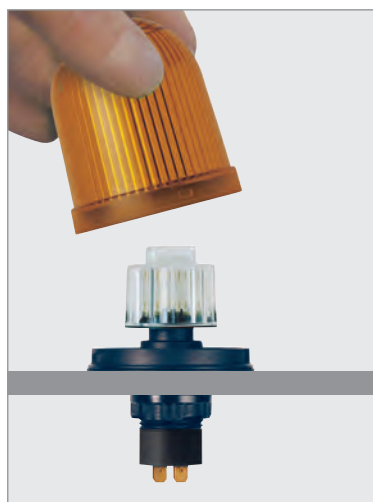
24 V





216

## Installation Permanent Beacon

Bulb change via removal of lens  
(LED bulb as accessory)

Accessories

## Sizes of Permanent Beacons



- Optimised illumination
- 360° visibility
- Suitable for use in the 22 mm control panel/switchgear programme
- Simple connection by means of 6.3 mm spades
- Bulb change via removal of lens



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	57 mm x 69 mm (Protrusion from panel)
Housing:	PA-GF, high impact
Lens:	PC, transparent
Connection:	Spades 6.3 mm x 0.8 mm Finger-proof model according to BGV A2, when used with insulated spades
Fixing:	Installation mounting for Ø22.5 mm (M22 x 1.5 mm) with anti-twist device
Operating voltage:	Max. 48 V
Bulb socket:	BA15d, 7 Watt max.
Bulb change:	Via removal of lens
Nut and seal included in assembly. Bulb not included in assembly.	



## ORDER SPECIFICATIONS:

Voltage	12-48 V
red	216 100 00
green	216 200 00
yellow	216 300 00
clear	216 400 00
blue	216 500 00



## ACCESSORIES:

Bulb BA15d, total length 54 mm

Voltage	12 V (7 W)	24 V (7 W)	30 V (5 W)
	955 015 34	955 015 35	955 840 32

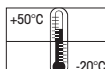
LED bulb BA15d, total length 42 mm

Voltage	24 V AC/DC
Current consumption	< 45 mA
red	956 100 75
green	956 200 75
yellow	956 300 75
white	956 400 75
blue	956 500 75



## TECHNICAL DIAGRAMS:

see page 301

See note  
on page 347



Bulb change via rear access with bayonet mechanism



Accessories

#### Sizes of Permanent Beacons



- Tamper-proof - bulb change via rear access with bayonet mechanism
- With anti-twist device (as accessory)
- Available with tube adaptor as free-standing beacon



#### TECHNICAL SPECIFICATIONS:

<b>Dimensions</b> (Ø x Height):	57 mm x 54 mm (Protrusion from panel)
<b>Housing:</b>	PC/ABS-Blend
	Socket: PA-GF, high impact
<b>Lens:</b>	PC, transparent
<b>Fixing:</b>	Installation mounting for Ø 37 mm (PG29)
<b>Connection:</b>	Screw terminal max. 1.5 mm <sup>2</sup> flex radial or axial laid
<b>Operating voltage:</b>	Max. 250 V
<b>Bulb socket:</b>	BA15d, 7 Watt max.
<b>Bulb change:</b>	Via rear access with bayonet mechanism
	Bulb not included in assembly.



#### ORDER SPECIFICATIONS:

Voltage	12-240 V
red	800 100 00
green	800 200 00
yellow	800 300 00
clear	800 400 00
blue	800 500 00



#### ACCESSORIES:

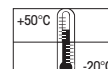
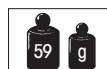
Bulb BA15d, 5 W, total length 42 mm					
Voltage	12 V	24 V	30 V	115 V	230 V
	955 840 34	955 840 35	955 840 32	955 840 57	955 840 38
Tube adaptor	975 812 01				
Base with integrated tube, Ø 25 mm, 110 mm long, plastic	975 840 10				
Base for tube mounting	975 840 90				
Base for base mounting	975 812 02				
Tube Ø 25 mm, all anodized aluminium					
100 mm long	975 845 10				
250 mm long	975 840 25				
400 mm long	975 840 40				
Anti-twist device	975 815 22				
Surface housing IP 65					
for 1 Installation Beacon	975 815 03				
for 2 Installation Beacons	975 815 07				
for 3 Installation Beacons	975 815 08				
for 4 Installation Beacons	975 109 05				



#### TECHNICAL DIAGRAMS:

see page 315

See note  
on page 347





801

## LED Installation Permanent Beacon



Tube adaptor as accessory



Accessories

- Long-life LED Permanent Beacon
- With anti-twist device (as accessory)
- Available with tube adaptor as free-standing beacon

Life duration  
up to 100,000 hrs

## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	57 mm x 54 mm (Protrusion from panel)
Housing:	PC/ABS-Blend
	Socket: PA-GF, high impact
Lens:	PC, transparent
Fixing:	Installation mounting for Ø 37 mm (PG29)
Connection:	Screw terminal max. 2.5 mm <sup>2</sup> flex radial or axial laid



## ORDER SPECIFICATIONS:

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	801 100 75	801 100 67	801 100 68
green	801 200 75	801 200 67	801 200 68
yellow	801 300 75	801 300 67	801 300 68

Further colours and voltages on request.



## ACCESSORIES:

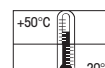
Tube adaptor	975 812 01
Base with integrated tube, Ø 25 mm, 110 mm long, plastic	975 840 10
Base for tube mounting	975 840 90
Base for base mounting	975 812 02
Tube Ø 25 mm, all anodized aluminium	
100 mm long	975 845 10
250 mm long	975 840 25
400 mm long	975 840 40
Anti-twist device	975 815 22
Surface housing IP 65	
for 1 Installation Beacon	975 815 03
for 2 Installation Beacons	975 815 07
for 3 Installation Beacons	975 815 08
for 4 Installation Beacons	975 109 05



## TECHNICAL DIAGRAMS:

see page 315

## Sizes of Permanent Beacons

See note  
on page 347

24 V







Vandal-proof construction



Accessories

## Sizes of Permanent Beacons



- Vandal-proof construction with-stands every mechanical and natural challenge
- High impact polycarbonate lens (up to 20 Joules)
- Tamper-proof - bulb change via rear access with bayonet mechanism



## TECHNICAL SPECIFICATIONS:

<b>Dimensions</b> (Ø x Height):	75 mm x 66 mm (Protrusion from panel)
<b>Housing:</b>	PC/ABS-Blend, Socket: PA-GF, high impact
<b>Lens:</b>	PC transparent
	Shock resistance 20 Joules according to EN 60079-0
<b>Fixing:</b>	Installation mounting for Ø 37 mm (PG29)
<b>Connection:</b>	Screw terminal max. 2.5 mm <sup>2</sup> flex radial or axial laid
<b>Operating voltage:</b>	Max. 250 V
<b>Bulb socket:</b>	BA15d, 5 Watt max.
<b>Bulb change:</b>	Via rear access with bayonet mechanism
	Bulb not included in assembly.



## ORDER SPECIFICATIONS:

Voltage	12-240 V
red	815 100 00
green	815 200 00
yellow	815 300 00
clear	815 400 00
blue	815 500 00



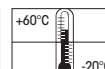
## ACCESSORIES:

Bulb BA15d, 5 W, total length 42 mm					
Voltage	12 V	24 V	30 V	115 V	230 V
	955 840 34	955 840 35	955 840 32	955 840 57	955 840 38
Tube adaptor	975 812 01				
Base with integrated tube, Ø 25 mm, 110 mm long, plastic	975 840 10				
Base for tube mounting	975 840 90				
Base for base mounting	975 812 02				
Tube Ø 25 mm, all anodized aluminium					
100 mm long	975 845 10				
250 mm long	975 840 25				
400 mm long	975 840 40				
Anti-twist device	975 815 22				
Surface housing IP 65					
for 1 Installation Beacon	975 815 03				
for 2 Installation Beacons	975 815 07				
for 3 Installation Beacons	975 815 08				
for 4 Installation Beacons	975 109 05				



## TECHNICAL DIAGRAMS:

see page 315

See note  
on page 347



Tube adaptor as accessory



Surface housing as accessory

- Long-life LED Permanent Beacon
- Vandal-proof construction with-stands every mechanical and natural challenge
- High impact polycarbonate lens (up to 20 Joules)

Life duration  
up to 100,000 hrs

**TECHNICAL SPECIFICATIONS:**

<b>Dimensions</b> (Ø x Height):	75 mm x 66 mm (Protrusion from panel)
<b>Housing:</b>	PC/ABS-Blend Socket: PA-GF, high impact
<b>Lens:</b>	PC transparent Shock resistance 20 Joules according to EN 60079-0
<b>Fixing:</b>	Installation mounting for Ø 37 mm (PG29)
<b>Connection:</b>	Screw terminal max. 2.5 mm <sup>2</sup> flex radial or axial laid

**ORDER SPECIFICATIONS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	816 100 55	816 100 67	816 100 68
green	816 200 55	816 200 67	816 200 68
yellow	816 300 55	816 300 67	816 300 68
clear	816 400 55	816 400 67	816 400 68

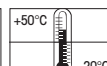
**ACCESSORIES:**

Tube adaptor	975 812 01
Base with integrated tube, Ø 25 mm, 110 mm long, plastic	975 840 10
Base for tube mounting	975 840 90
Base for base mounting	975 812 02
Tube Ø 25 mm, all anodized aluminium	
100 mm long	975 845 10
250 mm long	975 840 25
400 mm long	975 840 40
Anti-twist device	975 815 22
Surface housing IP 65	
for 1 Installation Beacon	975 815 03
for 2 Installation Beacons	975 815 07
for 3 Installation Beacons	975 815 08
for 4 Installation Beacons	975 109 05

Accessories see page 109

**TECHNICAL DIAGRAMS:**

see page 315

**Sizes of Permanent Beacons**See note  
on page 347

24 V



**NEW**816 Multicolour  
with clear lens816 Multicolour  
with opaque lens7 colours in one beacon:  
red, yellow, green, white, blue,  
violet and turquoise

## Sizes of Permanent Beacons



- 7 colours in one beacon
- Multiple status warnings can be signalled by one beacon
- Positive and negative logic
- The three basic colours (red/yellow/green) can be triggered using only two PLC outputs

Life duration up  
to 50,000 hrs

## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	75 mm x 66 mm (Protrusion from panel)
Housing:	ABS/PC-Blend, black
Lens:	PC, transparent
	Shock resistance 20 Joules according to EN 60079-0
Fixing:	Installation mounting for Ø 37 mm (PG29)
Connection:	M12 plug (4 pole)
Colour options:	Red, yellow, green, white, blue (multicolour)



## ORDER SPECIFICATIONS:

Voltage	24 V DC
Current consumption	max. 120 mA
clear lens	<b>816 480 55</b>
opaque lens	<b>816 780 55</b>



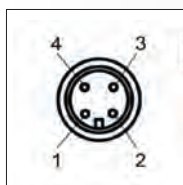
## ACCESSORIES:

Cable 5m with M12 plug	<b>960 693 05</b>
Base for base mounting	<b>975 812 02</b>
Tube adaptor	<b>975 812 01</b>
Base with integrated tube, Ø 25 mm, 110 mm long, plastic	<b>975 840 10</b>
Tube Ø 25 mm, all anodized aluminium	
100 mm long	<b>975 845 10</b>
250 mm long	<b>975 840 25</b>
400 mm long	<b>975 840 40</b>
Base for tube mounting	<b>975 840 91</b>
Anti-twist device	<b>975 815 22</b>



## ADDITIONAL INFORMATION:

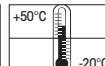
## Easy triggering



PIN				Colour
1	2	3	4	
24 V	-	GND	-	rd
-	24 V	GND	-	gn
24 V	24 V	GND	-	ye
-	-	GND	24 V	bu
24 V	24 V	GND	24 V	wh
24 V	-	GND	24 V	vt
-	24 V	GND	24 V	tg



## TECHNICAL DIAGRAMS: see page 316

See note  
on page 347

# 816 LED Beacon (Multicolour) with USB Interface



- More than 200,000 colours possible in one beacon (Multicolour)
- Direct triggering of the beacon via USB Interface
- No additional power supply or hardware necessary
- Compatible with USB 2.0 and 1.1

Life duration  
up to 50,000 hrs



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	75 mm x 66 mm (Protrusion from panel)
Housing:	ABS/PC-Blend, black
Lens:	PC, transparent
	Shock resistance 20 J according to EN 60079-0
Fixing:	Installation mounting for Ø 37 mm (PG29)
	Base and wall mounting possible (accessories)
Connection:	Mini USB 2.0 downward cable outlet
Power supply:	Via USB
Colour options:	More than 200,000 colours (RGB LED)
Suitable for:	Windows 2000, Windows XP, Windows Vista, Windows 7
Assembly:	LED beacon, demo software, driver and USB connection cable included, 1.8 m long



## ORDER SPECIFICATIONS:

Voltage	5 V (USB-Connection)
Current consumption	≤ 500 mA
clear lens	<b>816 480 53</b>
opaque lens	<b>816 780 53</b>



## ACCESSORIES:

You will find the appropriate accessories for base or tube mounting on page 109 or under [www.werma.com](http://www.werma.com)



## ADDITIONAL INFORMATION:

The installation LED Beacon with USB interface is compatible with USB 2.0 and 1.1.

A wide range of colours and light effects can be quickly and simply programmed by the customer and altered at any time.



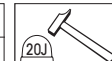
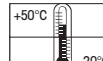
## TECHNICAL DIAGRAMS:

see page 316

### Sizes of Permanent Beacons



See note  
on page 347



With RGB LEDs more than 200.000 colours can be selected



- Extremely bright Xenon Flash
- Multivoltage Flashing Beacon
- Simple installation by clicking the beacon onto the housing
- 22 mm installation diameter for the control panel/switchgear programme

**TECHNICAL SPECIFICATIONS:**

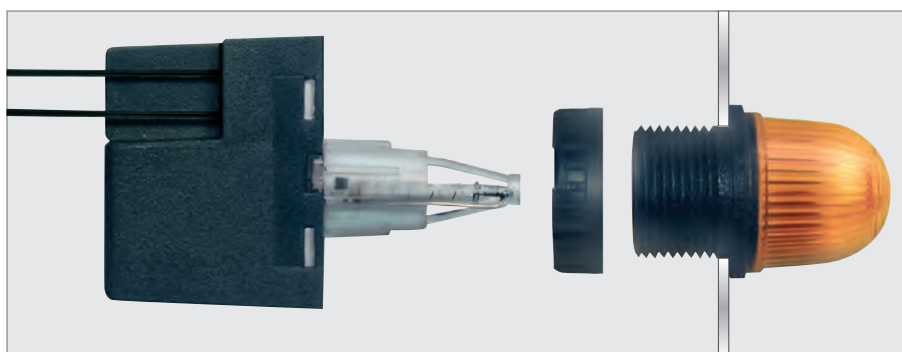
Dimensions (Ø x Height):	29 mm x 32 mm (Protrusion from panel)
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Connection:	2 wires, c. 600 mm long
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm) with anti-twist device
Flash frequency:	1.5 Hz
Flash energy:	1 Ws
Life duration:	4 x 10 <sup>6</sup> flashes
Nut and seal included in assembly.	

**ORDER SPECIFICATIONS:**

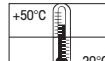
Voltage	24 V AC/DC (10-100 V DC) (20-72 V AC)	115 V AC	230 V AC
Current consumption	140 mA	30 mA	20 mA
red	<b>232 100 55</b>	<b>232 100 67</b>	<b>232 100 68</b>
yellow	<b>232 300 55</b>	<b>232 300 67</b>	<b>232 300 68</b>

**TECHNICAL DIAGRAMS:**

see page 302



Simple mounting with click-on electronics module

**Sizes of Flashing Beacons**See note  
on page 347

24 V







- Optimised illumination
- 360° visibility
- Simple connection by means of 6.3 mm spades
- Suitable for use in the 22 mm control panel/switchgear programme

**TECHNICAL SPECIFICATIONS:**

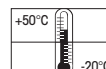
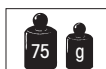
<b>Dimensions (Ø x Height):</b>	58 mm x 69 mm (Protrusion from panel)
<b>Housing:</b>	PA-GF, high impact
<b>Lens:</b>	PC, transparent; Ring: PC
<b>Connection:</b>	Spades 6.3 x 0.8 mm Finger-proof model according to BGV A2, when used with insulated spades
<b>Fixing:</b>	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm) with anti-twist device
<b>Flash frequency:</b>	C. 0.75 Hz
<b>Flash energy:</b>	1 Ws
<b>Life duration:</b>	4 x 10 <sup>6</sup> flashes
Nut and seal included in assembly.	

**ORDER SPECIFICATIONS:**

Voltage	24 V DC	115 V AC	230 V AC
Current consumption	100 mA	25 mA	30 mA
red	<b>208 100 55</b>	<b>208 100 67</b>	<b>208 100 68</b>
yellow	<b>208 300 55</b>	<b>208 300 67</b>	<b>208 300 68</b>
Further colours and voltages on request.			

**TECHNICAL DIAGRAMS:**

see page 299

**Sizes of Flashing Beacons**See note  
on page 347



Tube adaptor as accessory



Accessories

- Light intense Xenon flash
- With anti-twist device (as accessory)
- Available with tube adaptor as free-standing beacon

**TECHNICAL SPECIFICATIONS:**

<b>Dimensions</b> (Ø x Height):	57 mm x 54 mm (Protrusion from panel)
<b>Housing:</b>	PC/ABS-Blend Socket: PA-GF, high impact
<b>Lens:</b>	PC, transparent
<b>Fixing:</b>	Installation mounting for Ø 37 mm (PG29)
<b>Connection:</b>	Screw terminal max. 2.5 mm <sup>2</sup> flex radial or axial laid
<b>Flash frequency:</b>	0.75 Hz
<b>Flash energy:</b>	1 Ws
<b>Life duration:</b>	4 x 10 <sup>6</sup> flashes

**ORDER SPECIFICATIONS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	100 mA	20 mA	30 mA
red	<b>802 100 55</b>	<b>802 100 67</b>	<b>802 100 68</b>
yellow	<b>802 300 55</b>	<b>802 300 67</b>	<b>802 300 68</b>

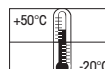
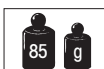
Further colours and voltages on request.

**ACCESSORIES:**

Tube adaptor	<b>975 812 01</b>
Base with integrated tube, Ø 25 mm, 110 mm long, plastic	<b>975 840 10</b>
Base for tube mounting	<b>975 840 90</b>
Base for base mounting	<b>975 812 02</b>
Tube Ø 25 mm, all anodized aluminium	
100 mm long	<b>975 845 10</b>
250 mm long	<b>975 840 25</b>
400 mm long	<b>975 840 40</b>
Anti-twist device	<b>975 815 22</b>
Surface housing IP 65	
for 1 Installation Beacon	<b>975 815 03</b>
for 2 Installation Beacons	<b>975 815 07</b>
for 3 Installation Beacons	<b>975 815 08</b>
for 4 Installation Beacons	<b>975 109 05</b>

**TECHNICAL DIAGRAMS:**

see page 315

**Sizes of Flashing Beacons**See note  
on page 347



Tube adaptor as accessory



Accessories

- Light intensive xenon flash
- Vandal-proof construction with-stands every mechanical and natural challenge
- High impact polycarbonate lens (up to 20 Joules)

**TECHNICAL SPECIFICATIONS:**

<b>Dimensions</b> (Ø x Height):	75 mm x 66 mm (Protrusion from panel)
<b>Housing:</b>	PC/ABS-Blend
	Socket: PA fibreglass, high-impact
<b>Lens:</b>	PC transparent
	Shock resistance 20 Joules according to EN 60079-0
<b>Fixing:</b>	Installation mounting for Ø 37 mm (PG29)
<b>Connection:</b>	Screw terminal max. 2.5 mm <sup>2</sup> flex radial or axial laid
<b>Flash frequency:</b>	C. 1 Hz
<b>Flash energy:</b>	2 Ws
<b>Life duration:</b>	4 x 10 <sup>6</sup> flashes

**ORDER SPECIFICATIONS:**

Voltage	12 V DC	24 V DC	115 V AC	230 V AC
Current consumpt.	< 195 mA	125 mA	20 mA	35 mA
red	<b>817 100 54</b>	<b>817 100 55</b>	<b>817 100 67</b>	<b>817 100 68</b>
yellow	<b>817 300 54</b>	<b>817 300 55</b>	<b>817 300 67</b>	<b>817 300 68</b>

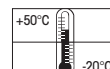
Further colours and voltages on request.

**ACCESSORIES:**

Tube adaptor	<b>975 812 01</b>
Base with integrated tube, Ø 25 mm, 110 mm long, plastic	<b>975 840 10</b>
Base for tube mounting	<b>975 840 90</b>
Base for base mounting	<b>975 812 02</b>
Tube Ø 25 mm, all anodized aluminium	
100 mm long	<b>975 845 10</b>
250 mm long	<b>975 840 25</b>
400 mm long	<b>975 840 40</b>
Anti-twist device	<b>975 815 22</b>
Surface housing IP 65	
for 1 Installation Beacon	<b>975 815 03</b>
for 2 Installation Beacons	<b>975 815 07</b>
for 3 Installation Beacons	<b>975 815 08</b>
for 4 Installation Beacons	<b>975 109 05</b>

**TECHNICAL DIAGRAMS:**

see page 316

**Sizes of Flashing Beacons**See note  
on page 347



Tube adaptor as accessory



Surface housing (accessory)

- Vandal-proof construction with-stands every mechanical and natural challenge
- High impact polycarbonate lens (up to 20 Joules)

**TECHNICAL SPECIFICATIONS:**Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	75 mm x 66 mm (Protrusion from panel)
Housing:	PC/ABS-Blend
	Socket: PA-GF, high impact
Lens:	PC transparent
	Shock resistance 20 Joules according to EN 60079-0
Fixing:	Installation mounting for Ø 37 mm (PG29)
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
	flex radial or axial laid
Blink frequency:	C. 1 Hz

**ORDER SPECIFICATIONS:**

Voltage	24 V AC/DC
Current consumption	25 mA
red	<b>816 110 55</b>
yellow	<b>816 310 55</b>

Further colours and voltages on request.

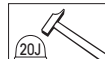
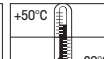
**ACCESSORIES:**

Tube adaptor	<b>975 812 01</b>
Base with integrated tube, Ø 25 mm, 110 mm long, plastic	<b>975 840 10</b>
Base for tube mounting	<b>975 840 90</b>
Base for base mounting	<b>975 812 02</b>
Tube Ø 25 mm, all anodized aluminium	
100 mm long	<b>975 845 10</b>
250 mm long	<b>975 840 25</b>
400 mm long	<b>975 840 40</b>
Anti-twist device	<b>975 815 22</b>
Surface housing IP 65	
for 1 Installation Beacon	<b>975 815 03</b>
for 2 Installation Beacons	<b>975 815 07</b>
for 3 Installation Beacons	<b>975 815 08</b>
for 4 Installation Beacons	<b>975 109 05</b>

Accessories see page 116

**TECHNICAL DIAGRAMS:**

see page 315

**Sizes of Flashing Beacons**See note  
on page 347








# Overview Free-standing

## Permanent Beacons

<b>200/203</b> <b>201/204 (LED)</b>  Height: 65.5/91 mm Page 122 + 123	<b>209</b> <b>209 (LED)</b>  Height: 87/103 mm Page 124 + 125	<b>210/213</b> <b>211/214 (LED)</b>  Height: 81/107 mm Page 126 + 127	<b>219</b> <b>219 (LED)</b>  Height: 103/119 mm Page 128 + 129
<b>850/851/852</b>  Height: 88/108/101 mm Page 130	<b>220/223</b> <b>221/224 (LED)</b>  Height: 79/105 mm Page 132 + 133	<b>806 Monitorable LED Permanent Beacon</b>  Height: 97 mm Page 134	<b>853 (LED)</b>  Height: 85 mm Page 135
<b>826</b>  Height: 137 mm Page 136	<b>826 Monitored Permanent Beacon</b>  Height: 137 mm Page 137	<b>829 LED Permanent/Blinking Beacon</b>  Height: 137 mm Page 138	<b>829 LED Permanent/Blinking/Rotating Beacon</b>  Height: 137 mm Page 139
<b>829 Monitored LED Permanent Beacon</b>  Height: 137 mm Page 140	<b>895</b>  Height: 148 mm Page 141	<b>839 (LED)</b>  Height: 189 mm Page 142	<b>280 (LED)</b>  Height: 218 mm Page 143
<b>NEW 280 LED Obstruction Light</b>  Height: 218 mm Page 145	<b>NEW 281 LED Obstruction Light</b>  Height: 205 mm Page 146		

## Rotating Beacons

<b>885 Rotating Mirror Beacon</b>  Height: 151 mm Page 165	<b>839 Rotating Mirror 839 LED Rotating</b>  Height: 189 mm Page 167 + 168	<b>829 LED Rotating Beacon</b>  Height: 137 mm Page 169	<b>280 LED Rotating Beacon</b>  Height: 218 mm Page 170
<b>884 Rotating Beacon</b>  Height: 218 mm Page 171	<b>883 Rotating Mirror Beacon</b>  Height: 218 mm Page 172	<b>880 Rotating Mirror Beacon</b>  Height: 215 mm Page 173	<b>881 Rotating Mirror Beacon</b>  Height: 204 mm Page 174

## Flashing Beacons

<b>202 Flashing</b> <b>205 Flashing</b>  Height: 81/107 mm Page 147	<b>209 Flashing Beacon</b>  Height: 103 mm Page 148	<b>212 Flashing</b> <b>215 Flashing</b>  Height: 97/123 mm Page 149	<b>219 Flashing Beacon</b>  Height: 119 mm Page 150
<b>222 Flashing</b> <b>225 Flashing</b>  Height: 79/105 mm Page 151	<b>853 LED Double Flash</b>  Height: 85 mm Page 152	<b>853 LED EVS</b>  Height: 85 mm Page 153	<b>897 Double Flash</b>  Height: 148 mm Page 154
<b>830 Flashing</b> <b>835 Flashing</b>  Height: 133/172 mm Page 155	<b>827 Blinking Beacon</b>  Height: 137 mm Page 156	<b>828 Flashing Beacon</b>  Height: 137 mm Page 157	<b>829 LED Double Flash</b>  Height: 137 mm Page 159
<b>829 LED EVS</b>  Height: 137 mm Page 160	<b>839 Double Flash Beacon</b>  Height: 189 mm Page 161	<b>838 Double Flash Beacon</b>  Height: 218 mm Page 162	<b>280 LED Double Flash</b>  Height: 218 mm Page 163
<b>280 LED EVS</b>  Height: 218 mm Page 164	<b>828 Flashing Beacon for road tunnels</b>  Height: 137 mm Page 158		

## Traffic Lights

<b>853 LED Traffic Light</b>  Height: 85 mm Page 135	<b>890 (LED) Traffic Light</b>  Height: 154 mm Page 175 + 176	<b>894 LED Traffic Light</b>  2 or 3 tier Page 180	<b>894 LED Traffic Light</b>  1, 2 or 3 tier Page 181
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## Bulbs and Further Information

LED Bulbs	Page 182 + 183
Bulbs Overview	Page 184 + 185
Further information about "Optical Signal Devices" can be found in the chapter "General Information" beginning on page 356.	



# Optical Signal Devices

## Variety of light effects

Free-standing beacons from WERMA assist in indicating process conditions, risks and imminent dangers in modern production areas clearly and in good time. The urgency of the required course of action can be indicated by the colour as well as the type and duration of the signal. As a basic principle, the colours red, yellow, green, blue and clear are employed in the following variety of signals.



## Permanent Light and LED Permanent Light

With the assistance of a permanent light or an LED permanent light the operator is made aware of a specific condition or is instructed to carry out a certain course of action.

WERMA provides free standing beacons with conventional bulbs as well as with long-life LED technology.



## (LED) Flashing or Blinking Light and LED EVS Signal Beacon

The deployment of a flashing or blinking signal can generate even more attention than a permanent light. WERMA also provides an alternative long life LED Flash which has a significantly longer life duration of up to 50,000 hours with a considerably reduced power consumption.

The stochastic, random flickering light EVS (Enhanced Visibility System) has been developed by WERMA on a neurobiological basis. As deployed in LED Beacons, this technology succeeds in generating an optimal attention level never previously reached by existing signal devices.

WERMA employs LEDs for its EVS system. A microprocessor triggers random light signals, which make the light appear extremely "agitated", thus generating a continuously high attention level amongst those in the vicinity - even when viewed out the corner of the eye.

Please note the photosensitive epilepsy warning on page 352.



## Rotating Mirror Beacon and LED Rotating Signal Beacon

Inside each rotating mirror beacon is a halogen bulb, and a mirror to deflect the light in one direction. This generates a rotating light beam.

In contrast to conventional Rotating Mirror Beacons, the LED version generates the rotating signal by means of a set of LEDs which are triggered in sequence. As no mechanical components have been used at all, the beacon is completely maintenance-free.



# WERMA Free-standing Beacons

Free-standing beacons are designed for direct fixing to the respective object. The basic types of available fixings are base, bracket and tube mounting.

## Advantages

- Base, bracket or tube mounting
- Increasing use of LEDs as light source
- High protection rating IP 65
- Beacons with the exceptional protection ratings IP 66 and IP 69k
- Large variety of versions: Available as permanent, blinking, flashing, LED EVS or LED light beacons
- Beacon diameter between 57 and 153 mm
- Modern design



## Sizes

### COMPARISON OF WERMA FREE-STANDING BEACONS



### COMPARISON OF WERMA FREE-STANDING BEACONS



## 200/203

## Permanent Beacon

Permanent Beacon 200  
(base mounting)Permanent Beacon 203 with  
integrated mounting bracket

- Safe CAGE CLAMP® technology
- BA15d socket integrated in the base
- Optimum illumination
- Available for base or bracket mounting
- Connection without the need to disassemble the product



## TECHNICAL SPECIFICATIONS:

Housing:	PA-GF, high impact
Lens:	PC, transparent
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 10 mm (200) Cable diameter 3-6 mm (203)

PERMANENT BEACON	200	203
Fixing:	Base mounting with flat seal	Bracket mounting incl. cable gland M 12 x 1.5 mm
Dimensions (Ø x Height):	57 mm x 65.5 mm	57 mm x 91 mm
Operating voltage:	Max. 250 V	Max. 250 V
Bulb socket:	BA15d, 7 Watt max.	BA15d, 7 Watt max.
Bulb change:	Via removal of lens	Via removal of lens
Bulb not included in assembly.		



## ORDER SPECIFICATIONS:

	Base mounting 200	Bracket mounting 203
Voltage	12-240 V	12-240 V
red	200 100 00	203 100 00
green	200 200 00	203 200 00
yellow	200 300 00	203 300 00
clear	200 400 00	203 400 00
blue	200 500 00	203 500 00



## ACCESSORIES:

Bulb BA15d, 5 W  
total length 42 mm

Voltage	12 V	24 V	30 V	115 V	230 V
	955 840 34	955 840 35	955 840 32	955 840 57	955 840 38

LED bulb BA15d  
total length 42 mm

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	< 45 mA	< 15 mA	< 15 mA
red	956 100 75	956 100 67	956 100 68
green	956 200 75	956 200 67	956 200 68
yellow	956 300 75	956 300 67	956 300 68
white	956 400 75	956 400 67	956 400 68
blue	956 500 75	956 500 67	956 500 68

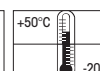
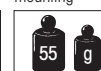


Accessories

## Sizes of Permanent Beacons



## TECHNICAL DIAGRAMS: see page 298

See note  
on page 347Base  
mountingBracket  
mounting

LED Permanent Beacon 201  
(base mounting)LED Permanent Beacon 204 with  
integrated mounting bracket

- Safe CAGE CLAMP® technology
- Optimum illumination
- Available for base or bracket mounting
- Connection without the need to disassemble the product



## TECHNICAL SPECIFICATIONS:

Life duration  
up to 100,000 hrs

Housing:	PA-GF, high impact
Lens:	PC, transparent; Ring: PC
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 10 mm (201) Cable diameter 3-6 mm (204)

LED PERMANENT BEACON	201	204
Fixing:	Base mounting with flat seal	Bracket mounting incl. cable gland M 12 x 1.5 mm
Dimensions (Ø x Height):	58 mm x 81 mm	58 mm x 107 mm



## ORDER SPECIFICATIONS:

## Base mounting 201

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	201 100 75	201 100 67	201 100 68
green	201 200 75	201 200 67	201 200 68
yellow	201 300 75	201 300 67	201 300 68

## Bracket mounting 204

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	204 100 75	204 100 67	204 100 68
green	204 200 75	204 200 67	204 200 68
yellow	204 300 75	204 300 67	204 300 68

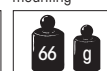
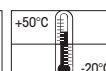
Further colours and voltages on request.



## TECHNICAL DIAGRAMS:

see page 298 + 299

## Sizes of Permanent Beacons

See note  
on page 347Base  
mountingBracket  
mounting

24 V







Accessories

## Sizes of Permanent Beacons



- Safe CAGE CLAMP® technology
- BA15d socket integrated in the base

- Optimum illumination
- Tube mounting
- Single hole mounting possible with cable gland



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	57 mm x 87 mm
Housing:	PA-GF, high impact
Lens:	PC, transparent
	Ring: PC
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 11 mm
Fixing:	Tube mounting M25 x 1.5 mm
Operating voltage:	Max. 250 V
Bulb socket:	BA15d, 7 Watt max.
Bulb change:	Via removal of lens
Bulb not included in assembly.	



## ORDER SPECIFICATIONS:

Voltage	12-240 V
red	209 100 00
green	209 200 00
yellow	209 300 00
clear	209 400 00
blue	209 500 00



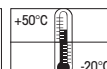
## ACCESSORIES:

Base with integrated tube, M25 x 1.5 mm						975 209 01
Cable gland M25 x 1.5 mm						975 209 02
Bulb BA15d, 5 W total length 42 mm						
Voltage	12 V	24 V	30 V	115 V	230 V	
	955 840 34	955 840 35	955 840 32	955 840 57	955 840 38	
LED bulb BA15d total length 42 mm						
Voltage	24 V AC/DC		115 V AC		230 V AC	
Current consumption	< 45 mA		< 15 mA		< 15 mA	
red	956 100 75		956 100 67		956 100 68	
green	956 200 75		956 200 67		956 200 68	
yellow	956 300 75		956 300 67		956 300 68	
white	956 400 75		956 400 67		956 400 68	
blue	956 500 75		956 500 67		956 500 68	



## TECHNICAL DIAGRAMS:

see page 299

See note  
on page 347



Base with integrated tube  
(accessory)

- Safe CAGE CLAMP® technology
- Optimum illumination
- Tube mounting
- Single hole mounting possible with cable gland



#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	58 mm x 103 mm
Housing:	PA-GF, high impact
Lens:	PC, transparent
Ring:	PC
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 11 mm
Fixing:	Tube mounting M25 x 1.5 mm

Life duration  
up to 100,000 hrs



#### ORDER SPECIFICATIONS:

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	209 110 75	209 110 67	209 110 68
green	209 210 75	209 210 67	209 210 68
yellow	209 310 75	209 310 67	209 310 68



#### ACCESSORIES:

Base with integrated tube, M25 x 1.5 mm	975 209 01
Cable gland M25 x 1.5 mm	975 209 02



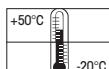
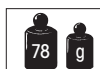
#### TECHNICAL DIAGRAMS:

see page 299

#### Sizes of Permanent Beacons



See note  
on page 347



24 V



## 210/213

## Permanent Beacon

Permanent Beacon 210  
(base mounting)Permanent Beacon 213 with  
integrated mounting bracket

Accessories

## Sizes of Permanent Beacons



- Safe CAGE CLAMP® technology
- BA15d socket integrated in the base
- Optimum illumination
- Available for base or bracket mounting
- Connection without the need to disassemble the product



## TECHNICAL SPECIFICATIONS:

Housing:	PA-GF, high impact
Lens:	PC, transparent
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 10 mm (210) Cable diameter 3-6 mm (213)

PERMANENT BEACON	210	213
Fixing:	Base mounting with flat seal	Bracket mounting incl. cable gland M12 x 1.5 mm
Dimensions (Ø x Height):	57 mm x 81 mm	57 mm x 107 mm
Operating voltage:	Max. 250 V	Max. 250 V
Bulb socket:	BA15d, 10 Watt max.	BA15d, 10 Watt max.
Bulb change:	Via removal of lens	Via removal of lens
Bulb not included in assembly.		



## ORDER SPECIFICATIONS:

	Base mounting 210	Bracket mounting 213
Voltage	12-240 V	12-240 V
red	210 100 00	213 100 00
green	210 200 00	213 200 00
yellow	210 300 00	213 300 00
clear	210 400 00	213 400 00
blue	210 500 00	213 500 00



## ACCESSORIES:

Bulb BA15d, 7 W  
total length 54 mm

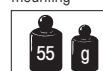
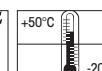
Voltage	12 V	24 V	48 V	115 V	230 V
	955 015 34	955 015 35	955 015 36	955 015 37	955 015 38

LED bulb BA15d  
total length 42 mm

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	< 45 mA	< 15 mA	< 15 mA
red	956 100 75	956 100 67	956 100 68
green	956 200 75	956 200 67	956 200 68
yellow	956 300 75	956 300 67	956 300 68
white	956 400 75	956 400 67	956 400 68
blue	956 500 75	956 500 67	956 500 68



## TECHNICAL DIAGRAMS: see page 300

See note  
on page 347Base  
mountingBracket  
mounting



LED Permanent Beacon 211  
(base mounting)



LED Permanent Beacon 214 with  
integrated mounting bracket



Housing with  
cAGE cLAMP® connection

- Safe CAGE CLAMP® technology
- Optimum illumination
- Available for base or bracket mounting
- Connection without the need to disassemble the product



#### TECHNICAL SPECIFICATIONS:

Life duration  
up to 100,000 hrs

Housing:	PA-GF, high impact
Lens:	PC, transparent; Ring: PC
Connection:	CAGE CLAMP® technology max. 2,5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 10 mm (211) Cable diameter 3-6 mm (214)

LED PERMANENT BEACON	211	214
Fixing:	Base mounting with flat seal	Bracket mounting incl. cable gland M12 x 1.5 mm
Dimensions (Ø x Height):	58 mm x 97 mm	58 mm x 123 mm



#### ORDER SPECIFICATIONS:

##### Base mounting 211

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	211 100 75	211 100 67	211 100 68
green	211 200 75	211 200 67	211 200 68
yellow	211 300 75	211 300 67	211 300 68

##### Bracket mounting 214

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	214 100 75	214 100 67	214 100 68
green	214 200 75	214 200 67	214 200 68
yellow	214 300 75	214 300 67	214 300 68

Further colours and voltages on request.



#### TECHNICAL DIAGRAMS:

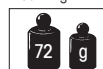
see page 300

#### Sizes of Permanent Beacons

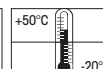
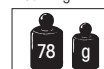


See note  
on page 347

Base  
mounting



Bracket  
mounting



24 V





- Safe CAGE CLAMP® technology
- BA15d socket integrated in the base

- Optimum illumination
- Tube mounting
- Single hole mounting possible with cable gland

**TECHNICAL SPECIFICATIONS:**

<b>Dimensions</b> (Ø x Height):	57 mm x 103 mm
<b>Housing:</b>	PA-GF, high impact
<b>Lens:</b>	PC, transparent
	Ring: PC
<b>Connection:</b>	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 11 mm
<b>Fixing:</b>	Tube mounting, M25 x 1.5 mm
<b>Operating voltage:</b>	Max. 250 V
<b>Bulb socket:</b>	BA15d, 10 Watt max.
<b>Bulb change:</b>	Via removal of lens
Bulb not included in assembly.	

**ORDER SPECIFICATIONS:**

	12-240 V
red	219 100 00
green	219 200 00
yellow	219 300 00
clear	219 400 00
blue	219 500 00

**ACCESSORIES:**

Base with integrated tube,  
M25 x 1.5 mm

**975 209 01**

Cable gland  
M25 x 1.5 mm

**975 209 02**

Bulb BA15d, 7 W  
total length 54 mm

Voltage	12 V	24 V	48 V	115 V	230 V
	<b>955 015 34</b>	<b>955 015 35</b>	<b>955 015 36</b>	<b>955 015 37</b>	<b>955 015 38</b>

LED bulb BA15d  
total length 42 mm

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	< 45 mA	< 15 mA	< 15 mA
red	<b>956 100 75</b>	<b>956 100 67</b>	<b>956 100 68</b>
green	<b>956 200 75</b>	<b>956 200 67</b>	<b>956 200 68</b>
yellow	<b>956 300 75</b>	<b>956 300 67</b>	<b>956 300 68</b>
white	<b>956 400 75</b>	<b>956 400 67</b>	<b>956 400 68</b>
blue	<b>956 500 75</b>	<b>956 500 67</b>	<b>956 500 68</b>

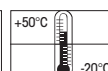
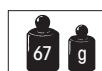


Accessories

**Sizes of Permanent Beacons**

**TECHNICAL DIAGRAMS:** see page 301

See note  
on page 347







- Safe CAGE CLAMP® technology
- Optimum illumination
- Tube mounting

- Single hole mounting possible with cable gland

**TECHNICAL SPECIFICATIONS:**

Dimensions (Ø x Height):	58 mm x 119 mm
Housing:	PA-GF, high impact
Lens:	PC, transparent
	Ring: PC
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 11 mm
Fixing:	Tube mounting, M25 x 1.5 mm

Life duration  
up to 100,000 hrs

**ORDER SPECIFICATIONS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	219 110 75	219 110 67	219 110 68
green	219 210 75	219 210 67	219 210 68
yellow	219 310 75	219 310 67	219 310 68

**ACCESSORIES:**

Base with integrated tube, M25 x 1.5 mm	975 209 01
Cable gland M25 x 1.5 mm	975 209 02

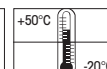
**TECHNICAL DIAGRAMS:**

see page 301

Base with integrated tube  
(accessory)

**Sizes of Permanent Beacons**

See note  
on page 347



24 V



## 850/851/852

## Permanent Beacon



850



851



852

- Available with grey or black housing



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	57 mm x 88 mm (850)
	57 mm x 108 mm (851)
	57 mm x 101 mm (852)
Housing:	ABS (85X XXX 38)
	PC/ABS-Blend (85X XXX 08)
Lens:	PC, transparent
Fixing:	850: Base mounting
	851: Bracket mounting
	852: Tube mounting M25 x 1.5 mm
Socket:	BA15d max. 7 Watt
Connection:	Screw terminal max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 8.5 mm (850)
	Cable diameter max. 7 mm (851)
	Cable diameter max. 10 mm (852)

Bulb not included in assembly.



## ORDER SPECIFICATIONS:

Base mounting 850		12-250 V		12-250 V	
Black housing	red	850 100 08	Grey housing	red	850 100 38
	green	850 200 08		green	850 200 38
	yellow	850 300 08		yellow	850 300 38
	clear	850 400 08		clear	850 400 38
Bracket mounting 851		12-250 V		12-250 V	
Black housing	red	851 100 08	Grey housing	red	851 100 38
	green	851 200 08		green	851 200 38
	yellow	851 300 08		yellow	851 300 38
	clear	851 400 08		clear	851 400 38
Tube mounting 852		12-250 V		12-250 V	
Black housing	red	852 100 08	Grey housing	red	852 100 38
	yellow	852 300 08		yellow	852 300 38

Further colours and voltages on request.



## ADDITIONAL INFORMATION:

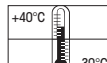
Please also see the beacon series 209, 210, 213, 219 with additional advantages (see page 148 onwards)

- High protection rating IP 65
- BA15d socket integrated in the base
- Safe CAGE CLAMP® connection
- Optimum illumination
- Connection without product disassembly



Accessories: see next page

See note  
on page 347





#### Accessories:

Base with integrated tube  
with M25 x 1.5 mm  
incl. rubber seal

**960 693 03**

Adaptor M25 / M20  
for fixing

**960 693 04**

Cable gland  
M25 x 1.5 mm

**975 209 02**

Bulb BA15d, 7 W  
Total length 54 mm

Voltage	12 V	24 V	48 V	115 V	230 V
	<b>955 015 34</b>	<b>955 015 35</b>	<b>955 015 36</b>	<b>955 015 37</b>	<b>955 015 38</b>

LED bulb BA15d  
Total length 42 mm

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	< 45 mA	< 15 mA	< 15 mA
red	<b>956 100 75</b>	<b>956 100 67</b>	<b>956 100 68</b>
green	<b>956 200 75</b>	<b>956 200 67</b>	<b>956 200 68</b>
yellow	<b>956 300 75</b>	<b>956 300 67</b>	<b>956 300 68</b>
white	<b>956 400 75</b>	<b>956 400 67</b>	<b>956 400 68</b>
blue	<b>956 500 75</b>	<b>956 500 67</b>	<b>956 500 68</b>

Seal for 850  
(required for IP 54)

**975 850 01**



#### Technical Diagrams:

see page 321



# 220/223

## Permanent Beacon



Permanent Beacon 220  
(base mounting)



Permanent Beacon 223 with  
integrated mounting bracket



Housing with  
CAGE CLAMP® connection

### Sizes of Permanent Beacons



- Safe CAGE CLAMP® technology
- BA15d socket integrated in the base
- Optimum illumination
- Available for base or bracket mounting
- Connection without the need to disassemble the product

### TECHNICAL SPECIFICATIONS:

Housing:	PA-GF, high impact
Lens:	PC, transparent; Ring: PC/ABS-Blend
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 10 mm (220) Cable diameter 3-6 mm (223)

PERMANENT BEACON	220	223
Fixing:	Base mounting with flat seal	Bracket mounting incl. cable gland M12 x 1.5 mm
Dimensions (Ø x Height):	75 mm x 79 mm	75 mm x 105 mm
Operating voltage:	Max. 250 V	Max. 250 V
Bulb socket:	BA15d, 10 Watt max.	BA15d, 10 Watt max.
Bulb change:	Via removal of lens	Via removal of lens
Bulb not included in assembly.		

### ORDER SPECIFICATIONS:

	Base mounting 220	Bracket mounting 223
Voltage	12-240 V	12-240 V
red	220 100 00	223 100 00
green	220 200 00	223 200 00
yellow	220 300 00	223 300 00
clear	220 400 00	223 400 00
blue	220 500 00	223 500 00

Further colours and voltages on request.

### ACCESSORIES:

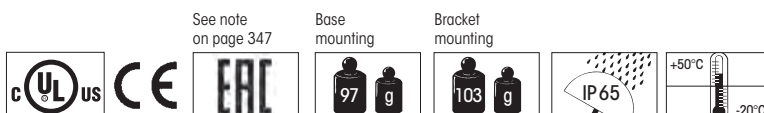
Bulb BA15d, 7 W  
total length 54 mm

Voltage	12 V	24 V	48 V	115 V	230 V
	955 015 34	955 015 35	955 015 36	955 015 37	955 015 38

LED bulb BA15d  
total length 42 mm

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	< 45 mA	< 15 mA	< 15 mA
red	956 100 75	956 100 67	956 100 68
green	956 200 75	956 200 67	956 200 68
yellow	956 300 75	956 300 67	956 300 68
white	956 400 75	956 400 67	956 400 68
blue	956 500 75	956 500 67	956 500 68

### TECHNICAL DIAGRAMS: see page 301



LED Permanent Beacon 221  
(base mounting)LED Permanent Beacon 224 with  
integrated mounting bracket

- Safe CAGE CLAMP® technology
- Optimum illumination
- Available for base or bracket mounting
- Connection without the need to disassemble the product



## TECHNICAL SPECIFICATIONS:

Life duration  
up to 100,000 hrs

Housing:	PA-GF, high impact
Lens:	PC, transparent; Ring: PC/ABS-Blend
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 10 mm (221) Cable diameter 3-6 mm (224)

LED PERMANENT BEACON	221	224
Fixing:	Base mounting with flat seal	Bracket mounting incl. cable gland M12 x 1.5 mm
Dimensions (Ø x Height):	75 mm x 79 mm	75 mm x 105 mm



## ORDER SPECIFICATIONS:

Base mounting 221			
Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	221 100 75	221 100 67	221 100 68
green	221 200 75	221 200 67	221 200 68
yellow	221 300 75	221 300 67	221 300 68
Bracket mounting 224			
Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	45 mA	25 mA	25 mA
red	224 100 75	224 100 67	224 100 68
green	224 200 75	224 200 67	224 200 68
yellow	224 300 75	224 300 67	224 300 68

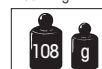
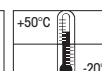
Further colours and voltages on request.



## TECHNICAL DIAGRAMS:

see page 301 + 302

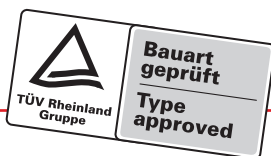
## Sizes of Permanent Beacons

See note  
on page 347Base  
mountingBracket  
mounting

24 V







# Monitorable LED Permanent Beacon

- TÜV certified LED Muting Beacon
- Current monitoring possible
- Approved for muting use according to IEC 61496-1
- For use in laser technology according to EN 60825-1, restart warning, timed triggering, change of operating mode



Bracket (accessory)



Accessories

## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	70 mm x 97 mm
Housing:	Terminal element: PA-GF, high impact Cap: PC
Lens:	PC, transparent
Fixing:	Base mounting, Bracket mounting
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 14 mm
Duty cycle:	100 %
Current consumption following failure of 3 of the 6 strips:	< 5 mA

Life duration  
up to 100,000 hrs

## ORDER SPECIFICATIONS:

Voltage	24 V DC
Current consumption	60 mA
yellow	806 350 55
clear	806 450 55

## ACCESSORIES:

Bracket, including cable gland	960 000 02
Bracket for 1-sided mounting see page 67.	975 840 85

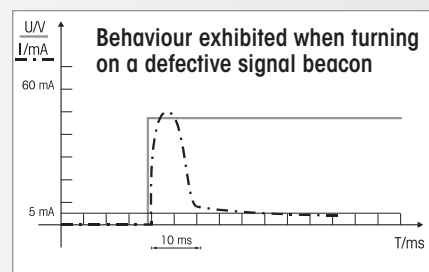
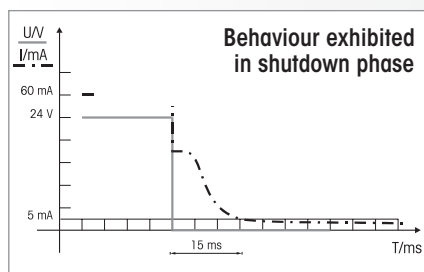
## ADDITIONAL INFORMATION:

### What does Muting mean?

Muting is the temporary automatic overriding of a safety protection device by means of a control system within the normal operating cycle of a machine. This bridging of the safety protection must be visually displayed in order to prevent workers mistakenly entering a dangerous area.

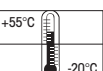
It is therefore necessary that the signal beacon in such applications can be triggered by failsafe technology and the bulb function can be monitored.

The standard colour for muting signalisation is clear; yellow is however also permitted.



## TECHNICAL DIAGRAMS: see page 315

See note  
on page 347





The innovative connector (accessory) enables traffic light combinations to be created in a matter of seconds

#### Sizes of Permanent Beacons



- LED Permanent Beacon in attractive quadratic form
- Innovative connector to create traffic light combinations
- Easy assembly due to quick-release screws
- Thread/membrane combination keeps cabling requirements to a minimum
- Also available in 48 V

#### TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (L x H x W):	85 mm x 85 mm x 72 mm
Housing:	PP-GF, black
Lens:	PC, transparent
Connection:	Screw terminal with wire protection, max. 1.5 mm <sup>2</sup>
Fixing:	Wall, base and ceiling mounting
Current consumption:	Max. 80 mA at 24 V
Equipment:	Elastic self-sealing membranes for cable entry without tools Eight integrated M20 threads, no nuts required Optional use of a cable gland, thread length of cable gland ≤ 9 mm (accessory)
Assembly:	Incl. snap-on fixing bracket (optional use, see page 152)

#### ORDER SPECIFICATIONS:

	12 V DC	24 V DC	48 V AC	115-230 V AC
red	853 100 54	853 100 55	853 100 66	853 100 60
green	853 200 54	853 200 55	853 200 66	853 200 60
yellow	853 300 54	853 300 55	853 300 66	853 300 60
clear	853 400 54	853 400 55	853 400 66	853 400 60
blue	853 500 54	853 500 55	853 500 66	853 500 60

#### ACCESSORIES:

Connector for traffic light combinations	975 853 01
Cable gland M20 x 1.5 mm, 8mm thread length	975 853 02

#### ADDITIONAL INFORMATION:

##### Combinations made easy

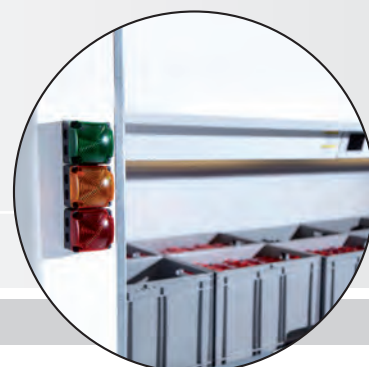
The LED Beacon 853 can be easily turned into a traffic light combination. Simply attach different coloured beacons together using the connector.

The eight cable entries with both self-sealing membranes and integrated M20 threads enable additional beacons to be attached to every side. There is no limit to the range of possible lighting designs that can be created.

Traffic light configurator at [www.werma.com](http://www.werma.com)

#### TECHNICAL DIAGRAMS: see page 321

See note  
on page 347





Base/Bracket Mounting



Tube Mounting



Accessories

- Tube mounting solution suitable for Ø 25 mm and 1/2" NPT tubes
- Simple mounting
- Removal of the lens only possible with tools

**TECHNICAL SPECIFICATIONS:**

<b>Dimensions</b> (Ø x Height):	98 mm x 137 mm (Base/Bracket mounting) 98 mm x 200 mm (Tube mounting)
<b>Cable entry:</b>	Cable diameter 5-7 mm
<b>Housing:</b>	PC/ABS-Blend
<b>Lens:</b>	PC, transparent
<b>Connection:</b>	Screw free clamp mechanism max. 1.5 mm <sup>2</sup>
<b>Operating voltage:</b>	Max. 250 V for BA15d
<b>Bulb:</b>	Max. 15 W
<b>Duty cycle:</b>	100 % max. 15 W, 50 % max. 25 W
<b>Socket:</b>	BA15d

Bulb not included in assembly.

**ORDER SPECIFICATIONS:**

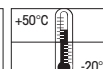
	Base/Bracket mounting	Tube mounting
Fixing		
Voltage	12-240 V	12-240 V
red	826 100 00	826 110 00
green	826 200 00	826 210 00
yellow	826 300 00	826 310 00
clear	826 400 00	826 410 00
blue	826 500 00	826 510 00

**ACCESSORIES:**

Plastic bracket for wall mounting		975 826 05
Wire guard, galvanised, only for base mounting		975 826 03
Tube Ø 25 mm, all anodized aluminium, 100 mm long		975 845 10
Base for tube, plastic		975 840 90
Base for tube, metal		975 840 91
Bulb BA15d, 15 W, total length 48 mm	24 V 955 826 35	230 V 955 826 38

**TECHNICAL DIAGRAMS:**

see page 316

**Sizes of Permanent Beacons**Base/Bracket  
mountingSee note  
on page 347Base/Bracket  
mountingTube  
mounting



Bracket (accessory)



Tube with base (accessory)

## Sizes of Permanent Beacons



- Built-in monitoring capability
- TÜV approval
- No additional external voltage required
- Two potential-free safety outputs for connection to control system



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	98 mm x 137 mm
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Fixing:	Base, bracket and tube mounting Base 975 840 90 must be ordered twice for base mounting - once as socket for beacon and once as base
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Rated voltage:	24 V DC ± 10 %
Input power 24 V AC/DC:	7 W
Bulb BA15d: 7	W/24 V
Output current capability:	30 V DC/100 mA
On state resistance of an output:	Max. 25 Ω
Fuse for 7 W bulb:	500 mA quick action (IEC 60127-3/3)
Atmospheric humidity:	≤ 95 % without moisture condensation
Response time, normal operation and with filament break:	1 ms to 5 ms
in fault cases with safety release:	< 300 ms (with short-circuit current ≥ 4 A)
Certification:	EN ISO 13849-1:2008 category 4, Performance Level „e“ EN ISO 13849-2:2008 validation

Bulb included in assembly.



## ORDER SPECIFICATIONS:

Voltage	24 V DC
red	826 110 55
yellow	826 310 55
clear	826 410 55

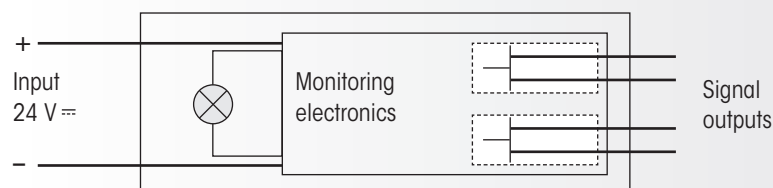


## ACCESSORIES:

Bulb BA15d, 7 W	955 015 35
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## ADDITIONAL INFORMATION:



## Function

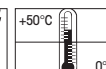
The device is equipped with a lamp monitor which signals the current flow of the incandescent lamp back to two electrically isolated, potential-free semiconductor outputs A and B (outputs closed). If the lamp has not been actuated, both outputs are open. In case of a fault and/or a lamp failure at least one output is opened.

Depending on the safety category, one or two outputs are to be used for a reliable lamp evaluation. In case of an incandescent filament short-circuit in the lamp, the integrated fuse is tripped. It must be replaced by a new fuse in accordance with the specifications after the lamp has been replaced by a lamp of equal wattage.



## TECHNICAL DIAGRAMS: see page 316

See note on page 347







Base/Bracket mounting



Tube mounting



Accessories

#### Sizes of Permanent Beacons



- Multi-functional LED beacon
- Interchangeable light effects
- Shock-proof and vibration resistant

- Tube mounting solution suitable for Ø 25 mm and 1/2" NPT tubes



#### TECHNICAL SPECIFICATIONS:

<b>Dimensions</b> (Ø x Height):	98 mm x 137 mm (Base/Bracket mounting) 98 mm x 200 mm (Tube mounting)
<b>Cable entry:</b>	Cable diameter 5-7 mm
<b>Housing:</b>	PC/ABS-Blend
<b>Lens:</b>	PC, transparent
<b>Connection:</b>	Screw terminal with wire protection 0.5 mm <sup>2</sup> - 2.5 mm <sup>2</sup>

Life duration  
up to 50,000 hrs

#### LED PERMANENT/BLINKING BEACON (INTERCHANGEABLE LIGHT EFFECT)

<b>Blink frequency:</b>	C. 1.5 Hz
<b>Operating voltage:</b>	24 V DC

#### LED PERMANENT BEACON

<b>Operating voltage:</b>	115 V AC	230 V AC
---------------------------	----------	----------



#### ORDER SPECIFICATIONS:

	Base/Bracket mounting	Tube mounting
<b>LED PERMANENT/BLINKING</b>		
Voltage	24 V DC	24 V DC
Current consumption	≤ 150 mA	≤ 150 mA
red	<b>829 100 55</b>	<b>829 107 55</b>
green	<b>829 200 55</b>	<b>829 207 55</b>
yellow	<b>829 300 55</b>	<b>829 307 55</b>
blue	<b>829 500 55</b>	<b>829 507 55</b>

	Base/Bracket mounting		Tube mounting	
<b>LED PERMANENT</b>				
Voltage	115 V AC	230 V AC	115 V AC	230 V AC
Current consumption	≤ 30 mA	≤ 30 mA	≤ 30 mA	≤ 30 mA
red	<b>829 130 67</b>	<b>829 130 68</b>	<b>829 137 67</b>	<b>829 137 68</b>
green	<b>829 230 67</b>	<b>829 230 68</b>	<b>829 237 67</b>	<b>829 237 68</b>
yellow	<b>829 330 67</b>	<b>829 330 68</b>	<b>829 337 67</b>	<b>829 337 68</b>
blue	<b>829 530 67</b>	<b>829 530 68</b>	<b>829 537 67</b>	<b>829 537 68</b>



#### ACCESSORIES:

Plastic bracket for wall mounting	<b>975 826 05</b>
Wire guard, galvanised, only for base mounting	<b>975 826 03</b>
Tube Ø 25 mm, all anodized aluminium, 100 mm long	<b>975 845 10</b>
Base for tube, plastic	<b>975 840 90</b>
Base for tube, metal	<b>975 840 91</b>



#### TECHNICAL DIAGRAMS:

see page 317

Base/Bracket  
mounting



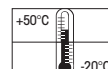
See note  
on page 347



Base/Bracket  
mounting



Tube  
mounting





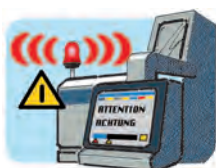
# LED Permanent/Blinking/Rotating Beacon with external triggering



Base/Bracket mounting



Bracket (accessories)



Three different light effects with one device

## Sizes of Permanent Beacons



- Multi-functional LED beacon
- 3 light effects can be remotely selected
- Electrically isolated signal inputs
- Positive and negative logic possible
- Tube mounting solution suitable for Ø 25 mm and 1/2" NPT tubes



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	98 mm x 137 mm (Base/Bracket mounting) 98 mm x 200 mm (Tube mounting)
Cable entry:	Cable diameter 5-7 mm
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Connection:	Screw terminal with wire protection 0.5 mm <sup>2</sup> - 2.5 mm <sup>2</sup>
Blink frequency:	C. 1.5 Hz
Rotation frequency:	C. 180 r.p.m.

Life duration  
up to 50,000 hrs



## ORDER SPECIFICATIONS:

	Base/Bracket mounting	Tube mounting
Fixing		
Voltage	24 V DC 24	V DC
Current consumption	≤ 300 mA	≤ 300 mA
red	829 150 55	829 157 55
green	829 250 55	829 257 55
yellow	829 350 55	829 357 55
blue	829 550 55	829 557 55



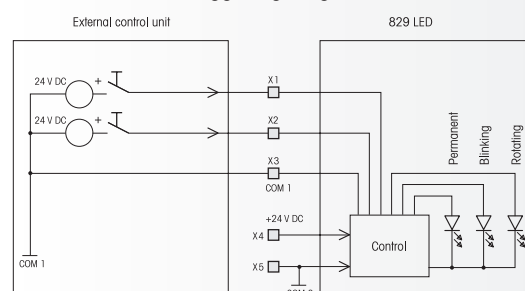
## ACCESSORIES:

Plastic bracket for wall mounting	975 826 05
Wire guard, galvanised, only for base mounting	975 826 03
Tube Ø 25 mm, all anodized aluminium, 100 mm long	975 845 10
Base for tube, plastic	975 840 90
Base for tube, metal	975 840 91



## ADDITIONAL INFORMATION:

### 829 with external triggering - Light effects set via control cables



Thanks to the external trigger function, the range of light effects offered by the LED Beacon 829 can be set by means of electrically isolated, binary coded 24 V control cables. This guarantees a much greater level of resistance to electrical interference.

The machine operator can use the different signals to indicate various machine conditions - without having to make adjustments to the beacon itself. In addition the LED beacon 829 can be used in conjunction with both positive and negative trigger logic.



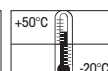
## TECHNICAL DIAGRAMS:

see page 317

See note  
on page 347

Base/Bracket  
mounting

Tube  
mounting





Monitored Permanent Beacon  
with long life, maintenance-free  
LED technology



Bracket (accessory)

- Durable LED Permanent Beacon with built-in monitoring capability
- No additional external voltage required
- Two potential-free safety outputs for connection to control system

#### TECHNICAL SPECIFICATIONS:

Dimensions (Diameter x Height):	98 mm x 137 mm
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Fixing:	Base, bracket and tube mounting Base 975 840 90 must be ordered twice for tube mounting - once as socket for beacon and once as base
Installation position:	Vertical
Cable outlet:	Downwards
Current consumption:	≤ 145 mA
Duty cycle:	100 %
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Rated voltage:	24 V DC
Input power 24 V DC:	c. 3.5 W
Output current capability:	30 V DC/100 mA
On state resistance of an output:	Max. 25 Ω
Atmospheric humidity:	≤ 95 % without moisture condensation
Response time, normal operation and with LED failure:	1 ms to 5 ms
in fault cases with safety release:	< 1 s (with short-circuit current ≥ 1 A)
Certification:	EN ISO 13849-1:2008 category 4, Performance Level "e" EN ISO 13849-2:2008 validation

Life duration  
up to 50,000 hrs

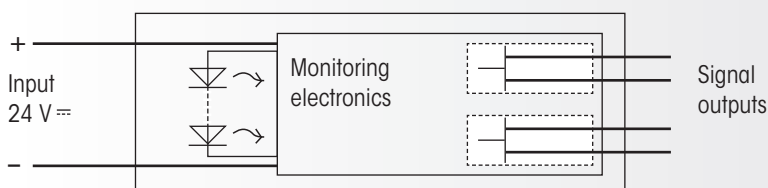
#### ORDER SPECIFICATIONS:

Voltage	24 V DC
red	829 170 55
yellow	829 370 55
clear	829 470 55

#### ACCESSORIES:

Bracket	975 826 05
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#### ADDITIONAL INFORMATION:



##### Function

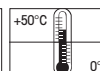
The device is equipped with monitoring electronics which signal the current flow of the beacon back to two electrically isolated, potential-free semiconductor outputs A and B (outputs closed).

If the beacon has not been actuated, both outputs are open. In case of a fault at least one output is opened

#### TECHNICAL DIAGRAMS:

see page 317

See note  
on page 347



#### Sizes of Permanent Beacons





- Large signal beacon for powerful signal effect
- With a multitude of symbols
- High light intensity thanks to optimised lens

**TECHNICAL SPECIFICATIONS:**

<b>Dimensions</b> (Ø x Height):	150 mm x 148 mm
<b>Housing:</b>	PC/ABS-Blend, grey
<b>Lens:</b>	PC, transparent
<b>Socket:</b>	E27 max. 25 W 2 sockets E14 each with max. 15 W with adhesive stickers E27 max. 15 W
<b>Fixing:</b>	Base mounting, tube mounting and fixing bracket (accessory)
<b>Cable entry:</b>	From top or bottom with cable gland M20 x 1.5 mm or from the back with rubber grommet Ø 6-12 mm
<b>Connection:</b>	Screw-free clamp mechanism max. 1.5 mm <sup>2</sup>

**ORDER SPECIFICATIONS:**

Voltage	12-240 V AC/DC
red	<b>895 100 00</b>
green	<b>895 200 00</b>
yellow	<b>895 300 00</b>
clear	<b>895 400 00</b>
blue	<b>895 500 00</b>

Bulb not included in assembly.

**PERMANENT LIGHT WITH TWO SOCKETS (incl. reflector)**

Voltage	12-240 V AC/DC
red	<b>895 110 00</b>

**ACCESSORIES:**

Fixing bracket, additional reflector, Bulbs and LED Bulbs, Adhesive Stickers see Permanent/Traffic Light Beacon (page 176).

**TECHNICAL DIAGRAMS:**

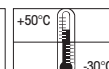
see page 326



**Audible addition:**  
The Multi-Tone Sounder 190  
with 110 dB (see page 253)



See note  
on page 347



839

## LED Permanent Beacon



- Robust aluminium housing including wire guard
- Salt water resistant
- DC multi-voltage version
- High Protection rating IP 67
- Robust bracket made of V2A stainless steel (accessory)

**i** TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	153 mm x 198 mm
Housing:	Black laquered aluminium with integral wire guard
Lens:	PC, transparent
Fixing:	Base mounting
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M20 x 1.5 mm (included in assembly) Cable diameter 6-13 mm
Installation position:	As required

**Life duration  
up to 50,000 hrs**

**ORDER SPECIFICATIONS:**

Voltage	12-50 V DC	230 V AC
Current consumption	500-100 mA	50 mA
red	<b>839 100 55</b>	<b>839 100 68</b>
yellow	<b>839 300 55</b>	<b>839 300 68</b>

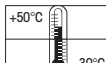
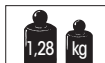
**ACCESSORIES:**

Mounting bracket	<b>975 839 02</b>
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**TECHNICAL DIAGRAMS:**

see page 317


 Also suitable for use  
in rough conditions

**Sizes of Permanent Beacons**
See note  
on page 347





- High light intensity
- Adaptor for tube mounting (accessory)

- High impact resistance to 20 Joules
- DC multi-voltage version

**TECHNICAL SPECIFICATIONS:**

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	142 mm x 218 mm
Housing: PC/ABS-Blend	
Lens:	PC, transparent
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Duty cycle:	100 %

**ORDER SPECIFICATIONS:**

Voltage	12-50 V DC	230 V AC
Current consumption	12 V: 500 mA	50 mA
	50 V: 100 mA	
red	<b>280 100 55</b>	<b>280 100 68</b>
yellow	<b>280 300 55</b>	<b>280 300 68</b>

**ACCESSORIES:**

Plastic bracket for wall mounting	<b>975 883 06</b>
Adaptor for tube mounting	<b>975 883 09</b>
Wire guard, only for base mounting	<b>975 883 08</b>

**TECHNICAL DIAGRAMS:**

see page 303



Plastic bracket (accessory)

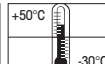


Plastic bracket, adaptor for tube mounting and wire guard (accessories)

**Sizes of Permanent Beacons**

High light output using unique LED technology

See note  
on page 347







# Obstruction Light



## Why do obstacles need to be illuminated?

The law stipulates that buildings of a specific height and in the vicinity of airports as well as factory chimneys, towers, masts etc. must be equipped with obstruction lights.

This special lighting makes obstacles visible for pilots in the dark or when visibility is poor. Obstruction lighting is one of the most important aspects of flight safety.

## What directives and regulations are there?

The method of marking obstacles to air traffic is laid down by diverse laws, regulations and recommendations. These regulations have a clearly defined sphere of influence and are **internationally interlinked**.

The International Civil Aviation Organisation (**ICAO**) is a special organisation within the United Nations created to establish and develop universal regulations for safety, continuity and economic efficiency in international air traffic. The recommendations of the ICAO are not directly binding in the member states, but must be transformed by them into the appropriate **national legal regulations**.

In **Germany** the Ministry for Transport and Construction Development (**BMVBS**) issues the regulations covering obstruction lighting on buildings. The **ICAO** regulations regarding the methods of marking and lighting aviation obstacles can be found in ICAO Annex 14.

- **"Low intensity obstacle beacon type A":** a red permanent night-time warning beacon for fixed obstructions with a brightness of 10 cd.
- **"Low intensity obstacle beacon type B":** a red permanent night-time warning beacon for fixed obstructions with a brightness of 32 cd.

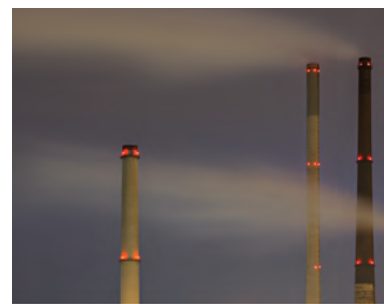
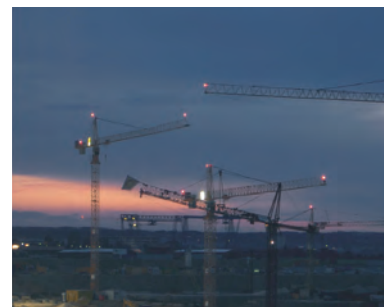
## Where are obstacle lights deployed?



- **Germany:** Marking of aviation obstacles by night at any height providing the highest point of the obstacle can be marked.



- **According to ICAO:** Marking of aviation obstacles by night up to 45 m ("Low-intensity Obstacle Light, Type A").



# Low-intensity LED Obstruction Light Type A and B

**NEW**

LED Obstruction Light Type B



LED Obstruction Light Type A - The adaptor (accessory) allows quick and simple mounting on a tube



Plastic bracket, adaptor for tube mounting (accessories)

## Sizes of Permanent Beacons



- For use as "Low-intensity Obstruction Light, Type A or B" in accordance with ICAO Annex 14

**NEW**

- 230 V version with or without monitoring function

- Very bright solution which far exceeds the required light output (32 cd)

- High impact resistance to 20 Joules



## TECHNICAL SPECIFICATIONS:

Life duration up to 50,000 hrs

Dimensions (Ø x Height):	142 mm x 218 mm
Housing: PC/ABS-Blend	
Lens:	PC, transparent, clear
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Duty cycle:	100 %
Current consumption at failure of 2 of the 12 LED strips:	< 50mA



## ORDER SPECIFICATIONS:

### Low-intensity LED Obstruction Light Type A

Voltage	12-50 V DC
Current consumption	500-100 mA
aviation red	<b>280 410 55</b>

**NEW**

### Low-intensity LED Obstruction Light Type B

Voltage	24 V DC	230 V AC	230 V AC with monitoring funct.
Current consumption	~ 400 mA	~ 200 mA	~ 200 mA / < 50 mA (Failure mode)
aviation red	<b>280 470 55</b>	<b>280 470 68</b>	<b>280 480 68</b>



## ACCESSORIES:

Plastic bracket for wall mounting	<b>975 883 06</b>
Adaptor for tube mounting	<b>975 883 09</b>



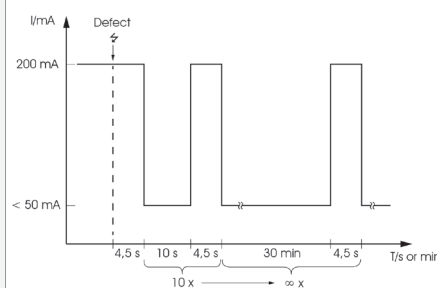
## ADDITIONAL INFORMATION:

### Monitoring function:

To provide enhanced safety for obstruction light applications WERMA has developed a variant with an integrated monitoring function.

Should any two of the twelve LED strips fail, the light will switch to failure mode (see image). This can be detected for example by a current monitoring relay. After repeatedly checking the product status the unit will remain in failure mode for 30 minutes before again checking the status.

### Behaviour of defective obstruction light



## TECHNICAL DIAGRAMS: see page 303

See note on page 347



# Low-intensity LED Obstruction Light Type A and B

**NEW**

LED Obstruction Light Type B

- LED Obstruction Light with robust glass/metal housing
- For international use as „Low-intensity Obstacle Light, Type A or B“ in accordance with ICAO Annex 14

**NEW**

- 230 V version with or without monitoring function (Type B)
- Suitable for use in tough operating conditions, salt water resistant

**TEcHNICAL SPECIFICATIONS:****Life duration  
up to 50,000 hrs**

Dimensions (Ø x Height):	185 mm x 205 mm
Housing:	Aluminium, coloured powder coating
Lens:	Reinforced borosilicate glass
Fixing:	Base mounting, tube mounting M25 (no accessory required)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M25 x 1.5 mm (included in assembly), Cable diameter 9-17 mm Reducer unit (included in assembly)

**ORDER SPECIFICATIONS:****Low-intensity LED Obstruction Light Type A**

Voltage	12-50 V DC
Current consumption	500-100 mA
aviation red	<b>281 410 55</b>

**NEW****Low-intensity LED Obstruction Light Type B**

Voltage	24 V DC	230 V AC	230 V AC with monitoring funct.
Current consumption	~ 400 mA	~ 200 mA	~ 200 mA / < 50 mA (Failure mode)
aviation red	<b>281 470 55</b>	<b>281 470 68</b>	<b>281 480 68</b>

**ADDITIONAL INFORMATION:****Salt water and fuel resistant**

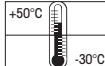
To protect the obstruction light against sea salt, UV radiation or aviation fuel, WERMA has selected a particularly robust material - the aluminium die-cast housing is made of a high-quality salt water resistant alloy which is covered with a powder coating.

The glass lens is made of hardened borosilicate glass. This ensures that the signalling device does not weather even in the toughest conditions.

Further information on the monitoring function can be found on page 145.

**TEcHNICAL DIAGRAMS:**

see page 303

See note  
on page 347



Flashing Beacon 202  
(base mounting)



Flashing Beacon 205 with  
integrated mounting bracket



Housing with  
CAGE CLAMP® connection

- Safe CAGE CLAMP® technology
- Optimum illumination
- Available for base or bracket mounting
- Connection without the need to disassemble the product



#### TECHNICAL SPECIFICATIONS:

Housing:	PA-GF, high impact
Lens:	PC, transparent; Ring: PC
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 10 mm (202) Cable diameter 3-6 mm (205)

FLASHING BEACON	202	205
Fixing:	Base mounting with flat seal	Bracket mounting incl. cable gland M12 x 1.5 mm
Dimensions (Ø x Height):	58 mm x 81 mm	58 mm x 107 mm
Flash frequency:	C. 0.75 Hz	C. 0.75 Hz
Flash energy:	1 Ws	1 Ws
Life duration:	4 x 10 <sup>6</sup> flashes	4 x 10 <sup>6</sup> flashes



#### ORDER SPECIFICATIONS:

Base mounting 202			
Voltage	24 V DC	115 V AC	230 V AC
Current consumption	100 mA	20 mA	30 mA
red	202 100 55	202 100 67	202 100 68
yellow	202 300 55	202 300 67	202 300 68
Bracket mounting 205			
Voltage	24 V DC	115 V AC	230 V AC
Current consumption	100 mA	20 mA	30 mA
red	205 100 55	205 100 67	205 100 68
yellow	205 300 55	205 300 67	205 300 68

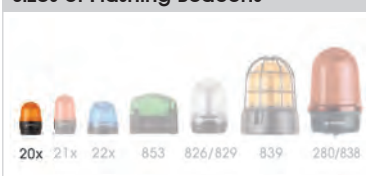
Further colours and voltages on request.



#### TECHNICAL DIAGRAMS:

see page 298 + 299

#### Sizes of Flashing Beacons

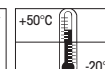
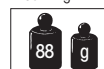


See note  
on page 347

Base  
mounting



Bracket  
mounting





Base with integrated tube  
(accessory)

- Safe CAGE CLAMP® technology
- Optimum illumination
- Tube mounting
- Single hole mounting possible with cable gland



#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	58 mm x 103 mm
Housing:	PA-GF, high impact
Lens:	PC, transparent
Ring:	PC
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 11 mm
Fixing:	Tube mounting M25 x 1.5 mm
Flash frequency:	C. 0.75 Hz
Flash energy:	1 Ws
Life duration:	4 x 10 <sup>6</sup> flashes



#### ORDER SPECIFICATIONS:

Voltage	24 V DC	115 V AC	230 V AC
Current consumption	100 mA	20 mA	30 mA
red	<b>209 120 55</b>	<b>209 120 67</b>	<b>209 120 68</b>
yellow	<b>209 320 55</b>	<b>209 320 67</b>	<b>209 320 68</b>



#### ACCESSORIES:

Base with integrated tube, M25 x 1.5 mm	<b>975 209 01</b>
Cable gland M25 x 1.5 mm	<b>975 209 02</b>



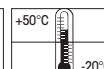
#### TECHNICAL DIAGRAMS:

see page 299

#### Sizes of Flashing Beacons



See note  
on page 347







Flashing Beacon 212  
(Base mounting)



Flashing Beacon 215 with  
integrated mounting bracket

- Safe CAGE CLAMP® technology
- Optimum illumination
- Available for base or bracket mounting
- Connection without the need to disassemble the product



#### TECHNICAL SPECIFICATIONS:

Housing:	PA-GF, high impact
Lens:	PC, transparent; Ring: PC
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 10 mm (212) Cable diameter 3-6 mm (215)

FLASHING BEACON	212	215
Fixing:	Base mounting with flat seal	Bracket mounting incl. cable gland M12 x 1.5 mm
Dimensions (Ø x Height):	58 mm x 97 mm	58 mm x 123 mm
Flash frequency:	C. 0.75 Hz	C. 0.75 Hz
Flash energy:	1 Ws	1 Ws
Life duration:	4 x 10 <sup>6</sup> flashes	4 x 10 <sup>6</sup> flashes



#### ORDER SPECIFICATIONS:

Base mounting 212			
Voltage	24 V DC	115 V AC	230 V AC
Current consumption	100 mA	20 mA	30 mA
red	<b>212 100 55</b>	<b>212 100 67</b>	<b>212 100 68</b>
yellow	<b>212 300 55</b>	<b>212 300 67</b>	<b>212 300 68</b>

Bracket mounting 215			
Voltage	24 V DC	115 V AC	230 V AC
Current consumption	100 mA	20 mA	30 mA
red	<b>215 100 55</b>	<b>215 100 67</b>	<b>215 100 68</b>
yellow	<b>215 300 55</b>	<b>215 300 67</b>	<b>215 300 68</b>

Further colours and voltages on request.



#### TECHNICAL DIAGRAMS:

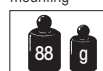
see page 300

#### Sizes of Flashing Beacons

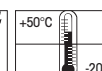
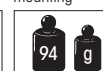


See note  
on page 347

Base  
mounting



Bracket  
mounting





Base with tube (accessory)



- Safe CAGE CLAMP® technology
- Optimum illumination
- Tubemounting
- Single hole mounting possible with cable gland



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	58 mm x 119 mm
Housing:	PA-GF, high impact
Lens:	PC, transparent
Ring:	PC
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 11 mm
Fixing:	Tube mounting M25 x 1.5 mm
Flash frequency:	C. 0.75 Hz
Flash energy:	1 Ws
Life duration:	4 x 10 <sup>6</sup> flashes



## ORDER SPECIFICATIONS:

Voltage	24 V DC	115 V AC	230 V AC
Current consumption	100 mA	20 mA	30 mA
red	<b>219 120 55</b>	<b>219 120 67</b>	<b>219 120 68</b>
yellow	<b>219 320 55</b>	<b>219 320 67</b>	<b>219 320 68</b>



## ACCESSORIES:

Base with integrated tube, M25 x 1.5 mm	<b>975 209 01</b>
Cable gland M25 x 1.5 mm	<b>975 209 02</b>



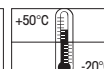
## TECHNICAL DIAGRAMS:

see page 301

### Sizes of Flashing Beacons



See note  
on page 347





Flashing Beacon 222  
(base mounting)



Flashing Beacon 225 with  
integrated mounting bracket

- Safe CAGE CLAMP® technology
- Optimum illumination
- Available for base or bracket mounting
- Connection without the need to disassemble the product



#### TECHNICAL SPECIFICATIONS:

Housing:	PA-GF, high impact
Lens:	PC, transparent; Ring: PC/ABS-Blend
Connection:	CAGE CLAMP® technology max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 10 mm (222) Cable diameter 3-6 mm (225)

FLASHING BEACON	222	225
Fixing:	Base mounting with flat seal	Bracket mounting incl. cable gland M12 x 1.5 mm
Dimensions (Ø x Height):	75 mm x 79 mm	75 mm x 105 mm
Flash frequency:	C. 0.75 Hz	C. 0.75 Hz
Flash energy:	1 Ws	1 Ws
Life duration:	4 x 10 <sup>6</sup> flashes	4 x 10 <sup>6</sup> flashes



#### ORDER SPECIFICATIONS:

Base mounting 222			
Voltage	24 V DC	115 V AC	230 V AC
Current consumption	100 mA	20 mA	30 mA
red	222 100 55	222 100 67	222 100 68
yellow	222 300 55	222 300 67	222 300 68

Bracket mounting 225			
Voltage	24 V DC	115 V AC	230 V AC
Current consumption	100 mA	20 mA	30 mA
red	225 100 55	225 100 67	225 100 68
yellow	225 300 55	225 300 67	225 300 68
blue	225 500 55	225 500 67	225 500 68

Further colours and voltages on request.



#### TECHNICAL DIAGRAMS:

see page 301 + 302

#### Sizes of Flashing Beacons

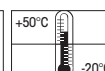


See note  
on page 347

Base  
mounting



Bracket  
mounting



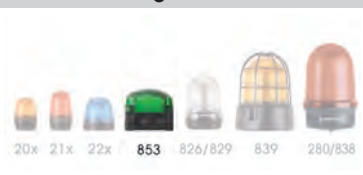


Intense double flash effect  
with low power consumption



Time-saving alternative:  
The snap-on fixing bracket  
(included in assembly)

#### Sizes of Flashing Beacons



- LED Double Flash Beacon in attractive quadratic form
- Intense double flash with low power consumption
- Innovative connector to create traffic light combinations
- Easy assembly due to quick-release screws
- Thread/membrane combination keeps cabling requirements to a minimum
- Also available in 48 V



#### TECHNICAL SPECIFICATIONS:

Dimensions (L x H x W):	85 mm x 85 mm x 72 mm
Housing:	PP-GF, black
Lens:	PC, transparent
Connection:	Screw terminal with wire protection, max. 1.5 mm <sup>2</sup>
Fixing:	Wall, base and ceiling mounting
Current consumption:	Max. 80 mA at 24 V
Equipment:	Eight self-sealing membranes for cable entry without tools Eight integrated M20 threads, no nuts required Optional use of a cable gland, thread length of cable gland ≤ 9 mm (accessory)
Assembly:	Incl. snap-on fixing bracket (optional use)

Life duration  
up to 50,000 hrs



#### ORDER SPECIFICATIONS:

Voltage	12 V DC	24 V DC	48 V AC	115-230 V AC
red	853 110 54	853 110 55	853 110 66	853 110 60
green	853 210 54	853 210 55	853 210 66	853 210 60
yellow	853 310 54	853 310 55	853 310 66	853 310 60
clear	853 410 54	853 410 55	853 410 66	853 410 60
blue	853 510 54	853 510 55	853 510 66	853 510 60



#### ACCESSORIES:

Connector for traffic light combinations (For further information see page 135)	975 853 01
Cable gland M20 x 1.5 mm 8 mm thread length	975 853 02



#### ADDITIONAL INFORMATION:

##### Save time installing the product

To fix the 853 beacon to the wall four holes have to be drilled. To speed things up the snap-on fixing bracket delivered with the beacon offers a time-saving alternative: simply drill two holes to attach the fixing bracket to the wall and snap the beacon onto it.

The cable can be fed through one of the eight self-sealing membranes without any tools saving 30% of the usual installation time. Once the cable has been connected to the terminals, the lens can be clipped onto the base and secured using the four captive quick-release screws.

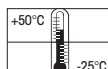
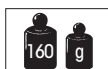


#### TECHNICAL DIAGRAMS:

see page 321



Easy assembly due to  
quick-release screws



24 V

PLC



Patent  
approved

The innovative connector  
(accessory) enables traffic light  
combinations to be created in  
a matter of seconds

- LED EVS Beacon in attractive quadratic form
- Attention-grabbing flickering light
- Innovative connector to create traffic light combinations
- Also available in 48 V
- Easy assembly due to quick-release screws
- Thread/membrane combination keeps cabling requirements to a minimum

**TECHNICAL SPECIFICATIONS:**Life duration  
up to 50,000 hrs

Dimensions (L x H x W):	85 mm x 85 mm x 72 mm
Housing:	PP-GF, black
Lens:	PC, transparent
Connection:	Screw terminal with wire protection, max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 8 mm, optional Cable gland M20 (accessory)
Fixing:	Wall, base and ceiling mounting
Current consumption:	Max. 200 mA at 24 V
Equipment:	Eight self-sealing membranes for cable entry without tools Eight integrated M20 threads, no nuts required Optional use of a cable gland, thread length of cable gland ≤ 9 mm (accessory)
Assembly:	Incl. snap-on fixing bracket (optional use, see page 152)

**ORDER SPECIFICATIONS:**

	12 V DC	24 V DC	48 V AC	115-230 V AC
red	853 120 54	853 120 55	853 120 66	853 120 60
green	853 220 54	853 220 55	853 220 66	853 220 60
yellow	853 320 54	853 320 55	853 320 66	853 320 60
clear	853 420 54	853 420 55	853 420 66	853 420 60
blue	853 520 54	853 520 55	853 520 66	853 520 60

**ACCESSORIES:**

Connector for traffic light combinations (For further information see page 119)	975 853 01
Cable gland M20 x 1.5 mm 8 mm thread length	975 853 02

**ADDITIONAL INFORMATION:**

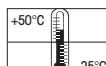
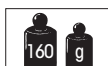
\* EVS = Enhanced Visibility System.  
Further Information can be found in the chapter "General  
Informations" beginning on page 352.  
Please note the photosensitive epilepsy warning  
on page 352.

**TECHNICAL DIAGRAMS:**

see page 321



The "EVS" light signal ensures a  
maximum attention-grabbing effect

**Sizes of Flashing Beacons**

24 V







# 897

## Double Flash Beacon



- Large signal beacon for powerful signal effectiv

- High light intensity thanks to optimised lens



### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	150 mm x 148 mm
Housing:	PC/ABS-Blend, grey
Lens:	PC, transparent
Fixing:	Base mounting, tube mounting and fixing bracket (accessory)
Cable entry:	From top or bottom with cable gland M20 x 1.5 mm or from the back with rubber grommet Ø 6-12 mm
Connection:	Screw terminal, max. 2.5 mm <sup>2</sup>
Flash frequency:	1 Hz
Flash energy:	15 Ws
Life duration:	4 x 10 <sup>6</sup> flashes



### ORDER SPECIFICATIONS:

Voltage	24 V DC	230 V AC
Current consumption	800 mA	200 mA
red	<b>897 100 55</b>	<b>897 100 68</b>
yellow	<b>897 300 55</b>	<b>897 300 68</b>

Further colours and voltages on request.



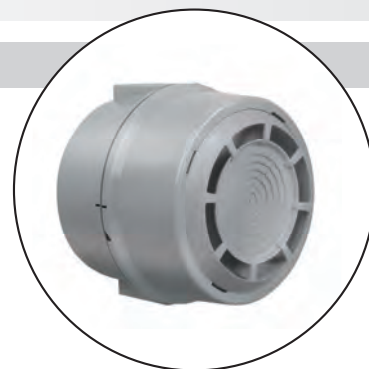
### ACCESSORIES:

Fixing bracket, adhesive stickers see Permanent/Traffic Light Beacon 890 (page 176).



### TECHNICAL DIAGRAMS:

see page 326



**Audible addition:**  
The Multi-Tone Sounder 190  
with 110 dB (see page 253)



See note  
on page 347



Base mounting 830



Wall mounting 835



Wire guard and bracket (accessories)

- High flash power

**TECHNICAL SPECIFICATIONS:**

<b>Dimensions</b> (Ø x Height):	108 mm x 133 mm (830)
	108 mm x 172 mm (835)
<b>Housing:</b>	ABS
<b>Lens:</b>	PC, transparent
<b>Fixing:</b>	830: Base mounting
	835: Bracket mounting (included in assembly)
<b>Connection:</b>	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
<b>Cable entry:</b>	Rubber squeeze grommet Ø 5-7 mm
<b>Flash frequency:</b>	C. 1 Hz
<b>Life duration:</b>	4 x 10 <sup>6</sup> flashes

**ORDER SPECIFICATIONS:****Base mounting 830**

Voltage	24 V DC	230 V AC
Current consumption	250 mA	140 mA
red	<b>830 152 55</b>	<b>830 152 68</b>
yellow	<b>830 352 55</b>	<b>830 352 68</b>

**Bracket mounting 835**

Voltage	24 V DC	230 V AC
Current consumption	250 mA	140 mA
red	<b>835 152 55</b>	<b>835 152 68</b>
yellow	<b>835 352 55</b>	<b>835 352 68</b>

Further colours and voltages on request.

**ACCESSORIES:**

Wire guard for base and bracket mounting	<b>975 830 00</b>
Bracket for wall mounting for 830	<b>975 835 01</b>

**ADDITIONAL INFORMATION:**

Please also see Flashing Beacon 828 and LED Flashing Beacon 829 with additional advantages (see page 157 and 159)

- High protection rating IP 65
- Simple mounting
- Shock-proof and vibration resistant (LED Flashing Beacon)
- Life duration up to 50,000 hrs (LED Flashing Beacon)

**TECHNICAL DIAGRAMS:**

see page 317





827

## Blinking Beacon



Base/Bracket Mounting



Tube mounting



Accessories

- Tube mounting solution suitable for Ø 25 mm and 1/2" NPT tubes
- Simple mounting
- Removal of the lens only possible with tools



### TECHNICAL SPECIFICATIONS:

<b>Dimensions (Ø x Height):</b>	98 mm x 137 mm (Base/Bracket mounting) 98 mm x 200 mm (Tube mounting)		
<b>Cable entry:</b>	Cable diameter 5-7 mm		
<b>Housing:</b>	PC/ABS-Blend		
<b>Lens:</b>	PC, transparent		
<b>Connection:</b>	Screw terminal with wire protection max. 2,5 mm <sup>2</sup>		
<b>Bulb:</b>	Max. 25 W		
<b>Blinking frequency:</b>	1.5 Hz		
<b>Starting current:</b>	24 V AC/DC	115 V AC	230 V AC
	3 A	0,6 A	0,35 A
<b>Socket:</b>	BA15d		
Bulb included in assembly.			



### ORDER SPECIFICATIONS:

<b>Base/Bracket mounting</b>			
Voltage	24 V AC/DC	115 V AC/DC	230 V AC/DC
red	<b>827 100 75</b>	<b>827 100 77</b>	<b>827 100 78</b>
yellow	<b>827 300 75</b>	<b>827 300 77</b>	<b>827 300 78</b>
<b>Tube mounting</b>			
Voltage	24 V AC/DC	115 V AC/DC	230 V AC/DC
red	<b>827 110 75</b>	<b>827 110 77</b>	<b>827 110 78</b>
yellow	<b>827 310 75</b>	<b>827 310 77</b>	<b>827 310 78</b>



### ACCESSORIES:

Plastic bracket for wall mounting	<b>975 826 05</b>
Wire guard, galvanised, only for base mounting	<b>975 826 03</b>
Tube Ø 25 mm, all anodized aluminium, 100 mm long	<b>975 845 10</b>
Base for tube, plastic	<b>975 840 90</b>
Base for tube, metal	<b>975 840 91</b>

Bulb BA15d, 25 W, total length max. 55 mm			
Voltage	24 V AC/DC	115 V AC/DC	230 V AC/DC
	<b>955 827 35</b>	<b>955 827 37</b>	<b>955 827 38</b>



### TECHNICAL DIAGRAMS:

see page 316

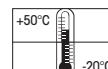
#### Sizes of Flashing Beacons



See note  
on page 347

Base/Bracket  
mounting

Tube  
mounting





Base/Bracket Mounting



Tube mounting



Accessories

#### Sizes of Flashing Beacons



- Tube mounting solution suitable for Ø 25 mm and 1/2" NPT tubes
- Also available in 10-60 V AC/DC version
- Removal of the lens only possible with tools
- Also available with 2 frequencies



#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	98 mm x 137 mm (Base/Bracket mounting)
	98 mm x 200 mm (Tube mounting)
Cable entry:	Cable diameter 5-7 mm
Housing:	PC/ABS-Blend
Lens:	PC, transparent

#### FLASHING BEACON 828

Connection:	Screw terminal with wire protection 0.5-2.5 mm <sup>2</sup>
Flash frequency:	c. 1 Hz
Life duration:	4 x 10 <sup>6</sup> flashes
12 V: Safety contact is triggered by removal of lens.	

#### FLASHING BEACON 828 WITH 2 FREQUENCIES

Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Flash frequency:	0.5 Hz or 1.5 Hz can be set externally
Life duration:	4 x 10 <sup>6</sup> flashes



#### ORDER SPECIFICATIONS:

#### FLASHING BEACON 828

##### Base/Bracket mounting

Voltage	12 V DC	24 V DC	10-60 V AC/DC	115 V AC	230 V AC
Current consumpt.	500 mA	300 mA	500-120 mA	65 mA	150 mA
red	<b>828 100 54</b>	<b>828 100 55</b>	<b>828 180 70</b>	<b>828 100 67</b>	<b>828 100 68</b>
yellow	<b>828 300 54</b>	<b>828 300 55</b>	<b>828 380 70</b>	<b>828 300 67</b>	<b>828 300 68</b>
clear	-	<b>828 400 55</b>	<b>828 480 70</b>	-	<b>828 400 68</b>

##### Tube mounting

Voltage	24 V DC	115 V AC	230 V AC
red	<b>828 140 55</b>	<b>828 140 67</b>	<b>828 140 68</b>
yellow	<b>828 340 55</b>	<b>828 340 67</b>	<b>828 340 68</b>
clear	<b>828 440 55</b>	-	-

#### FLASHING BEACON 828 WITH 2 FREQUENCIES

##### Boden-/Winkelmontage Rohrmontage

Voltage	24 V DC	24 V DC
Current consumption	500 mA	500 mA
red	<b>828 120 55</b>	<b>828 160 55</b>
yellow	<b>828 320 55</b>	<b>828 360 55</b>



#### ACCESSORIES:

Accessories see page 156.



#### TECHNICAL DIAGRAMS:

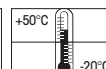
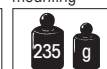
see page 316

828 X00 XX  
828 X40 XX  
828 X20 XX  
828 X60 XX

See note  
on page 347

Base/Bracket  
mounting

Tube  
mounting





Modified flashing beacon 828  
specifically for use in road tunnels



clear identification of escape  
routes can save lives



A special valve in the lens also  
prevents the build-up of  
condensation inside the beacon

- Xenon flashing beacon for use in road tunnels
- Developed specifically for installation underneath warning signs
- A special valve in the lens also prevents the build-up of condensation inside the beacon, ensuring optimum protection against even the most demanding tunnel cleaning operations



#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	98 mm x 137 mm
Cable entry:	Cable diameter 5-7 mm
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Fixing:	Base mounting, bracket mounting (accessory)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Flash frequency:	C. 1 Hz
Life duration:	4 x 10 <sup>6</sup> flashes



#### ORDER SPECIFICATIONS:

Voltage	230 V AC
Current consumption	140 mA
yellow	828 370 68
clear	828 470 68



#### ACCESSORIES:

Plastic bracket for wall mounting	975 826 05
Wire guard, galvanised, only for base mounting	975 826 03



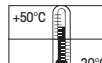
#### TECHNICAL DIAGRAMS:

see page 316

#### Sizes of Flashing Beacons



See note  
on page 347







Base/Bracket Mounting



Tube Mounting (tube and base for tube - accessory)

- Intense double flash with low power consumption

- High flash power from two consecutive flashes

**TECHNICAL SPECIFICATIONS:**

Life duration  
up to 50,000 hrs

<b>Dimensions</b> (Ø x Height):	98 mm x 137 mm (Base/Bracket mounting) 98 mm x 200 mm (Tube mounting)
<b>Housing:</b>	PC/ABS-Blend
<b>Lens:</b>	PC, transparent
<b>Fixing:</b>	Base mounting, bracket mounting (accessory), tube mounting (accessory)
<b>Cable entry:</b>	Cable diameter 5-7 mm
<b>Connection:</b>	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>

**ORDER SPECIFICATIONS:****Base/Bracket mounting**

Voltage	24 V DC	115-230 V AC
Current consumption	< 100 mA	< 100 mA
red	<b>829 120 55</b>	<b>829 120 68</b>
yellow	<b>829 320 55</b>	<b>829 320 68</b>
clear	<b>829 420 55</b>	<b>829 420 68</b>

**Tube mounting**

Voltage	24 V DC	115-230 V AC
Current consumption	< 100 mA	< 100 mA
red	<b>829 127 55</b>	<b>829 127 68</b>
yellow	<b>829 327 55</b>	<b>829 327 68</b>
clear	<b>829 427 55</b>	<b>829 427 68</b>

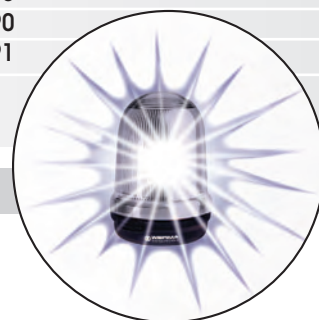
**ACCESSORIES:**

Plastic bracket for wall mounting	<b>975 826 05</b>
Wire guard, galvanised, only for base mounting	<b>975 826 03</b>
Tube Ø 25 mm, all anodized aluminium, 100 mm long	<b>975 845 10</b>
Base for tube, plastic	<b>975 840 90</b>
Base for tube, metal	<b>975 840 91</b>

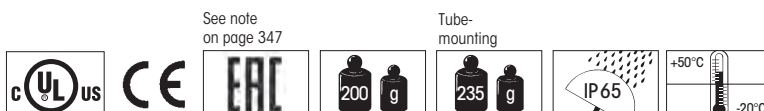
(Accessories see page 156)

**TECHNICAL DIAGRAMS:**

see page 317



LED flash enables use in  
safety relevant applications or  
with batteries/power packs

**Sizes of Flashing Beacons**



Base/Bracket mounting



Tube mounting



Accessories

## Sizes of Flashing Beacons



- Attention-grabbing flickering light
- Developed on a neurobiological basis
- Extremely powerful signal effect
- Random sequence of light signals prevents acclimatisation effect



## TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	98 mm x 137 mm (Base/Bracket mounting) 98 mm x 200 mm (Tube mounting)
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Cable entry:	Cable diameter 5-7 mm
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>



## ORDER SPECIFICATIONS:

## Base/Bracket mounting

Voltage	24 V DC	115-230 V AC
Current consumption	< 300 mA	< 150 mA
red	829 190 55	829 190 68
yellow	829 390 55	829 390 68
clear	829 490 55	829 490 68

## Tube mounting

Voltage	24 V DC	115-230 V AC
Current consumption	< 300 mA	< 150 mA
red	829 197 55	829 197 68
yellow	829 397 55	829 397 68
clear	829 497 55	829 497 68



## ACCESSORIES:

Plastic bracket for wall mounting	975 826 05
Wire guard, galvanised, only for base mounting	975 826 03
Tube Ø 25 mm, all anodized aluminium, 100 mm long	975 845 10
Base for tube, plastic	975 840 90
Base for tube, metal	975 840 91



## ADDITIONAL INFORMATION:

\* EVS = Enhanced Visibility System.

Further information can be found in the chapter  
"General Information" beginning on page 352.

Please note the photosensitive epilepsy warning  
on page 352.



## TECHNICAL DIAGRAMS:

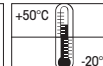
see page 317



The "EVS" light effect ensures a  
maximum attention-grabbing effect



See note  
on page 347





- Robust aluminium housing including wire guard
- High flash power from two consecutive flashes
- High Protection rating IP 67
- Salt water resistant
- Robust bracket made of V2A stainless steel (accessory)

**TECHNICAL SPECIFICATIONS:**

Dimensions (Ø x Height):	153 mm x 198 mm
Housing:	Black laquered aluminium with integral wire guard
Lens:	PC, transparent
Fixing:	Base mounting
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M20 x 1.5 mm (included in assembly) Cable diameter 6-13 mm
Installation position:	As required
Flash energy:	15 Ws
Flash frequency:	C. 1 Hz
Life duration:	4 x 10 <sup>6</sup> flashes

**ORDER SPECIFICATIONS:**

Voltage	24 V DC	230 V AC
Current consumption	800 mA	200 mA
red	<b>839 152 55</b>	<b>839 152 68</b>
yellow	<b>839 352 55</b>	<b>839 352 68</b>

**ACCESSORIES:**

Mounting bracket	<b>975 839 02</b>
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**TECHNICAL DIAGRAMS:**

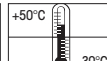
see page 317



Generates a high signal effect thanks to two consecutive flashes

**Sizes of Flashing Beacons**

See note  
on page 347





Wire guard  
(accessory)



Adaptor for tube mounting  
and plastic bracket  
(accessories)

- High flash power from two consecutive flashes
- High light intensity
- Adaptor for tube mounting (accessory)
- High impact resistance to 20 Joules



#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	142 mm x 218 mm
Housing: PC/ABS-Blend	
Lens:	PC, transparent
Fixing:	Base mounting, Bracket mounting (accessory), Tube mounting (accessory)
Connection:	Screw terminal with wire protection 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Flash energy:	15 Ws
Flash frequency:	C. 1 Hz
Power supply frequency:	50/60 Hz
Life duration:	4 x 10 <sup>6</sup> flashes



#### ORDER SPECIFICATIONS:

Voltage	24 V DC	115 V AC	230 V AC
Current consumption:	800 mA	400 mA	200 mA
red	<b>838 100 55</b>	<b>838 100 67</b>	<b>838 100 68</b>
yellow	<b>838 300 55</b>	<b>838 300 67</b>	<b>838 300 68</b>



#### ACCESSORIES:

Plastic bracket for wall mounting	<b>975 883 06</b>
Adaptor for tube mounting	<b>975 883 09</b>
Wire guard, only for base mounting	<b>975 883 08</b>



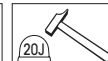
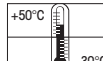
#### TECHNICAL DIAGRAMS:

see page 317

#### Sizes of Flashing Beacons



See note  
on page 347







Base mounting



The adaptor (accessory) allows quick and simple mounting on a tube



Plastic bracket, Adaptor for tube mounting and wire guard (accessories)

## Sizes of Flashing Beacons



- Intense double flash with low power consumption
- High flash power from two consecutive flashes
- Adaptor for tube mounting (accessory)
- High impact up to 20 Joules



## TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	142 mm x 218 mm
Housing: PC/ABS-Blend	
Lens:	PC, transparent
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Duty cycle:	100 %



## ORDER SPECIFICATIONS:

Voltage	24 V DC	115-230 V AC
Current consumption	< 150 mA	< 350 mA
red	280 150 55	280 150 60
yellow	280 350 55	280 350 60
clear	280 450 55	280 450 60



## ACCESSORIES:

Plastic bracket for wall mounting	975 883 06
Adaptor for tube mounting	975 883 09
Wire guard, only for base mounting	975 883 08



## ADDITIONAL INFORMATION:

The LED Beacon 280 is also available as LED EVS Beacon (see page 164), LED Permanent Beacon (see page 143) or LED Rotating Beacon (see page 170).

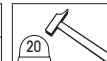
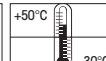


## TECHNICAL DIAGRAMS:

see page 303



Two consecutive flashes generate a brilliant signal

See note  
on page 347



Patent  
approved

Base mounting

Bracket mounting  
(accessory)

- Attention-grabbing flickering light
- Developed on a neurobiological basis
- Extremely powerful signal effect
- Random sequence of light signals prevents acclimatisation effect

### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	142 mm x 218 mm
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Duty cycle:	100 %

Life duration  
up to 50,000 hrs

### ORDER SPECIFICATIONS:

Voltage	24 V DC	115-230 V AC
Current consumption	< 500 mA	< 350 mA
red	280 160 55	280 160 60
yellow	280 360 55	280 360 60
clear	280 460 55	280 460 60

### ACCESSORIES:

Plastic bracket for wall mounting	975 883 06
Adaptor for tube mounting	975 883 09
Wire guard, only for base mounting	975 883 08

(Accessories see page 163)

### ADDITIONAL INFORMATION:

\* EVS = Enhanced Visibility System

Further Information can be found in the chapter "General Information" beginning on page 352.

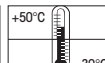
Please note the photosensitive epilepsy warning on page 352.



### TECHNICAL DIAGRAMS:

see page 303

#### Sizes of Flashing Beacons

See note  
on page 347



Base mounting



Rotating Mirror Beacon 885 with tube and base (accessories)



Plastic bracket und wire guard (accessories)

#### Sizes of Rotating Beacons



- High light intensity in compact form
- Tube mounting solution suitable for Ø 25 mm and 1/2" NPT tubes
- Installation without the need to disassemble the mechanism
- Extremely quiet

#### TECHNICAL SPECIFICATIONS:

<b>Dimensions</b> (Ø x Height):	98 mm x 151 mm (Base mounting) 98 mm x 200 mm (Tube mounting)
<b>Housing:</b> PC/ABS-Blend	
<b>Lens:</b>	PC, transparent
<b>Fixing:</b>	Base mounting, bracket/tube mounting (accessory)
<b>Connection:</b>	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter 5-7 mm
<b>Installation position:</b>	Standing
<b>Halogen bulb:</b>	G 6.35 20 W 12 V / 24 V
<b>Mirror rotation rate:</b>	C. 180 r.p.m.
<b>Service life of drive:</b>	> 5,000 hrs
<b>Duty cycle:</b>	100 %

Halogen bulb included in assembly.

#### ORDER SPECIFICATIONS:

Base mounting			
Voltage	12 V DC	24 V AC/DC	115 V AC/ 115 V DC/ 230 V AC/ 230 V DC
Current consumpt.	1.9 A	1.0 A	0.4 A / 0.2 A / 0.2 A / 0.1 A
red	885 100 54	885 100 75	885 100 78
green	885 200 54	885 200 75	885 200 78
yellow	885 300 54	885 300 75	885 300 78
blue	885 500 54	885 500 75	885 500 78
Tube mounting			
Voltage	12 V DC	24 V AC/DC	115 V AC/ 115 V DC/ 230 V AC/ 230 V DC
Current consumpt.	1.9 A	1.0 A	0.4 A / 0.2 A / 0.2 A / 0.1 A
red	885 110 54	885 110 75	885 110 78
green	885 210 54	885 210 75	885 210 78
yellow	885 310 54	885 310 75	885 310 78
blue	885 510 54	885 510 75	885 510 78

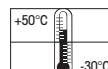
#### ACCESSORIES:

Plastic bracket for wall mounting	975 826 05
Wire guard, galvanised, only for base mounting	975 826 03
Base for tube mounting Ø 25 mm, plastic, Incl. rubber seal	975 840 90
Base for tube mounting Ø 25 mm, metal, Incl. rubber seal	975 840 91
Tube Ø 25 mm, all anodized aluminium	
100 mm	975 845 10
250 mm	975 840 25
SPARE PARTS:	
Halogen bulb 20 W/12 V for 12 V DC	955 885 24
115 V AC/DC, 230 V AC	
Halogen bulb 20 W/24 V for 24 V AC/DC	955 885 25



TECHNICAL DIAGRAMs: see page 325

See note  
on page 347





# 885

## Rotating Mirror Beacon



Flange with counter-plug  
for electrical connection  
(accessory)

- Integrated flexible tube
- With 2 pole plug connection according to ISO 4165
- Elastic material prevents the beacon from breaking off
- Full rotating mirror functionality in compact form



### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	98 mm x 255 mm
Housing: PC/ABS-Blend	
Lens:	PC, transparent
Fixing:	Tube mounting
Connection:	2 pole plug connection (according to ISO 4165)
Cable entry:	Cable diameter 5-7 mm
Installation position:	As required
Halogen bulb:	G 6.35 20 W 12 V/24 V
Mirror rotating rate:	C. 180 r.p.m.
Service life of drive:	> 5,000 hrs
Duty cycle:	100 %

Halogen bulb included in assembly.



### ORDER SPECIFICATIONS:

Voltage	12 V DC	24 V AC/DC
Current consumption	1.9 A	1.0 A
red	<b>885 120 54</b>	<b>885 120 75</b>
green	<b>885 220 54</b>	<b>885 220 75</b>
yellow	<b>885 320 54</b>	<b>885 320 75</b>
blue	<b>885 520 54</b>	<b>885 520 75</b>

### SPARE PARTS:

Halogen bulb 20 W/12 V for 12 V DC **955 885 24**  
115 V AC/DC, 230 V AC

Halogen bulb 20 W/24 V for 24 V AC/DC **955 885 25**



### ACCESSORIES:

Flange with counter-plug  
for electrical connection **975 826 20**



### TECHNICAL DIAGRAMS:

see page 325

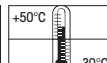


The flexible tube, made of an elastic material, is hard-wearing and prevents the beacon from breaking off

### Sizes of Rotating Beacons



See note  
on page 347





Mounting bracket  
(accessory)

- Robust aluminium housing including wire guard
- Extreme durability thanks to low wear belt drive
- Salt water resistant
- Extremely quiet
- Installation without the need to disassemble the mechanism
- Robust bracket made of V2A stainless steel (accessory)

#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	153 mm x 198 mm
Housing:	Black laquered aluminium with integral wire guard
Lens:	PC, transparent
Fixing:	Base mounting
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M20 x 1.5 mm (included in assembly) Cable diameter 6-13 mm
Installation position:	As required
Halogen bulb:	G 6.35 20 W 12/24 V
Mirror rotating rate:	C. 180 r.p.m.
Service life of drive:	> 5.000 hrs

#### ORDER SPECIFICATIONS:

Voltage	24 V AC/DC	115 V AC	/ 115 V DC	/ 230 V AC	/ 230 V DC
Current consumption	1.0 A	0.35 A	/ 0.5 A	/ 0.15 A	/ 0.1 A
red	<b>839 160 75</b>			<b>839 160 78</b>	
yellow	<b>839 360 75</b>			<b>839 360 78</b>	

#### ACCESSORIES:

Mounting bracket	<b>975 839 02</b>
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#### SPARE PARTS:

Halogen bulb 20 W/12 V for 115 V AC/DC, 230 V AC	<b>955 885 24</b>
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Halogen bulb 20 W/24 V for 24 V AC/DC	<b>955 885 25</b>
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#### TECHNICAL DIAGRAMS:

see page 317

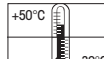
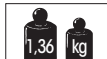


Also suitable for use in  
rough conditions

#### Sizes of Rotating Beacons



See note  
on page 347





Mounting bracket  
(accessory)

## Sizes of Rotating Beacons



- Robust aluminium housing including wire guard
- Wear-free due to the absence of any moving mechanical components
- Salt water resistant
- Intense rotating signal effect with low power consumption
- AC multi-voltage version
- Robust bracket made of V2A stainless steel (accessory)



## TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	153 mm x 198 mm
Housing:	Black laquered aluminium with integral wire guard
Lens:	PC, transparent
Fixing:	Base mounting
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M20 x 1.5 mm (included in assembly) Cable diameter 6-13 mm
Installation position:	As required
Rotation rate:	C. 180 r.p.m.



## ORDER SPECIFICATIONS:

Voltage	24 V DC	115-230 V AC
Current consumption	150 mA	70-180 mA
red	<b>839 120 55</b>	<b>839 120 68</b>
yellow	<b>839 320 55</b>	<b>839 320 68</b>



Mounting bracket	<b>975 839 02</b>
------------------	-------------------

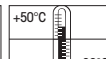


## TECHNICAL DIAGRAMS:

see page 317



Generates a high signal effect thanks to the LEDs programmed to create a rotating light

See note  
on page 347





Tube mounting



Base/Bracket mounting



Accessories

#### Sizes of Rotating Beacons



- Extremely high light intensity
- Wear-free due to the absence of any moving mechanical components
- Intense rotating signal effect with low power consumption
- Shock-proof and vibration-resistant



#### TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

<b>Dimensions</b> (Ø x Height):	98 mm x 137 mm (Base/Bracket mounting) 98 mm x 200 mm (Tube mounting)
<b>Housing:</b>	PC/ABS-Blend
<b>Lens:</b>	PC, transparent
<b>Fixing:</b>	Base mounting, bracket mounting (accessory), tube mounting (accessory)
<b>Cable entry:</b>	Cable diameter 5-7 mm
<b>Connection:</b>	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
<b>Rotation rate:</b>	C. 180 r.p.m.



#### ORDER SPECIFICATIONS:

##### Base/Bracket mounting

Voltage	24 V DC	115-230 V AC
Current consumption	< 170 mA	< 200 mA
red	829 110 55	829 110 68
green	829 210 55	829 210 68
yellow	829 310 55	829 310 68
clear	829 410 55	829 410 68
blue	829 510 55	829 510 68

##### Tube mounting

Voltage	24 V DC	115-230 V AC
Current consumption	< 170 mA	< 200 mA
red	829 117 55	829 117 68
green	829 217 55	829 217 68
yellow	829 317 55	829 317 68
clear	829 417 55	829 417 68
blue	829 517 55	829 517 68



#### ACCESSORIES:

Plastic bracket for wall mounting	975 826 05
Wire guard, galvanised, only for base mounting	975 826 03
Tube Ø 25 mm, all anodized aluminium, 100 mm long	975 845 10
Base for tube, plastic	975 840 90
Base for tube, metal	975 840 91

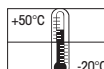
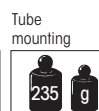
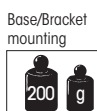


#### TECHNICAL DIAGRAMS:

see page 317



Generates a distinctive rotating  
signal by triggering high output  
LEDs in sequence





# 280

## LED Rotating Beacon



High impact resistance  
to 20 Joules



Plastic bracket, adaptor for tube  
mounting and wire guard  
(accessories)

- Extremely high light intensity
- Wear-free due to the absence of any moving mechanical components
- Intense rotating signal effect with low power consumption
- Shock proof and resistant against vibration
- High impact resistance to 20 Joules



### TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (Ø x Height):	142 mm x 218 mm
Housing:	PC/ABS-Blend, black
Lens:	PC, transparent
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Rotation rate:	C. 180 r.p.m.
Duty cycle:	100 %



### ORDER SPECIFICATIONS:

Voltage 24	V DC 115-230	V AC
Current consumption	150 mA	< 200 mA
red	<b>280 120 55</b>	<b>280 120 68</b>
yellow	<b>280 320 55</b>	<b>280 320 68</b>



### ACCESSORIES:

Plastic bracket for wall mounting	<b>975 883 06</b>
Adaptor for tube mounting	<b>975 883 09</b>
Wire guard, only for base mounting	<b>975 883 08</b>



### TECHNICAL DIAGRAMS:

see page 303

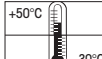


Generates a high signal effect  
thanks to the LEDs programmed  
to create a rotating light

### Sizes of Rotating Beacons



See note  
on page 347



24 V





Bracket  
(accessory)



Plastic bracket, adaptor for tube  
mounting and wire guard  
(accessories)

#### Sizes of Rotating Beacons



- Greater signal effect particularly in poor conditions thanks to three light beams
- Low rotation rate
- Three Fresnel lenses effect light convergence and optimise visibility
- High impact resistance to 20 Joules



#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	142 mm x 218 mm
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Fixing:	Base mounting, bracket mounting, tube mounting (accessory)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Drive:	Wheel and disc drive, motor in centre of gravity
Halogen bulb:	G 6.35 35 W 12 V / 24 V
Mirror rotation rate:	60 r.p.m.
Service life of drive:	> 5,000 hrs
Duty cycle:	100 %

Halogen bulb included in assembly.



#### ORDER SPECIFICATIONS:

Voltage	24 V AC/DC	230 V AC
Current consumption	1.6 A	0.17 A
red	884 100 75	884 100 68
green	884 200 75	884 200 68
yellow	884 300 75	884 300 68
blue	884 500 75	884 500 68

Further colours and voltages on request.



#### ACCESSORIES:

Plastic bracket for wall mounting	975 883 06
Adaptor for tube mounting	975 883 09
Base for tube mounting	975 840 91
Tube, Ø 25 mm, 100 mm long	975 845 10
Tube, Ø 25 mm, 250 mm long	975 840 25
Wire guard, only for base mounting	975 883 08

#### SPARE PARTS:

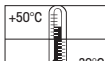
Halogen bulb 35 W/12 V for 230 V AC	955 883 34
Halogen bulb 35 W/24 V for 24 V AC/DC	955 883 35



#### TECHNICAL DIAGRAMS:

see page 325

See note  
on page 347



3 Fresnel lenses are set  
at a 120° angle





883

# Rotating Mirror Beacon



Bracket (accessory)



Plastic bracket, adaptor for tube mounting and wire guard (accessories)

Sizes of Rotating Beacons



- Extreme durability thanks to lowwear wheel and disc drive
- Adaptor for tube mounting (accessory)
- Installation without the need to disassemble the mechanism
- High impact resistance to 20 Joules



## TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	142 mm x 218 mm
Housing:	PC/ABS-Blend
Lens:	PC, transparent
Fixing:	Base mounting, bracket mounting, tube mounting (accessory)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-7 mm
Drive:	Wheel and disc drive, motor in centre of gravity
Halogen bulb:	G 6.35 35 W 12 V / 24 V
Mirror rotation rate:	c. 180 r.p.m.
Service life of drive:	> 5,000 hrs
Duty cycle:	100 %

Halogen bulb included in assembly.



## ORDER SPECIFICATIONS:

	12 V DC	24 V AC/DC	115 V AC/DC	230 V AC
Voltage	12 V DC	24 V AC/DC	115 V AC/DC	230 V AC
Current consumpt.	3 A	1.6 A	0.35 A	0.17 A
red	883 100 54	883 100 75	883 100 77	883 100 68
green	883 200 54	883 200 75	883 200 77	883 200 68
yellow	883 300 54	883 300 75	883 300 77	883 300 68
blue	883 500 54	883 500 75	883 500 77	883 500 68

Further colours and voltages on request.



## ACCESSORIES:

Plastic bracket for wall mounting	975 883 06
Adaptor for tube mounting	975 883 09
Base for tube mounting	975 840 91
Tube, Ø 25 mm, 100 mm long	975 845 10
Tube, Ø 25 mm, 250 mm long	975 840 25
Wire guard, only for base mounting	975 883 08

## SPARE PARTS:

Halogen bulb 35 W/12 V for 12 V DC, 115 V AC/DC, 230 V AC	955 883 34
Halogen bulb 35 W/24 V for 24 V AC/DC	955 883 35



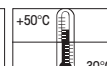
## TECHNICAL DIAGRAMS:

see page 325



Low wear wheel and disc drive

See note on page 347







- High intensity optical signal with halogen bulb

- "e" approval for automotive use (yellow, 24 V)

**TECHNICAL SPECIFICATIONS:**

Dimensions (Ø x Height):	152 mm x 215 mm
Housing:	Thermoplastic with injected metal base
Lens:	Plexiglass (PMMA)
Fixing:	Base, bracket (accessory), tube mounting (accessory)
Connection:	Screw terminal 0.5-1.5 mm²
Cable entry:	Cable diameter 5-8 mm
Mirror rotation rate:	C. 170 r.p.m.

Assembly incl. halogen bulb H1.

**ORDER SPECIFICATIONS:**

Voltage	24 V DC	230 V AC
Current consumption	3.0 A	0.3 A
red	<b>880 152 55</b>	<b>880 152 68</b>
yellow	<b>880 352 55</b>	<b>880 352 68</b>

Further colours and voltages on request.

**ACCESSORIES:**

Flange for tube, max. 29.8 mm	<b>880 000 00</b>
Bracket for wall mounting	<b>975 881 01</b>

**SPARE PARTS:**

Bulb H 1 55 W for 230 V AC	<b>955 880 34</b>
Bulb H 1 70 W for 24 V AC/DC	<b>955 880 35</b>

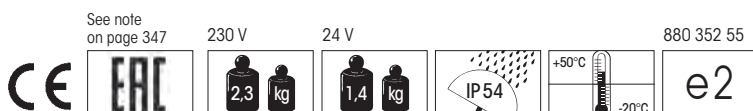
**ADDITIONAL INFORMATION:**

Please also see Rotating Mirror Beacon 883 with additional advantages (see page 172)

- High protection rating IP 65
- Modern design
- High impact to 20 Joules
- Long life duration thanks to low wear wheel and disc drive
- Installation without the need to disassemble the mechanism

**TECHNICAL DIAGRAMS:**

see page 325





881

# Rotating Mirror Beacon



- Competitively priced rotating mirror beacon with bulb included



## TEcHNicAL SPEcIFIcATIONS:

Dimensions (Ø x Height):	150 mm x 204 mm
Housing:	ABS
Lens:	PC, transparent
Fixing:	Base, bracket (accessory), tube mounting (accessory)
Connection:	Screw terminal 0.5-1.5 mm <sup>2</sup>
Cable entry:	Cable diameter 5-8 mm
Mirror rotating rate:	C. 170 r.p.m.

Bulb included in assembly.



## ORDER SPEcIFIcATIONS:

Voltage	48 V AC/DC	230 V AC
Current consumption	1.0 A	0.3 A
red	<b>881 152 56</b>	<b>881 152 98</b>
yellow	<b>881 352 56</b>	<b>881 352 98</b>



## Acc ESSORIES:

Flange for tube, max. 29.8 mm	<b>880 000 00</b>
Bracket for wall mounting	<b>975 881 01</b>

## SPARE PARTS:

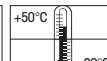
Bulb E14, 40 W		
Voltage	48 V AC/DC	230 V AC/DC
	<b>955 880 66</b>	<b>955 880 68</b>



## TEcHNicAL DIAGRAMS:

see page 325

See note  
on page 347





LED Permanent Beacon

LED Traffic Light combination  
with mounting bracket  
(accessory)clear lenses ensure signalling  
effect even in direct sunlight

- LED Beacon for traffic light combinations
- Clear signalling effect even in direct sunlight
- Maintenance-free LED technology
- Innovative fixing bracket for simple mounting

**TECHNICAL SPECIFICATIONS:**Life duration  
up to 50,000 hrs

<b>Dimensions</b> (Ø x Height):	150 mm x 154 mm
<b>Housing:</b>	PC/ABS-Blend, grey
<b>Lens:</b>	PC, transparent
<b>Fixing:</b>	Base mounting, bracket mounting (accessory), tube mounting (accessory)
<b>Connection:</b>	Screw terminal max. 1.5 mm <sup>2</sup>
<b>Installation position:</b>	As required
<b>Cable entry:</b>	From top or bottom with cable gland M20 x 1.5 mm or from the back with rubber grommet Ø 6-12 mm, included in assembly.

**ORDER SPECIFICATIONS:**

Voltage	12-24 V DC	115 V AC	230 V AC
Current consumption	< 200 mA	< 35 mA	< 35 mA
red	<b>890 120 55</b>	<b>890 120 67</b>	<b>890 120 68</b>
green	<b>890 220 55</b>	<b>890 220 67</b>	<b>890 220 68</b>
yellow	<b>890 320 55</b>	<b>890 320 67</b>	<b>890 320 68</b>

**ACCESSORIES:****FIXING BRACKET**

Fixing bracket for one beacon	<b>975 890 33</b>
Fixing bracket for two beacons	<b>975 890 34</b>
Fixing bracket for three beacons	<b>975 890 35</b>
Fixing bracket for four beacons	<b>975 890 37</b>

Mounting material and connecting grommet included in assembly.  
Further information can be found on page 178.

**CONNECTING GROMMET**

Connecting grommet for traffic light combinations	<b>975 890 25</b>
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**TUBE ADAPTOR**

Adaptor for tube mounting (suitable for Ø 75 mm tubes, see page 195)	<b>975 890 36</b>
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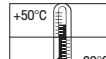
**ADDITIONAL INFORMATION:**

Traffic light configurator at [www.werma.com](http://www.werma.com)



**TECHNICAL DIAGRAMS:** see page 326

See note  
on page 347



The LED Beacon 890 in  
combination with Multi-Tone  
Sounder 190 (see page 216)





Permanent Beacon

Traffic Light combination  
with mounting bracket  
(accessory)Permanent beacon  
with two sockets

- Permanent Beacon for traffic light combinations
- Innovative fixing bracket for simple mounting
- Also with two bulb sockets for uniform safety, even in the case of bulb failure

**TECHNICAL SPECIFICATIONS:**

<b>Dimensions</b> (Ø x Height):	150 mm x 154 mm
<b>Housing:</b>	PC/ABS-Blend, grey
<b>Lens:</b>	PC, transparent
<b>Socket:</b>	E27 max. 25 W at 890 X00 00 2 sockets each E14 with max. 15 W at 890 X10 00 with adhesive stickers E27 max. 15 W
<b>Fixing:</b>	Base mounting, fixing bracket (accessory), tube mounting (accessory)
<b>Connection:</b>	Screw-free clamp mechanism max. 1.5 mm <sup>2</sup>
<b>Cable entry:</b>	From top or bottom with cable gland M20 x 1.5 mm or from the back with rubber grommet Ø 6-12 mm, included in assembly

**ORDER SPECIFICATIONS:****PERMANENT BEACON**

Voltage	12-240 V AC/DC
red	890 100 00
green	890 200 00
yellow	890 300 00
clear	890 400 00
blue	890 500 00

**PERMANENT BEACON WITH 2 SOCKETS (INCL. REFLECTOR)**

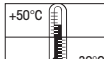
Voltage	12-240 V AC/DC
red	890 110 00
green	890 210 00
yellow	890 310 00

Further colours and voltages on request.

**ADDITIONAL INFORMATION:**

Please also see LED Beacon/LED Traffic Light 890 with additional advantages (see p. 175)

- Maintenance-free LED technology
- Life duration up to 50,000 hrs
- Clear signalling effect even in direct sunlight

Traffic light configurator at [www.werma.com](http://www.werma.com)**ACCESSORIES:** see next pageSee note  
on page 347



Beacon 890 in combination  
with Multi-Tone Sounder 190  
(see page 216)



The adaptor (accessory)  
allows quick and simple mounting  
on a tube (Ø 75 mm)



890 with adhesive sticker  
(accessory)



## ACCESSORIES:

### FIXING BRACKET

Fixing bracket for one beacon	975 890 33
Fixing bracket for two beacons	975 890 34
Fixing bracket for three beacons	975 890 35
Fixing bracket for four beacons	975 890 37

Mounting material and connecting grommet included in assembly.  
Further information can be found on page 178.

### CONNECTING GROMMET

Connecting grommet for traffic light combinations	975 890 25
--	------------

### TUBE ADAPTOR

Adaptor for tube mounting (suitable for Ø 75 mm tubes)	975 890 36
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### REFLECTOR

Additional reflector for 890 X00 00	975 890 02
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### BULBS

LED bulb E27, 24 V	956 X20 75
LED bulb E27, 115 V	956 X20 67
LED bulb E27, 230 V	956 X20 68
X see page 167.	

Bulb E27, 24 V / 25 W	955 890 55
Bulb E27, 115 V / 25 W	955 890 67
Bulb E27, 230 V / 25 W	955 890 68
Bulb E14, 230 V / 15 W	955 890 38

### ADHESIVE STICKERS:

→	975 890 52
STOP	975 890 53
START	975 890 54
⚡	975 890 64
✋	975 890 65



### TECHNICAL DIAGRAMS:

see page 326





# 890

## Fixing bracket for 890/190



Fixing bracket for  
(LED) Beacons 890  
and Multi-Tone Sounder 190

- Beacon/Traffic Light can be completely pre-assembled on the fixing bracket and connected before attachment
- Easy mounting in just a few steps
- Also suitable for Multi-Tone Sounder 190
- High Protection rating IP 65



### TECHNICAL SPECIFICATIONS:

Material Fixing bracket: PC/ABS-Blend

Material Connecting Grommet: PA 6.6

Assembly: Fixing bracket with mounting material and connecting grommet  
Beacon not included in assembly.

Suitable for: LED Beacon/LED Traffic Light 890 (see page 175)  
Permanent/Traffic Light Beacon 890 (see page 176)  
Multi-Tone Sounder 190 (see page 253)



### ORDER SPECIFICATIONS:

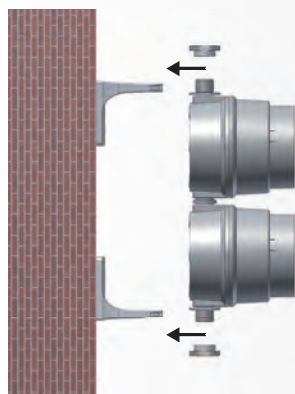
Fixing bracket for one beacon	975 890 33
Fixing bracket for two beacons	975 890 34
Fixing bracket for three beacons	975 890 35
Fixing bracket for four beacons	975 890 37



### NEW FIXING BRACKET FOR SIMPLE MOUNTING:

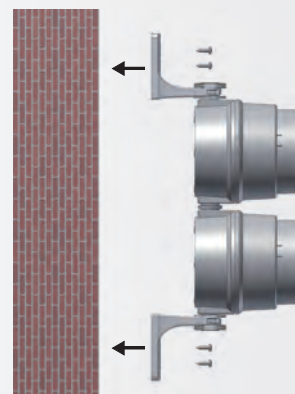
#### Method No. 1

- Attach the bracket to the wall
- Connect the pre-assembled Traffic Light/Multi-Tone Sounder
- Tighten the nuts on both sides



#### Method No. 2

- Connect and assemble the Traffic Light
- Attach the Traffic Light/Multi-Tone Sounder to the bracket and tighten the nuts on both sides
- Attach the complete bracket and Traffic Light/Multi-Tone Sounder to the wall



The fixing bracket can be mounted pointing inwards or outwards



### TECHNICAL DIAGRAMS:

see page 326

1 tier 	2 tier 	3 tier 	4 tier 		
------------	------------	------------	------------	--	--





The innovative connector (accessory) enables traffic light combinations to be created in a matter of seconds



Patent approved

Three highly visible light effects are available



The LED beacon can be used with the sounder

- LED Permanent, LED Double Flash or LED EVS\* Beacon in attractive quadratic form
- Innovative connector to create traffic light combinations
- Easy assembly due to quick-release screws
- Thread/membrane combination keeps cabling requirements to a minimum



#### TECHNICAL SPECIFICATIONS:

Life duration  
up to 50,000 hrs

Dimensions (L x H x W):	85 mm x 85 mm x 72 mm
Housing:	PP-GF, black
Lens:	PC, transparent
Connection:	Screw terminal with wire protection, max. 1.5 mm <sup>2</sup>
Fixing:	Wall, base and ceiling mounting
Possible colours:	Red, green, yellow, clear, blue
Operating voltage:	12 V DC, 24 V DC, 115-230 V AC
Current consumption:	Max. 80 mA at 24 V (LED Permanent Beacon) Max. 80 mA at 24 V (LED Double Flash Beacon) Max. 200 mA at 24 V (LED EVS Beacon)
Equipment:	Eight self-sealing membranes for cable entry without tools Eight integrated M20 threads, no nuts required Optional use of a cable gland, thread length of cable gland ≤ 9 mm (accessory)
Assembly:	Incl. snap-on fixing bracket (optional use)



#### ORDER SPECIFICATIONS:

LED Permanent Beacon 853	see page 135
LED Double Flash Beacon 853	see page 152
LED EVS Beacon 853	see page 153
Sounder 153	see page 252



#### ACCESSORIES:

Connector for traffic light combinations	975 853 01
Cable gland M20 x 1.5 mm, 8 mm thread length	975 853 02



#### ADDITIONAL INFORMATION:

##### Combinations made easy

The LED Beacon 853/Sounder 153 can be easily turned into a traffic light combination. Simply attach different coloured beacons or sounder together using the connector.

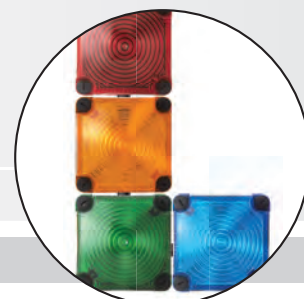
The eight cable entries with both self-sealing membranes and integrated M20 threads enable additional beacons to be attached to every side. There is no limit to the range of possible lighting designs that can be created.

Traffic light configurator at [www.werma.com](http://www.werma.com)



#### TECHNICAL DIAGRAMS:

see page 321



Individual lighting designs thanks to eight possible cable entries

See note on page 347	853 X00 XX	853 X10 XX	853 X20 XX	IP67	+50°C -25°C	24 V
CE	ERC	135 g	130 g	130 g	PLC	





LED Traffic Light (3 tier)



The direction of the optical signal can be individually adjusted



clear lenses ensure signalling effect even in direct sunlight

- High visibility LED Traffic Light in an innovative, award-winning design
- Clear signalling even in direct sunlight thanks to clear lenses
- Simple mounting due to integrated mounting bracket
- Very good sideward visibility
- Protection rating IP 65/IP 69k

### TECHNICAL SPECIFICATIONS:

<b>Dimensions (L x H x W):</b>	2 tier: 85 mm x 309 mm x 136 mm
	3 tier: 85 mm x 394 mm x 136 mm
<b>Housing:</b>	PC/ABS, grey
<b>Lens:</b>	PC, transparent
<b>Fixing:</b>	Wall mounting, tube mounting (accessory)
<b>Installation position:</b>	Vertical/hanging
<b>Connection:</b>	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 13 mm
<b>Duty cycle:</b>	100 %

Life duration  
up to 50,000 hrs

### ORDER SPECIFICATIONS:

Voltage	24 V DC	115-230 V AC
Current consumption	60 mA (red/yellow)	30 mA per tier
	120 mA (green)	at 230 V/50 Hz
red / green	<b>894 160 55</b>	<b>894 160 68</b>
red / yellow / green	<b>894 180 55</b>	<b>894 180 68</b>

### ACCESSORIES:

Fixing bracket underneath	<b>975 894 01</b>
Adaptor for tube mounting (suitable for Ø 75 mm tubes, see page 181)	<b>975 894 02</b>

### ADDITIONAL INFORMATION:

#### "Small traffic light series" wins "iF product design award 2009"

WERMA has won the prestigious "iF product design award" for the design and production of its "small traffic light series".

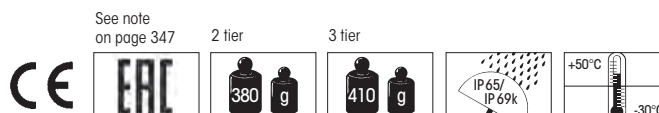
Since its introduction in 1953, this design prize has been an enduring, renowned hallmark for "excellent" design.

### TECHNICAL DIAGRAMS:

see page 326



High visibility LED Traffic Light  
with integrated siren see  
page 214





LED Beacon (1 tier)



The direction of the optical signal can be individually adjusted



The adaptor (accessory) allows quick and simple mounting on a tube

- High visibility LED Beacon/Traffic Light in an innovative, award-winning design
- Colour intensive light effect thanks to LEDs in the same colour as the lenses

- Simple mounting due to integrated mounting bracket
- Very good sideward visibility
- Protection rating IP 65/IP 69k

Life duration up to 50,000 hrs

**TECHNICAL SPECIFICATIONS:**

Dimensions (L x H x W):	1 tier:	85 mm x 224 mm x 136 mm
	2 tier:	85 mm x 309 mm x 136 mm
	3 tier:	85 mm x 394 mm x 136 mm
Housing:	PC/ABS, grey	
Lens:	PC, transparent	
Fixing:	Wall mounting, tube mounting (accessory)	
Installation position:	Vertical/hanging	
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>	
Cable entry:	Cable diameter max. 13 mm	
Duty cycle:	100 %	

**ORDER SPECIFICATIONS:**

Voltage	24 V DC	115-230 V AC
Current consumption	60 mA (red/yellow) 120 mA (green)	30 mA per tier at 230 V/50 Hz
red	894 010 55	894 010 68
green	894 020 55	894 020 68
yellow	894 030 55	894 030 68
red / green	894 060 55	894 060 68
red / yellow / green	894 080 55	894 080 68

**ACCESSORIES:**

Fixing bracket underneath	975 894 01
Adaptor for tube mounting (suitable for Ø 75 mm tubes)	975 894 02

**ADDITIONAL INFORMATION:****Maximum flexibility**

Thanks to the innovative bracket, the direction of the signal can be individually adjusted. After the bracket has been mounted, the customer can adjust the light direction to suit his requirements.

The LED traffic light can be turned through 360 degrees guaranteeing optimum visibility from all angles.

**TECHNICAL DIAGRAMS:**

see page 326





- Extremely long life duration
- To fit in WERMA Signal towers and signal devices with BA15d socket
- Resistant against shock and vibration
- Frontal beam direction

**TEcHNicAL SPEcIFIcATIONS:**

Life duration  
up to 50,000 hrs

Housing:	PA fibreglass, high-impact
Lens:	PC, transparent
Socket:	BA15d
For use with:	200, 203, 206, 209, 210, 213, 216, 219, 220, 223, 641, 805, 840, 846, 850, 851, 852

Slight deviatons in the form of the bulbs are possible.

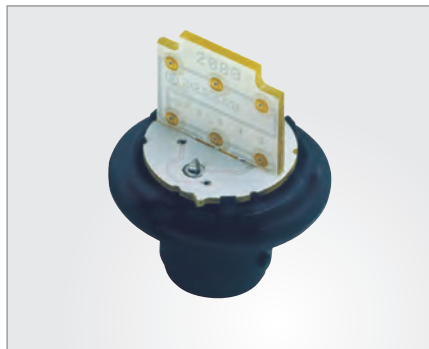
**ORDER SPEcIFIcATIONS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	≤ 45 mA	≤ 15 mA	≤ 15 mA
red	956 100 75	956 100 67	956 100 68
green	956 200 75	956 200 67	956 200 68
yellow	956 300 75	956 300 67	956 300 68
white	956 400 75	956 400 67	956 400 68
blue	956 500 75	956 500 67	956 500 68

**TEcHNicAL DIAGRAMS:**

see page 326

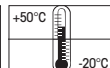
Suitable for use in  
KombiSIGN 71



chip-On-Board technology



Manual grip facility





- Extremely long life duration
- To fit in WERMA Permanent/Traffic Light Beacon 890
- Resistant against shock and vibration

**TECHNICAL SPECIFICATIONS:**

Socket: E27  
For use with: 890, 895

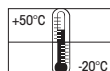
Slight deviations in the form of the bulbs are possible.

**ORDER SPECIFICATIONS:**

	24 V AC/DC	115 V AC	230 V AC
Current consumption	≤ 30 mA	≤ 30 mA	≤ 30 mA
red	<b>956 120 75</b>	<b>956 120 67</b>	<b>956 120 68</b>
green	<b>956 220 75</b>	<b>956 220 67</b>	<b>956 220 68</b>
yellow	<b>956 320 75</b>	<b>956 320 67</b>	<b>956 320 68</b>



Suitable for use in  
Permanent/Traffic Light  
Beacons 890 (see page 176)





# Bulb Overview

	PART NO.	DESCRIPTION	TOTAL LENGTH(mm)	VOLTAGE	FOR USE WITH:									
	<b>955 840 34</b>	Bulb BA15d 5 W	42	12 V	200	203	209	641	800	840	845			
	<b>955 840 35</b>	Bulb BA15d 5 W	42	24 V	200	203	209	641	800	840	845			
	<b>955 840 32</b>	Bulb BA15d 5 W	42	30 V	200	203	209	641	800	840	845			
	<b>955 840 57</b>	Bulb BA15d 5 W	42	115 V	200	203	209	641	800	840	845			
	<b>955 840 38</b>	Bulb BA15d 5 W	42	230 V	200	203	209	641	800	840	845			
	<b>955 015 34</b>	Bulb BA15d 7 W	52	12 V	210	213	219	220	480	580	815		850	
	<b>955 015 35</b>	Bulb BA15d 7 W	52	24 V	210	213	219	220	480	580	815	826	850	
	<b>955 015 36</b>	Bulb BA15d 7 W	52	48 V	210	213	219	220	480	580	815	monit.	850	
	<b>955 015 37</b>	Bulb BA15d 7 W	52	115 V	210	213	219	220	480	580	815		850	
	<b>955 015 38</b>	Bulb BA15d 7 W	52	230 V	210	213	219	220	480	580	815		850	
	<b>955 826 35</b>	Bulb BA15d 15 W	45	24 V	826									
	<b>955 826 38</b>	Bulb BA15d 15 W	45	230 V	826									
	<b>955 827 35</b>	Bulb BA15d 25 W	55	24 V	827									
	<b>955 827 37</b>	Bulb BA15d 25 W	55	115 V	827									
	<b>955 827 38</b>	Bulb BA15d 25 W	55	230 V	827									
	<b>955 890 38</b>	Bulb E14 15 W	76	230 V	890	895								
	<b>955 880 66</b>	Bulb E14 40 W	76	48 V	881									
	<b>955 880 67</b>	Bulb E14 40 W	76	115 V	881									
	<b>955 880 68</b>	Bulb E14 40 W	76	230 V	881									

Minimal differences in form are possible within the different bulb models.



	PART NO.	DESCRIPTION	TOTAL LENGTH(mm)	VOLTAGE	FOR USE WITH:
	<b>955 890 55</b>	Bulb E27 25 W	100	24 V	890 895
	<b>955 890 67</b>	Bulb E27 25 W	100	115 V	890 895
	<b>955 890 68</b>	Bulb E27 25 W	100	230 V	890 895
	<b>955 883 34</b>	Halogen bulb G 6.35 35 W	40	12 V	783 784 883 884
	<b>955 883 35</b>	Halogen bulb G 6.35 35 W	40	24 V	783 784 883 884
	<b>955 885 24</b>	Halogen bulb G 6.35 20 W	40	12 V	783 885
	<b>955 885 25</b>	Halogen bulb G 6.35 20 W	40	24 V	783 885
	<b>955 880 34</b>	Halogen bulb H 1 55 W	57	12 V	880
	<b>955 880 35</b>	Halogen bulb H 1 70 W	57	24 V	880
	<b>956 x00 75</b>	LED bulb BA15d	42	24 V	200, 203, 206, 209, 210,
	<b>956 x00 67</b>	LED bulb BA15d	42	115 V	213, 216, 219, 220, 223,
	<b>956 x00 68</b> x see page 182	LED bulb BA15d	42	230 V	641, 805, 840, 846, 850, 851, 852
	<b>956 x20 75</b>	LED bulb E27	65	24 V	890 895
	<b>956 x20 67</b>	LED bulb E27	65	115 V	890 895
	<b>956 x20 68</b> x see page 183	LED bulb E27	65	230 V	890 895

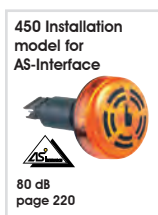
Minimal differences in form are possible within the different bulb models.





# Overview Optical-Audible Signal Devices

## LeD/Buzzer Combination



## Flash/Buzzer Combination



## Light/Buzzer Combination



## Light/horn Combination



## Flash/horn Combination



## LeD/horn Combination



## LeD/Flash/eVS/horn Combination



## LeD/Flash/eVS/Multi-Tone Sounder Comb.



## LeD/Multi-Tone Sounder Combination



## LeD Double Flash/Multi-Tone Sounder Combination



## LeD eVS/Multi-Tone Sounder Combination



## Signal Towers with Audible element



## Flash/Multi-Tone Sounder Combination



## LeD Traffic Light/Siren Combination



## (LeD)Traffic Light/Multi-Tone Sounder Combination



## Surface housing for Combinations



## Sounds

The sounds of these products can be played from our website [www.werma.com](http://www.werma.com) under the heading "Optical-Audible Signal Devices".



## Further information

Further information about the "Audible" theme can be found in the chapter "general Information" beginning on page 358.



# Optical-Audible Signal Devices

## Double safety with optical-audible signals

Under certain conditions operational sites with a high or changing noise level require a coloured, optical stimulus in addition to the audible signal. The combination of optical and audible signals leads to greater effectivity as both the eyes and ears are addressed by the sensory stimuli. The combination of an optical and an audible signal rules out the possibility of mistakes or the audible signal being overheard.

## Variety of signals

WERMA supplies a large number of audible signals which can also be enhanced with the addition of optical light signals.

### Audible Sign AIS

- Sirens and Multi-Tone Sounders
- (Installation) Buzzers
- Horns

### Optic AI Sign AIS

- LED Permanent Light
- (LED) Flashing Light and
- LED Double Flash Light
- LED EVS Signal
- LED Rotating Light
- LED Permanent/Flash/EVS Light



## A successful combination: the optical-audible 43x signal devices

WERMA has expanded its range of optical-audible signal devices with the addition of the 43x series. The products offer a wide choice of light effects ranging from a light-intense LED permanent light, a powerful LED rotating light or a flexible combined version with LED permanent/flashing/EVS light effects. As an audible supplement, users have the choice of a multi-tone sounder or a horn.

The optical and audible signals can be triggered separately to provide users with the option of activating just one signal type or both at the same time to generate a maximum level of awareness. In addition to versions for base mounting, the signal devices are also available with a practical integrated mounting bracket.



## iF product design award for outstanding design

The WERMA 43x signal device range won the coveted iF product design award in 2012. With their innovative and unique design, the attractive signal devices stood out in a highly-qualified, internationally competitive field. For over 58 years the iF product design award has been a globally respected brand for design excellence.

With this latest award, WERMA signal devices have again been recognised for their outstanding design quality. The products have repeatedly distinguished themselves through their appealing design, and for this reason been awarded internationally coveted prizes such as the red dot design award and the iF Award.









































## Quick Finder for Optical-Audible Signal Devices





WERMA provides its customers with a comprehensive selection of Optical-Audible Signal Devices. A range of different light effects and signal tones are available.

With our Quick Finder you can quickly and easily select the correct signal device for your application. If you require additional support, simply give us a call!

OptICAL SIGNAL	Buzzer	Multi-Tone Sounder	Horn	Siren	AUDIBLE SIGNAL
Permanent Light	<b>480 light/buzzer</b> (Wall Mounting) P. 198 	<b>442 Flash/Multi-tone Sounder</b> (Wall Mounting) P. 209 <b>441 Flash/Multi-tone Sounder</b> (Wall Mounting) P. 208 <b>439 Flash/Multi-tone Sounder</b> (Wall Mounting) P. 207 <b>421 Flash/Multi-tone Sounder</b> (Base Mounting) P. 195 <b>423 Flash/Multi-tone Sounder</b> (Wall Mounting) P. 195     	<b>580 light/Horn</b> (Wall Mounting) P. 199 		
Flashing Light	<b>421 Flash/buzzer</b> (Base Mounting) P. 194 <b>423 Flash/buzzer</b> (Wall Mounting) P. 194  		<b>425 Flash/Horn</b> (Wall Mounting) P. 197 <b>581 Flash/Horn</b> (Wall Mounting) P. 199  		
LED Rotating Light		<b>431 led/Multi-tone Sounder</b> (Base Mounting) P. 202 <b>433 led/Multi-tone Sounder</b> (Wall Mounting) P. 202  	<b>435 led/Horn</b> (Wall Mounting) P. 206 		
LED Permanent/Flash/EVS Light		<b>444 led eVS/Multi-tone Sounder</b> (Wall/Base Mounting) P. 212 <b>444 led double Flash/Multi-tone Sounder</b> (Wall/Base Mounting) P. 211 <b>431 led/Flash/eVS</b> (Base Mounting) P. 201 <b>433 led/Flash/eVS</b> (Wall Mounting) P. 201 <b>853/153 led/Sounder</b> P. 217     	<b>435 led/Flash/eVS/Horn</b> (Wall Mounting) P. 205 		
LED Permanent Light	<b>420 led/buzzer</b> (Base Mounting) P. 192 <b>422 led/buzzer</b> (Wall Mounting) P. 192 <b>installation version 150 led/buzzer</b> P. 218 <b>450 led/buzzer with acknowledgement function</b> P. 219 <b>450 led/buzzer for AS-interface</b> P. 220     	<b>890/190 led permanent beacon/Multi-tone Sounder</b> (Wall/Bracket Mounting) P. 216 <b>890/190 permanent beacon/Multi-tone Sounder</b> (Wall/Bracket Mounting) P. 216 <b>420 led/Multi-tone Sounder</b> (Base Mounting) P. 193 <b>422 led/Multi-tone Sounder</b> (Wall Mounting) P. 193 <b>430 led/Multi-tone Sounder</b> (Base Mounting) P. 200 <b>432 led/Multi-tone Sounder</b> (Wall Mounting) P. 200 <b>853/153 led/Sounder</b> P. 217       	<b>424 led/Horn</b> (Wall Mounting) P. 196 <b>434 led/Horn</b> (Wall mounting) P. 204  	<b>494 LED-Traffic light/Siren with clear lenses</b> P. 214 <b>494 LED-Traffic light/Siren with coloured lenses</b> P. 214  	

## Size comparison

BASE MOUNTING		
		
Series	420/421	430/431
L x H x W	89 mm	146 mm
Ø	100.5 mm	171 mm
Height	192 onwads	200 onwads
Page		

WALL MOUNTING				
				
Series	422/423	432/433	424/425	434/435
L x H x W	83 x 120,5 x 91 mm	134 mm	83 x 235 x 91 mm	134 mm
Ø		235 mm		407 mm
Height	192 onwads	200 onwads	196 onwads	204 onwads
Page				



# Comparison of sound output



442

Flash/Multi-Tone Sounder Combination

Page 209



432

LED Permanent/Multi-Tone Sounder Combination

Page 200

433

LED Permanent/Flash/EVS/Multi-Tone Sounder Comb.

Page 201

433

LED Rotating/Multi-Tone Sounder Combination

Page 202



422

LED/Multi-Tone Sounder Combination

Page 193

423

Flash/Multi-Tone Sounder Combination

Page 195

**120 dB**

**114 dB**

**112 dB**

**110 dB**

**109 dB**

**108 dB**

**105 dB**

**100 dB**

**98 dB**

**96 dB**

**92 dB**

**90 dB**

**80 dB**

Sound output in db  
(measured  
at 1 m distance)



420

LED/Multi-Tone Sounder Combination

Page 193

421

Flash/Multi-Tone Sounder Combination

Page 195

439

Flash/Multi-Tone Sounder Combination

Page 207



494

LED Traffic Light/Siren Combination

Page 214

494

LED Beacon/Siren Combination

Page 214



480

Light/Buzzer Combination

Page 198



120 dB

114 dB

112 dB

110 dB

109 dB

108 dB

105 dB

100 dB

98 dB

96 dB

92 dB

90 dB

80 dB

Sound output in db  
(measured  
at 1 m distance)

444	LED EVS/Multi-Tone Sounder Combination	Page 212
444	LED Double Flash/Multi-Tone Sounder Combination	Page 211



441	Flash/Multi-Tone Sounder Combination	Page 208
190/890	(LED) Beacon/Multi-Tone Sounder Combination	Page 216



430	LED Permanent/Multi-Tone Sounder Combination	Page 200
431	LED Permanent/Flash/EVS/Multi-Tone Sounder Combination	Page 201
431	LED Rotating/Multi-Tone Sounder Combination	Page 202
434	LED Permanent/Horn Combination	Page 204
435	LED Permanent/Flash/EVS/Horn Combination	Page 205
435	LED Rotating/Horn Combination	Page 206



853/153	LED/Sounder Combination	Page 217
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424	LED/Horn Combination	Page 196
425	Flash/Horn Combination	Page 197



420	LED/Buzzer Combination	Page 192
421	Flash/Buzzer Combination	Page 194
422	LED/Buzzer Combination	Page 192
423	Flash/Buzzer Combination	Page 194
580	Light/Horn Combination	Page 199
581	Flash/Horn Combination	Page 199



150	LED/Buzzer Combination	Page 218
450	LED/Buzzer Combination with acknowledgement function	Page 219
450	LED/Buzzer Combination for AS-Interface	Page 220





Base mounting



The adaptor (accessory) allows quick and simple mounting on a tube



Wall mounting

- buzzer in combination with led permanent beacon
- Adaptor for tube mounting (accessory)
- easy to mount
- Optical and audible signals can be triggered separately
- continuous or pulse tone selectable
- integrated mounting bracket (422)

**TeChNICAL SpeCIFICATIONS:**

Life duration up to 50,000 hrs

<b>dimensions</b> (Ø x Height):	89 mm x 100.5 mm (Base/tube mounting)
(L x H x W):	83 mm x 120.5 mm x 91 mm (Wall mounting)
<b>Housing:</b>	Base/tube mounting: PC, black Wall mounting: PC-ABS-Blend; PC grey
<b>lens:</b>	PC, transparent
<b>connection:</b>	Screw terminal with wire protection max. 1.5 m m <sup>2</sup>
<b>cable entry:</b>	Cable diameter max. 9 mm
<b>tone type:</b>	Continuous tone or pulse tone, adjustable 12 V: only continuous tone
<b>tone frequency:</b>	2.3 kHz (c. 3.3 kHz at 12 V)
<b>Fixing:</b>	Base mounting, tube mounting (accessory) Wall mounting, Sound outlet facing downwards

**ORDeR SpeCIFICATIONS:**

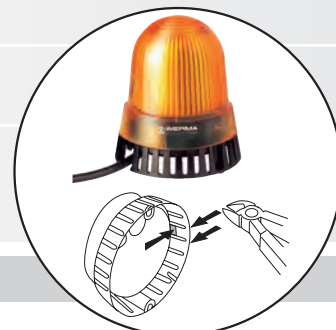
	V DC	24 V AC/DC	115 V AC	230 V AC
Voltage 12				
Current consumpt. LED	80 mA	45 mA	25 mA	25 mA
Current consumpt. Buzzer	40 mA	15 mA	15 mA	25 mA
<b>base/tube mounting</b>				
red	420 110 54	420 110 75	420 110 67	420 110 68
yellow	420 310 54	420 310 75	420 310 67	420 310 68
<b>Wall mounting</b>				
red	422 110 54	422 110 75	422 110 67	422 110 68
yellow	-	422 310 75	422 310 67	422 310 68

**ACCeSSORIES:**

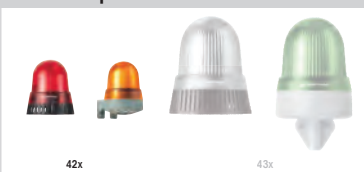
Adaptor for tube mounting, plastic, for tube Ø 25 mm	975 420 01
Base for tube Ø 25 mm, plastic, incl. rubber sea	975 840 90
Base for tube Ø 25 mm, metal, incl. rubber seal	975 840 91
Rohr Ø 25 mm, Aluminium eloxiert	
100 mm	975 845 10
250 mm	975 840 25

**TeChNICAL DIAGRAMS:**

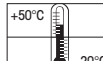
see page 304



A piece of the rim can be broken out to allow for cable entry from the side

**Size comparison**

See note on page 347



24 V





Base mounting



Mounting holes integrated into the product rim allow easy mounting without having to remove the lens



Wall mounting

- Multi-tone Sounder in combination with led permanent beacon
- Optical and audible signals can be triggered separately
- choice of 8 different tones
- easy to mount
- Adjustable sound output
- integrated mounting bracket (422)
- Adaptor for tube mounting (accessory)

**TeChNICAL SpeCIFICATIONS:**

Life duration  
up to 50,000 hrs

<b>dimensions</b> (Ø x Height):	89 mm x 100.5 mm (Base/tube mounting)
(L x H x W):	83 mm x 120.5 mm x 91 mm (Wall mounting)
<b>Housing:</b>	Base/tube mounting: PC black Wall mounting: PC-ABS-Blend; PC grey
<b>lens:</b>	PC, transparent
<b>connection:</b>	Screw terminal with wire protection max. 1.5 m <sup>2</sup>
<b>cable entry:</b>	Cable diameter max. 9 mm
<b>Fixing:</b>	Base mounting, tube mounting (accessory) Wall mounting, Sound outlet facing downwards
<b>tone type:</b>	Selectable, see table below
<b>tone frequency:</b>	See table below

**TONe TypeS AND FREQUeNCIES:**

tone No.	tone type
1	Horn tone (c. 110 Hz)
2	Continuous tone (c. 3.0 KHz)
3	1 Hz tone (c. 3.0 KHz)
4	20 Hz whistle tone (c. 3.0 KHz)
5	800-970 Hz rising @ 1 Hz
6	2400-2850 Hz rising @ 7 Hz
7	1200-500 Hz falling @ 1 Hz
8	Alternating tone 800 Hz / 1200 Hz @ 1Hz

**ORDeR SpeCIFICATIONS:**

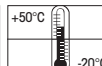
Voltage	24 V AC/DC
Current consumption LED	45 mA
Current consumption MTS	80 mA
<b>base/tube mounting</b>	
red	420 120 75
yellow	420 320 75
<b>Wall mounting</b>	
red	422 120 75
yellow	422 320 75

**ACCeSSORieS:**

Accessories see page 192.

**TeChNICAL DIAgRAMS:** see page 304

See note  
on page 347

**Size comparison**

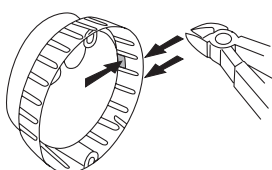




Base mounting



Wall mounting



A piece of the rim can be broken out to allow for cable entry from the side



- buzzer in combination with Xenon Flash
- Optical and audible signal can be triggered separately
- easy to mount
- continuous or pulse tone selectable
- Adaptor for tube mounting (accessory)
- integrated mounting bracket (423)

**TeChNICAL SpeCIFICATIONS:**

<b>dimensions</b> (Ø x Height):	89 mm x 100.5 mm (Base/tube mounting)
(L x H x W):	83 mm x 120.5 mm x 91 mm (Wall mounting)
<b>Housing:</b>	Base/tube mounting: PC, black Wall mounting: PC-ABS-Blend; PC grey
<b>lens:</b>	PC, transparent
<b>connection:</b>	Screwable protection with wire protection max. 1.5 m m <sup>2</sup>
<b>cable entry:</b>	Cable diameter max. 9 mm
<b>tone type:</b>	Continuous or pulse tone, selectable
<b>tone frequency:</b>	2.3 kHz
<b>Flash energy:</b>	1 Ws
<b>Flash frequency:</b>	1 Hz
<b>Fixing:</b>	Base mounting, tube mounting (accessory), Wall mounting, Sound outlet facing downwards
<b>life duration:</b>	4 x 10 <sup>6</sup> flashes

**ORDeR SpeCIFICATIONS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption Flash	120 mA	25 mA	35 mA
Current consumption Buzzer	15 mA	15 mA	25 mA
<b>base/tube mounting</b>			
red	421 110 75	421 110 67	421 110 68
yellow	421 310 75	421 310 67	421 310 68
<b>Wall mounting</b>			
red	423 110 75	423 110 67	423 110 68
yellow	423 310 75	423 310 67	423 310 68

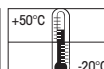
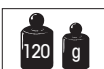
**ACCeSSORieS:**

Adaptor for tube mounting, plastic, for tube Ø 25 mm	975 420 01
Base for tube Ø 25 mm, plastic, incl. rubber seal	975 840 90
Base for tube Ø 25 mm, metal, incl. rubber seal	975 840 91
Tube Ø 25 mm, all anodized aluminium	
100 mm	975 845 10
250 mm	975 840 25

**TeChNICAL DIAGRAMS:**

see page 304

See note on page 347





Base mounting



Wall mounting



Mounting holes integrated into the product rim allow easy mounting without having to remove the lens

- Multi-tone Sounder in combination with Xenon Flash
- Optical and audible signal can be triggered separately
- choice of 8 different tones
- Adjustable sound output
- easy to mount
- Adaptor for tube mounting (accessory)
- integrated mounting bracket (423)

**TeChNICAL SpeCIFICATIONS:**

<b>dimensions</b> (Ø x Height):	89 mm x 100.5 mm (Base/tube mounting)
(L x H x W):	83 mm x 120.5 mm x 91 mm (Wall mounting)
<b>Housing:</b>	Base/tube mounting: PC black Wall mounting: PC-ABS-Blend; PC grey
<b>lens:</b>	PC, transparent
<b>connection:</b>	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
<b>cable entry:</b>	Cable diameter max. 9 mm
<b>Flash energy:</b>	1 Ws
<b>Flash frequency:</b>	1 Hz
<b>Fixing:</b>	Base mounting, tube mounting (accessory) Wall mounting, Sound outlet facing downwards
<b>life duration:</b>	4 x 10 <sup>6</sup> flashes
<b>tone type:</b>	Selectable, see table below
<b>tone frequency:</b>	See table below

**TONe TypeS AND FREQUeNCIEs:**

tone No.	tone type
1	Horn tone (c. 110 Hz)
2	Continuous tone (c. 3.0 KHz)
3	1 Hz tone (c. 3.0 KHz)
4	20 Hz whistle tone (c. 3.0 KHz)
5	800-970 Hz rising @ 1 Hz
6	2400-2850 Hz rising @ 7 Hz
7	1200-500 Hz falling @ 1 Hz
8	Alternating tone 800 Hz / 1200 Hz @ 1Hz

**ORDeR SpeCIFICATIONS:**

<b>Voltage</b>	24 V AC/DC
<b>Current consumption Flash</b>	120 mA
<b>Current consumption MTS</b>	80 mA
<b>base/tube mounting</b>	
red	421 120 75
yellow	421 320 75
<b>Wall mounting</b>	
red	423 120 75
yellow	423 320 75

**ACCeSSORIEs:**

Accessories see page 194.

**TeChNICAL DIAGRAMs:** see page 304

See note on page 347

**Size comparison**



- electronic Horn in combination with led permanent beacon
- Horn with long life duration up to 5,000 hrs
- Optical and audible signal can be triggered separately
- Adjustable sound output (24 V version)

**TeChNICAL SpeCIFICATIONS:**

Life duration  
up to 50,000 hrs (LeD)  
+ 5,000 hrs (horn)

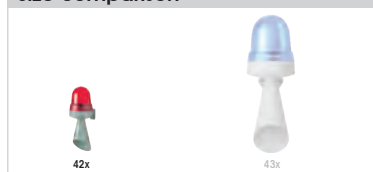
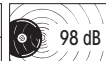
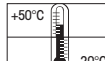
dimensions (L x H x W):	83 mm x 234.5 mm x 91 mm
Housing:	PC/ABS-Blend; PC grey
lens:	PC, transparent
connection:	Screw terminal with wire protection max. 1.5 m m <sup>2</sup>
cable entry:	Cable diameter max. 9 mm
Fixing:	Wall mounting, sound outlet facing downwards
life duration:	50,000 hrs (LED Permanent light) 5,000 hrs (Horn)
tone frequency:	110 Hz

**ORDeR SpeCIFICATIONS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption LED	45 mA	25 mA	25 mA
Current consumption Horn	80 mA	70 mA	70 mA
red	424 120 75	424 120 67	424 120 68
yellow	424 320 75	424 320 67	424 320 68

**TeChNICAL DIAGRAMS:**

see page 304

**Size comparison**See note  
on page 347



- electronic Horn in combination with Xenon Flash
- Horn with long life duration of up to 5,000 hrs
- Optical and audible signal can be triggered separately
- Adjustable sound output (24 V version)

### **i** TeChNICAL SpeCIFICATIONS:

dimensions (L x H x W):	83 mm x 234.5 mm x 91 mm
Housing:	PC/ABS-Blend; PC grey
lens:	PC, transparent
connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
cable entry:	Cable diameter max. 9 mm
Flash energy:	1 Ws
Flash frequency:	1 Hz
Fixing:	Wall mounting, sound outlet facing downwards
life duration:	4 x 10 <sup>6</sup> flashes (Xenon Flash) 5,000 hrs (Horn)
tone frequency:	110 Hz

### **🛒** ORDeR SpeCIFICATIONS:

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption Flash	120 mA	30 mA	30 mA
Current consumption Horn	80 mA	70 mA	70 mA
red	<b>425 120 75</b>	<b>425 120 67</b>	<b>425 120 68</b>
yellow	<b>425 320 75</b>	<b>425 320 67</b>	<b>425 320 68</b>



### TeChNICAL DIAGRAMS:

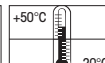
see page 304



### Size comparison



See note  
on page 347





- Light and sound can be triggered separately

- integrated mounting bracket

### TeChNICAL SpeCIFICATIONS:

dimensions (L x H x W):	70 mm x 158.5 mm x 77 mm
Housing:	ABS
lens:	PC, transparent
Socket:	BA15d, max. 7 Watt
connection:	Screw terminal max. 2.5 mm <sup>2</sup>
cable entry:	Cable diameter max. 9 mm
tone frequency:	C. 2400 Hz
duty cycle:	100 %

Bulb included in assembly. Bulb Overview see pages 184 and 185.

### ORDeR SpeCIFICATIONS:

Voltage	24 V AC/DC	230 V AC
Current consumption	320 mA	50 mA
red	<b>480 152 55</b>	<b>480 152 68</b>
yellow	<b>480 352 55</b>	<b>480 352 68</b>

Further colours and voltages on request.



### ADDITIONAL INFORMATION:

please also see led /buzzer combination 422 with additional advantages (page 192)

- High protection rating IP 65
- Buzzer in combination with LED
- Long life duration of up to 50,000 hrs
- Continuous and pulse tone selectable

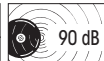
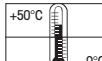


### TeChNICAL DIAgRAMS:

see page 306



See note  
on page 347





**ADDITIONAL INFORMATION:**

please also see led /Horn combination 424 with add. advantages (page 196)

- High protection rating IP 65
- Horn with a life duration of up to 5,000 hrs
- LED Permanent light with a life duration of up to 50,000 hrs



- Light and sound can be triggered separately
- integrated mounting bracket

**TeChNICAL SpeCIFICATIONS:**

dimensions (L x H x W):	70 mm x 251 mm x 77 mm
Housing:	ABS
lens:	PC, transparent
Socket:	B15d, max. 7 Watt
connection:	Screw terminal max. 2.5 mm <sup>2</sup>
cable entry:	Cable diameter max. 9 mm
duty cycle:	100 %
Bulb included in assembly. Bulb Overview see pages 184 and 185.	

**ORDeR SpeCIFICATIONS:**

Voltage	24 V DC	42 V AC	230 V AC
Current consumption	360 mA	250 mA	50 mA
red	<b>580 152 55</b>	<b>580 152 66</b>	<b>580 152 68</b>
yellow	<b>580 352 55</b>	-	<b>580 352 68</b>

Further colours and voltages on request.

**TeChNICAL DIAg RAMS: see page 307**

See note  
on page 347

**ADDITIONAL INFORMATION:**

please also see Flash/Horn combination 425 with add. advantages (page 197)

- High Protection rating IP 65
- Horn with a life duration of up to 5,000 hrs
- Adjustable sound output



- Light and sound can be triggered separately
- integrated mounting bracket

**TeChNICAL SpeCIFICATIONS:**

dimensions (L x H x W):	70 mm x 292 mm x 77 mm
Housing:	ABS
lens:	PC, transparent
connection:	Screw terminal max. 2.5 mm <sup>2</sup>
cable entry:	Cable diameter max. 9 mm
Flash frequency:	C. 1 Hz
Flash energy:	2 Ws
life duration:	4 x 10 <sup>6</sup> flashes

**ORDeR SpeCIFICATIONS:**

Voltage	12 V DC	24 V DC	230 V AC
Current consumption	300 mA	200 mA	30 mA
red	-	<b>581 152 55</b>	<b>581 152 68</b>
yellow	<b>581 352 54</b>	<b>581 352 55</b>	<b>581 352 68</b>

Further colours and voltages on request.

**TeChNICAL DIAg RAMS: see page 308**

See note  
on page 347





LeD permanent Light in  
combination with Multi-Tone  
Sounder



Quick and simple wall mounting  
without additional accessories  
thanks to integrated mounting  
bracket



Mounting holes integrated into  
the product rim allow easy  
mounting without having to  
remove the lens

## Size comparison



- 32 tones can be set to meet the requirements of the application, one tone can be triggered externally
- Adjustable sound output
- Optical and audible warning can be separately triggered for two stage signalling
- integrated bracket for simple wall mounting without additional accessories (432)



## TeChNICAL SpeCIFICATIONS:

Life duration  
up to 50.000 hrs (LeD)  
+ 5.000 hrs (horn)

dimensions (Ø x Height):	146 mm x 171 mm (Base mounting) 134 mm x 235 mm (Wall mounting)
Housing:	Base mounting: PC, black Wall mounting: PC/ABS-Blend, grey
lens:	PC, transparent
connection:	Screw terminal with wire protection, max. 1.5 m m <sup>2</sup>
cable entry:	Cable diameter max. 11 mm
Fixing:	Base mounting (430), Wall mounting (432) Tube mounting (accessory, only for 430)
installation position:	Sound outlet facing downwards
tone type and frequency:	32 tones adjustable, see table on page 203.



## ORDeR SpeCIFICATIONS:

## base mounting 430

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC*
Current consumption MTS	190 mA	340 mA	55 mA
Current consumption LED	350 mA	700 mA	100 mA
	230 mA (red)	550 mA (red)	80 mA (red)
red	430 100 75	430 100 70	430 100 60
green	430 200 75	430 200 70	430 200 60
yellow	430 300 75	430 300 70	430 300 60
clear	430 400 75	430 400 70	430 400 60
blue	430 500 75	430 500 70	430 500 60

## Wall mounting 432

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC*
Current consumption MTS	190 mA	340 mA	55 mA
Current consumption LED	350 mA	700 mA	100 mA
	220 mA (red)	550 mA (red)	80 mA (red)
red	432 100 75	432 100 70	432 100 60
green	432 200 75	432 200 70	432 200 60
yellow	432 300 75	432 300 70	432 300 60
clear	432 400 75	432 400 70	432 400 60
blue	432 500 75	432 500 70	432 500 60

\*Current consumption at 10 V / 115 V



## ACCeSSORieS:

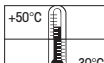
Adaptor for tube mounting, plastic,  
for tube Ø 25 mm

975 430 01



## TeChNICAL DIAgRAMS:

see page 304



# 431/433

## LeD permanent/Flashing/eVS\*/ Multi-Tone Sounder Combination



Multi-functional LeD beacon:  
3 light effects can be  
externally triggered



The adaptor enables  
mounting on a tube

- 3 light effects can be triggered externally
- 32 tones can be set to meet the requirements of the application, one tone can be triggered externally
- Adjustable sound output
- Optical and audible warning can be separately triggered for two stage signalling
- integrated bracket for simple wall mounting without additional accessories (433)

Life duration  
up to 50,000 hrs (LeD)  
+ 5,000 hrs (horn)

### TeChNICAL SpeCIFICATIONS:

dimensions (Ø x Height):	146 mm x 171 mm (Base mounting) 134 mm x 235 mm (Wall mounting)
Housing:	Base mounting: PC/ABS-Blend, black Wall mounting: PC/ABS-Blend, grey
lens:	PC, transparent
connection:	Screw terminal with wire protection, max. 1.5 m m <sup>2</sup>
cable entry:	Cable diameter max. 11 mm
Fixing:	Base mounting (431), Wall mounting (433), Tube mounting (accessory, only for 431)
installation position:	Sound outlet facing downwards
tone type and frequency:	32 tones adjustable, see table on page 203

### ORDeR SpeCIFICATIONS:

#### base mounting 431

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC*
Current consumption MTS	190 mA	340 mA	55 mA
Current consumption LED	350 mA	700 mA	100 mA
	220 mA (red)	530 mA (red)	80 mA (red)
red	431 100 75	431 100 70	431 100 60
green	431 200 75	431 200 70	431 200 60
yellow	431 300 75	431 300 70	431 300 60
clear	431 400 75	431 400 70	431 400 60
blue	431 500 75	431 500 70	431 500 60

#### Wall mounting 433

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC*
Current consumption MTS	190 mA	340 mA	55 mA
Current consumption LED	350 mA	700 mA	100 mA
	220 mA (red)	530 mA (red)	80 mA (red)
red	433 100 75	433 100 70	433 100 60
green	433 200 75	433 200 70	433 200 60
yellow	433 300 75	433 300 70	433 300 60
clear	433 400 75	433 400 70	433 400 60
blue	433 500 75	433 500 70	433 500 60

\*Current consumption at 10 V / 115 V

### ACCeSSORieS:

Adaptor for tube mounting, plastic, for tube Ø 25 mm	975 430 01
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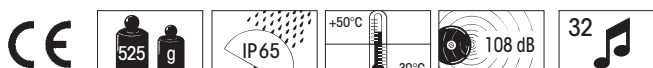


\* eVS = Enhanced Visibility System.

Further Information can be found in the chapter "General Information" beginning on page 352. please note the photosensitive epilepsy warning on page 352.



TeChNICAL DIAG RAMS: see page 304





Quick and simple wall mounting without additional accessories thanks to integrated mounting bracket



Base mounting

- Wear-free, intense rotating signal effect with low power consumption
- 32 tones can be set to meet the requirements of the application, one tone can be triggered externally
- Adjustable sound output
- Optical and audible warning can be separately triggered for two stage signalling
- integrated bracket for simple wall mounting without additional accessories (433)

## TeChNICAL SpeCIFICATIONS:

Life duration  
up to 50,000 hrs (LeD)  
+ 5,000 hrs (horn)

dimensions (Ø x Height):	146 mm x 171 mm (Base mounting) 134 mm x 235 mm (Wall mounting)
Housing:	Base mounting: PC, black Wall mounting: PC/ABS-Blend, grey
lens:	PC, transparent
connection:	Screw terminal with wire protection, max. 1.5 m <sup>2</sup>
cable entry:	Cable diameter max. 11 mm
Fixing:	Base mounting (431), Wall mounting (433) Tube mounting (accessory, only for 431)
installation position:	Sound outlet facing downwards
tone type and frequency:	32 tones adjustable, see table on page 203.

## ORDeR SpeCIFICATIONS:

### base mounting 431

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC*
Current consumption MTS	190 mA	340 mA	55 mA
Current consumption LED	220 mA	500 mA	70 mA
	120 mA (red)	300 mA (red)	45 mA (red)
red	431 110 75	431 110 70	431 110 60
green	431 210 75	431 210 70	431 210 60
yellow	431 310 75	431 310 70	431 310 60
clear	431 410 75	431 410 70	431 410 60
blue	431 510 75	431 510 70	431 510 60

### Wall mounting 433

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC*
Current consumption MTS	190 mA	340 mA	55 mA
Current consumption LED	220 mA	500 mA	70 mA
	120 mA (red)	300 mA (red)	45 mA (red)
red	433 110 75	433 110 70	433 110 60
green	433 210 75	433 210 70	433 210 60
yellow	433 310 75	433 310 70	433 310 60
clear	433 410 75	433 410 70	433 410 60
blue	433 510 75	433 510 70	433 510 60

\*Current consumption at 10 V / 115 V

## ACCeSSORieS:

Adaptor for tube mounting, plastic, for tube Ø 25 mm **975 430 01**



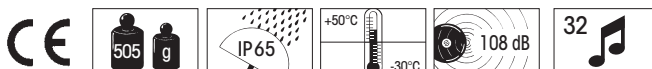
## TeChNICAL DIAGRAMS:

see page 304 + 305

### Size comparison



Intense rotating signal effect with low power consumption



The Multi-Tone Sounder Combinations 43x offers a large choice of international signal tones for the widest range of applications. The tone types and frequencies can be found in the table below:



### TONe TYPEs AND FREQUeNCIEs:



tone 1	tone type	Frequency (Hz)	d e s c r i p t i o n	use	tone 2	Sound output (dbA)
1	continuous	200		BS 5839-1:2002	440 Hz cont.	97
2	rising	800 & 970	7 Hz		14	102
3	rising	800 & 970	1 Hz		14	103
4	continuous	2850			14	104
5	rising	2400 - 2850	7 Hz		4	109
6	rising	2400 - 2850	1 Hz		4	110
7	rising	500 - 1200	3 s, then 0.5 s OFF (then repeat)		14	106
8	falling	1200 - 500	1 Hz	DIN 33404-3	14	104
9	alternating	2400 & 2850	2 Hz		4	111
10	pulse	970	0.5 Hz (1 s On/1 s Off)	BS 5839 Part 1 1988	14	101
11	alternating	800 & 970	1 Hz	BS 5839 Part 1 1988	14	105
12	pulse	2850	0.5 Hz		4	104
13	pulse	970		0,25 s On/1 s Off	14	98
14	continuous	970		BS 5839-1:2002 PFEER - Toxic gas	10	102
15	alternating	554 & 440		France NFS	14	101
16	pulse	660	150 ms On/150 ms Off	Swedish	16	96
17	pulse	660	1.8 s On/1.8 s Off	Swedish	17	98
18	pulse	660	6.5 s On/13 s Off	Swedish	18	98
19	continuous	660		Swedish	19	98
20	alternating	554 & 440	0.5 Hz		20	102
21	pulse	660	1 Hz	Swedish	21	97
22	pulse	2850	150 ms On/100 ms Off	GB	14	104
23	rising	800 - 970	50 Hz (low)	BS 5839 Part 1 1988	14	102
24	rising	2400 - 2850	50 Hz (high)		4	109
25	pulse	970	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (low)	ISO 8201 US Temporal	26	101
26	pulse	2850	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (high)	ISO 8201 US Temporal	25	104
27	continuous	4000			27	92
28	rising	2000 - 2850	7 Hz		2000 Hz cont.	111
29	alternating	988 & 645	2 Hz		988 Hz cont.	102
30	alternating	510 & 610	2 Hz		510 Hz cont.	102
31	alternating	800 & 970	2 Hz	5839-1:2002	800 Hz cont.	105
32	alternating	800 & 1200	1 Hz		800 Hz cont.	105







Award winning design Winner of the iF product design award 2012



Quick and simple wall mounting without additional accessories thanks to integrated mounting bracket

#### Size comparison



- Maintenance-free, electronic horn with a long life duration of up to 5,000 hrs
- Optical and audible warning can be separately triggered for two stage signalling
- Sound output can be set to meet the requirements of the application
- Integrated bracket for simple wall mounting without additional accessories



#### TeChNICAL SpeCIFICATIONS:

Life duration up to 50,000 hrs (LeD)

dimensions (L x H x W):	134 mm x 407 mm x 144 mm
Housing:	PC/ABS-Blend, grey
lens:	PC, transparent
connection:	Screw terminal with wire protection, max. 1.5 m <sup>2</sup>
cable entry:	Cable diameter max. 11 mm
Fixing:	Wall mounting, integrated mounting bracket
installation position:	Sound outlet facing downwards
tone frequency:	C. 110 Hz
life duration:	Up to 50,000 h (LED), up to 5,000 h (Horn)



#### ORDeR SpeCIFICATIONS:

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC*
Current consumption MTS	55 mA	210 mA	30 mA
Current consumption LED	350 mA	700 mA	100 mA
	230 mA (red)	550 mA (red)	80 mA (red)
red	434 100 75	434 100 70	434 100 60
green	434 200 75	434 200 70	434 200 60
yellow	434 300 75	434 300 70	434 300 60
clear	434 400 75	434 400 70	434 400 60
blue	434 500 75	434 500 70	434 500 60

\*Current consumption at 10 V / 115 V

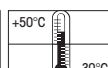


#### TeChNICAL DIAGRAMS:

see page 305



Loud, long-life combination for a diverse range of applications



# 435 LeD permanent/Flashing/eVS/horn Combination

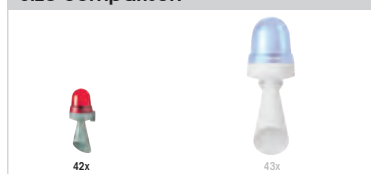


Multi-functional LeD beacon:  
3 light effects can be triggered  
externally



The "eVS"\* light effect ensures a  
maximum attention-grabbing  
effect

## Size comparison



- Maintenance-free, electronic horn with long life duration of up to 5,000 hrs
- Sound output can be set to meet the requirements of the application
- 3 light effects can be triggered externally
- Optical and audible warning can be separately triggered for two stage signalling
- integrated bracket for simple wall mounting without additional accessories



## TeChNICAL SpeCIFICATIONS:

Life duration up to  
50,000 hrs (LeD)

dimensions (L x H x W):	134 mm x 407 mm x 144 mm
Housing:	PC/ABS-Blend, grey
lens:	PC, transparent
connection:	Screw terminal with wire protection, max. 1.5 m <sup>2</sup>
cable entry:	Cable diameter max. 11 mm
Fixing:	Wall mounting, integrated mounting bracket
installation position:	Sound outlet facing downwards
tone frequency:	C. 110 Hz
life duration:	Up to 50,000 h (LED), up to 5,000 h (Horn)



## ORDeR SpeCIFICATIONS:

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC*
Current consumption MTS	55 mA	210 mA	30 mA
Current consumption LED	350 mA	700 mA	100 mA
	220 mA (red)	550 mA (red)	80 mA (red)
red	435 100 75	435 100 70	435 100 60
green	435 200 75	435 200 70	435 200 60
yellow	435 300 75	435 300 70	435 300 60
clear	435 400 75	435 400 70	435 400 60
blue	435 500 75	435 500 70	435 500 60

\*Current consumption at 10 V / 115 V



## ACCeSSORieS:

\*eVS = Enhanced Visibility System

Further Information see page 352.

please note the photosensitive epilepsy warning on page 352.

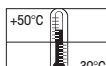
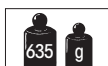


## TeChNICAL DIAGRAMS:

see page 305



Loud, long-life horn for a diverse  
range of applications





Award winning design Winner of the iF product design award 2012



Quick and simple wall mounting without additional accessories thanks to integrated mounting bracket

#### Size comparison



- Maintenance-free, electronic horn with long life duration of up to 5,000 hrs
- Sound output can be set to meet the requirements of the application
- Wear-free, intense rotating signal effect with low power consumption
- Optical and audible warning can be separately triggered for two stage signalling
- integrated bracket for simple wall mounting without additional accessories



#### TeChNICAL SpeCIFICATIONS:

Life duration up to 50,000 hrs (LeD)

dimensions (L x H x W):	134 mm x 407 mm x 144 mm
Housing:	PC/ABS-Blend, grey
lens:	PC, transparent
connection:	Screw terminal with wire protection, max. 1.5 m <sup>2</sup>
cable entry:	Cable diameter max. 11 mm
Fixing:	Wall mounting, integrated mounting bracket
installation position:	Sound outlet facing downwards
tone frequency:	C. 110 Hz
life duration:	Up to 50,000 h (LED), up to 5,000 h (Horn)



#### ORDeR SpeCIFICATIONS:

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC*
Current consumption MTS	55 mA	210 mA	30 mA
Current consumption LED	220 mA	500 mA	70 mA
	150 mA (red)	300 mA (red)	45 mA (red)
red	435 110 75	435 110 70	435 110 60
green	435 210 75	435 210 70	435 210 60
yellow	435 310 75	435 310 70	435 310 60
clear	435 410 75	435 410 70	435 410 60
blue	435 510 75	435 510 70	435 510 60

\*Current consumption at 10 V / 115 V

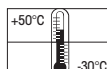


#### TeChNICAL DIAgRAMS:

see page 305



Intense rotating signal effect thanks to long-life, wear-free LeD technology





- Multi-tone Sounder in combination with Xenon Flash
- 32 tones for a diverse range of applications
- Adjustable sound output up to 105 db
- 2 tones can be triggered externally
- Optical and audible signal can be triggered separately

**TeChNICAL SpeCIFICATIONS:**

dimensions (L x H x W):	136 mm x 138 mm x 119 mm
Housing: ABS	
connection:	Screw terminal max. 2.5 mm <sup>2</sup>
cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)
Flash frequency:	1 Hz
Flash energy:	1.6 Ws
tone types and frequencies:	Selectable via DIP switch

**ORDeR SpeCIFICATIONS:**

Voltage	9-60 V DC	110-230 V AC
Current consumption	230 mA (24 V)	30 mA (230 V)
Housing / Flash		
red / red	<b>439 010 55</b>	<b>439 010 68</b>
red / yellow	<b>439 030 55</b>	<b>439 030 68</b>
grey / red	<b>439 110 55</b>	<b>439 110 68</b>
grey / yellow	<b>439 130 55</b>	<b>439 130 68</b>

**ACCeSSORieS:**

Cable gland M20 x 1.5 mm	<b>975 444 01</b>
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**TONe TYPeS AND FReQUeNCieS:**

For further details see [www.werma.com](http://www.werma.com).

**TeChNICAL DIAGRAMS:**

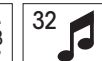
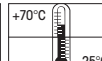
see page 305



Multi-Tone Sounder  
in combination with a  
powerful Xenon Flash

**Size comparison**

See note  
on page 347



**WERMA**  
SIGNALTECHNIK





- Multi-tone Sounder in combination with Xenon Flash
- 32 tones for a diverse range of applications
- Adjustable sound output up to 110 db
- 2 tones can be triggered externally
- Optical and audible signal can be triggered separately

#### **i** TeChNICAL SpeCIFICATIONS:

dimensions (L x H x W):	165 mm x 169 mm x 132 mm
Housing: PC/ABS-Blend	
connection:	Screw terminal max. 2.5 mm <sup>2</sup>
cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)
Flash frequency:	1 Hz
Flash energy:	2.5 Ws
tone types and frequencies:	Selectable via DIP switch

#### **🛒** ORDeR SpeCIFICATIONS:

Voltage	9-60 V DC	230 V AC
Current consumption	230 mA	35 mA
Housing / Flash		
red / red	441 010 55	441 010 68
red / yellow	441 030 55	441 030 68
grey / red	441 110 55	441 110 68
grey / yellow	441 130 55	441 130 68



#### **🔧** ACCeSSORieS:

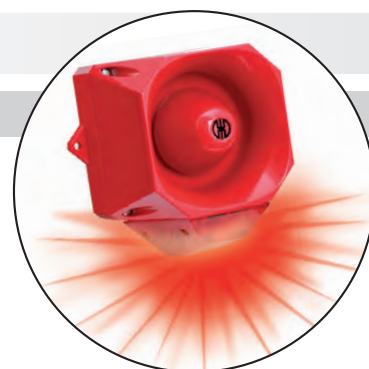
Cable gland M20 x 1.5 mm	975 444 01
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#### **🎵** TONe TYPeS AND FReQUeNCieS:

For further details see [www.werma.com](http://www.werma.com).

#### **📐** TeChNICAL DIAGRAMS:

see page 305

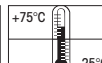


Multi-Tone Sounder  
in combination with a  
powerful Xenon Flash

#### Size comparison



See note  
on page 347







- Multi-tone Sounder in combination with Xenon Flash
- 4 different flash frequencies (24 V Version)
- 42 tones for a diverse range of applications
- Adjustable sound output up to 120 db
- 3 tones can be triggered externally
- duration of signal phase selectable
- Optical and audible signal can be triggered separately

### **i** TeChNICAL SpeCIFICATIONS:

dimensions (L x H x W):	168 mm x 211 mm x 155 mm
Housing:	PC/ABS-Blend
connection:	Screw terminal max. 2.5 mm <sup>2</sup>
cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)
tone types and frequencies:	Selectable via DIP switch, see table on page 210

### **🛒** ORDeR SpeCIFICATIONS:

Voltage	18-30 V DC	115 / 230 V AC
Current cons. Multi Tone Sounder	450 mA	130 / 65 mA
Current consumption Flash	127-389 mA (dependent on voltage and flash frequency)	- / 15 mA (dependent on voltage and flash frequency)
Flash frequency	0,75 Hz/1 Hz    1,25 Hz/2 Hz	1 Hz (Flash can only be operated with 230 V)
Flash energy	3,5 Ws    2 Ws	2 Ws
Housing/Flash		
red/red	442 010 55	442 010 68
red/yellow	442 030 55	442 030 68
grey/red	442 110 55	442 110 68
grey/yellow	442 130 55	442 130 68

### **🔧** CeSSORieS:

Cable gland M20 x 1.5 mm	975 444 01
--------------------------	------------

### **📏** TeChNICAL DIAGRAMS:

see page 305



Loud Multi-Tone Sounder  
in combination with a powerful  
Xenon Flash

### Size comparison

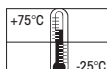


See note  
on page 347



442 XX0 55

442 XX0 68



The Flash/Multi-tone Sounder combination 442 offers a large choice of international signal tones for the widest spectrum of applications. 3 tones can be triggered externally. The first two tones can be freely chosen. The third tone is paired with the second tone.



### TONe TyPeS AND FREQUenCIeS:

tone 1+2 no	tone type	use	Output (dbA)	tone 3
1	alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)		120	14
2	rising 800/970 Hz in 7 Hz stroke (7/s)		120	14
3	rising 800/970 Hz in 1 Hz stroke (1/s)		120	14
4	continuous 2,850 Hz		111	9
5	rising 2,400-2,850 Hz in 7 Hz stroke		109	4
6	rising 2,400-2,850 Hz in 1 Hz stroke		110	4
7	500-1,200 Hz rising in 3 sec., 0.5 sec. OFF	Slow Whoop Holland	119	14
8	falling 1,200-500 Hz in 1 Hz stroke	DIN/PFEER (PAPA), DIN 33404-3, VDS tested	119	14
9	alternating 2,400/2,850 Hz in 2 Hz stroke (250 ms-250 ms)		113	4
10	pulse 970 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)	PFEER Alarm	117	14
11	alternating 800/970 Hz in 1 Hz stroke (500 ms-500 ms)		118	14
12	pulse 2,850 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)		112	4
13	970 Hz pulse: 0.25 sec. ON / 1 sec. OFF		117	14
14	continuous 970 Hz	PFEER - Toxic gas	118	8
15	554 Hz/100 ms alternating 440 Hz/400 ms	French alarm signal AFNOR NFS 32S 32-001	115	14
16	660 Hz pulse: 150 ms ON, 150 ms. OFF	Swedish alarm signal	114	14
17	660 Hz pulse: 1.8 sec. ON, 1.8 sec. OFF	Swedish alarm signal	115	14
18	660 Hz pulse: 6.5 sec. ON, 13 sec. OFF	Swedish alarm signal	115	14
19	continuous 660 Hz	Swedish alarm signal	116	1
20	alternating 554/440 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)	Swedish alarm signal	115	19
21	pulse 660 Hz in 1 Hz stroke (500 ms-500 ms)	Swedish alarm signal	115	4
22	pulse 2,850 Hz in 4 Hz stroke (150 ms ON / 100 ms OFF)		110	4
23	rising 800-970 Hz in 50 Hz stroke		117	14
24	rising 2,400-2,850 Hz in 50 Hz stroke		110	4
25	970 Hz puls.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.	ISO 8201 / US Temporal	118	14
26	2,850 Hz puls.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.	ISO 8201 / US Temporal	112	4
27	continuous 4,000 Hz		105	6
28	alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)		118	14
29	alternating 990/650 Hz in 2 Hz stroke (250 ms-250 ms)		117	14
30	alternating 510/610 Hz in 2 Hz stroke (250 ms-250 ms)		116	14
31	rising 300-1,200 Hz in 1 Hz stroke		118	14
32	continuous Bell		117	3
33	continuous Bell: 3x500 ms. Pulse, 1.5 sec. Silence, then repeat	Bell / US Temporal	117	14
34	alternating 1,000/2,000 Hz in 1 Hz stroke (500 ms-500 ms)	Singapore	115	4
35	pulse 420 Hz (0.625 sec.)	Australian alarm signal	118	14
36	500-1,200 Hz rising in 3.75 sec., then 0.25 sec. OFF	Australian alarm signal (Evacuation)	117	14
37	rising 1,400-1,600 Hz in 1 sec., falling in 0.5 sec.	NF C 48-265	116	14
38	500-1,200 Hz rising and falling in 3 sec.	Siren	117	14
39	pulse 720 Hz: 0.7 sec. ON, 0.3 sec. OFF	German industrial alarm	118	14
40	rising 422-775 Hz in 0.85 sec., 1 sec. silence, then repeat	NFPA Whoop	118	14
41	continuous 470 Hz	Horn (USA)	114	3
42	continuous 370 Hz	Air Horn (USA)	113	3



# LeD Double Flash/ Multi-Tone Sounder Combination



Base mounting



Wall mounting

- Multi-tone Sounder in combination with led double Flash
- Sound output adjustable up to 114 db (c)/110 db (A)
- 32 tones
- 3 tones can be triggered externally
- Optical and audible signal can be triggered separately



## TeChNICAL SpeCIFICATIONS:

Life duration  
up to 50,000 hrs

dimensions (L x H x W):	109 mm x 112.5 mm x 152 mm
Housing: PC/ABS-Blend	
lens:	PC, transparent
connection:	24 V: Screw terminal with wire protection max. 1.5 mm <sup>2</sup> 115/230 V: CAGE CLAMP®
cable entry:	Membrane for cable diameter max. 13 mm
Fixing:	Wall, base and ceiling mounting
life duration:	Up to 50,000 hrs (LED Double Flash)
Flash frequency:	C. 1 Hz



## ORDeR SpeCIFICATIONS:



Voltage		24 V AC/DC	115 V AC	230 V AC
Current consumption	Optical	60 mA	30 mA	30 mA
	Audible	200 mA	55 mA	30 mA
red		<b>444 100 75</b>	<b>444 100 67</b>	<b>444 100 68</b>
yellow		<b>444 300 75</b>	<b>444 300 67</b>	<b>444 300 68</b>



## ACCeSSORieS:

Cable gland M20 x 1.5 mm (for cable strain relief)	<b>975 444 01</b>
Protection rating IP 65 is provided even without cable gland	

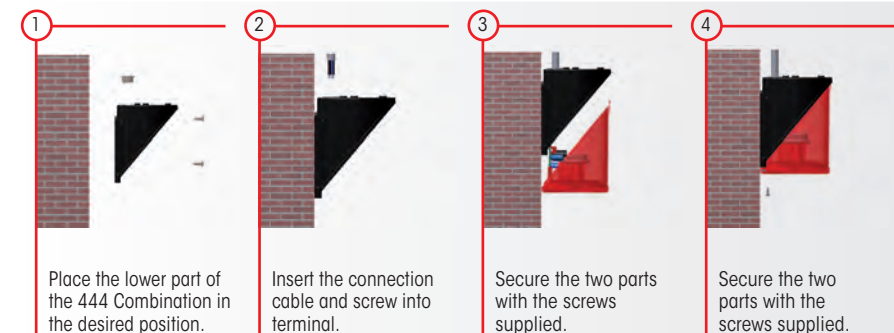


## TONe TypeS AND FReQUenCieS:

Selectable via DIP switch, see tone table on page 213.

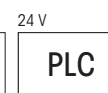
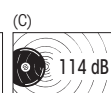
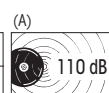
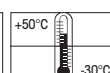
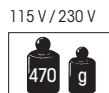
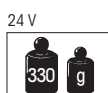


## QUICK AND SIMpLe MOUNTING



## TeChNICAL DIAgRAMS: see page 305

See note  
on page 347



# 444 Combination

## LeD eVS\*/Multi-Tone Sounder



Base mounting



The „eVS“ light effect ensures a maximum attention-grabbing effect

- Multi-tone Sounder in combination with led eVS\* signal
- Random sequence of light signals prevents acclimatisation effect
- 32 tones for a diverse range of applications
- Sound output adjustable up to 114 db (c)/110 db (A)
- 3 tones can be triggered externally
- Optical and audible signal can be triggered separately

### TeChNICAL SpeCIFICATIONS:

Life duration up to 50,000 hrs

dimensions (L x H x W):	109 mm x 112.5 mm x 152 mm
Housing: PC/ABS-Blend	
lens:	PC, transparent
connection:	24 V: Screw terminal with wire protection max. 2.5 mm <sup>2</sup> 115/230 V: CAGE CLAMP®
cable entry:	Membrane for cable diamter max. 13 mm
Fixing:	Wall, base and ceiling mounting
life duration:	Up to 50,000 hrs (LED EVS)

### ORDeR SpeCIFICATIONS:



	Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	Optical	60 mA	30 mA	30 mA
	Audible	220 mA	55 mA	30 mA
red		444 110 75	444 110 67	444 110 68
yellow		444 310 75	444 310 67	444 310 68

### ACCeSSORieS:

Cable gland M20 x 1.5 mm (for cable strain relief)	975 444 01
Protection rating IP 65 is provided even without cable gland	

### TONe TYpeS AND FREQuenCieS:

Selectable via DIP switch, see tone table on page 213.

### ADDITIONAL INFORMATION:

\* eVS = Enhanced Visibility System.  
Further Information can be found in the chapter "General Information" on page 352.  
please note the photosensitive epilepsy warning on page 352.

### TeChNICAL DIAgRAMS:

see page 305

See note on page 347



24 V	115 V / 230 V	IP65	+50°C -30°C	110 dB	114 dB	32	24 V
330 g	470 g					PLC	



The 444 combinations offer a large choice of international signal tones for the widest spectrum of applications. 3 tones can be triggered externally.



### TONe TYPEs AND FREQUenCIEs:



tone 1	tone type	Frequency (Hz)	description	use	tone 2	Sound output (dbA)
1	continuous	200		BS 5839-1:2002	440 Hz cont.	97
2	rising	800 & 970	7 Hz		14	102
3	rising	800 & 970	1 Hz		14	103
4	continuous	2850			14	104
5	rising	2400 - 2850	7 Hz		4	109
6	rising	2400 - 2850	1 Hz		4	110
7	rising	500 - 1200	3 s, then 0.5 s OFF (then repeat)		14	106
8	falling	1200 - 500	1 Hz	DIN 33404-3	14	104
9	alternating	2400 & 2850	2 Hz		4	111
10	pulse	970	0.5 Hz (1 s On/1 s Off)	BS 5839 Part 1 1988	14	101
11	alternating	800 & 970	1 Hz	BS 5839 Part 1 1988	14	105
12	pulse	2850	0.5 Hz		4	104
13	pulse	970		0,25 s On/1 s Off	14	98
14	continuous	970		BS 5839-1:2002 PFEER - Toxic gas	10	102
15	alternating	554 & 440		France NFS	14	101
16	pulse	660	150 ms On/150 ms Off	Swedish	16	96
17	pulse	660	1.8 s On/1.8 s Off	Swedish	17	98
18	pulse	660	6.5 s On/13 s Off	Swedish	18	98
19	continuous	660		Swedish	19	98
20	alternating	554 & 440	0.5 Hz		20	102
21	pulse	660	1 Hz	Swedish	21	97
22	pulse	2850	150 ms On/100 ms Off	GB	14	104
23	rising	800 - 970	50 Hz (low)	BS 5839 Part 1 1988	14	102
24	rising	2400 - 2850	50 Hz (high)		4	109
25	pulse	970	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (low)	ISO 8201 US Temporal	26	101
26	pulse	2850	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (high)	ISO 8201 US Temporal	25	104
27	continuous	4000			27	92
28	rising	2000 - 2850	7 Hz		2000 Hz cont.	111
29	alternating	988 & 645	2 Hz		988 Hz cont.	102
30	alternating	510 & 610	2 Hz		510 Hz cont.	102
31	alternating	800 & 970	2 Hz	5839-1:2002	800 cont.	105
32	alternating	800 & 1200	1 Hz		800 cont.	105







LeD Traffic Light with integrated siren (2 tier)



Integrated siren with high sound output



Clear lenses ensure signalling effect even in direct sunlight

- High visibility led traffic light with independently triggerable integrated siren
- unmistakable signalling even in direct sunlight thanks to clear lenses
- Simple mounting due to integrated mounting bracket
- the optical signal also offers very good sideward visibility
- protection rating ip 65/ip 69k

### **i** TeChNICAL SpeCIFICATIONS:

Life duration up to 50,000 hrs

dimensions (L x H x W):	2 tier: 85 mm x 309 mm x 136 mm
	3 tier: 85 mm x 394 mm x 136 mm
Housing:	PC/ABS, grey
Lens:	PC, transparent
Fixing:	Wall mounting, tube mounting (accessory)
installation position:	Vertical/hanging
connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
cable entry:	Cable diameter max. 13 mm
duty cycle:	100 %
tone type:	Continuous tone

### **ORDER** SpeCIFICATIONS:

Voltage	24 V DC	115 to 230 V AC
Current Consumption LED	60 mA (red/yellow) 120 mA (green)	30 mA per tier at 230 V/50 Hz
Siren	20 mA	30 mA at 230 V/50 Hz
red / green	<b>494 160 55</b>	<b>494 160 68</b>
red / yellow / green	<b>494 180 55</b>	<b>494 180 68</b>

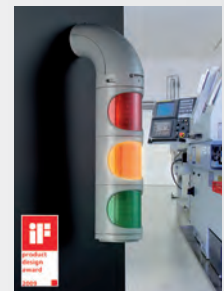
### **ACCESSORIES:**

Adaptor for tube mounting **975 894 02**  
(suitable for Ø 75 mm tubes, see page 215)

### **ADDITIONAL INFORMATION:**

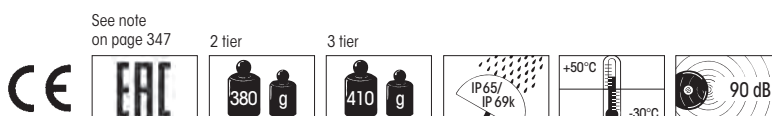
"Small traffic light Series" wins "iF product design award 2009"

WERMA has won the prestigious "iF product design award" for the design and production of its "small traffic light series". Since its introduction in 1953, this design prize has been an enduring, renowned hallmark for "excellent" design.



### **TECHNICAL DIAGRAMS:**

see page 306





LeD Beacon with  
integrated Siren (1 tier)



Integrated siren with  
high sound output



The adaptor (accessory) allows  
quick and simple  
mounting on tubes (Ø 75 mm)

- High visibility LED Traffic light with independently triggerable integrated siren
- colour intensive light effect thanks to leds in the same colour as the lenses
- Simple mounting due to integrated mounting bracket
- the optical signal also offers very good sideward visibility
- protection rating ip 65/ip 69k



#### TeChNICAL SpeCIFICATIONS:

dimensions (L x H x W):	1 tier:	85 mm x 224 mm x 136 mm
	2 tier:	85 mm x 309 mm x 136 mm
	3 tier:	85 mm x 394 mm x 136 mm
Housing:	PC/ABS, grey	
lens:	PC, transparent	
Fixing:	Wall mounting, Tube mounting (accessory)	
installation position:	Vertical	
connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>	
cable entry:	Cable diameter max. 13 mm	
duty cycle:	100 %	
tone type:	Continuous tone	

Life duration  
up to 50,000 hrs



#### ORDeR SpeCIFICATIONS:

Voltage	24 V DC	115 to 230 V AC
Current Consumption	LED	60 mA (red/yellow) 120 mA (green)
	Siren	20 mA
red	494 010 55	494 010 68
green	494 020 55	494 020 68
yellow	494 030 55	494 030 68
red / green	494 060 55	494 060 68
red / yellow / green	494 080 55	494 080 68



#### ACCeSSORieS:

Adaptor for tube mounting (suitable for Ø 75 mm tubes)	975 894 02
---	------------



#### ADDITIONAL INFORMATION:

##### Maximum flexibility

Thanks to the innovative bracket, the direction of the signal can be individually adjusted. After the bracket has been mounted, the customer can adjust the direction to suit his requirements.

The LED traffic light can be turned through 360 degrees guaranteeing optimum visibility from all angles.

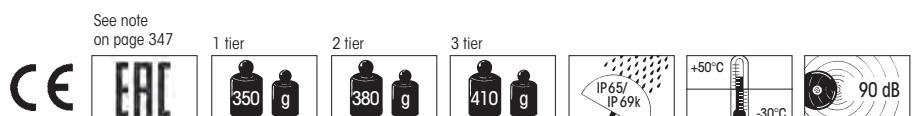


The direction of the optical signal  
can be individually adjusted



#### TeChNICAL DIAGRAMS:

see page 306





Light intensive and loud  
traffic light combination



The fixing bracket can be  
mounted pointing inwards  
or outwards (accessory)

- 32 tones for a diverse range of applications
- Sound output adjustable up to 114 db (c)/110 db (A)
- 3 tones can be triggered externally
- Fixing bracket for easy combination with (led) permanent beacon/Traffic light 890

### **i** TeChNICAL SpeCIFICATIONS:

<b>dimensions</b> (Ø x Height):	150 mm x 154 mm (890) 150 mm x 127 mm (190)
<b>Housing:</b>	PC/ABS-Blend, grey
<b>lens:</b>	PC, transparent
<b>Fixing:</b>	Base mounting, fixing bracket (accessory)
<b>connection:</b>	Screw terminal
<b>cable entry:</b>	From top or bottom with cable gland M20 x 1.5 mm or from the back with rubber grommet Ø 6-12 mm, included in assembly

### **shopping cart** ORDeR SpeCIFICATIONS:

#### Multi-tone Sounder 190

Voltage	10-30 V DC	115 V AC	230 V AC
Current consumption	< 180 mA	< 55 mA	< 30 mA
grey	<b>190 000 55</b>	<b>190 000 67</b>	<b>190 000 68</b>

#### led beacon 890

Voltage	12-24 V DC	115 V AC	230 V AC
Current consumption	< 200 mA	< 35 mA	< 35 mA
red	<b>890 120 55</b>	<b>890 120 67</b>	<b>890 120 68</b>
green	<b>890 220 55</b>	<b>890 220 67</b>	<b>890 220 68</b>
yellow	<b>890 320 55</b>	<b>890 320 67</b>	<b>890 220 68</b>

#### permanent beacon 890

Voltage	12-240 V AC/DC
red	<b>890 100 00</b>
green	<b>890 200 00</b>
yellow	<b>890 300 00</b>
clear	<b>890 400 00</b>
blue	<b>890 500 00</b>

### **AC** ACceSSORieS:

Fixing bracket, tube adaptor and connecting grommet see page 176.

### **🎵** TONe TYpeS AND FREQUenCieS:

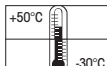
Selectable via DIP switch, see tone table on page 251.

### **⚠️** ADDITIONAL INFORMATION:

Traffic light configurator at [www.werma.com](http://www.werma.com)

### **📏** TeChNICAL DIAGRAMS: see page 298 + 326

See note  
on page 347



(A)



(C)





The innovative connector (accessory) enables traffic light combinations to be created in a matter of seconds



"Status Light" function to generate additional awareness of the audible signal

- up to 8 different tones (12 V; 24 V)
- 3 tones can be triggered externally (12 V; 24 V)
- externally adjustable sound output (-10 db)
- „Status Light“ to emphasise the audible warning signal
- innovative connector to create traffic light combinations
- easy assembly due to quick-release screws



## TeChNICAL SpeCIFICATIONS:

<b>dimensions</b> (L x H x W):	85 mm x 85 mm x 72 mm
<b>Housing:</b>	PP-GF, black
<b>lens:</b>	LED Beacon 853: PC, transparent Sounder 153: PC, tinted black
<b>connection:</b>	Screw terminal with wire protection, max. 1.5 mm <sup>2</sup>
<b>cable entry:</b>	Cable diameter max. 8 mm, optional cable gland M20 (accessory)
<b>Fixing:</b>	Wall, base and ceiling mounting
<b>equipment:</b>	Eight self-sealing membranes for cable entry without tools. Eight integrated M20 threads, no nuts required. Optional use of a cable gland, thread length of cable gland ≤ 9 mm (accessory)
<b>Assembly:</b>	Incl. snap-on fixing bracket (optional use)



## ORDeR SpeCIFICATIONS:

Voltage	12 V DC	24 V DC	48 V AC	115-230 VAC
Current consumption	150 mA	100 mA	150 mA	75 mA (115 V) 150 mA (230 V)
	<b>153 000 54</b>	<b>153 000 55</b>	<b>153 000 66</b>	<b>153 000 60</b>

The technical specifications and order specifications of the LED Beacons can be found at [www.werma.com](http://www.werma.com) or on page 135 (LED Permanent Beacon), page 152 (LED Double Flash Beacon) and page 153 (LED EVS Beacon).



## ACCeSSORIEs:

Connector for traffic light combinations	<b>975 853 01</b>
Cable gland M20 x 1.5 mm, 8 mm thread length	<b>975 853 02</b>



## TONe TyPeS AND FREQUenCIEs:

tone	tone type	tone	tone type
1	Continuous tone (ca. 3000 Hz)	5	800 - 970 Hz rising @ 1 Hz
2	Horn tone (ca. 110 Hz)	6	2400 - 2850 Hz rising @ 7 Hz
3	1 Hz tone (ca. 3,0 kHz)	7	1200 - 500 Hz falling @ 1 Hz
4	20 Hz whistle tone (ca. 3,0 kHz)	8	Alternating tone 800 Hz/1200 Hz@1 Hz



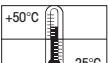
## ADDITIONAL INFORMATION:

Traffic light configurator at [www.werma.com](http://www.werma.com)



## TeChNICAL DIAgRAMS: see page 297 + 321

See note  
on page 347



12 V, 24 V

48 V, 115-230 V







- led permanent light
- continuous tone can be additionally activated
- Simple connection by means of connector plug

## TeChNICAL SpeCIFICATIONS:

Life duration  
up to 50,000 hrs

dimensions (Ø x Height):	50 mm x 22 mm (Protrusion from panel)
Housing:	PC/ABS-Blend
lens:	PC, transparent
connection:	Connector plug with screw terminal max. 1.5 mm <sup>2</sup>
tone type:	Continuous
tone frequency:	C. 2.8 kHz
duty cycle:	100 %
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm) with anti-twist device

Nut and seal included in assembly.

## ORDeR SpeCIFICATIONS:

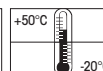


Voltage	24 V DC	115 V AC	230 V AC
Current consumption	< 50 mA	< 20 mA	< 20 mA
red	150 100 55	150 100 67	150 100 68
yellow	150 300 55	150 300 67	150 300 68

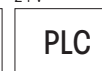
## TeChNICAL DIAGRAMS:

see page 297

See note  
on page 347



24 V





# LeD/Buzzer Combination with acknowledgement function



- led permanent light with additional continuous tone
- Silence the audible signal by lightly pressing the frontal area
- potential-free output for transmission of the acknowledgement signal to the control unit
- positive and negative logic



## TeChNICAL SpeCIFICATIONS:

Life duration  
up to 50,000 hrs

dimensions (Diameter x Height):	50 mm x 22 mm (Protrusion from panel)
Housing:	PC/ABS-Blend
lens:	PC, transparent
connection:	Screw terminal max. 0.5 mm <sup>2</sup>
Signal input:	24 V DC
Acknowledgement output:	Semiconductor-Relay U <sub>max</sub> = 30 V I <sub>max</sub> = 100 mA R <sub>ON max</sub> = 25 Ohm
tone type:	Continuous
tone frequency:	C. 2.8 kHz
duty cycle:	100 %
Fixing:	Installation mounting for Ø 22,5 mm (M22 x 1.5 mm) with anti-twist device

Nut and seal included in assembly.



## ORDeR SpeCIFICATIONS:



Voltage	24 V DC
Current consumption	40-80 mA
red	450 100 55
yellow	450 300 55



## ADDITIONAL INFORMATION:

1



The occurrence of a malfunction or an error is indicated by means of an optical-audible signal.

2



The audible signal can be turned off in seconds by lightly pressing the front of the product.

3



The acknowledgement signal is sent to the control unit via an electronic switch and the malfunction is now only indicated by the optical signal.



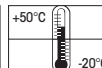
The audible signal can be turned off in seconds by lightly pressing the front of the product



## TeChNICAL DIAGRAMS:

see page 306

See note  
on page 347



# LeD/Buzzer Combination with acknowledgement function for AS-Interface

patent  
approved



- led permanent light with additional continuous tone
- Silence the audible signal by lightly pressing the frontal area
- Acknowledgement signal fed back to the Master via AS-interface bus



## TeChNICAL SpeCIFICATIONS:

Life duration  
up to 50,000 hrs

dimensions (Ø x Height):	50 mm x 22 mm (Protrusion from panel)
Housing:	PC, black
lens:	PC, transparent
connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
power supply AS-interface:	Via bus conduction
Operating voltage:	25 V ... 31.6 V according to the AS-Interface specification
iO-c code:	B <sub>hex</sub>
id-c code:	A <sub>hex</sub>
id2-c code:	E <sub>hex</sub>
tone type:	Continuous
tone frequency:	C. 2.8 kHz
duty cycle:	100 %
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm) with anti-twist device

Nut and seal included in assembly.



## ORDeR SpeCIFICATIONS:



Voltage	via AS-Interface
Current consumption	≤ 80 mA
red	450 110 55
yellow	450 310 55



## ADDITIONAL INFORMATION:



### unique acknowledgement function with feedback signal via AS-interface bus

The addition of the LED/Buzzer Combination 450 with acknowledgement function expands WERMA's range of products with integrated AS-Interface®. The combination unites a very bright light signal with the powerful sound of a buzzer.

This product also features a unique acknowledgement function: by gently pressing the front surface of the product the audible signal can be turned off in a matter of seconds (see page 219). This acknowledgement signal is fed back to the master via the AS-Interface Bus and the malfunction is only indicated by means of the optical signal.

### expanded addressing and a sound output of 80 dB

The 450 Combination for AS-Interface enables an expanded addressing (A/B technology) of up to 62 modules. The power required is drawn from the Bus voltage.

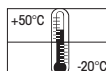


## TeChNICAL DIAgRAMS:

see page 306

Class 2

See note  
on page 347





Surface housing double

- Various combinations possible
- High protection rating ip 65
- Versatile range of applications thanks to cable exit at side

**TeChNICAL SpeCIFICATIONS:**

dimensions (W x H x D):	single:	80.5 mm x 55 mm x 82 mm
	double:	160 mm x 55 mm x 78 mm
	triple:	240 mm x 60 mm x 80 mm
Housing:	ABS and PC/ABS-Blend	
cable entry:	Cable gland M16 x 1.5 mm for circular cable Ø 5-10 mm	

**ORDeR SpeCIFICATIONS:**

Single surface housing	<b>975 109 02</b>
Double surface housing for 1 beacon and 1 buzzer	<b>975 109 03</b>
Triple surface housing for 2 beacons and 1 buzzer	<b>975 109 04</b>

Assembly comprises of only the surface housing. Beacons 800-802, 815-817 (p. 107/109) and buzzers 109 and 110 (pages 229/237) have to be ordered additionally.



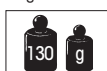
Single surface housing

**TeChNICAL DIAg RAMS:**

see page 330



single



double



triple



# Signal Tower with Audible element • modular



Signal tower KombiSIGN 71  
with base with integrated tube  
(accessory)



2-sided bracket (accessory) with  
KombiSIGN 70 elements



KombiSIGN 50  
with buzzer

- KombiSIGN Signal tower with audible element
- Sound output up to 105 dB
- can be combined with all optical elements
- can be triggered separately



## TeChNICAL SpeCIFICATIONS:



dimensions (Ø x Height):	See KombiSIGN 50, 70 and 71
Housing:	See KombiSIGN 50, 70 and 71
lens:	Polycarbonate transparent
Fixing:	Base mounting, wall mounting, tube mounting (accessory)
connection:	Screw terminal or CAGE CLAMP®
Seal:	Pre-mounted with each element
number of modules possible:	KombiSIGN 70 and 71: Max. 5 With 2-sided bracket: Max. 10 KombiSIGN 50: Max. 4
The audible element is to be mounted at the top of the signal tower.	



## ORDeR SpeCIFICATIONS:

See KombiSIGN 50, 70 and 71 (Pages 31, 47, 61 onwards)



## ADDITIONAL INFORMATION:

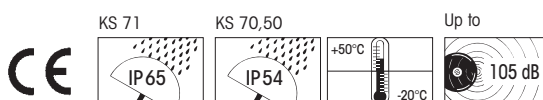
With our "Configurator" you can put together a signal tower quickly and easily according to your requirements.

The configurator interactively guides the user through a series of pictures and questions to create an individual signal tower solution in just a few clicks.



## TeChNICAL DIAgRAMS:

see pages 309 + 318 onwards



# Signal Tower with integrated buzzer • pre-assembled



KOMPAKT 37 with base with integrated tube



FlatSIGN



VarioSIGN



CleanSIGN for wall mounting

- completely pre-assembled
- can be triggered separately
- Sound output up to 85 dB



## TeChNICAL SpeCIFICATIONS:



dimensions (Ø x Height):	See KOMPAKT 37, FlatSIGN, VarioSIGN, CleanSIGN
Housing:	See KOMPAKT 37, FlatSIGN, VarioSIGN, CleanSIGN
lens:	See KOMPAKT 37, FlatSIGN, VarioSIGN, CleanSIGN
Fixing:	Base mounting, wall mounting, tube mounting
connection:	See KOMPAKT 37, FlatSIGN, VarioSIGN, CleanSIGN



## ORDeR SpeCIFICATIONS:

See KOMPAKT 37, FlatSIGN, VarioSIGN and CleanSIGN beginning on page 71.



## ADDITIONAL INFORMATION:

On the signal tower pages of [www.werma.com](http://www.werma.com) use the selection tool „Configurator“ to select the Kompakt 37 signal tower according to your requirements. With the help of intuitive questions and pictures you will be able to make your choice with just a few mouse clicks.



## TeChNICAL DIAGRAMS:

see pages 311 + 312



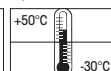
KOMPAKT 37  
FlatSIGN  
VarioSIGN



CleanSIGN



Up to



Up to

















# Overview Audible Signal Devices

## electronic Buzzers

<b>107 installation Buzzer</b>  80 dB page 228	<b>109 installation Buzzer</b>  80 dB page 229	<b>111 installation Buzzer</b>  80 dB page 230	<b>114 installation Buzzer</b>  85 dB page 231
<b>118 installation Buzzer</b>  90 dB page 233	<b>118 483 Buzzer</b>  90 dB page 234	<b>127 Buzzer</b>  92 dB page 235	<b>128 Buzzer</b>  92 dB page 236

## electromechanical Buzzers

<b>338 Ac installation Buzzer</b>  65-75 dB page 232	<b>382 installation Buzzer</b>  90 dB page 232
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## Sirens and multi-Tone Sounders

<b>110 installation multi-Tone Sounder</b>  100 dB page 237	<b>123 electronic Siren</b>  105 dB page 240	<b>129 multi-Tone Sounder</b>  110 dB page 238	<b>126 multi-Tone Sounder</b>  105 dB page 241	<b>133 multi-Tone Sounder</b>  105 dB page 242	<b>134 multi-Tone Sounder</b>  109 dB page 243	<b>140 multi-Tone Sounder</b>  115 dB page 244
<b>139 multi-Tone Sounder</b>  105 dB page 246	<b>141 multi-Tone Sounder</b>  110 dB page 247	<b>142 multi-Tone Sounder</b>  120 dB page 248	<b>144 multi-Tone Sounder</b>  114 dB page 250	<b>153 Sounder</b>  105 dB page 252	<b>190 multi-Tone Sounder</b>  110 dB page 253	



## Signal horns

<b>482</b>  83/92 dB page 263	<b>570</b>  108 dB page 255	<b>571</b>  108 dB page 256	<b>572</b>  104 dB page 256	<b>573</b>  105 dB page 257
<b>574</b>  108 dB page 261	<b>575</b>  108 dB page 262	<b>582</b>  92 dB page 263	<b>584</b>  98 dB page 264	<b>585</b>  98 dB page 265

## Three-Tone gong

<b>170</b>  100 dB page 258	<b>172</b>  100 dB page 259
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## Alarm Bell

<b>914</b>  98 dB page 260
--

### Sounds and further information

The sounds of these products can be played from our website [www.werma.com](http://www.werma.com) under the heading "Audible Signal Devices".

further information about the "Audible" theme can be found in the chapter "general information" beginning on page 358.



# A Summary of Audible Signal Devices



142 Multi-Tone Sounder Page 248

**120 dB**



574 Horn Page 261  
575 Horn Page 262  
134 Multi-Tone Sounder Page 243  
570 Signal Horn Page 255  
571 Signal Horn Page 256

**110 dB**



172 Electronic Three Tone Gong in innovative, modern design Page 259  
170 Electronic Three Tone Gong Page 258  
110 Installation Multi-Tone Sounder Page 237

**105 dB**

**100 dB**



127 Buzzer Page 235  
128 Buzzer Page 236  
582 Signal Horn Page 263  
482 Signal Horn Page 254

**90 dB**

**85 dB**



111 Installation Buzzer Page 230  
109 Electronic Installation Buzzer Page 229  
107 Electronic Installation Buzzer (80 dB at 10 cm distance) Page 228

**80 dB**

**65-75 dB**

Sound output in db (measured at 1 m distance)



further information about the "Audible" theme can be found in the chapter "general information" beginning on page 358.



**120 dB**

**110 dB**

190	Multi-Tone Sounder	Page 253
144	Multi-Tone Sounder	Page 250
141	Multi-Tone Sounder	Page 247
129	Multi-Tone Sounder	Page 238
140	Multi-Tone Sounder	Page 244



**105 dB**

133	Multi-Tone Sounder	Page 242
126	Multi-Tone Sounder	Page 241
139	Multi-Tone Sounder	Page 246
153	Siren	Page 252
572	Horn	Page 256
573	Horn	Page 257



**100 dB**

584	Horn	Page 264
585	Horn	Page 265
914	Alarm Bell	Page 260



**90 dB**

118/119	Installation Buzzer	Page 233
382	Installation Buzzer	Page 232
118483/ 119483	Buzzer	Page 234



**85 dB**

114	Installation Buzzer	Page 231
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**80 dB**

**65-75 dB**

Sound output  
in db  
(measured  
at 1 m distance)

338	AC Installation Buzzer	Page 232
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- For the 22.5 mm control panel programme

- Low current consumption
- High protection rating IP 65

**Technic AI Specific ATiOnS:**

Dimensions (Ø x Height):	28 mm x 12 mm (Protrusion from panel)
Housing:	PA fibreglass, high-impact
Tone frequency:	C. 2,400 Hz / c. 3,200 Hz (12 V)
Tone type:	Continuous tone or pulse tone with approx. 1 Hz
Fixing:	Installation mounting for Ø 22.5 mm (M22)
Connection:	Connector plug with screw terminal max. 1.5 mm <sup>2</sup>
Life duration:	> 5,000 hrs

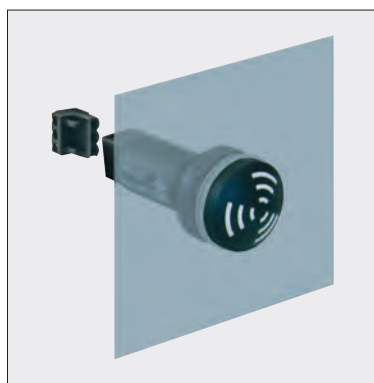
**Or Der Specific ATiOnS:**

Voltage	12 V DC	24 V AC/DC	115 V AC/DC	230 V AC
Current Consumpt.	≤ 10 mA	≤ 8 mA	≤ 8 mA	≤ 8 mA
Continuous tone	<b>107 000 54</b>	<b>107 000 75</b>	<b>107 000 77</b>	<b>107 000 68</b>
Pulse tone	<b>107 010 54</b>	<b>107 010 75</b>	<b>107 010 77</b>	<b>107 010 68</b>

(12 V = / 107 000 54 and 107 010 54 without UL approval)

**Technic AI Di Agr AmS:**

see page 294

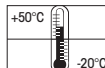


Simple connection by means of connector plug



high protection rating ip 65 for use in rough conditions

See note on page 347





- For the 22.5 mm control panel programme

- High protection rating IP 65



Surface housing (accessory)



Surface housing (triple) for 2 beacons and 1 audible element (not included in assembly)



#### Technic AI Specific ATiOnS:

Dimensions (Ø x Height):	52 mm x 35 mm (Protrusion from pan
Housing:	PC/ABS-Blend; Cap: PC
Tone frequency:	C. 2,100 Hz
Tone type:	Continuous tone or pulse tone with approx. 1 Hz
Fixing:	Install. mounting for Ø 22.5 mm (M22) with anti-twist device
Connection:	Connector plug with screw terminal max. 1.5 mm <sup>2</sup>
Life duration:	> 5,000 hrs

Life duration  
up to 5,000 hrs



#### Or Der Specific ATiOnS:

Voltage	24 V AC/DC	115 V AC/DC	230 V AC
Current consumption	25 mA	25 mA	25 mA
Continuous tone	109 000 75	109 000 77	109 000 68
Pulse tone	109 010 75	109 010 77	109 010 68



#### Acce SSOri e S:

Bracket with protective cap (IP54)	975 109 01 (see picture on page 237)
Single surface housing	975 109 02
Double surface housing	975 109 03
Triple surface housing	975 109 04
Assembly comprises of only the surface housing. Beacons 800-802 (page 107 onwards) or 815-817 (page 109 onwards) have to be ordered additionally.	

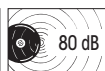
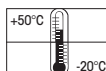


#### Technic AI Di Agr AmS:

see page 294



See note  
on page 347





Thanks to its minimum level of protrusion the installation buzzer 111 is ideal for control panel applications



Simple installation with single hole mounting for m22



- Electronic buzzer for the 22.5 mm control panel and switch gear programme
- Simple connection via plug connection
- Positive and negative control logic
- Continuous or pulse tone can be triggered externally



#### Technic AI Specific ATiOnS:

Dimensions (Ø x Height):	50 mm x 22 mm (Protrusion from panel)
Housing:	PC/ABS-Blend, black; Cap: PC
Ton frequency:	C. 2.8 KHz
Ton type:	Continuous or pulse tone
Fixing:	Installation mounting for Ø 22,5 mm (M22 x 1,5 mm)
Connection:	Screw terminal max. 1.5 mm <sup>2</sup>
Life duration:	> 5.000 hrs
Assembly:	Nut and seal included in assembly.



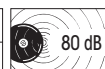
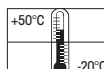
#### Or Der Specific ATiOnS:

Voltage	24 V DC	230 V AC
Current consumption	20 mA	20 mA
Continuous tone	111 000 55	111 000 68



#### Technic AI Di Agr AmS:

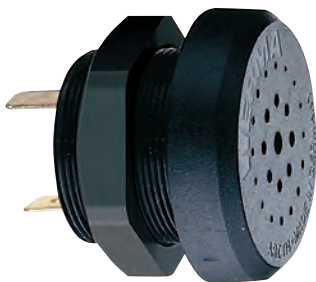
see page 294



PLC



- Installation buzzer for use in control panels

**Technic AI Specific ATiOnS:**

<b>Dimensions</b> (Ø x Height):	42.5 mm x 10 mm (Protrusion from panel)
<b>Housing:</b>	PC/ABS-Blend; Nut: PA fibreglass, high-impact
<b>Connection:</b>	Spades 6.3 x 0.8 mm, finger proof model according to BGV A2, when used with insulated spades
<b>Tone frequency:</b>	C. 2,400 Hz
<b>Fixing:</b>	Installation mounting for Ø 30.5 mm (M30)

**Or Der Specific ATiOnS:**

Voltage	24 V DC (12-30 V)	230 V AC (110-240 V)
Current consumption	20 mA	20 mA
	<b>114 068 15</b>	<b>114 068 28</b>

**Technic AI Di Agr AmS:**

see page 294





338 373



338 323

- AC buzzer for use in electrical appliances

**Technic AI Specific ATiOnS:**

<b>Dimensions</b> (L x H x W):	23 mm x 18.5 mm x 40 mm (338 273)
<b>Tone frequency:</b>	100 Hz
<b>Mounting:</b>	As required
<b>Fixing:</b>	M3 or M4 thread

**Or Der Specific ATiOnS:**

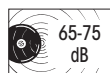
230 V AC, c. 75 dB, spades, fixing: M3	<b>338 273 28</b>
230 V AC, c. 75 dB, solder lugs for printed circuits, fixing: M3	<b>338 323 28</b>
230 V AC, c. 75 dB, spades, 6.3 x 0.8 mm, fixing: M3	<b>338 373 28</b>
230 V AC, c. 75 dB, spades, 6.3 x 0.8 mm, fixing: M4	<b>338 374 28</b>

Further voltages on request.



**Technic AI Di Agr AmS:** see page 303

See note  
on page 347



- All-purpose installation buzzer
- Low current consumption

**Technic AI Specific ATiOnS:**

<b>Dimensions</b> (Ø x Height):	54.5 mm x 36.5 mm
<b>Housing:</b>	Steel, passivated
<b>Connection:</b>	AC: 2 wires, 215 mm long DC: 2 wires, 50 mm long The housing of the DC version is current-carrying
<b>Fixing:</b>	M3 thread

**Or Der Specific ATiOnS:**

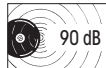
<b>AC Version</b>		
Voltage	230 V AC	
Current consumption	15 mA	
	<b>382 013 68</b>	
<b>DC Version</b>		
Voltage	6 V DC	24 V DC
Current consumption	100 mA	70 mA
	<b>382 013 53</b>	<b>382 013 55</b>

Further voltages on request.



**Technic AI Di Agr AmS:** see page 304

See note  
on page 347





cap

- Low current consumption
- IP 43 with cap
- Type 118 continuous tone
- Type 119 continuous tone and pulse tone
- NEW** • Version with three externally triggerable tones

### Technical SpecificATIOnS:

<b>Dimensions</b> (Ø x Height):	43 mm x 13 mm (Protrusion from panel)
<b>Housing:</b>	ABS
<b>Connection:</b>	Spades 6.3 x 0.8 mm, finger proof model according to BGV A2, when used with insulated spades
<b>Tone frequency:</b>	C. 2,400 Hz
<b>Tone type:</b>	Type 118 Continuous tone Type 119 Continuous tone and pulse tone, c. 1 Hz, selectable via plug-in terminal Version with 3 tones: see table
<b>Fixing:</b>	Installation mounting for Ø 28 mm (M28)

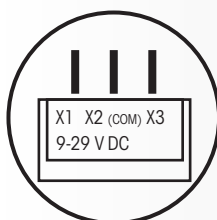
### Order SpecificATIOnS:

Voltage	12 V DC	24 V AC/DC	48 V AC/DC	115 V AC/DC	230 V AC
Current consumpt.	20 mA	20 mA	20 mA	20 mA	20 mA
Continuous tone	<b>118 068 14</b>	<b>118 068 15</b>	<b>118 068 26</b>	<b>118 068 27</b>	<b>118 068 28</b>
Continuous/pulse tone	-	<b>119 068 15</b>	<b>119 068 26</b>	<b>119 068 27</b>	<b>119 068 28</b>



<b>NEW</b> Voltage	24 V DC (9-29 V DC)
Current consumpt.	< 30 mA (at tone 1)
3 tones	<b>119 004 55</b>

### ADDiTionAl infOrmATIOn:



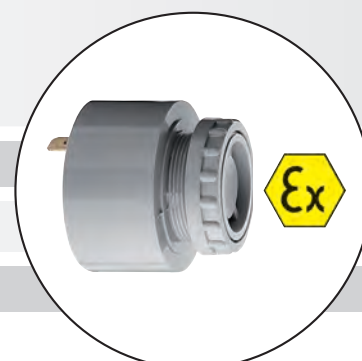
	PIN		
Tone 1	X1	X3 (COM)	2,7 kHz
Tone 2	X2	X3 (COM)	270 Hz
Tone 3	X1 + X2	X3 (COM)	337 Hz

### AccessOries:

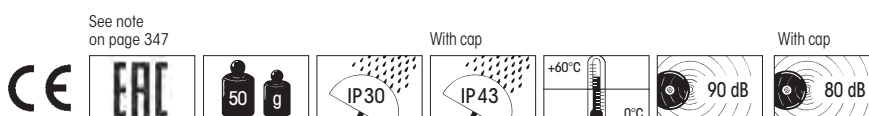
Cap **975 118 00**

### Technical DiAgrAmS:

see page 294 + 295



The installation Buzzer 118/119 is also available in an ex version (see page 288)







# 118 483/119 483 electronic Buzzer



- For wall mounting
- Type 118 483 continuous tone
- Type 119 483 continuous and pulse tone

## Technic AI Specific ATiOnS:

Dimensions (L x H x W):	70 mm x 79.5 mm x 77 mm
Housing:	ABS
Connection:	Spades 6.3 x 0.8 mm, Finger proof model according to BGV A2, when used with insulated spades
Cable entry:	Cable diameter max. 9 mm
Tone frequency:	C. 2,400 Hz
Tone type:	Type 118 483 Continuous tone Type 119 483 Continuous tone and pulse tone, c. 1 Hz selectable via plug-in terminal
Fixing:	Bracket mounting, Sound outlet facing downwards

## Or Der Specific ATiOnS:

Voltage	24 V AC/DC (12-30 V)	230 V AC (110-240 V)
Current consumption	20 mA	20 mA
Continuous tone	<b>118 483 15</b>	<b>118 483 28</b>
Continuous / pulse tone	<b>119 483 15</b>	<b>119 483 28</b>

Further voltages on request.

## ADDiTionAl infOrmATiOn:

Please also see Buzzer 128 with additional advantages (see page 236)

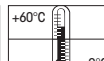
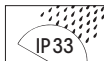
- Continuous or pulse tone selectable
- Modern design



## Technic AI Di Agr AmS:

see page 295

See note  
on page 347





Base mounting



The adaptor  
(accessory) allows quick  
and simple mounting on a tube



A piece of the rim can be broken  
out to allow for cable entry  
from the side

- Continuous or pulse tone selectable
- Cable entry from the side possible
- Easy to mount
- High protection rating IP 65
- Adaptor for tube mounting (accessory)

**Technic AI Specific ATiOnS:**

Dimensions (Ø x Height):	89 mm x 64 mm
Housing:	PC, black
Fixing:	Base mounting, tube mounting (accessory)
Installation position:	Sound outlet facing downwards
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Tone type:	Continuous or pulse tone, selectable
Tone frequency:	2.3 kHz
Life duration:	> 5,000 hrs
Duty cycle:	100 %

**Or Der Specific ATiOnS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	≤ 15 mA	≤ 15 mA	≤ 15 mA
	<b>127 000 75</b>	<b>127 000 67</b>	<b>127 000 68</b>

**Acce SSOri e S:**

Adaptor for tube mounting, plastic, for tube Ø 25 mm	<b>975 420 01</b>
Base for tube Ø 25 mm, plastic, incl. rubber seal	<b>975 840 90</b>
Base for tube Ø 25 mm, metal, incl. rubber seal	<b>975 840 91</b>
Tube Ø 25 mm, all anodized aluminium	
100 mm	<b>975 845 10</b>
250 mm	<b>975 840 25</b>

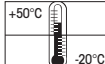
**Technic AI Di Agr AmS:**

see page 295



Buzzer in combination with Xenon  
flash or LED permanent light  
see 194 and 192

See note  
on page 347



24 V





- Continuous or pulse tone selectable
- Integrated mounting bracket
- Modern design

**Technic AI Specific ATiOnS:**

Dimensions (L x H x W):	83 mm x 84 mm x 91 mm
Housing:	PC, PC/ABS-Blend, grey
Fixing:	Bracket mounting
Installation position:	Sound outlet facing downwards
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Tone type:	Continuous or pulse tone, selectable
Tone frequency:	2.3 kHz
Life duration:	> 5,000 hrs
Duty cycle:	100 %

**Or Der Specific ATiOnS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	≤ 15 mA	≤ 15 mA	≤ 15 mA
	<b>128 000 75</b>	<b>128 000 67</b>	<b>128 000 68</b>

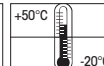
**Technic AI Di Agr AmS:**

see page 296



Buzzer in combination with Xenon  
flash or LED permanent light  
see pages 192 and 194

See note  
on page 347



24 V





Surface housing (accessory)



Bracket (accessory)

- For the 22.5 mm control panel programme
- High protection rating IP 65
- 8 different tones selectable
- Adjustable sound output

**Technic AI Specific ATiOnS:**

<b>Dimensions</b> (Ø x Height):	72 mm x 40 mm (Protrusion from panel)
<b>Housing:</b>	PC/ABS-Blend; Cap: PC
<b>Sound output:</b>	Max. 100 dB (sound output is adjustable on rear side when mounted)
<b>Fixing:</b>	Installation mounting for Ø 22.5 mm (M22) with anti-twist device
<b>Connection:</b>	Connector plug with screw terminal max. 1.5 m m <sup>2</sup>
<b>Life duration:</b>	> 5,000 hrs

**TOne TypeS And fre QUencieS:**

8 tones selectable on rear side of the housing

	position 0		1.6 kHz	86 dB (A)
	position 1		1.6 kHz	86 dB (A)
	position 2		1.6 kHz	86 dB (A)
	position 3		1.6 kHz	88 dB (A)
	position 4		3.4 kHz	90 dB (A)
	position 5		3.4 kHz	100 dB (A)
	position 6		3.4 kHz	96 dB (A)
	position 7		3.4 kHz	100 dB (A)

**Or Der Specific ATiOnS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	80 mA	40 mA	40 mA
	<b>110 000 75</b>	<b>110 000 67</b>	<b>110 000 68</b>

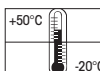
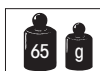
**Acce SSOrie S:**

Bracket with protective cap (IP 54)	<b>975 109 01</b>
Surface housing IP 65 (single)	<b>975 109 02</b>
Surface housing IP 65 (double) for 1 installation beacon and 1 audible element	<b>975 109 03</b>
Surface housing IP 65 (triple) for 2 installation beacons and 1 audible element	<b>975 109 04</b>

Further information see page 221.

**Technic AI Di Agr AmS:**

see page 294

See note  
on page 347



- Multi-Tone Sounder in die-cast aluminium housing
- German Lloyd Approval
- Salt water resistant
- 31 different tones available
- High protection rating IP 67

**Technic AI Specific ATiOnS:**

Dimensions (L x H x W):	133 mm x 161 mm x 143 mm
Housing:	Die-cast aluminium
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter M20 x 1.5 mm Cable diameter 8-12 mm
Tone types and frequencies:	Selectable via DIP switch, see table on the right

**Or Der Specific ATiOnS:**

Voltage	24 V DC	115 V AC	230 V AC
Current consumption	420 mA	120 mA	60 mA
	129 052 55	129 052 67	129 052 68

**ADDiTiOnAl infOrmATIOn:****Multi-Tone Sounder 129 approved according to German Lloyd - Ship Classification and Technical Monitoring**

German Lloyd sets technical, quality and safety standards for the industry and the maritime sectors. In addition to the classification of ships of all types, German Lloyd is also active as a worldwide technical monitoring authority.

**Technic AI Di Agr AmS:**

see page 296



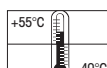
See note  
on page 347



24 V



230 V





The 129 Multi-Tone Sounder offers a large choice of international signal tones for the widest spectrum of applications.

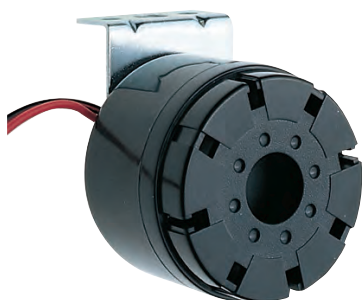


### TOne TYPeS AnD fre QUencieS:

Tone 1	Tone type	Description
1	falling 1,200-500 Hz in 1 Hz stroke	DIN 33404
2	950 Hz pulse: 3 x 500 ms ON, 500 ms OFF, Pause 1.5 sec.	ISO 8201
3	alternating 825 Hz/1,025 Hz in 2 Hz stroke	
4	continuous 950 Hz	
5	950 Hz pulse: 1 sec. ON, 1 sec. OFF	
6	500-1.200 Hz rising and falling in 3 sec.	Siren
7	554 Hz/100 ms alternating 440 Hz/400 ms	French fire alarm signal AFNOR NFS 32 S 32-001
8	pulse 700 Hz: 150 ms ON, 150 ms OFF, Dauer 1 Min.	
9	pulse 800 Hz: 4 ms ON, 4 ms OFF	
10	continuous 500 Hz	
11	continuous 725 Hz	
12	continuous 825 Hz	
13	continuous 1,250 Hz	
14	continuous 1,500 Hz	
15	pulse 500 Hz: 500 ms ON, 500 ms OFF	
16	pulse 825 Hz: 500 ms ON, 500 ms OFF	
17	pulse 725: 0.7 sec. ON, 0.3 sec. OFF	
18	pulse 800 Hz: 0.25 sec. ON, 1 sec. OFF	
19	alternating 800 Hz/1,000 Hz in 2 Hz stroke	
20	pulse 825 Hz: 2.5 sec. ON, 2.5 sec OFF x 7, dann 7 sec. PULS	
21	pulse 950 Hz: 1 sec. ON, 1 sec. OFF, 3 sec. ON, 1 sec. OFF	
22	rising 500-1,200 Hz in 3 sec., 0.5 sec OFF	
23	rising 500-2,400 Hz in 3 sec.	
24	alternating 825 Hz/1,075 Hz in 1 Hz stroke	
25	alternating 500 Hz/900 Hz in 2 Hz stroke	
26	alternating 1,200 Hz/1,400 Hz in 25 Hz stroke	
27	rising 300-1,200 Hz in 3 sec.	
28	700-1,500 Hz rising and falling in 3 sec.	
29	rising 150-1,000 Hz in 10 sec., 40 sec. ON, falling in 10 sec.	
30	pulse 680 Hz: 0.875 sec. ON, 0.875 sec. OFF	
31	rising 1,400-1,600 Hz in 1 sec., falling in 0.5 sec.	NF C 48-265



- Loud compact siren

**Technic AI Specific ATiOnS:**

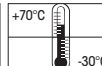
Dimensions (L x H x W):	54 mm x 66.5 mm x 67 mm
Housing:	ABS
Tone frequency:	2,700 - 3,500 Hz
Tone type:	Alternating
Connection:	2 wires, c. 450 mm long
Fixing:	Metal bracket

**Or Der Specific ATiOnS:**

Voltage	12 V DC	24 V DC
Current consumption:	150 mA	100 mA
	<b>123 100 54</b>	<b>123 200 55</b>

**Technic AI Di Agr AmS:**

see page 295

See note  
on page 347



- 4 different tones can be triggered externally

**i** **Technic AI Specific ATiOnS:**

Dimensions (L x H x W):	70 mm x 79.5 mm x 77 mm
Housing:	ABS
Tone types and frequencies:	Continuous tone: c. 2,700 Hz Continuous tone: c. 530 Hz Bell: c. 2,700 Hz (pulse 20 Hz) Pulse tone: c. 2,700 Hz (pulse 1 Hz)
Connection:	Screw terminal with wire protection max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Fixing:	Bracket mounting, sound outlet facing downwards

**🛒** **Or Der Specific ATiOnS:**

Voltage	12-24 V DC
Current consumption:	80 mA
	126 052 15



**⚠️** **ADDiTiOnAl infOrm ATiOn:**

Please also see Multi-Tone Sounder 134 with additional advantages (see page 243)

- Choice of 8 different tones
- Extremely high sound output up to 109 dB
- Adjustable sound output



**📏** **Technic AI Di Agr AmS:**

see page 295



See note on page 347





Base mounting



The adaptor (accessory) allows quick and simple mounting on a tube



Top view: mounting holes integrated into the product rim allow easy mounting without having to remove the cap

- Choice of 8 different tones
- Adjustable sound output
- Cable entry from the side possible
- Easy to mount
- Adaptor for tube mounting (accessory)

**Technic AI Specific ATiOnS:**

Dimensions (Ø x Height):	89 mm x 64 mm
Housing:	PC, black
Fixing:	Base mounting, tube mounting (accessory)
Installation position:	Sound outlet facing downwards
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Tone type:	Selectable, see table
Tone frequencies:	See table
Life duration:	> 5,000 hrs
Duty cycle:	100 %

**TOne TYPeS AnD fre QUencies:**

Tone	Tone type
1	Horn tone (c. 110 Hz)
2	Continuous tone (c. 3.0 KHz)
3	1 Hz tone (c. 3.0 KHz)
4	20 Hz whistle tone (c. 3.0 KHz)
5	800-970 Hz rising @ 1 Hz
6	2400-2850 Hz rising @ 7 Hz
7	1200-500 Hz falling @ 1 Hz
8	Alternating tone 800 Hz + 1200 Hz @ 1Hz

**Or Der Specific ATiOnS:**

Voltage	24 V AC/DC
Current consumption	≤ 80 mA
	133 000 75

**Acce SSOrie S:**

Adaptor for tube mounting, plastic, for tube Ø 25 mm	975 420 01
Base for tube Ø 25 mm, plastic, incl. rubber seal	975 840 90
Base for tube Ø 25 mm, metal, incl. rubber seal	975 840 91
Tube Ø 25 mm, all anodized aluminium	
100 mm	975 845 10
250 mm	975 840 25

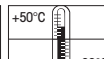
**Technic AI Di Agr AmS:**

see page 296



multi-Tone Sounder in combination with Xenon flash or LED permanent light see pages 193 and 195

See note on page 347





- Choice of 8 different tones
- Extremely high sound output up to 109 dB
- Adjustable sound output
- Integrated mounting bracket

**Technic AI Specific ATiOnS:**

Dimensions (L x H x W):	83 mm x 84 mm x 91 mm
Housing:	PC, PC/ABS-Blend, grey
Fixing:	Bracket mounting
Installation position:	Sound outlet facing downwards
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Tone type:	Selectable, see table
Tone frequencies:	See table
Life duration:	> 5,000 hrs
Duty cycle:	100 %

**TOne TYPeS AnD fre QUencies:**

Tone	Tone type
1	Horn tone (c. 110 Hz)
2	Continuous tone (c. 3.0 KHz)
3	1 Hz tone (c. 3.0 KHz)
4	20 Hz whistle tone (c. 3.0 KHz)
5	800-970 Hz rising @ 1 Hz
6	2400-2850 Hz rising @ 7 Hz
7	1200-500 Hz falling @ 1 Hz
8	Alternating tone 800 Hz + 1200 Hz @ 1Hz

**Or Der Specific ATiOnS:**

Voltage	24 V AC/DC
Current consumption	≤ 80 mA
	<b>134 000 75</b>

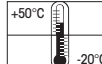
**Technic AI Di Agr AmS:**

see page 296



multi-Tone Sounder in combination with  
Xenon flash or LED permanent light  
see pages 193 and 195

See note  
on page 347





- 32 tones for a diverse range of applications
- Adjustable sound output to 115 dB
- Direct external setting of two tones possible with low voltage version

**Technic AI Specific ATiOnS:**

<b>Dimensions</b> (Ø x Height):	100 mm x 100 mm (IP 54)
<b>Housing:</b>	PC-ABS
<b>Connection:</b>	Screw terminal max. 2.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable gland M20 x 1,5 mm Cable gland not included in assembly.
<b>Tone types and frequencies:</b>	Selectable via DIP switch, see table on opposite page

**Or Der Specific ATiOnS:**

Voltage	9-28 V DC
Current consumption	10-120 mA
red	<b>140 150 50</b>
white	<b>140 950 50</b>
Voltage	110-240 V AC
Current consumption	10-40 mA
red	<b>140 150 60</b>
white	<b>140 950 60</b>

**Acce SSOri e S:**

Cable gland M20 x 1.5 mm	<b>975 444 01</b>
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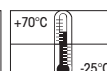
**Technic AI Di Agr AmS:**

see page 296

See note  
on page 347

9-28 V

110-240 V

with use of rear  
cable entry

The 140 Multi-Tone Sounder offers a large choice of international signal tones for the widest spectrum of applications. The low voltage version allows two tones to be triggered externally.

### TOne TYPeS AnD fre QUencieS:



Selectable via DIP switch

Tone 1 No.	Tone type	Description	Sound output (dBA)		Tone 2 Low voltage version
			(12 V)	(24 V)	
1	alternating 800/970 Hz in 2 Hz stroke	BS 5839-1: 2002	101	105	14
2	rising 800/970 Hz in 7 Hz stroke		103	107	14
3	rising 800/970 Hz in 1 Hz stroke	BS 5839-1: 2002	104	108	14
4	continuous 2,850 Hz		110	115	14
5	rising 2,400-2,850 Hz in 7 Hz stroke		108	114	4
6	rising 2,400-2,850 Hz in 1 Hz stroke		109	115	4
7	500-1,200 Hz rising in 3 sec., 0.5 sec OFF		100	104	14
8	falling 1,200-500 Hz in 1 Hz stroke	DIN 33404	99	104	14
9	alternating 2,400/2,850 Hz in 2 Hz stroke		108	115	4
10	pulse 970 Hz in 0.5 Hz stroke	Back-up-alarm BS 5839 Part 1 1988	98	105	14
11	alternating 800/970 Hz in 1 Hz stroke	BS 5839 Part 1 1988	100	105	14
12	pulse 2,850 Hz in 0.5 Hz stroke		107	114	4
13	970 Hz pulse: 0.25 sec. ON / 1 sec. OFF		96	105	14
14	continuous 970 Hz	BS 5839-1: 2002	101	105	15
15	554 Hz/100 ms alternating 440 Hz/400 ms	French alarm signal AFNOR NFS 32 S 32-001	97	102	14
16	660 Hz pulse: 150 ms ON, 150 ms OFF	Swedish alarm signal	97	101	17
17	660 Hz pulse: 1.8 sec. ON, 1.8 sec. OFF	Swedish alarm signal	97	103	16
18	660 Hz pulse: 6.5 sec. ON, 13 sec. OFF	Swedish alarm signal	99	103	14
19	continuous 660 Hz	Swedish alarm signal	99	103	21
20	alternating 554/440 Hz in 0.5 Hz stroke		99	103	21
21	pulse 660 Hz in 1 Hz stroke	Swedish alarm signal	98	104	19
22	2,850 Hz pulse: 150 ms ON, 100 ms OFF	Pedestrian crossing GB	109	115	14
23	rising 800/970 Hz in 50 Hz stroke	Low frequency BS 5839 Part 1 1988	101	106	14
24	rising 2,400-2,850 Hz in 50 Hz stroke	High frequency	106	112	4
25	970 Hz pulse: 3 x 500 ms ON, 500 ms OFF, Pause 1.5 sec.	ISO 8201 Low frequency: Evacuation	101	105	26
26	2,850 Hz pulse: 3 x 500 ms ON, 500 ms OFF, Pause 1.5 sec.	ISO 8201 High frequency	109	115	25
27	970/800 Hz alternating: 1.5 s ON, 0.5 s OFF		96	105	17
28	alternating 800/970 Hz in 2 Hz stroke	FP 1063.1 - Telecoms/BS 5839-1: 2002	99	105	10
29	alternating 988/645 Hz in 2 Hz stroke		99	104	988 Hz cont. tone
30	alternating 510/610 Hz in 2 Hz stroke		97	102	510 Hz cont. tone
31	falling 1,200-300 Hz in 1 Hz stroke		99	104	13
32	alternating 510/610 Hz in 1 Hz stroke		97	102	510 Hz cont. tone





- Adjustable sound output up to 105 dB
- 32 tones for a diverse range of applications
- 2 tones can be triggered externally (24 V)
- High protection rating IP 66

**Technical Specifications:**

Dimensions (L x H x W):	136 mm x 108 mm x 119 mm
Housing: ABS	
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)
Tone types and frequencies:	Selectable via DIP switch

**Order Specifications:**

Voltage	9-60 V DC	115/230 V AC
Current consumption	13 mA (24 V)	20 mA (230 V)
red	<b>139 000 55</b>	<b>139 000 68</b>
grey	<b>139 100 55</b>	<b>139 100 68</b>

**Accessories:**

Cable gland M20 x 1.5 mm	<b>975 444 01</b>
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**Tone Types And frequencies:**

For further details see [www.werma.com](http://www.werma.com).

**Technical Diagrams:**

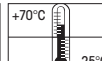
see page 296



multi-Tone Sounder 139  
in combination with a  
powerful Xenon flash  
see page 207

**Size comparison**

See note  
on page 347





- Adjustable sound output up to 110 dB
- 32 tones for a diverse range of applications
- 2 tones can be triggered externally
- High protection rating IP 66

**Technical SpecificATIOnS:**

Dimensions (L x H x W):	165 mm x 136 mm x 132 mm
Housing:	PC/ABS-Blend
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)
Tone types and frequencies:	Selectable via DIP switch

**Order SpecificATIOnS:**

Voltage	9-60 V DC	115/230 V AC
Current consumption	120 mA (24V)	22 mA (230 V)
red	<b>141 000 55</b>	<b>141 000 68</b>
grey	<b>141 100 55</b>	<b>141 100 68</b>

**Accessories:**

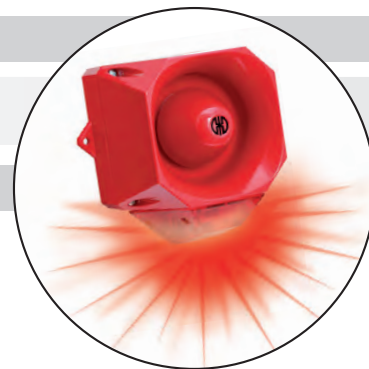
Cable gland M20 x 1.5 mm	<b>975 444 01</b>
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**TOne TYpeS AnD freQUencieS:**

For further details see [www.werma.com](http://www.werma.com).

**Technical DiAgramS:**

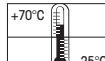
see page 297



multi-Tone Sounder 141  
in combination with a  
powerful Xenon flash  
see page 208

**Size comparison**

See note  
on page 347





- Adjustable sound output up to 120 dB
- 42 tones for a diverse range of applications
- 3 tones can be triggered externally
- Duration of signal phase selectable
- High protection rating IP 66

**Technical SpecificATIOnS:**

Dimensions (L x H x W):	168 mm x 168 mm x 155 mm
Housing:	PC/ABS-Blend
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)
Tone types and frequencies:	Selectable via DIP switch, see table on the opposite page

**Order SpecificATIOnS:**

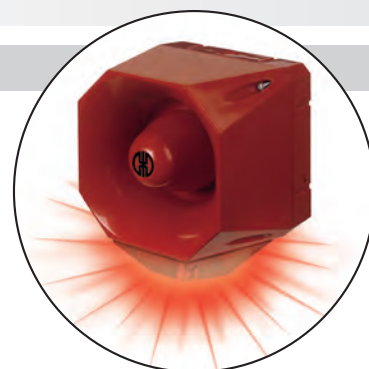
Voltage	18-30 V DC	115/230 V AC
Current consumption	450 mA	130 mA (115 V) / 65 mA (230 V)
red	<b>142 000 55</b>	<b>142 000 68</b>
grey	<b>142 100 55</b>	<b>142 100 68</b>

**AccessOrieS:**

Cable gland M20 x 1.5 mm	<b>975 444 01</b>
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**Technical DiAgramS:**

see page 297



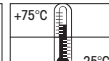
The electronic multi-Tone Sounder 142  
is also available with a Xenon flash  
see page 209

**Size comparison**See note  
on page 347

142 X00 68



142 X00 55





The 142 Multi-Tone Sounder offers a large choice of international signal tones for the widest spectrum of applications. The first two tones can be freely chosen. The third tone is paired with the second tone.

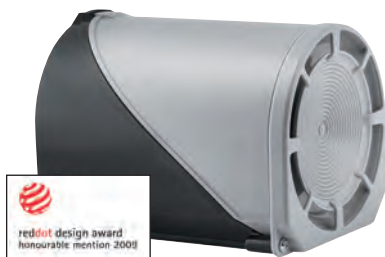


### TOne TYPeS AnD fre QUencieS:



Tone 1+2 No	Tone type	Use	Output (dBA)	Tone 3
1	alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)		120	14
2	rising 800/970 Hz in 7 Hz stroke (7/s)		120	14
3	rising 800/970 Hz in 1 Hz stroke (1/s)		120	14
4	continuous 2,850 Hz		111	9
5	rising 2,400-2,850 Hz in 7 Hz stroke		109	4
6	rising 2,400-2,850 Hz in 1 Hz stroke		110	4
7	500-1,200 Hz rising in 3 sec., 0.5 sec. OFF	Slow Whoop Holland	119	14
8	falling 1,200-500 Hz in 1 Hz stroke	DIN/PFEER (PAPA), DIN 33404-3, VDS tested	119	14
9	alternating 2,400/2,850 Hz in 2 Hz stroke (250 ms-250 ms)		113	4
10	pulse 970 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)	PFEER Alarm	117	14
11	alternating 800/970 Hz in 1 Hz stroke (500 ms-500 ms)		118	14
12	pulse 2,850 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)		112	4
13	970 Hz pulse: 0.25 sec. ON / 1 sec. OFF		117	14
14	continuous 970 Hz	PFEER - Toxic gas	118	8
15	554 Hz/100 ms alternating 440 Hz/400 ms	French alarm signal AFNOR NFS 32 S 32-001	115	14
16	660 Hz pulse: 150 ms ON, 150 ms. OFF	Swedish alarm signal	114	14
17	660 Hz pulse: 1.8 sec. ON, 1.8 sec. OFF	Swedish alarm signal	115	14
18	660 Hz pulse: 6.5 sec. ON, 13 sec. OFF	Swedish alarm signal	115	14
19	continuous 660 Hz	Swedish alarm signal	116	1
20	alternating 554/440 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)	Swedish alarm signal	115	19
21	pulse 660 Hz in 1 Hz stroke (500 ms-500 ms)	Swedish alarm signal	115	4
22	pulse 2,850 Hz in 4 Hz stroke (150 ms ON / 100 ms OFF)		110	4
23	rising 800-970 Hz in 50 Hz stroke		117	14
24	rising 2,400-2,850 Hz in 50 Hz stroke		110	4
25	970 Hz puls.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.	ISO 8201 / US Temporal	118	14
26	2,850 Hz puls.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.	ISO 8201 / US Temporal	112	4
27	continuous 4,000 Hz		105	6
28	alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)		118	14
29	alternating 990/650 Hz in 2 Hz stroke (250 ms-250 ms)		117	14
30	alternating 510/610 Hz in 2 Hz stroke (250 ms-250 ms)		116	14
31	rising 300-1,200 Hz in 1 Hz stroke		118	14
32	continuous Bell		117	3
33	continuous Bell: 3x500 ms. Pulse, 1.5 sec. Silence, then repeat	Bell / US Temporal	117	14
34	alternating 1,000/2,000 Hz in 1 Hz stroke (500 ms-500 ms)	Singapore	115	4
35	pulse 420 Hz (0.625 sec.)	Australian alarm signal	118	14
36	500-1,200 Hz rising in 3.75 sec., then 0.25 sec. OFF	Australian alarm signal (Evacuation)	117	14
37	rising 1,400-1,600 Hz in 1 sec., falling in 0.5 sec.	NF C 48-265	116	14
38	500-1,200 Hz rising and falling 3 sec.	Siren	117	14
39	pulse 720 Hz: 0.7 sec. ON, 0.3 sec. OFF	German industrial alarm	118	14
40	rising 422-775 Hz in 0.85 sec., 1 sec. silence, then repeat	NFPA Whoop	118	14
41	continuous 470 Hz	Horn (USA)	114	3
42	continuous 370 Hz	Air Horn (USA)	113	3





Base mounting



Wall mounting

- Sound output adjustable up to 114 dB (C), 110 dB (A)
- 32 tones for a diverse range of applications

- 3 Tones can be triggered externally

### Technical Specifications:

Dimensions (L x H x W):	109 mm x 112.5 mm x 152 mm
Housing:	PC/ABS-Blend
Connection:	24 V: Screw terminal with wire protection max. 1.5 mm <sup>2</sup> 115/230 V: CAGE CLAMP®
Cable entry:	Membrane for cable diameter max. 13 mm
Fixing:	Wall, base and ceiling mounting
Tone types and frequencies:	Selectable via DIP switch, see table on the opposite page



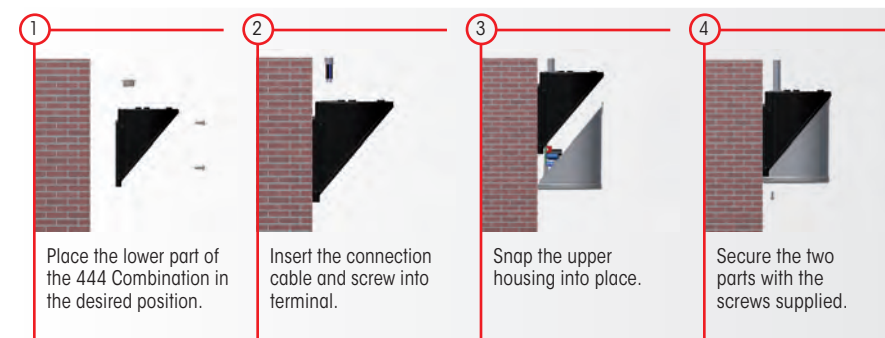
### Order Specifications:

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	200 mA	55 mA	30 mA
	144 000 75	144 000 67	144 000 68

### Accessories:

Cable gland M20 x 1.5 mm (for cable strain relief)	975 444 01
Protection rating IP 65 is provided even without cable gland	

### Quick And Simple mounting:

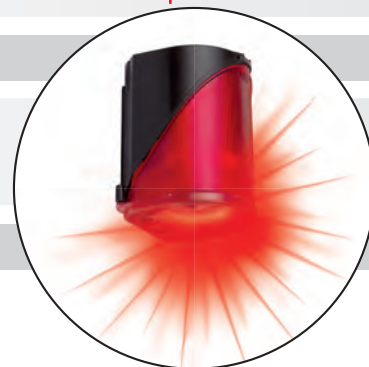


### Additional information:

The various mounting options (wall, base or ceiling) maximise the sound output of the Multi-Tone Sounder.

### Technical Diagrams:

see page 297



multi-Tone Sounder in combination with LED Double flash (page 211) or LED eVS Signal (page 212)

See note on page 347	24 V	115 V / 230 V	IP 65	+50°C -30°C	(A) 110 dB	(C) 114 dB	32	24 V
CE	ERC	300 g	450 g				PLC	



The 144 Multi-Tone Sounder offers a large choice of international signal tones for the widest spectrum of applications. 3 tones can be triggered externally.



### Tone Type And Frequency:



Tone 1	Tone type	Frequency	Description	Use	Tone 2	Tone 3	Output (dBA)
1	continuous	200		BS 5839-1:2002	440 Hz cont.	554 Hz cont.	97
2	rising	800 & 970	7 Hz		14	800 Hz cont.	102
3	rising	800 & 970	1 Hz		14	800 Hz cont.	103
4	continuous	2850			14	9	104
5	rising	2400 - 2850	7 Hz		4	2400 Hz cont.	109
6	rising	2400 - 2850	1 Hz		4	2400 Hz cont.	110
7	rising	500 - 1200	3 s, then 0.5 s OFF (then repeat)		14	8	106
8	falling	1200 - 500	1 Hz	DIN 33404-3	14	7	104
9	alternating	2400 & 2850	2 Hz		4	2400 Hz cont.	111
10	pulse	970	0.5 Hz (1 s On/1 s Off)	BS 5839 Part 1 1988	14	800 Hz cont.	101
11	alternating	800 & 970	1 Hz	BS 5839 Part 1 1988	14	800 Hz cont.	105
12	pulse	2850	0.5 Hz		4	22	104
13	pulse	970		0,25 s On/1 s Off	14	800 Hz cont.	98
14	continuous	970		BS 5839-1:2002 PFEER - Toxic gas	10	8	102
15	alternating	554 & 440		France NFS	14	800 Hz cont.	101
16	pulse	660	150 ms On/150 ms Off	Swedish	16	14	96
17	pulse	660	1.8 s On/1.8 s Off	Swedish	17	14	98
18	pulse	660	6.5 s On/13 s Off	Swedish	18	14	98
19	continuous	660		Swedish	19	31	98
20	alternating	554 & 440	0.5 Hz		20	19	102
21	pulse	660	1 Hz	Swedish	21	4	97
22	pulse	2850	150 ms On/100 ms Off	GB	14	4	104
23	rising	800 - 970	50 Hz (low)	BS 5839 Part 1 1988	14	800 Hz cont.	102
24	rising	2400 - 2850	50 Hz (high)		4	2400 Hz cont.	109
25	pulse	970	3 x 500 ms ON/500 ms OFF / 1,5 s silence, then repeat (low)	ISO 8201 US Temporal	26	14	101
26	pulse	2850	3 x 500 ms ON/500 ms OFF / 1,5 s Pause, then repeat (low)	ISO 8201 US Temporal	25	4	104
27	continuous	4000			27	6	92
28	rising	2000 - 2850	7 Hz		2000 Hz cont.	4	111
29	alternating	988 & 645	2 Hz		988 Hz cont.	645 Hz cont.	102
30	alternating	510 & 610	2 Hz		510 Hz cont.	610 Hz cont.	102
31	alternating	800 & 970	2 Hz	5839-1:2002	800 cont.	14	105
32	alternating	800 & 1200	1 Hz		800 cont.	1200 Hz cont.	105





The innovative connector (accessory) enables traffic light combinations to be created in a matter of seconds



„Status Light“ function to generate additional awareness of the audible signal

- Up to 8 different tones (12 V; 24 V)
- 3 tones can be triggered externally (12 V; 24 V)
- Externally adjustable sound output (-10 dB)
- „Status Light“ to emphasise the audible warning signal
- Ideal addition to LED Beacon 853
- Innovative connector to create traffic light combinations
- Easy assembly due to quick-release screws
- Ideal addition to LED Beacon 853



#### Technic AI Specific ATiOnS:

Dimensions (L x H x W):	85 mm x 85 mm x 72 mm
Housing:	PP-GF, black
Lens:	PC, tinted black
Connection:	Screw terminal with wire protection, max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 8 mm, optional cable gland M20 (accessory)
Fixing:	Wall, base and ceiling mounting
Equipment:	Eight self-sealing membranes for cable entry without tools. Eight integrated M20 threads, no nuts required. Optional use of a cable gland, thread length of cable gland ≤ 9 mm (accessory)
Asseby:	Incl. snap-on fixing bracket (optional use)



#### Or Der Specific ATiOnS:

Voltage	12 V DC	24 V DC	48 V AC	115-230 VAC
Current consumption	150 mA	100 mA	150 mA	75 mA (115 V) 150 mA (230 V)
	<b>153 000 54</b>	<b>153 000 55</b>	<b>153 000 66</b>	<b>153 000 60</b>



The technical specifications and order specifications of the 853 LED Beacons can be found at [www.werma.com](http://www.werma.com) or on page 135 (LED Permanent Beacon), page 152 (LED Double Flash Beacon) and on page 153 (LED EVS Beacon).  
Traffic light configurator at [www.werma.com](http://www.werma.com)



#### Acce SSOri e S:

Connector for traffic light combinations	<b>975 853 01</b>
Cable gland M20 x 1.5 mm, 8 mm thread length	<b>975 853 02</b>



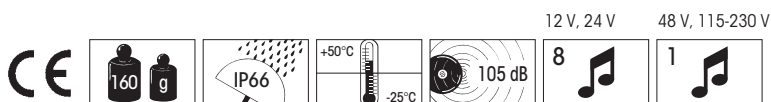
#### TOne TYpE AnD fre QUencieS:

Tone	Tone type	Tone	Tone type
1	Continuous tone (ca. 3000 Hz)	5	800 - 970 Hz rising @ 1 Hz
2	Horn tone (ca. 110 Hz)	6	2400 - 2850 Hz rising @ 7 Hz
3	1 Hz tone (ca. 3,0 kHz)	7	1200 - 500 Hz falling @ 1 Hz
4	20 Hz whistle tone (ca. 3,0 kHz)	8	Alternating tone 800 Hz/1200 Hz@1 Hz



#### Technic AI Di Agr AmS:

see page 297





The fixing bracket can be mounted pointing inwards or outwards

- 32 tones for a diverse range of applications
- Adjustable sound output up to 114 dB (C), 110 dB (A)
- 3 tones can be triggered externally
- Fixing bracket for easy combination with (LED) Permanent Beacon/Traffic Light 890

#### Technical SpecificATIOnS:

Dimensions (Ø x Height):	150 mm x 128 mm
Housing:	PC/ABS-Blend, grey
Fixing:	Base mounting, fixing bracket (accessory)
Connection:	Screw terminal
Cable entry:	From top or bottom with cable gland M20 x 1.5 mm or from the back with rubber grommet Ø 6-12 mm, included in assembly



#### OrDer SpecificATIOnS:

Voltage	10-30 V DC	115 V AC	230 V AC
Current consumption	< 180 mA	< 55 mA	< 30 mA
	190 000 55	190 000 67	190 000 68

#### AccessSorieS:

##### fiXing BrACkeT

Fixing bracket for one beacon	975 890 33
Fixing bracket for two beacons	975 890 34
Fixing bracket for three beacons	975 890 35
Fixing bracket for four beacons	975 890 37
Mounting material and connecting grommet included in assembly.	
Further information can be found on page 178.	

##### cOnnectiOn grOmmeT

Connection grommet for traffic light combinations	975 890 25
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##### TUBE ADAPTOR

Adaptor for tube mounting (suitable for Ø 75 mm tubes, see page 176)	975 890 36
---	------------

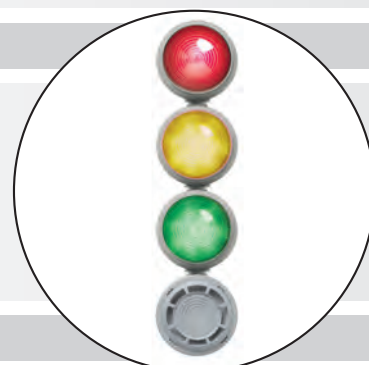
#### TOne TYpeS AnD freQUencieS:

Selectable via DIP switch, see tone table on page 251.

#### ADDitiOnAl infOrmATIOn:

##### An easy addition to an optical solution

The multi-tone sounder 190 has been designed in the same housing as the 890 series (LED) beacons (see page 175 and 176). The sounder can therefore be effortlessly combined with up to three beacons, available in the colours red, yellow, green, blue and clear. Traffic light configurator at [www.werma.com](http://www.werma.com)



#### TechnicAl DiAgrAmS:

see page 298

loud multi-Tone Sounder in combination with (leD) Beacon 890

See note on page 347

CE	EAC	24 V	115 V / 230 V	IP65	+50°C -30°C	(A) 110 dB	(B) 114 dB	32	24 V	PLC
----	-----	------	---------------	------	----------------	------------	------------	----	------	-----







- Also available with low current-consumption for use as lift alarm



#### Technic AI Specific ATiOnS:

Dimensions (L x H x W):	70 mm x 79.5 mm x 77 mm
Housing:	ABS
Connection:	Screw terminal with wire protection, 1.0-1.5 mm <sup>2</sup> fine strand, 1.0-2.5 mm <sup>2</sup> single wire
Cable entry:	Cable diameter 9 mm
Fixing:	Wall mounting, sound outlet facing downwards



#### Or Der Specific ATiOnS:



##### AC Version

Voltage	24 V AC	42 V AC	230 V AC
Current consumption	190 mA	75 mA	15 mA
	<b>482 052 65</b>	<b>482 052 66</b>	<b>482 052 68</b>

##### DC Version

Voltage	12 V DC	24 V DC
Current consumption	150 mA	70 mA
	<b>482 052 54</b>	<b>482 052 55</b>

##### Lift Alarm

Voltage	6 V DC	12 V DC
Current consumption	80 mA	130 mA
	<b>482 347 13</b>	<b>482 347 14</b>

Further voltages on request.



#### ADDiTiOnAl inf Orm ATiOn:

Please also see Horn 585 with additional advantages (see page 265)

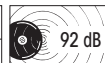
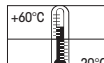
- High protection rating IP 65
- Loud electronic horn
- High life duration up to 5,000 hrs
- Sound output 98 dB



#### Technic AI Di Agr AmS:

see page 306

See note  
on page 347



Lift alarm





- Suitable for indoor and outdoor applications

- Pulse tone available

**Technic AI Specific ATiOnS:**

<b>Dimensions</b> (L x H x W):	148 mm x 350 mm x 152 mm
<b>Housing:</b>	ABS
<b>Connection:</b>	Screw terminal max. 2.5 mm
<b>Cable entry:</b>	Rubber squeeze grommet Ø 7-10 mm
<b>Fixing:</b>	Wall mounting, sound outlet facing downwards

**Or Der Specific ATiOnS:****Continuous tone (AC)**

Voltage	24 V AC (50 Hz)	42-48 V AC (50 Hz)	115 V AC (50/60 Hz)	230 V AC (50 Hz)
Current consumpt.	500 mA	250 mA	200 mA	70 mA
	<b>570 052 65</b>	<b>570 052 66</b>	<b>570 052 67</b>	<b>570 052 68</b>

**Pulse tone (AC)**

Voltage	230 V AC (50 Hz)
Current consumpt.	≤ 70 mA
	<b>570 100 68</b>

**Continuous tone (DC)**

Voltage	24 V DC	115 V DC	230 V DC
Current consumpt.	350 mA	150 mA	100 mA
	<b>570 052 55</b>	<b>570 052 57</b>	<b>570 052 58</b>

Further voltages on request.

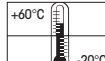
**Technic AI Di Agr AmS:**

see page 306



The horn 570 is also available in an ex version (see page 290)

See note on page 347





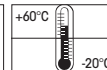
- Suitable for maritime applications
- Corrosion-proof aluminium housing

**Technic AI Specific ATiOnS:**

<b>Dimensions</b> (L x H x W):	132 mm x 340 mm x 139 mm
<b>Housing:</b>	Aluminium alloy, corrosion-proof
<b>Connection:</b>	Screw terminal max. 2.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable gland M20 x 1.5 mm Cable diameter 10-12 mm
<b>Fixing:</b>	Wall mounting, sound outlet facing downwards

**Or Der Specific ATiOnS:**

Voltage	24 V DC	115 V AC (50 Hz/60 Hz)	230 V AC
Current consumption	350 mA	200 mA	70 mA
	<b>571 052 55</b>	<b>571 052 67</b>	<b>571 052 68</b>

**Technic AI Di Agr AmS: see page 307**See note  
on page 347

- High Protection rating IP 65

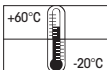
**Technic AI Specific ATiOnS:**

<b>Dimensions</b> (L x H x W):	156 mm x 118 mm x 223 mm
<b>Housing:</b>	Aluminium, grey varnish Cap: ABS
<b>Connection:</b>	Screw terminal max. 2.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable gland at side, M20 x 1.5 mm Cable diameter 10-12 mm
<b>Fixing:</b>	Wall mounting, sound outlet facing downwards

**Or Der Specific ATiOnS:**

Voltage	24 V DC	115 V AC (50 Hz/60 Hz)	230 V AC
Current consumption	350 mA	200 mA	70 mA
	<b>572 000 55</b>	<b>572 000 67</b>	<b>572 000 68</b>

Further voltages on request.

**Technic AI Di Agr AmS: see page 307**See note  
on page 347



- Modern design
- Cable gland for strain relief
- Concealed fixing screws
- High protection rating IP 65

**Technic AI Specific ATiOnS:**

Dimensions (L x H x W):	178 mm x 104 mm x 207 mm
Fixing dimensions (L x H):	130 mm x 160 mm
Housing:	PC/ABS-Blend
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M16 x 1.5 mm Cable diameter 5-10 mm
Fixing:	Wall mounting, sound outlet facing downwards

**Or Der Specific ATiOnS:**

Voltage	24 V DC	24 V AC (50 Hz)	42-48 V AC (50/60 Hz)	115 AC (50/60 Hz)	230 V AC (50 Hz)
Current consumpt.	350 mA	500 mA	250 mA	200 mA	70 mA
	573 000 55	573 000 65	573 000 66	573 000 67	573 000 68

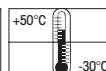
**Technic AI Di Agr AmS:**

see page 307



The horn 573 is also available  
in an ex version (see page 291)

See note  
on page 347





170

# Three Tone gong



- Melodious A-major three tone sound output
- Adjustable sound output
- Continuous operation possible
- Multiple Gongs can be operated in parallel
- Frequency set by manufacturer
- Triggering by means of time relay or timer switch



## Technic AI Specific ATiOnS:

Dimensions (L x H x W):	148 mm x 350 mm x 152 mm
Housing:	ABS
Connection:	Screw terminal with wire protection max. 25 mm <sup>2</sup>
Cable entry:	Rubber squeeze grommet Ø 7-10 mm
Tone type:	A-major 3 tone
Sound output duration:	C. 8 seconds
Fixing:	Wall mounting, sound outlet facing downwards



## Or Der Specific ATiOnS:

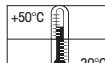
Voltage	24 V DC	230 V AC
Current consumption	200 mA	35 mA
	<b>170 000 55</b>	<b>170 000 68</b>



## Technic AI Di Agr AmS:

see page 297

See note  
on page 347







- Innovative, modern design
- Melodious A-major three tone sound output
- Adjustable sound output

- Multiple Gongs can be operated in parallel
- Frequency set by manufacturer
- Triggering by means of time relay or timer switch

**Technic AI Specific ATiOnS:**

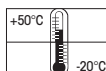
Dimensions (L x H x W):	178 mm x 104 mm x 207
Housing:	PC/ABS-Blend
Connection:	Screw terminal with wire protection 0.5-2.5 mm <sup>2</sup>
Cable entry:	Cable gland M16 x 1.5 mm Cable diameter 5-10 mm
Duty cycle:	Max. 5 min
Tone type:	A-major three tone
Sound output duration:	C. 8 seconds
Fixing:	Wall mounting, sound outlet facing downwards

**Or Der Specific ATiOnS:**

Voltage	12-24 V AC/DC	230 V AC
Current consumption	250 mA	40 mA
	<b>172 000 75</b>	<b>172 000 68</b>

**Technic AI Di Agr AmS:**

see page 298

See note  
on page 347



- Robust alarm bell

- High protection rating IP 66



#### Technic AI Specific ATiOnS:

Dimensions (Ø x Depth):	167 mm x 76 mm
Housing:	Steel bell, epoxy dust enamelled
Connection:	Screw terminal max. 1.5 mm <sup>2</sup>
Cable entry:	Cable gland M16 x 1.5 mm Cable diameter 5-10 mm



#### Or Der Specific ATiOnS:

Voltage	24 V DC	110 V AC (50/60 Hz)	230 V AC
Current consumption	300 mA	90 mA	55 mA
	<b>914 052 55</b>	<b>914 052 67</b>	<b>914 052 68</b> (50 Hz)
			<b>914 053 68</b> (60 Hz)



Further voltages on request.

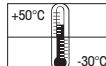


#### Technic AI Di Agr AmS:

see page 326



See note  
on page 347



at DC - 98 dB(A)  
at AC - 100 dB(A)





- Maintenance-free, electronic horn with a long life duration of up to 5,000 hrs
- Sound output can be set to meet the requirements of the application up to 108 dB
- Integrated bracket for simple wall mounting without additional accessories

**Technical Specifications:**

life duration  
up to 5,000 hrs

Dimensions (Ø x Height):	134 mm x 340 mm
Housing:	PC/ABS-Blend, grey
Fixing:	Wall mounting, integrated mounting bracket
Installation position:	Sound outlet facing downwards
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 11 mm
Tone frequency:	C. 110 Hz

**Order Specifications:**

Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC
Current consumption	55 mA	210 mA	30 mA
	<b>574 000 75</b>	<b>574 000 70</b>	<b>574 000 60</b>

\* Current consumption at 10 V / 115 V

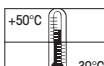
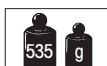
**Additional Information:**

State-of-the-art technology is used in the signal horns to guarantee an extremely long life of up to 5,000 hours: the high-volume horn tone is emitted with the aid of sophisticated electronics.

WERMA has intentionally avoided the use of electromechanical components which are susceptible to wear and tear, and has in this way ensured that the long-life horns can be used up to ten times longer than similar conventional electromechanical products.

**Technical Diagrams:**

see page 307





Quick and simple wall mounting without additional accessories thanks to integrated mounting bracket

- Maintenance-free, electronic horn with a long life duration of up to 5,000 hrs
- Sound output can be set to meet the requirements of the application up to 108 dB
- Integrated bracket for simple wall mounting without additional accessories



#### Technical Specifications:

life duration  
up to 5,000 hrs

Dimensions (L x H x W):	134 mm x 169 mm x 144 mm
Housing:	PC/ABS-Blend, grey
Fixing:	Wall mounting, integrated mounting bracket
Installation position:	Sound outlet facing downwards
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 11 mm
Tone frequency:	C. 110 Hz



#### Order Specifications:

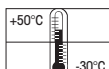
Voltage	24 V AC/DC	10-48 V AC/DC*	115-230 V AC
Current consumption	55 mA	210 mA	30 mA
	575 000 75	575 000 70	575 000 60

\* Current consumption at 10 V / 115 V



#### Technical Diagrams:

see page 307





- Small horn with trumpet



#### Technic AI Specific ATiOnS:

Dimensions (L x H x W):	70 mm x 172 mm x 77 mm
Housing:	ABS
Connection:	Screw terminal with wire protection, 1.0-1.5 mm <sup>2</sup> fine strand, 1.0-2.5 mm <sup>2</sup> single wire
Cable entry:	Cable diameter 9 mm
Fixing:	Wall mounting, sound outlet facing downwards



#### Or Der Specific ATiOnS:



#### AC Version

Voltage	12 V AC	24 V AC	42 V AC	115 V AC	230 V AC
Current consumpt.	330 mA	190 mA	75 mA	15 mA	15 mA
	<b>582 052 64</b>	<b>582 052 65</b>	<b>582 052 66</b>	<b>582 052 67</b>	<b>582 052 68</b>

#### DC Version

Voltage	12 V DC	24 V DC
Current consumpt.	150 mA	70 mA
	<b>582 052 54</b>	<b>582 052 55</b>

Further voltages on request.



#### ADDiTioNAI infOrmATIOn:

Please also see Horn 584 with additional advantages (see page 264)

- High protection rating IP 65
- Loud electronic horn
- High life duration up to 5,000 hrs
- Sound output 98 dB



#### Technic AI Di Agr AmS:

see page 308



See note  
on page 347







- Loud electronic horn
- High life duration up to 5,000 hrs
- Integrated mounting bracket
- High protection rating IP 65

**Technical SpecificATIOnS:**

Dimensions (L x H x W):	83 mm x 198 mm x 91.5 mm
Housing:	PC, PC/ABS-Blend, grey
Fixing:	Wall mounting
Installation position:	Sound outlet facing downwards
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Tone frequency:	C. 110 Hz
Life duration:	> 5,000 hrs
Duty cycle:	100 %

**Order SpecificATIOnS:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	≤ 80 mA	≤ 70 mA	≤ 70 mA
	<b>584 000 75</b>	<b>584 000 67</b>	<b>584 000 68</b>

**Technical DIAGrAmS:**

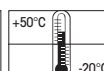
see page 308



horn in combination with Xenon  
flash or LED permanent light see  
page 196 and 197



See note  
on page 347



24 V





- Loud electronic horn
- High life duration up to 5,000 hrs
- Integrated mounting bracket
- High protection rating IP 65

**Technical Specifications:**

Dimensions (L x H x W):	83 mm x 84 mm x 91.5 mm
Housing:	PC, PC/ABS-Blend, grey
Fixing:	Wall mounting
Installation position:	Sound outlet facing downwards
Connection:	Screw terminal with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Tone frequency:	C. 110 Hz
Life duration:	> 5,000 hrs
Duty cycle:	100 %

**Order Specifications:**

Voltage	24 V AC/DC	115 V AC	230 V AC
Current consumption	≤ 80 mA	≤ 70 mA	≤ 70 mA
	<b>585 000 75</b>	<b>585 000 67</b>	<b>585 000 68</b>

**Additional Information:**

Thanks to the use of the most modern technology, the 584 and 585 horns have life duration of up to 5,000 hours (10 times longer than conventional horns).

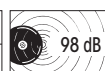
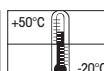
The sound output can be adjusted up to 98 dB.

**Technical Diagrams:**

see page 308



See note  
on page 347



24 V

PLC







# Ex Signal Devices overview



## Ex (IED) Signal towers

740 Ex Signal tower



Zone 1, 2, 21, 22  
page 274

741 Ex IED  
Signal tower



Zone 1 + 2  
page 275

## optical Ex Signal Devices

729 Ex IED  
permanent beacon



Zone 2 + 22  
page 276

782 Ex IED  
permanent beacon



Zone 1, 2, 21, 22  
page 277

785 Ex Rotating  
mirror beacon



Zone 1, 2, 21, 22  
page 278

783 Ex Rotating  
mirror beacon



Zone 1, 2, 21, 22  
page 279

729 Ex IED Rotating  
beacon



Zone 1, 2, 21, 22  
page 280

782 Ex IED Rotating  
beacon



Zone 1, 2, 21, 22  
page 281

784 Ex  
Rotating beacon



Zone 1, 2, 21, 22  
page 282

729 Ex IED EVS  
beacon



Zone 1, 2, 21, 22  
page 283

729 Ex IED Double  
Flash beacon



Zone 1, 2, 21, 22  
page 284

728 Ex Flashing  
beacon



Zone 1, 2, 21, 22  
page 286

738 Ex Double Flash  
beacon



Zone 1, 2, 21, 22  
page 285

720 Ex Flashing  
beacon



Zone 1, 2, 21, 22  
page 287

## Audible Ex Signal Devices



718 Ex Electronic  
installation buzzer



Zone 1 + 2  
page 288

714 Ex multi-tone  
Sounder



Zone 0, 1, 2  
page 289

750 Ex Signal Horn



Zone 1 + 2  
page 290

761 Ex Signal Horn



Zone 1, 2, 21, 22  
page 291

## Regulations and Requirements

page 268 onwards



# Signal devices in areas with explosion hazard

## Avoidance of explosion - explosion protection

Safety in explosive areas can only be secured by close co-operation between all parties involved. Close co-operation between manufacturer, operator, safety inspector and safety authority is indispensable.

Three types of explosion protection can be defined:

### Primary explosion protection

Primary explosion protection entails preventing the formation of an explosive atmosphere by, for example, adequate ventilation.

### Secondary explosion protection

If it is not possible to prevent the build up of an explosive atmosphere through primary explosion protection, possible sources of ignition must be countered through secondary explosion protection. WERMA can supply devices which are not sources of ignition.

### Tertiary explosion protection methods

Tertiary explosion protection is used when the operator cannot completely eradicate ignition sources. Such measures are designed to reduce the vulnerability of explosion to non dangerous proportions.

## Responsibilities of operator/contractor:

The operator or responsible contractor must first of all secure all areas against primary explosion. Other potentially explosive areas need then to be risk assessed. Areas will be designated by „zone“, an explosion class defined and the max surface temperature defined.

## Areas liable to explosion: Zone definitions

Zone definition is carried out according to EC Guideline 1999/92/EG.

The basis for the scope of protective measures required by the operator is the probability of a potentially explosive atmosphere occurring.



Explosion endangered zone through:	Probability of occurrence		
	Frequent, long term or regular	Occasional	Usually not, but if then only rarely and for a short period
Inflammable gas, steam or mist	Zone 0	Zone 1	Zone 2
Inflammable dust or air	Zone 20	Zone 21	Zone 22



## Explosion groups for gases, vapours and dusts

The **explosion group** is defined by the potentially explosive material and its flammability:

AREA	Explosion Group	Flammable Substances	Flammability
Mining	I	Pit gas (Methane), coal dust	
Gas	IIA	Acetone, Petrol, Methanol, Propane, Toluene	relatively low
	IIB	Ethylene, City Gas	high
	IIC	Hydrogen, Acetylene, Carbon Sulphide	very high
Dust	IIIA	Flammable Lint	relatively low
	IIIB	Non-Conductive Dusts	high
	IIIC	Conductive Dusts	very high

All WERMA signal devices have been approved for use in the highest explosion groups IIC and IIIC and are thus suitable for use in those areas.



## Surface temperature

Explosive materials define the max. **surface temperature** permissible by their ignition temperature.

Explosion protected components are to be specified so that no ignition can take place because of surface temperature.

Ignition Temperature and Temperature Classification of Explosion-Endangered Gas and Vapour Atmospheres		
Temperature classes	Ignition temp of gas/vapour atmosphere	Permissible surface temp of components
T1	$\geq 450^{\circ}\text{C}$	$\leq 450^{\circ}\text{C}$
T2	$\geq 300 \dots \leq 450^{\circ}\text{C}$	$\leq 300^{\circ}\text{C}$
T3	$\geq 200 \dots \leq 300^{\circ}\text{C}$	$\leq 200^{\circ}\text{C}$
T4	$\geq 135 \dots \leq 200^{\circ}\text{C}$	$\leq 135^{\circ}\text{C}$
T5	$\geq 100 \dots \leq 135^{\circ}\text{C}$	$\leq 100^{\circ}\text{C}$
T6	$\geq 85 \dots \leq 100^{\circ}\text{C}$	$\leq 85^{\circ}\text{C}$

Dust is not temperature classified. Instead the max. permissible surface temperature is given in celcius.

WERMA can offer a variety of products for the different **temperature classes** of gas and vapour and **max. surface temperature**.

# Signal devices in areas with explosive hazard

## Device categories and Epl protection level

The ATEX directive divides the electrical components into 6 device categories. The IEC standards and the EN standards divide the devices into 6 protection levels or EPLs (Equipment Protection Levels). The device category and EPL are equivalent and indicate the zones in which the device may be used.



Material Group	Gas			Dust		
Equipment category	1G	2G	3G	1D	2D	3D
Protection level EPL	Ga	Gb	Gc	Da	Db	Dc
Suitable for zones	0,1,2	1,2	2	20,21,22	21,22	22



## manufacturers' obligations

Manufactures of equipment for use in explosive areas are obliged according to EC Guideline 94/9/EC to clearly mark the devices according to the permissible areas of use.

The procedure demands that all requirements for the awarding of the CE mark be tested by an independent approved authority. Devices in category 3 are excluded.

This will be confirmed by the EC type examination certificate. In addition the manufacturer must have an appropriate QA system approved by an EC certificate.

## minimum product marking of explosion-protected components

EC Guideline 94/9/EC and associated norms define the appearance of the symbol.

As norms have changed frequently in recent years so has the the appearance of the symbol. It has only been possible to adapt and update the appearance of the symbol which requires approval by the testing authority on a gradual basis. It is therefore possible that devices do not display the latest symbol but this does **not influence** their use in explosive areas.

There is a separate symbol for gas and explosive dust areas.

Further information below:



	Symbol - see Guideline 94/9/EC					Symbol according to norm classification				
GAS	CE	0102	Ex	II	2G	Ex	de	IIC	T6	Gb
DUST	CE	0102	Ex	II	2D	Ex	tb	IIIC	T80°C	Db
	1	2	3	4	5	6	7	8	9	10
1	CE Conformity symbol									
2	Number of the named test authority Test Authority for evaluating the device									
3	Ex Hexagon Symbol indicating suitable for use in explosive areas.									
4	Group I = pit gas, coal dust II = all other explosion endangered areas									
5	Device category Defines in which zones the device may be used									
6	Ex symbol acc. to norm Relevant Ex norms will apply									
7	Spark protection for electrical devices. Each letter represents an ignition protection level A, b or c shows the EPL. If all ignition protection levels have EPL the symbol need not be used after point 10									
8	Explosion group Component is suitable for all low explosion groups.									
9	Gas temp. class Max surface temp. for dust.									
10	Protection level Defines in which zones the device can be used									

## Quick-Finder - the fastest way to find the right signal device for your application!

WERMA offers a comprehensive range of explosion protected signal devices. These are suitable for deployment in gas, vapour and dust atmospheres. With our Quick-Finder you can quickly and easily locate the correct signal device for your application.

### How to proceed:

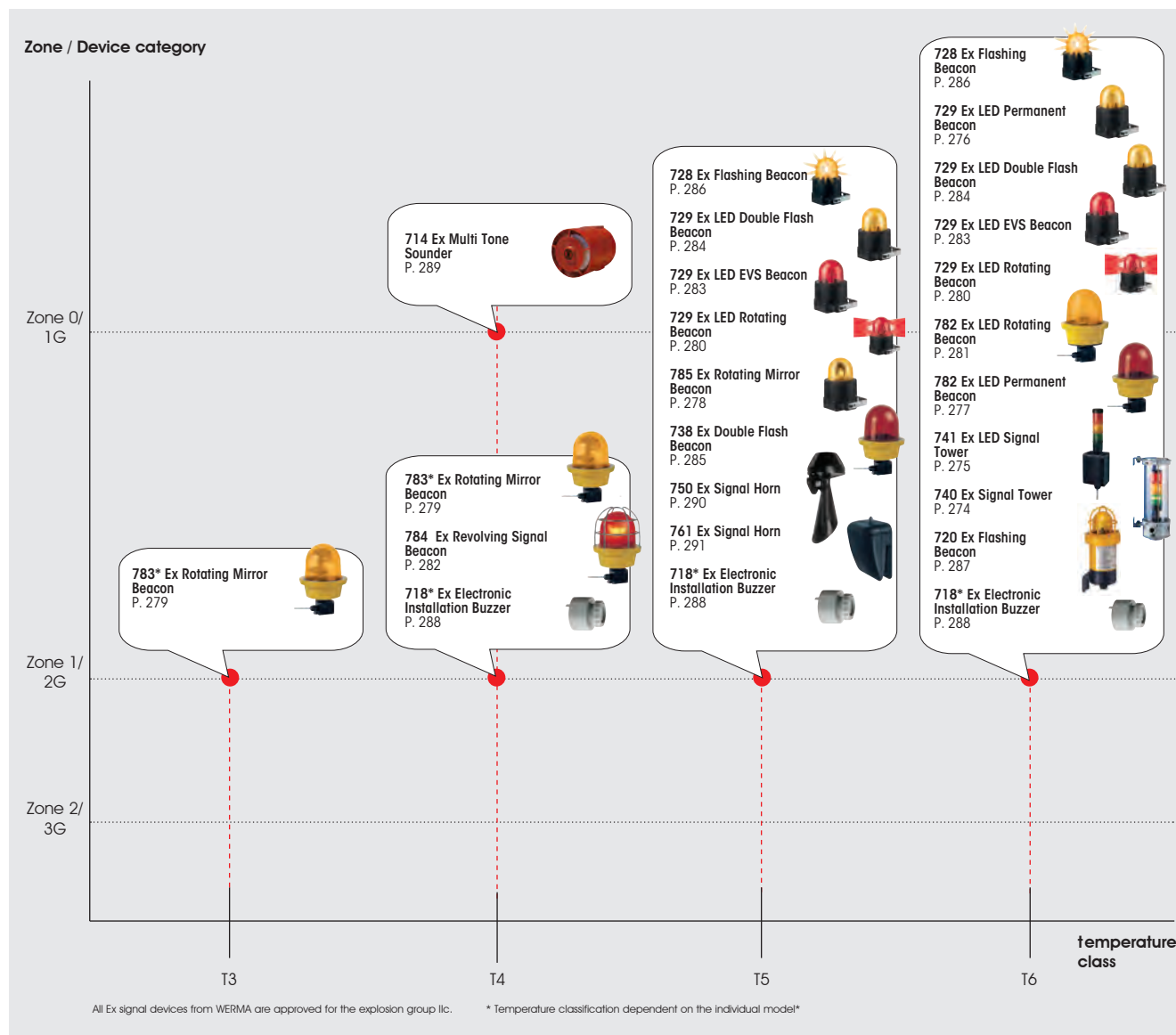
Choose the appropriate quick-finder for gas/vapour or dust atmospheres. Then select the zone and temperature or temperature class for the product you are seeking.

You can use any device which is:

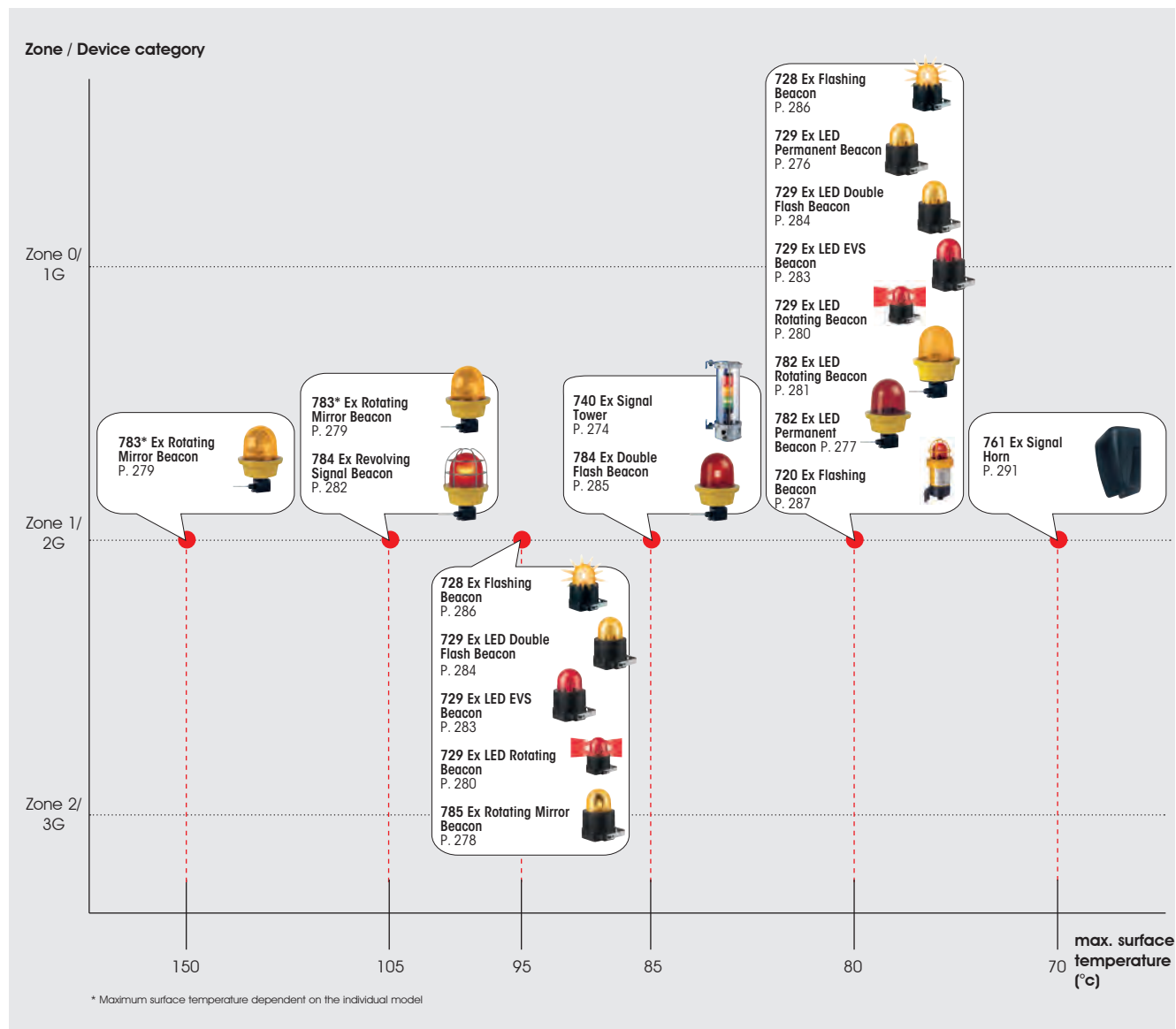
- directly on the „red mark“,
- to the right of the point and
- listed above the point.



## Signal Devices for gas or Vapour Atmospheres



## Signal Devices for Dust Atmospheres



Should you require further help in selecting the appropriate device just give us a call.  
Further information can be found on page 268 or on [www.werma.com](http://www.werma.com).





- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Signal tower Kombi *SIGN* in flame-proof enclosure
- Available with up to 3 light elements
- Also available as LED version

**Technical Specifications:**

Dimensions (L x H x W):	154 mm x 431 mm x 201 mm
Housing:	Aluminium, glass
Connection:	Screw terminal max. 2.5 mm <sup>2</sup> incl. approved pressure resistant cable gland NPT 3/4"
Explosion protection:	Ex II 2G Ex d IIC T6 Ex II 2D Ex tD A21 IP68 T85°C
Approval:	L.C.I.E. 97 EX 6012

Life duration  
up to 50,000 hrs

Technical specifications of signal tower Kombi *SIGN* 70 see page 47.

**Order Specifications:**

Voltage	12-230 V Bulb	24 V DC LED
red / green	740 210 00	740 210 55
red / yellow / green	740 231 00	740 231 55

**Accessories:**

Bulb BA15d, 5 W, 24 V	955 840 35
Bulb BA15d, 5 W, 230 V	955 840 38

**Technical Diagrams:**

see page 313

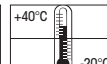


the Ex Signal tower 740 in the perfume and aroma industry



2 G
Zone 1 + 2

2 D
Zone 21 + 22



24 V

PLC





- Gas applications:  
Zones 1 and 2
- No additional zener barrier required

- Combination of encapsulation "m" and intrinsic safety "ib" with connection area "e"

**Technical Specification:**

Dimensions of the Zener Barrier (L x H x W):	76 mm x 110 mm x 75 mm
Dimensions total:	2 tier (L x B x H): 76 mm x 229 mm x 75 mm
	3 tier (L x B x H): 76 mm x 263 mm x 75 mm
Housing:	Polyamide, black
Signal tower:	PC
Connection:	Screw terminal max. 2.5 mm <sup>2</sup> incl. approved cable gland "e"
Explosion protection:	Ex II 2G Ex e mb [ib] IIC T6 Gb
Approval:	PTB 06 ATEX 2005

Life duration  
up to 50,000 hrs

**Order Specification:**

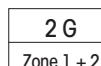
Voltage	24 V DC
Current consumption	< 90 mA
red / green	741 110 55
red / yellow	741 120 55
red / yellow / green	741 130 55

**Technical Diagrams:**

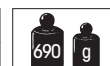
see page 313



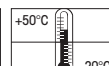
the Ex I ED Signal tower 741 warns of imminent danger in gas explosion endangered areas, e.g. in the chemical industry and paint shops



2 tier



3 tier





the maintenance-free LEDs  
have a life duration of up to  
50,000 hours



Additional protection with the  
robust wire guard (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection and cabling to power source
- Salt water resistant
- Integral wire guard (VA stainless steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)

#### tEchnicAl SpEciFication S:

Dimensions (Ø x Height):	139 mm x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm <sup>2</sup>
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Explosion protection:	Ex II 2G Ex d e IIC T6 Gb Ex II 2D Ex tb IIIC T80°C Db
Approval:	BVS 11 ATEX E 107 IECEx_BVS_11.0082
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm

Life duration  
up to 50,000 hrs

#### ORDER SpEciFication S:

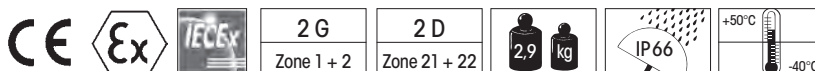
Voltage	24 V DC	115 V/230 V AC
Current consumption	130 mA	30 mA at 230 V AC
red	729 100 55	729 100 68
yellow	729 300 55	729 300 68

#### AccESSories:

Ex wire guard, VA steel, stainless	975 729 03
Ex cable gland M20 x 1.5 mm, metal	975 729 04
To expand the temperature range from -40 °C to +50 °C	
Ex screw plug M20 x 1.5 mm	975 729 02
Ex cable gland M20 x 1.5 mm	975 729 01
For connecting to an additional beacon	

#### tEchnicAl DiAgRAMS:

see page 313





Wire guard (accessory)



clamp for tube mounting (accessory)



mounting plate (accessory)



bracket (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection
- Extremely high light intensity
- Can be mounted as required
- Salt water resistant

**tEchnicAl SpEciFicAtions:**

Dimensions (Ø x Height):	209 mm x 315 mm
Housing: Aluminium	
Lens:	Reinforced borosilicate glass
Mounting Plate:	VA stainless steel
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
Connection area:	Increased Safety "e"
Installation position:	As required
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Duty cycle:	100 %
Explosion protection:	Ex II 2G Ex de IIC T6 Gb Ex II 2D Ex tb IIIC T80°C Db
Approval:	PTB 06 ATEX 1039

life duration  
up to 50,000 hrs**ORDER SpEciFicAtions:**

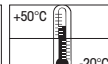
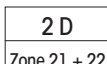
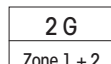
Voltage	24 V DC	115-230 V AC
Current consumption	200 mA	25-60 mA
red	<b>782 100 55</b>	<b>782 100 68</b>
yellow	<b>782 300 55</b>	<b>782 300 68</b>

**ACCESSORIES:**

Wire guard	<b>975 783 01</b>
Mounting plate	<b>975 783 02</b>
Clamp for tube mounting 1 1/4"	<b>975 783 03</b>
Clamp for tube mounting 1 1/2"	<b>975 783 04</b>
Clamp for tube mounting 2"	<b>975 783 05</b>
Bracket	<b>975 783 06</b>

**tEchnicAl DiAgRAMS:**

see page 314

Excellent light intensity  
and long life duration



Long life duration thanks to low wear wheel and disc drive



Additional protection with the robust wire guard (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Extreme durability thanks to low wear wheel and disc drive
- Salt water resistant
- Integrated mounting bracket (VA steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)
- Connection area "e" for simple connection and cabling to power source



#### Technical Specification S:

Dimensions (Ø x Height):	139 mm x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm <sup>2</sup>
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Drive:	Wheel and disc drive, motor in centre of gravity
Mirror rotation rate:	180 r.p.m.
Service life of drive:	> 5,000 hours
Explosion protection:	Ex II 2G Ex d e IIC T5 Gb Ex II 2D Ex tb IIIC T95°C Db
Approval:	BVS 11 ATEX E 107
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm



#### Order Specification S:

Voltage	24 V AC/DC	115 V/230 V AC/DC
Current consumption	1.0 A	130 mA at 230 V AC/350 mA at 115 V AC
red	785 100 75	785 100 70
yellow	785 300 75	785 300 70



#### Accessories:

Ex wire guard, VA steel, stainless	975 729 03
Ex cable gland M20 x 1.5 mm, metal	975 729 04
To expand the temperature range from -40 °C to -50 °C	
Ex screw plug M20 x 1.5 mm	975 729 02
Ex cable gland M20 x 1.5 mm	975 729 01
For connection to an additional beacon	

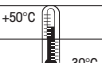
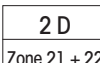
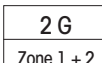
#### Spare parts:

Halogen bulb 20 W/24 V for 24 V AC/DC	955 885 25
Halogen bulb 20 W/12 V for 115 V/230 V AC/DC	955 885 24



#### Technical Diagrams:

see page 314







Wire guard (accessory)



C clamp for tube mounting (accessory)



mounting plate (accessory)



bracket (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection
- High life duration thanks to low wear wheel and disc drive
- Can be mounted as required
- Salt water resistant

**Technical Specification:**

<b>Dimensions</b> (Ø x Height):	209 mm x 315 mm
<b>Housing:</b>	Aluminium
<b>Lens:</b>	Reinforced borosilicate glass
<b>Mounting Plate:</b>	VA stainless steel
<b>Connection:</b>	Screw terminal max. 2.5 mm <sup>2</sup>
<b>Cable gland:</b>	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
<b>Connection area:</b>	Increased Safety "e"
<b>Drive:</b>	Wheel and disc drive, motor in centre of gravity
<b>Installation position:</b>	As required
<b>Mirror rotation rate:</b>	180 r.p.m.
<b>Service life of drive:</b>	> 5,000 hrs
<b>Duty cycle:</b>	100 %
<b>Fixing:</b>	Base mounting, bracket mounting (accessory), tube mounting (accessory)
<b>Explosion protection:</b>	Ex II 2G Ex d e IIC T3-T4 Gb (depending on version) Ex II 2D Ex tb IIC 105 °C - 150 °C Db (depending on version)
<b>Approval:</b>	PTB 06 ATEX 1039
<b>Accessory:</b>	Halogen bulb. Bulb overview beginning on page 184.

**Order Specification:**

Voltage	24 V AC/DC	24 V AC/DC	115 V AC/DC	230 V AC	230 V AC
Halogen bulb	20 W/24 V	35 W/24 V	35 W/12 V	20 W/12 V	35 W/12 V
Current consumption	900 mA	1,6 A	350 mA	110 mA	170 mA
Temperature Class (gas)	T4	T3	T3	T4	T3
Surface Temperature (dust)	105°C	150°C	150°C	105°C	150°C
red	783 110 75	783 100 75	783 100 77	783 110 68	783 100 68
yellow	783 310 75	783 300 75	783 300 77	783 310 68	783 300 68

**Accessories:**

Wire guard	975 783 01
Mounting plate	975 783 02
Clamp for tube mounting 1 1/4"	975 783 03
Clamp for tube mounting 1 1/2"	975 783 04
Clamp for tube mounting 2"	975 783 05
Bracket	975 783 06

**Spare parts:**

Halogen bulb 20 W/24 V for 24 V AC/DC	955 885 25
Halogen bulb 20 W/12 V for 230 V AC	955 885 24
Halogen bulb 35 W/24 V for 24 V AC/DC	955 883 35
Halogen bulb 35 W/12 V for 115 V AC, 230 V AC	955 883 34

**Technical Diagrams:**

see page 314

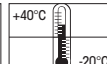


2 G

Zone 1 + 2

2 D

Zone 21 + 22





intense rotating signal effect  
with low power consumption



innovative solution: the  
universal mounting bracket  
(included in assembly)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Intense rotating signal effect with low power consumption
- Integrated mounting bracket (VA steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)
- Connection area "e" for simple connection and cabling to power source
- Salt water resistant



#### Technical Specification S:

Dimensions (Ø x Height):	139 mm x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® bis 2.5 mm <sup>2</sup>
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Rotation rate:	C. 180 r.p.m.
Duty cycle:	100 %
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm

Life duration  
up to 50,000 hrs



#### Order Specification S:

Voltage	24 V DC	115 V/230 V AC
Current consumption	< 170 mA	150 mA at 230 V AC
Explosion protection	Ex II 2G Ex de IIC T6 Gb Ex II 2D Ex tb IIIC T80°C Db	Ex II 2G Ex de IIC T5 Gb Ex II 2D Ex tb IIIC T95°C Db
Approval	BVS 11 ATEX E 107 IECEX_BVS_11.0082	BVS 11 ATEX E 107 IECEX_BVS_11.0082
red	<b>729 120 55</b>	<b>729 120 68</b>
yellow	<b>729 320 55</b>	<b>729 320 68</b>



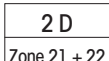
#### Accessories:

Ex wire guard, VA steel, stainless	<b>975 729 03</b>
Ex cable gland M20 x 1.5 mm, metal	<b>975 729 04</b>
To expand the temperature range from -40 °C to -50 °C	
Ex screw plug M20 x 1.5 mm	<b>975 729 02</b>
Ex cable gland M20 x 1.5 mm	<b>975 729 01</b>
For connection to an additional beacon	



#### Technical Diagrams:

see page 313





Ex I ED Rotating beacon  
with wire guard (accessory)



- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Wear-free due to the absence of any moving mechanical components
- Intense rotating signal effect with low power consumption
- Connection area "e" for simple connection
- Can be mounted as required
- Salt water resistant

Life duration  
up to 50,000 hrs

#### **i** tEc Hnic Al SpEci Fic Ation S:

Dimensions (Ø x Height):	209 mm x 315 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Mounting Plate:	VA stainless steel
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
Connection area:	Increased Safety "e"
Installation position:	As required
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Rotation rate:	C. 180 r.p.m.
Duty cycle:	100 %
Explosion protection:	Ex II 2G Ex d e IIC T6 Gb Ex II 2D Ex tb T 80 °C Db
Approval:	PTB 06 ATEX 1039

#### **o**RDER SpEci Fic Ation S:

Voltage	24 V DC	115-230 V AC
Current consumption	150 mA	70-180 mA
red	<b>782 120 55</b>	<b>782 120 68</b>
yellow	<b>782 320 55</b>	<b>782 320 68</b>

#### **Acc ESSo RiES:**

Wire guard	<b>975 783 01</b>
Mounting plate	<b>975 783 02</b>
Clamp for tube mounting 1 1/4"	<b>975 783 03</b>
Clamp for tube mounting 1 1/2"	<b>975 783 04</b>
Clamp for tube mounting 2"	<b>975 783 05</b>
Bracket	<b>975 783 06</b>

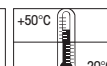
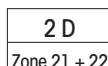
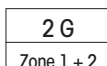
(Accessories see page 279)

#### **tEc Hnic Al Di Ag RAmS:**

see page 314



generates a distinctive rotating  
signal by triggering high output  
LEDs in sequence





Wire guard (accessory)



c lamp for tube mounting (accessory)



mounting plate (accessory)



bracket (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- 3 Fresnel lenses effect light convergence and optimise visibility
- Can be mounted as required
- Low rotation rate and long life duration thanks to low wear wheel and disc drive
- Connection area "e" for simple connection
- Salt water resistant

### Technical Specification S:

Dimensions (Ø x Height):	209 mm x 315 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Mounting Plate:	VA stainless steel
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable gland:	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
Connection area:	Increased Safety "e"
Drive:	Wheel and disc drive, motor in centre of gravity
Installation position:	As required
Halogen bulb:	GY 6.35 35 W 12 V/24 V
Lens rotation rate:	60 r.p.m.
Service life of drive:	> 5,000 hrs
Duty cycle:	100 %
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Explosion protection:	Ex II 2G Ex d e IIC T4 Gb Ex II 2D Ex tb IIIC 105°C Db
Approval:	PTB 06 ATEX 1039

Halogen bulb included in assembly. Bulb overview see pages 184 + 201.

### ORDER Specification S:

Voltage	24 V AC/DC	115 V AC/DC	230 V AC
Current consumption	1,6 A	350 mA	170 mA
red	784 100 75	784 100 77	784 100 68
yellow	784 300 75	784 300 77	784 300 68

### Accessories:

Wire guard	975 783 01
Mounting plate	975 783 02
Clamp for tube mounting 1 1/4"	975 783 03
Clamp for tube mounting 1 1/2"	975 783 04
Clamp for tube mounting 2"	975 783 05
Bracket	975 783 06

### Spare parts:

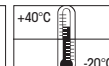
Halogen bulb 35 W/24 V for 24 V AC/DC	955 883 35
Halogen bulb 35 W/12 V for 115 V AC, 230 V AC	955 883 34

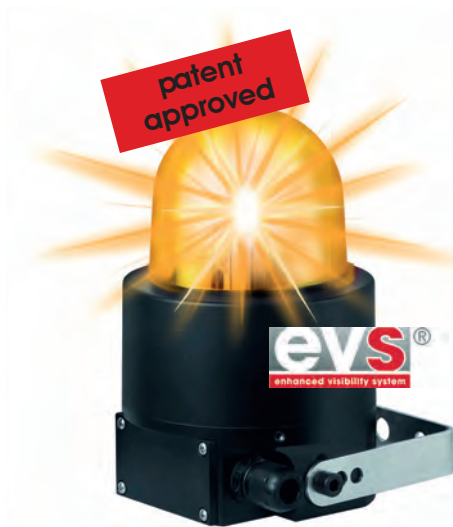
### Technical Diagrams:

see page 314



2 G	2 D
Zone 1 + 2	Zone 21 + 22





the I ED EVS\* beacon generates an attention-grabbing light effect



the I ED EVS\* beacon generates an attention-grabbing light effect

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection and cabling to power source
- Extremely powerful signal effect
- Random sequence of light signals prevents acclimatisation effect
- For signalling extremely hazardous situations and the need for immediate action

#### **i** tE c Hn ic Al Sp Ec i Fic At i on S:

Dimensions (Ø x Height):	139 x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm <sup>2</sup>
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm

Life duration  
up to 50,000 hrs

#### **o** RD ER Sp Ec i Fic At i on S:

Voltage	24 V DC	115 V/230 V AC
Current consumption	< 240 m A	140 mA at 230 V AC
Explosion protection	Ex II 2G Ex d e IIC T6 Gb Ex II 2D Ex tb IIIC T80°C Db	Ex II 2G Ex d e IIC T5 Gb Ex II 2D Ex tb IIIC T95°C Db
Approval	BVS 11 ATEX E 107 IECEx_BVS_11.0082	BVS 11 ATEX E 107 IECEx_BVS_11.0082
red	<b>729 160 55</b>	<b>729 160 68</b>
yellow	<b>729 360 55</b>	<b>729 360 68</b>

#### **A** cc ESSo Ri ES:

Ex wire guard, VA steel, stainless	<b>975 729 03</b>
Ex cable gland M20 x 1.5 mm, metal To expand the temperature range from -40 °C to -50 °C	<b>975 729 04</b>
Ex screw plug M20 x 1.5 mm	<b>975 729 02</b>
Ex cable gland M20 x 1.5 mm For connection to an additional beacon	<b>975 729 01</b>

#### **!** ADD i t i on Al i n Fo Rm At i on :

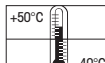
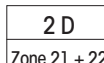
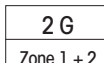
\*EVS = Enhanced Visibility System.

For further info see page 352.

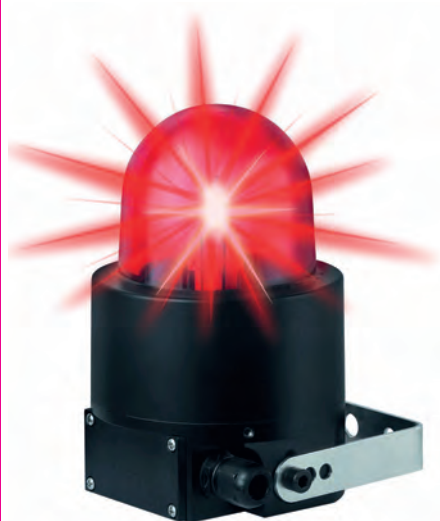
Please note the photosensitive epilepsy warning on page 352.

#### **t** E c Hn ic Al Di Ag RAm S:

see page 313







intense double flash with low power consumption



Additional protection with the robust wire guard (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Intense double flash with low power consumption
- Integrated mounting bracket (VA steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)
- Connection area "e" for simple connection and cabling to power source
- Salt water resistant



#### Technical Specification S:

Life duration up to 50,000 hrs

Dimensions (Ø x Height):	139 x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm <sup>2</sup>
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6 -13 mm
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm



#### Order Specification S:

Voltage	24 V DC	115 V/230 V AC
Current consumption	< 140 mA	140 mA at 230 V AC
Explosion protection	Ex II 2G Ex de IIC T6 Gb Ex II 2D Ex tb IIIC T80°C Db	Ex II 2G Ex de IIC T5 Gb Ex II 2D Ex tb IIIC T95°C Db
Approval	BVS 11 ATEX E 107 IECEX_BVS_11.0082	BVS 11 ATEX E 107 IECEX_BVS_11.0082
red	729 150 55	729 150 68
yellow	729 350 55	729 350 68



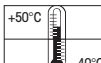
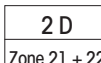
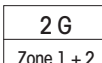
#### Accessories:

Ex wire guard, VA steel, stainless	975 729 03
Ex cable gland M20 x 1.5 mm, metal To expand the temperature range from -40 °C to -50 °C	975 729 04
Ex screw plug M20 x 1.5 mm	975 729 02
Ex cable gland M20 x 1.5 mm For connection to an additional beacon	975 729 01



#### Technical Diagrams:

see page 313





Wire guard (accessory)



c clamp for tube mounting (accessory)



mounting plate (accessory)



bracket (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection
- High flash power from two consecutive flashes
- Can be mounted as required
- Salt water resistant

**tEchnical Specifications:**

Dimensions (Ø x Height):	209 mm x 315 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Mounting Plate:	VA stainless steel
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable gland:	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
Connection area:	Increased Safety "e"
Installation position:	As required
Flash energy:	C. 15 Ws
Flash frequency:	C. 1 Hz
Life duration:	4 x 10 <sup>6</sup> flashes
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Explosion protection:	Ex II 2G Ex de IIC T5 Gb Ex II 2D Ex tb IIIC 85°C - T 90°C Db (depending on the voltage)
Approval:	PTB 06 ATEX 1039

**ORDER Specifications:**

Voltage	24 V DC	115 V AC	230 V AC
Current consumption	700 mA	300 mA	200 mA
Surface Temp. (dust)	85 °C	90 °C	85 °C
red	<b>738 100 55</b>	<b>738 100 67</b>	<b>738 100 68</b>
yellow	<b>738 300 55</b>	<b>738 300 67</b>	<b>738 300 68</b>

**Accessories:**

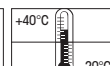
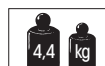
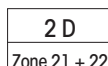
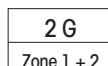
Wire guard	<b>975 783 01</b>
Mounting plate	<b>975 783 02</b>
Clamp for tube mounting 1 1/4"	<b>975 783 03</b>
Clamp for tube mounting 1 1/2"	<b>975 783 04</b>
Clamp for tube mounting 2"	<b>975 783 05</b>
Bracket	<b>975 783 06</b>

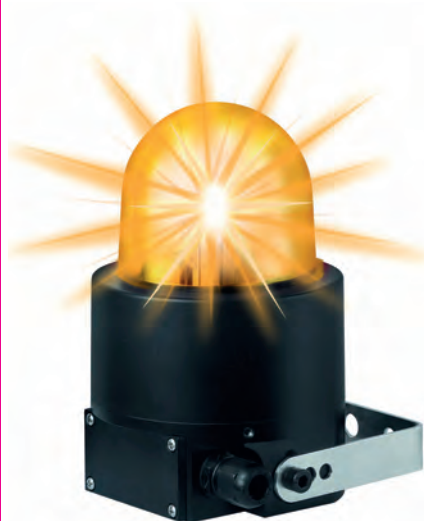
**Technical Diagrams:**

see page 313



the Ex Double Flash beacon 738 provides signalling in a range of different explosion protected areas





Ex Flashing beacon for use in gas and dust explosion-endangered areas



innovative solution: the universal mounting bracket (included in assembly)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Ex Flashing Beacon in compact housing
- Salt water resistant
- Integrated mounting bracket (VA steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)
- Connection area "e" for simple connection and cabling to power source

Life duration  
up to 50,000 hrs



#### TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	139 x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm <sup>2</sup>
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Flash energy:	C. 5 Ws
Flash frequency:	C. 1 Hz
Life duration:	4 x 10 <sup>6</sup> flashes
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm



#### ORDER SPECIFICATIONS:

Voltage	24 V DC	230 V AC
Current consumption	300 mA	150 mA
Explosion Protection	Ex II 2G Ex de IIC T6 Gb Ex II 2D Ex tb IIIC T80°C Db	Ex II 2G Ex de IIC T5 Gb Ex II 2D Ex tb IIIC T95°C Db
Approval	BVS 11 ATEX E 107 IECEx_BVS_11.0082	BVS 11 ATEX E 107 IECEx_BVS_11.0082
red	728 100 55	728 100 68
yellow	728 300 55	728 300 68



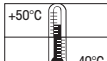
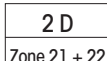
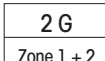
#### ACCESSORIES:

Ex wire guard, VA steel, stainless	975 729 03
Ex cable gland M20 x 1.5 mm, metal To expand the temperature range from -40 °C to -50 °C	975 729 04
Ex screw plug M20 x 1.5 mm	975 729 02
Ex cable gland M20 x 1.5 mm For connection to an additional beacon	975 729 01



#### TECHNICAL DIAGRAMS:

see page 313





- Gas applications:  
Zones 1 and 2
- Dust applications:  
Zones 21 and 22

- Compact flashing beacon
- Improved temperature range

### **i** tE c Hn ic A l Sp E ci F ic A ti o n S:

Dimensions (L x H x W):	110 mm x 285 mm x 129 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Wire guard:	Rust-proof steel, powder-coated
Connection:	Screwable 1.5 mm <sup>2</sup> fine-strand, 2.5 mm <sup>2</sup> single-wire
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-9 mm
Life duration:	5 x 10 <sup>6</sup> flashes
Explosion protection:	ⓧ II 2G Ex d e IIC T5/T6 Gb T6: -55 °C ≤ Ta ≤ +40 °C T5: -55 °C ≤ Ta ≤ +55 °C ⓧ II 2D Ex tb IIIC T95°, T80° C Db
Approval:	PTB 01 ATEX 1057
Fixing:	Bracket mounting
Flash energy:	C. 15 Ws
Flash frequency:	1 Hz

### **o** R D E R Sp E ci F ic A ti o n S:

Voltage	24 V DC	230 V AC
Current consumption	1 A	200 mA
red	<b>720 101 55</b>	<b>720 101 68</b>
yellow	<b>720 301 55</b>	<b>720 301 68</b>

### **t** E c Hn ic A l D i A g R A m S:

see page 313





cap (accessory)



Zener barrier (accessory)

- Gas applications: Zones 1 and 2
- Intrinsically safe Ex installation buzzer
- For use with a Zener Barrier
- IP 43 with cap
- Low current consumption
- Continuous tone

**tEchnical Specifications:**

Dimensions (Ø x Height):	43 mm x 13 mm (Protrusion from panel)		
Housing:	ABS		
Connection:	Spades 6.3 x 0.8 mm		
Audio frequency:	C. 2,400 Hz		
Duty cycle:	100 %		
Explosion protection:	Ex II 2G Ex ib IIC T4 / T5 / T6 Gb		
Approval:	DMT 98 ATEX E 005 X		
Maximum values of the Zener barrier:	Ui: 40 V DC, Ii: 660 mA		
Minimum values of the Zener barrier:	For 24 V DC 15 V DC/20 mA		
Maximum Input Power Pi:	Temp. - classes	Max. surrounding temperature	
		+ 40°C	+ 50°C
	T4	Pi = 1.3 W	Pi = 1.2 W
	T5	Pi = 0.82 W	Pi = 0.66 W
	T6	Pi = 0.6 W	Pi = 0.45 W
			+ 60°C
			Pi = 1.0 W
			Pi = 0.52 W
			Pi = 0.3 W

**ORDER Specifications:**

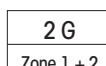
Voltage	24 V DC
Current consumption	20 mA
	<b>718 000 55</b>

**Accessories:**

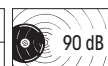
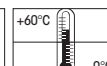
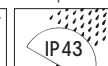
PC/ABS-Blend Cap (IP 43)	<b>975 118 00</b>
Zener Barrier	<b>975 714 01</b>

**Technical Diagrams:**

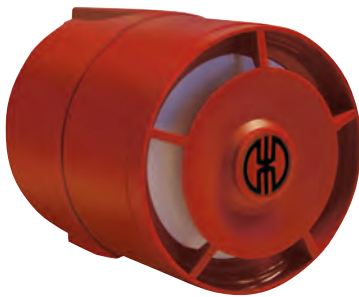
see page 312



with cap







Zener barrier (accessory)

- Gas applications: Zone 0, 1 and 2
- 26 tones for a diverse range of applications
- For use with a Zener Barrier
- Adjustable sound output to 103 dB
- High protection rating IP 65
- Direct external setting of two tones possible

**TECHNICAL SPECIFICATIONS:**

Dimensions (Ø x Height):	93 mm x 103 mm
Housing:	ABS
Connection:	Screw terminal max. 2.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 12 mm
Duty cycle:	100%
Tone types and frequencies:	Selectable via DIP switch, see table below
Fixing:	Wall mounting, base mounting
Installation position:	Sound outlet must not face upwards
Explosion protection:	Ex II 1G EEx ia IIC T4 Ga
Approval:	BASEEFA 06 ATEX 0161

**ORDER SPECIFICATIONS:**

Voltage	24 V DC
Current consumption	14 mA
	714 000 55

**ACCESSORIES:**

Zener Barrier	975 714 01
---------------	------------

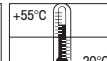
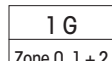
**TONES AND FREQUENCIES:**

selectable via DIP switch

Tone No.	Tone type	Tone No.	Tone type
1	alternating 800/970 Hz in 2 Hz stroke	14	continuous 970 Hz
2	rising 800/970 Hz in 7 Hz stroke	15	554 Hz/100 ms alternating 440 Hz/400 ms
3	rising 800/970 Hz in 1 Hz stroke	16	660 Hz pulse: 150 ms ON, 150 ms OFF
4	continuous 2,850 Hz	17	660 Hz pulse: 1.8 sec. ON, 1.8 sec OFF
5	rising 2,400-2,850 Hz in 7 Hz stroke	18	660 Hz pulse: 6.5 sec. ON, 13 sec OFF
6	rising 2,400-2,850 Hz in 1 Hz stroke	19	continuous 660 Hz
7	500-1,200 Hz rising in 3 sec., 0.5 sec OFF	20	alternating 554/440 Hz in 0.5 Hz stroke
8	falling 1,200-500 Hz in 1 Hz stroke	21	pulse 660 Hz in 1 Hz stroke
9	alternating 2,400/2,850 Hz in 2 Hz stroke	22	2,850 Hz pulse: 150 ms ON / 100 ms OFF
10	pulse 970 Hz in 0.5 Hz stroke	23	rising 800/970 Hz in 50 Hz stroke
11	alternating 800/970 Hz in 1 Hz stroke	24	rising 2,400-2,850 Hz in 50 Hz stroke
12	pulse 2,850 Hz in 0.5 Hz stroke	25	970 Hz pulse: 3 x 500 ms ON, 500 ms OFF, 1.5 sec. pause
13	970 Hz pulse: 0.25 sec. ON / 1 sec. OFF	26	2,850 Hz pulse: 3 x 500 ms ON, 500 ms OFF, 1.5 sec. pause

**TECHNICAL DIAGRAMS:**

see page 312



750

## Ex Signal Horn



- Gas applications: Zone 1 and 2
- Fully encapsulated
- Silicone free



## Technical Specifications:



Dimensions (L x H x W):	148 mm x 350 mm x 152 mm
Housing:	PC/ABS-Blend
Connection:	Cable 3 m, 2 x 0.75 mm <sup>2</sup>
Fixing:	Bracket mounting, sound outlet facing downwards
Explosion protection	Ex II 2G Ex mb IIC T5 Gb
Approval:	BVS 03 ATEX E 118X



## Order Specifications:

Voltage	24 V DC	24 V AC	42-48 V AC	115 V AC	230 V AC
Voltage range	21,6 V ... 26,4 V	21,6 V ... 26,4 V	37,8 V ... 52,8 V	102,5 V ... 126,5 V (50 Hz)	108 V ... 131 V (60 Hz) 208 V ... 250 V (50 Hz)
Current consumpt.	350 mA	450 mA	220 mA	205 mA	70 mA
	750 000 55	750 000 65	750 000 66	750 000 67	750 000 68

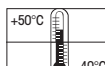
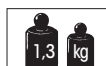
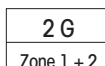


## Technical Diagrams:

see page 314



The Ex Signal Horn 750 warns of imminent danger in the chemical industry and paint shops





- Gas applications: Zone 1 and 2
- Dust applications: Zone 21 and 22
- IP 65 for indoor and outdoor applications
- Flexible mounting possibilities
- Connection area "e" for simple connection

**Technical Specifications:**

Dimensions (L x H x W):	178 mm x 104 mm x 207 mm
Fixing dimensions (L x H):	130 mm x 160 mm
Housing:	PC
Connection:	CAGE CLAMP® max. 2.5 mm <sup>2</sup>
Cable entry:	Cable gland M16 x 1.5 mm Cable diameter 6.5-9.5 mm
Fixing:	Wall mounting, base mounting
Explosion protection:	Ex II 2G Ex e mb IIC T5 Gb Ex II 2D Ex tb IIIC T 70°C Db
Approval:	BVS 03 ATEX E 118X

**Order Specifications:**

Voltage	24 V DC	24 V AC	48 V AC	115 V AC	230 V AC
Voltage range	21.6 V ... 26.4 V	21.6 V ... 26.4 V	37.8 V ... 52.8 V	102.5 V ... 126.5 V (50 Hz)	108 V ... 131 V (60 Hz) 208 V ... 250 V (50 Hz)
Current consumpt.	350 mA	450 mA	220 mA	205 mA	70 mA
	761 000 55	761 000 65	761 000 66	761 000 67	761 000 68

**Technical Diagrams:**

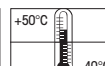
see page 314



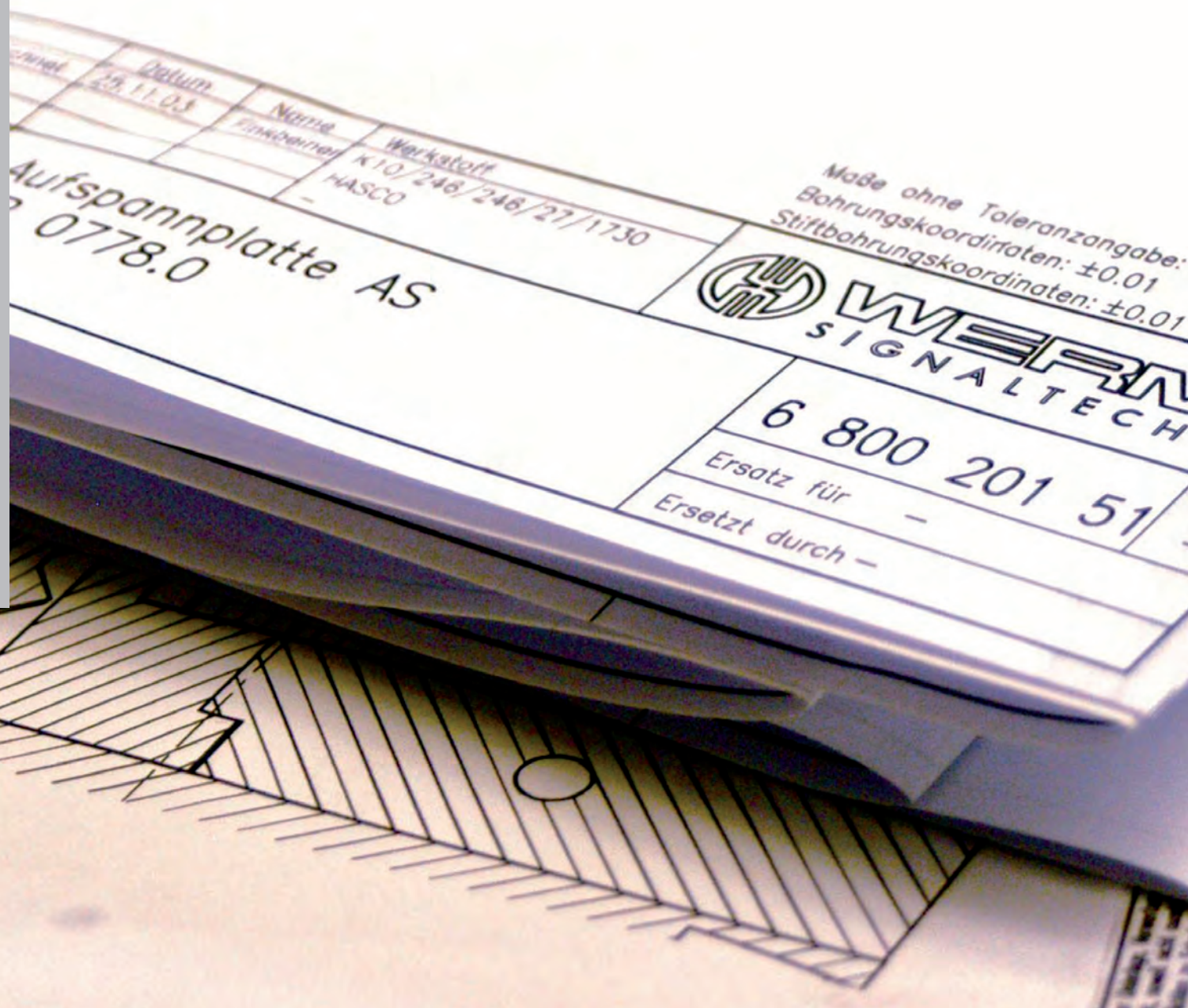
the Ex signal horn 761 can be used for a range of applications in gas and dust explosion endangered areas, e.g. in joinery and wood processing plants



2 G	2 D
Zone 1 + 2	Zone 21 + 22







# Our Technical Diagrams

On the following pages you will find the technical diagrams for our products. The dimensions are always stated in millimetres. Please note that the diagrams are not to scale.

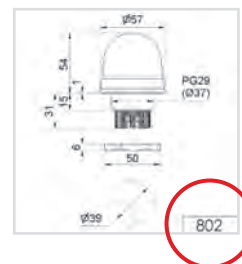
## Reference on the product page

In order to be able to find the technical diagrams for your desired product even more quickly, there is a reference on the relevant product page stating the page number for the corresponding diagram located in the "Technical diagrams" section



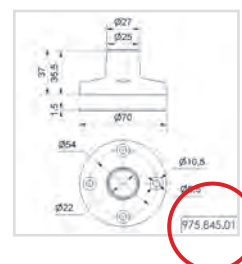
## Layout of the technical diagrams

The technical diagrams are in numerical order of the first three digits of the article number.



## Technical diagrams for accessories

The technical diagrams for our extensive accessories are in numerical order of the full article number (from page 294 onwards).



## Digital data

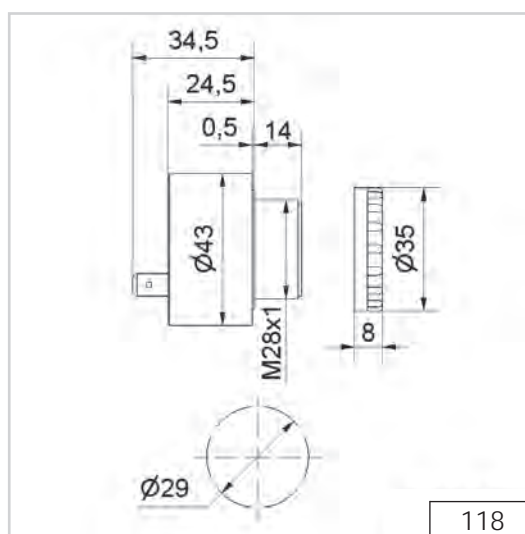
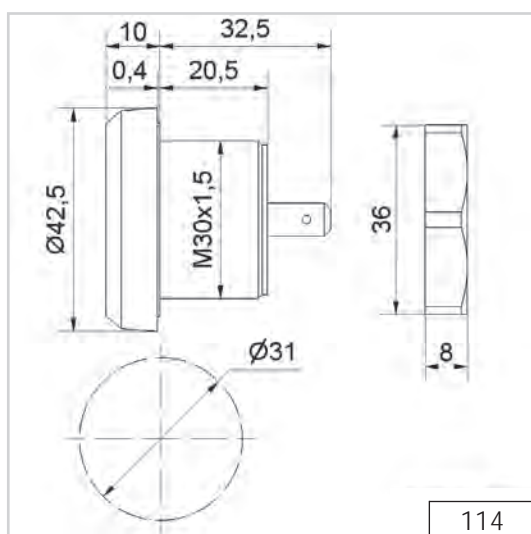
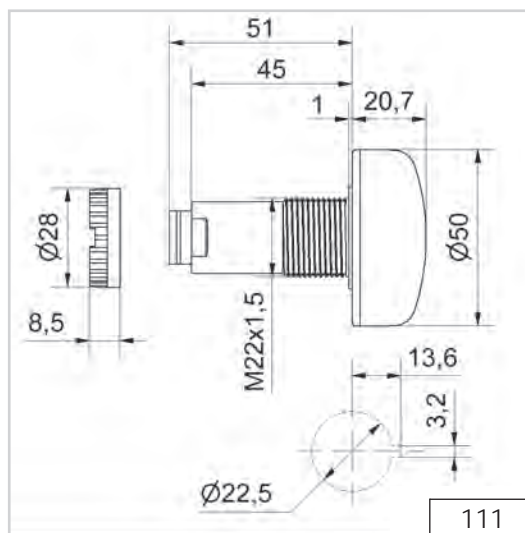
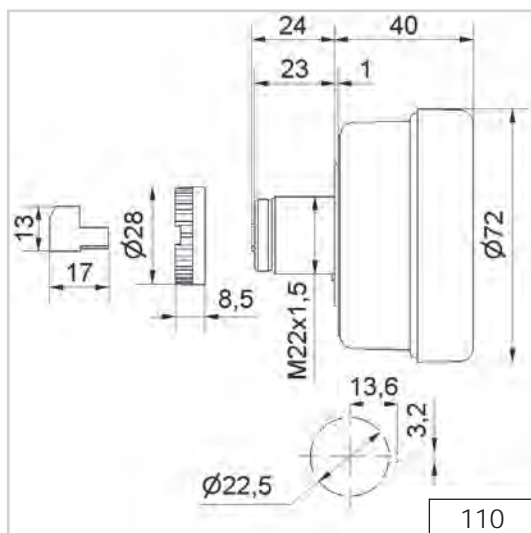
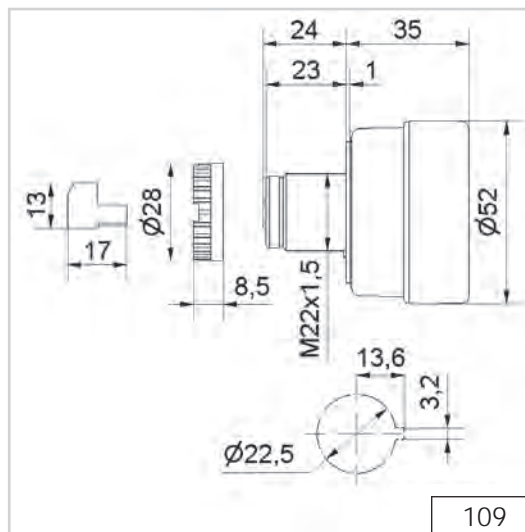
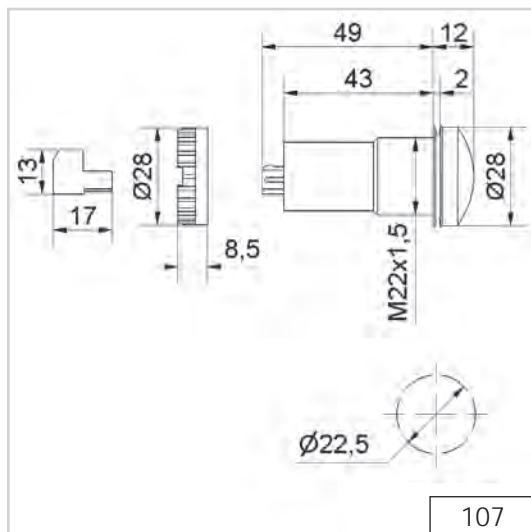
You are welcome to request the technical diagrams in digital form. The relevant 3D models, instruction leaflets and connection diagrams can be obtained from us or downloaded from our homepage at any time.

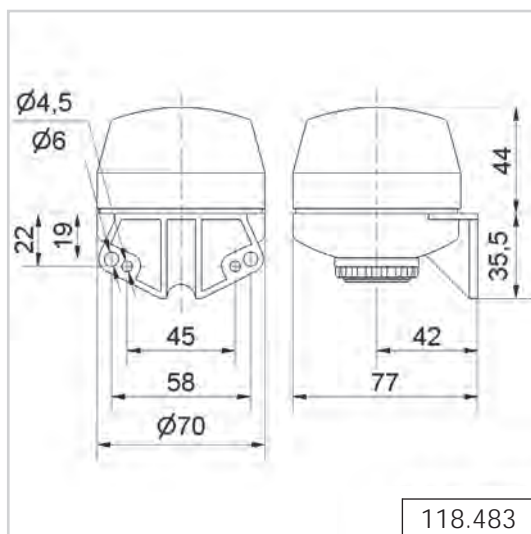
Select the required product or search with the aid of the part number, go to "downloads" and click on "drawing" and save the file.



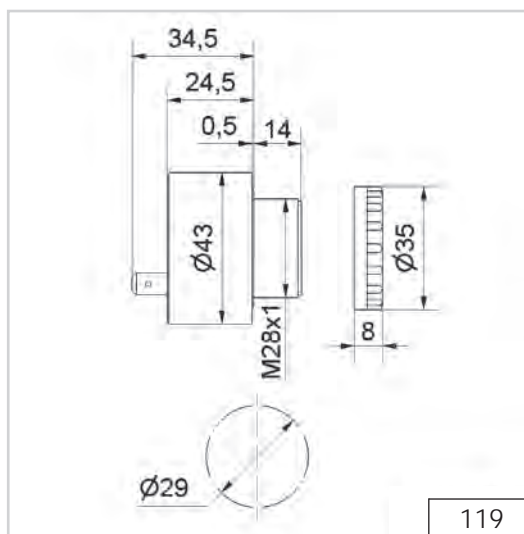


# Technical Diagrams

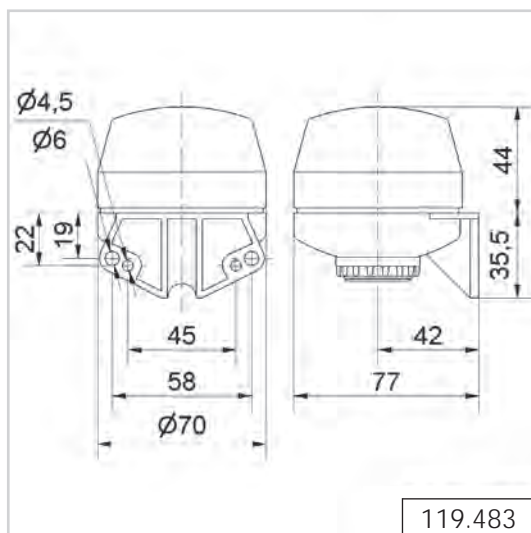




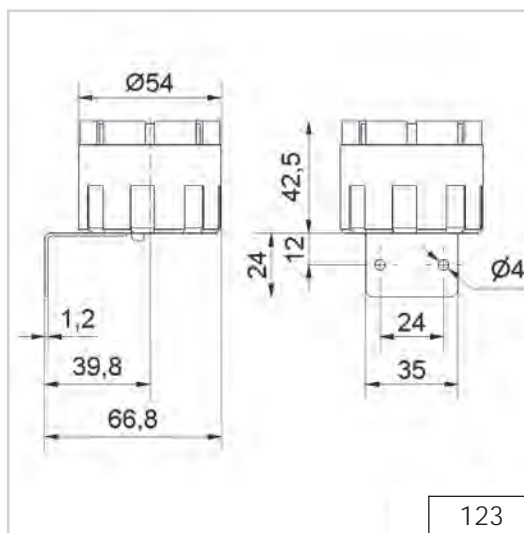
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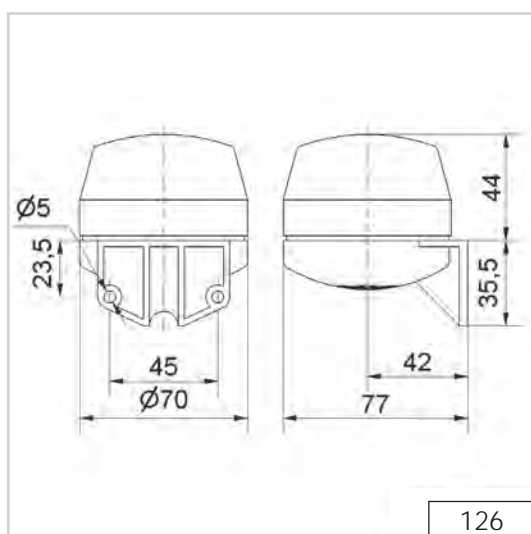
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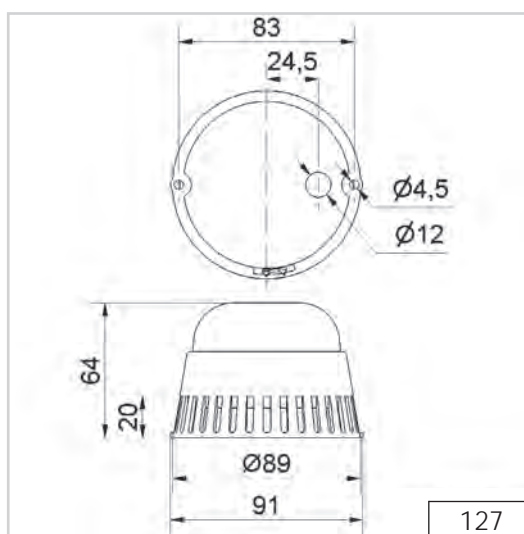
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123



126



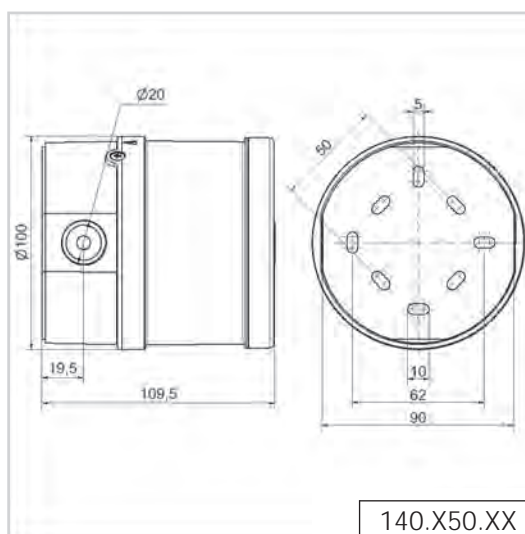
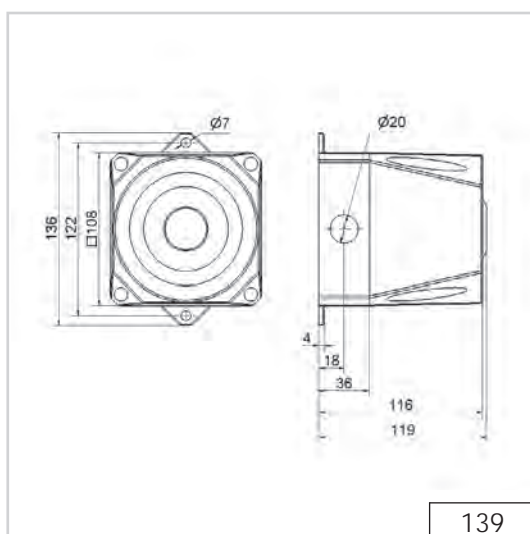
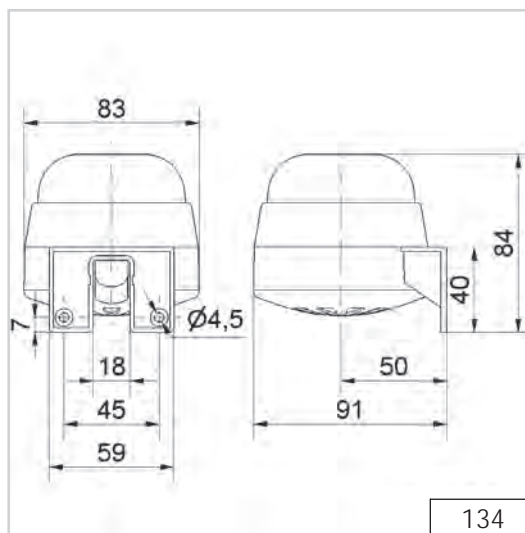
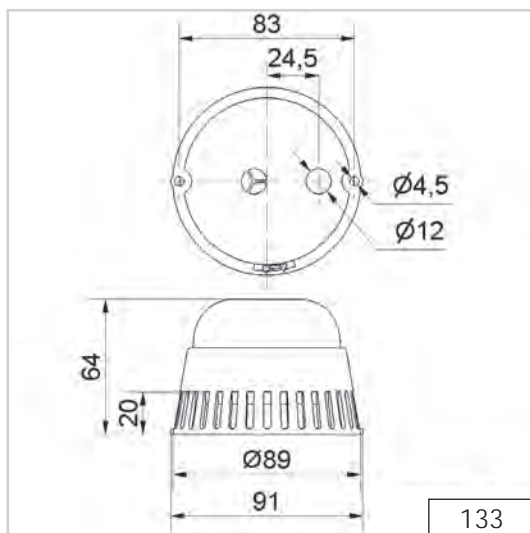
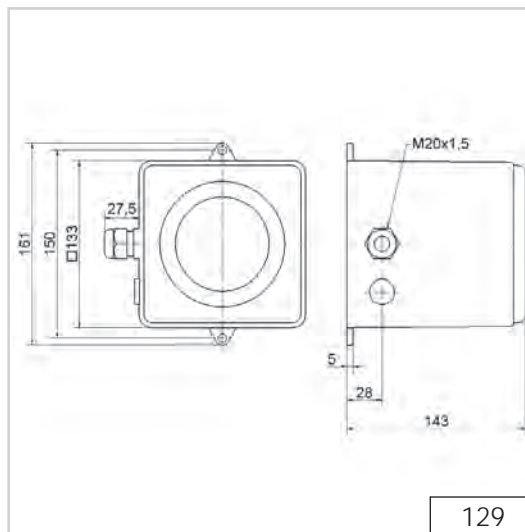
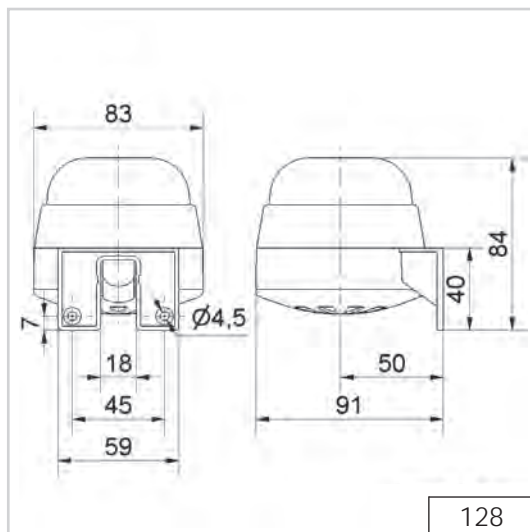
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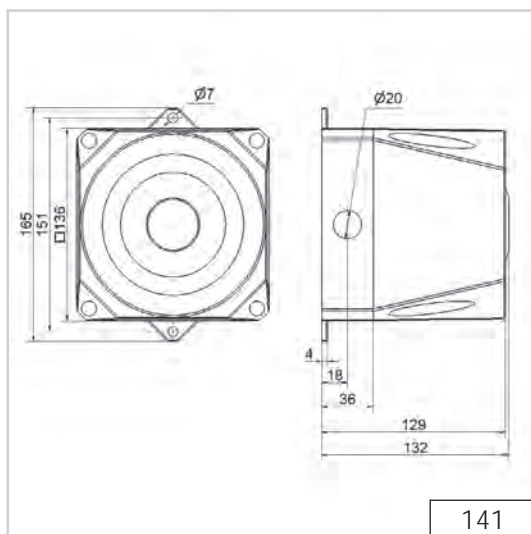


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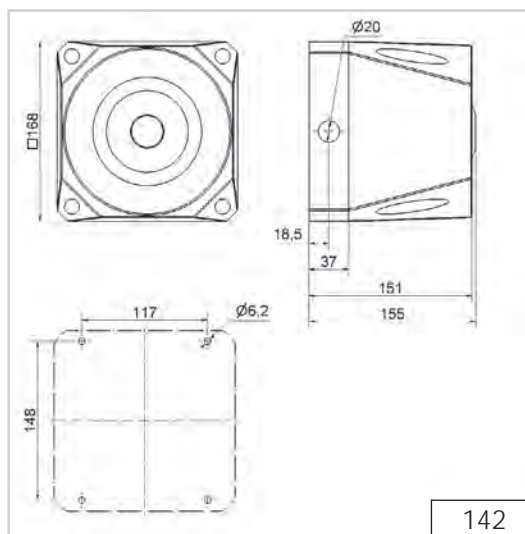
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# Technical Diagrams

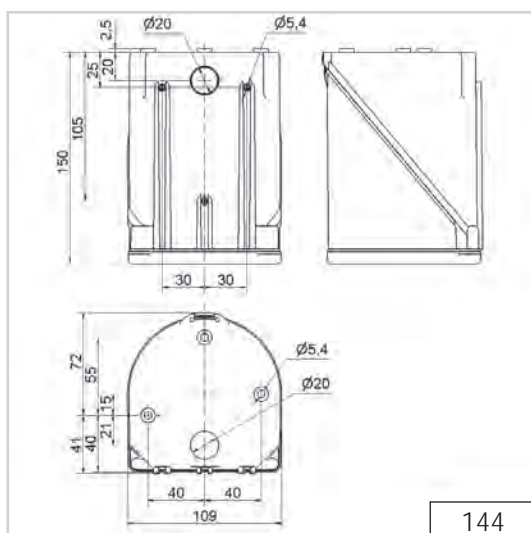




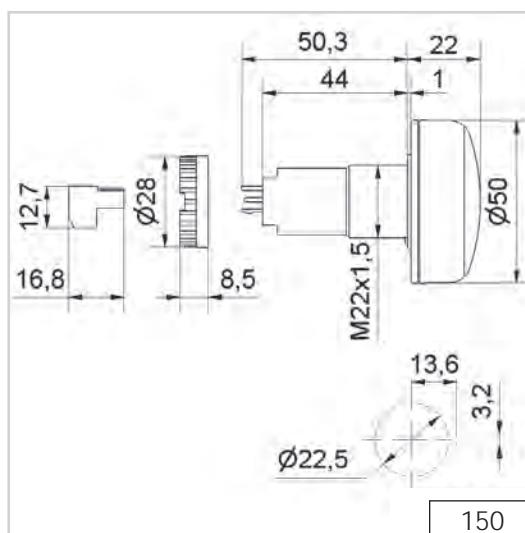
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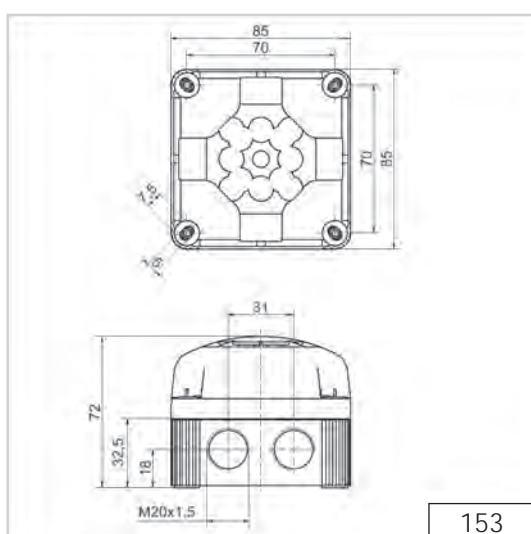
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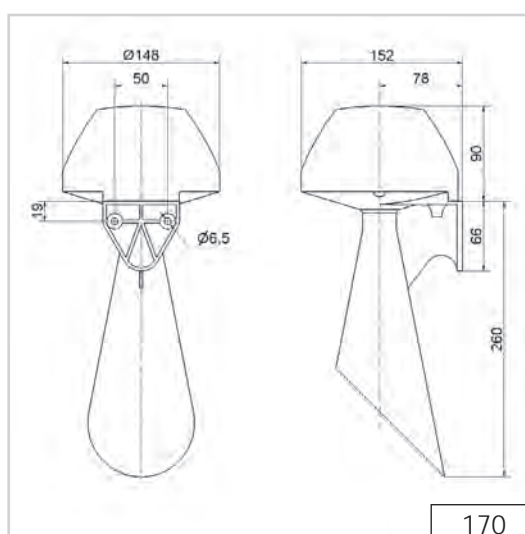
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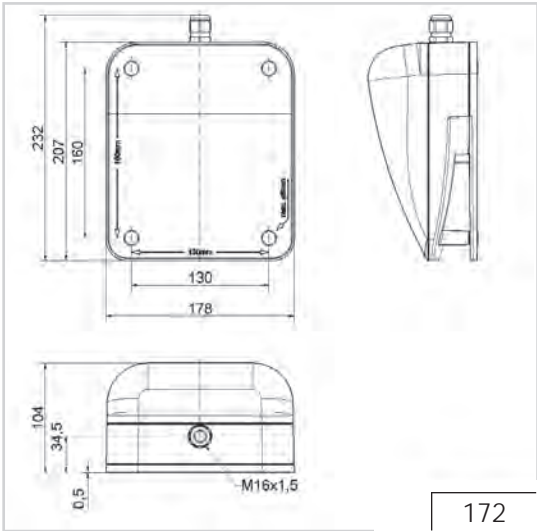
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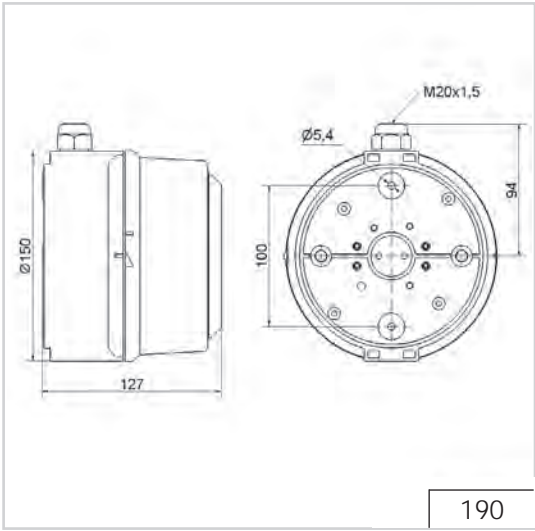
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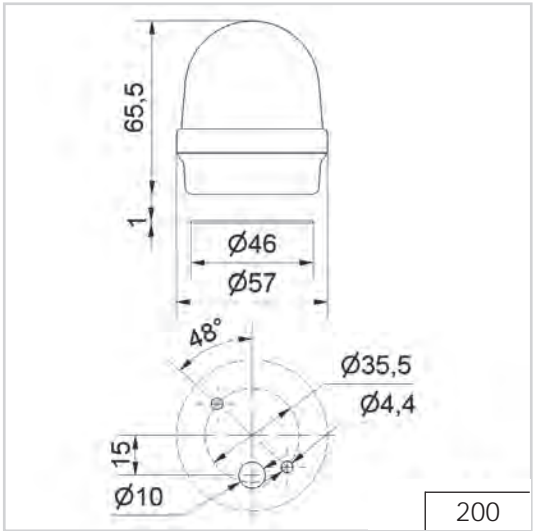
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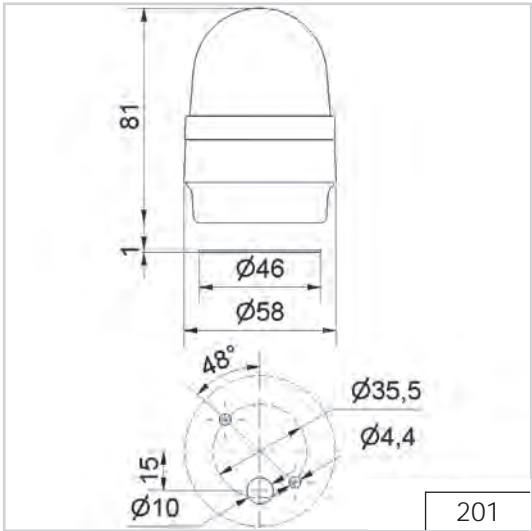
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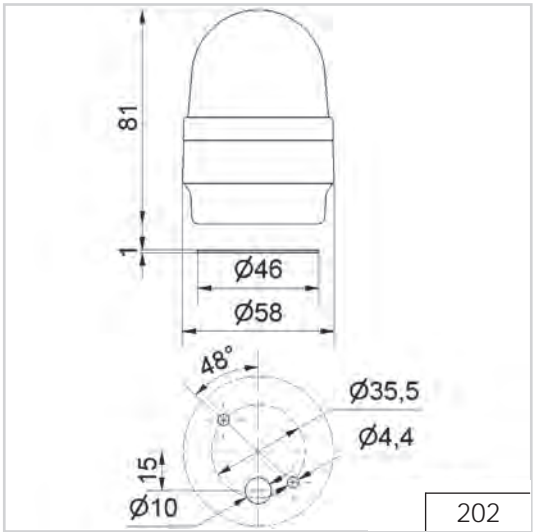
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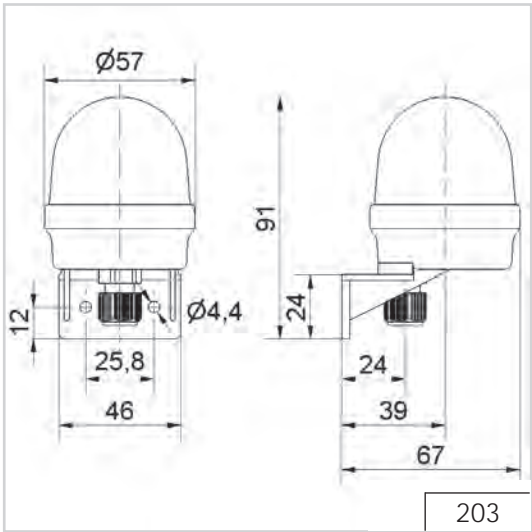
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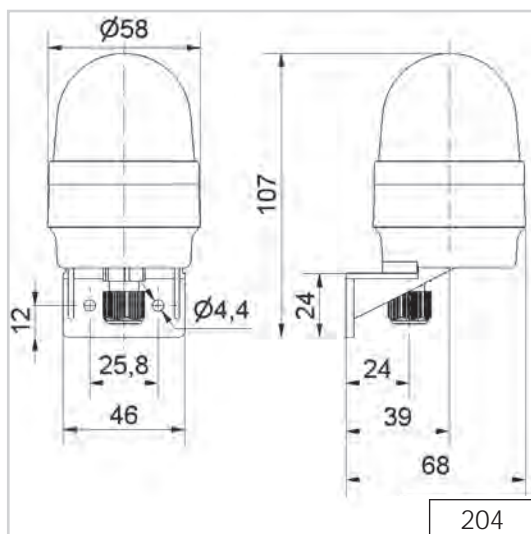


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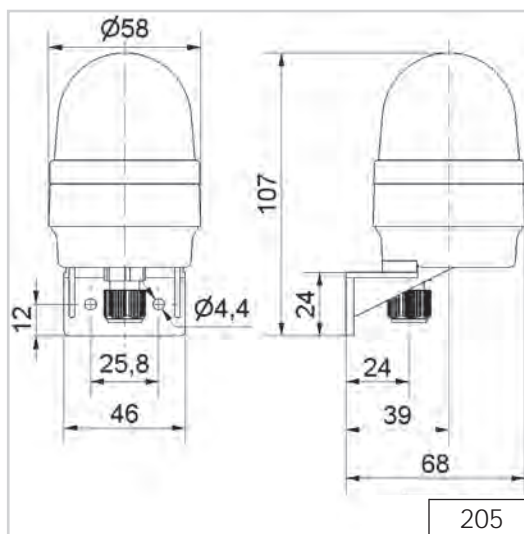


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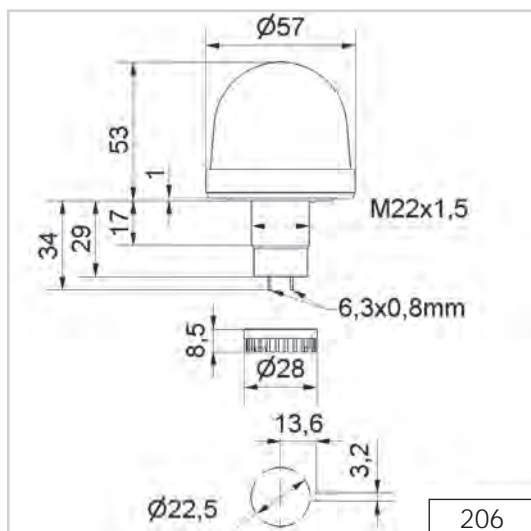




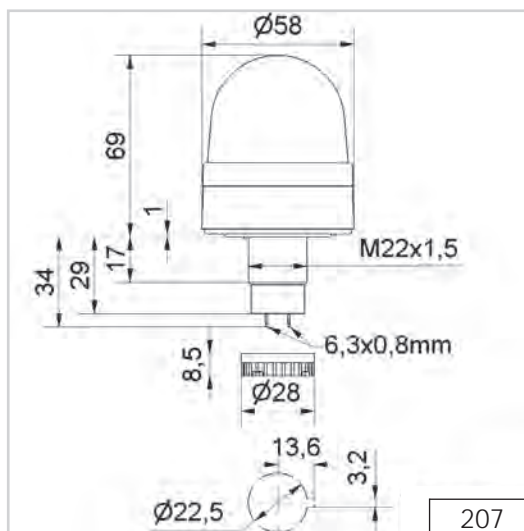
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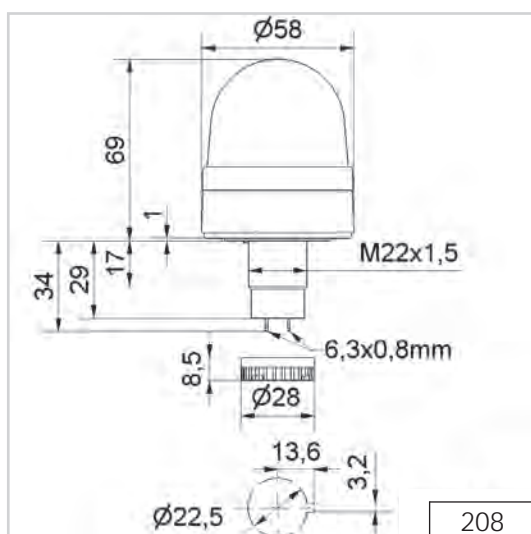
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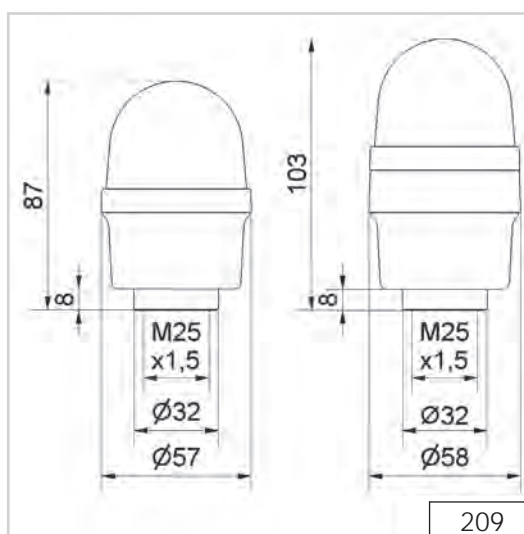
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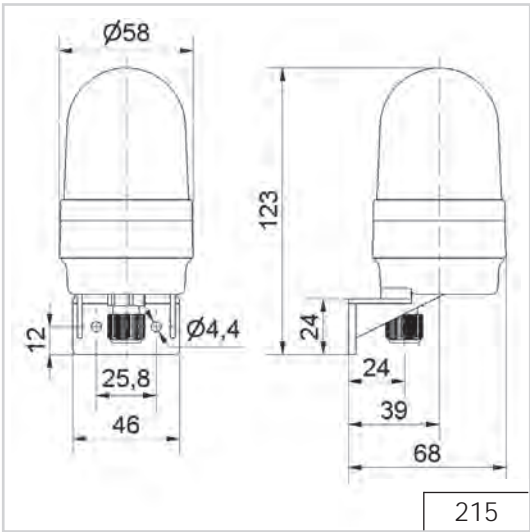
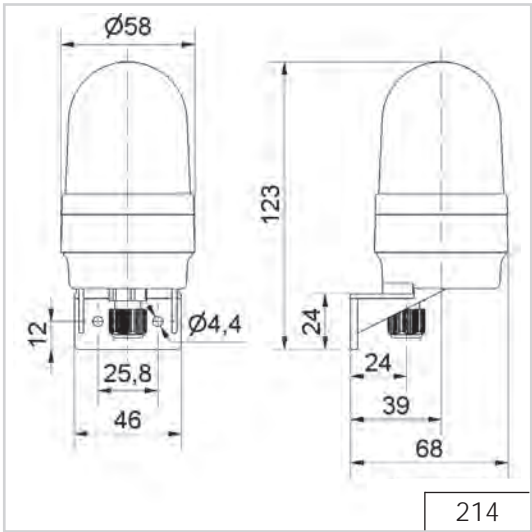
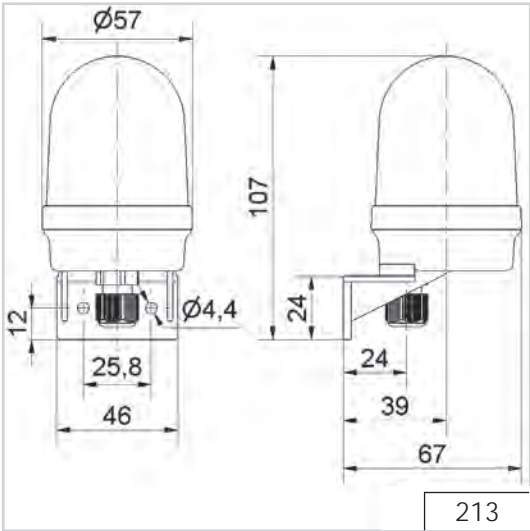
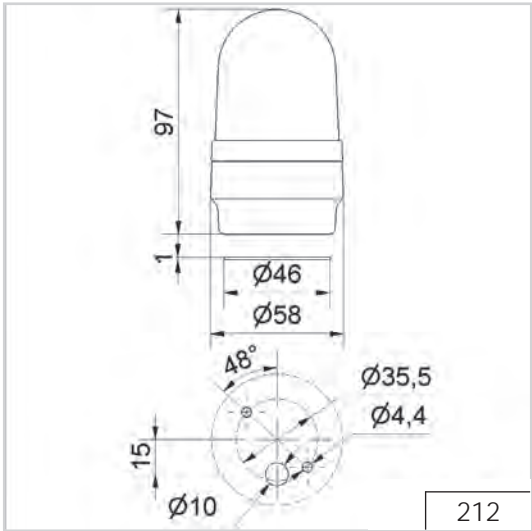
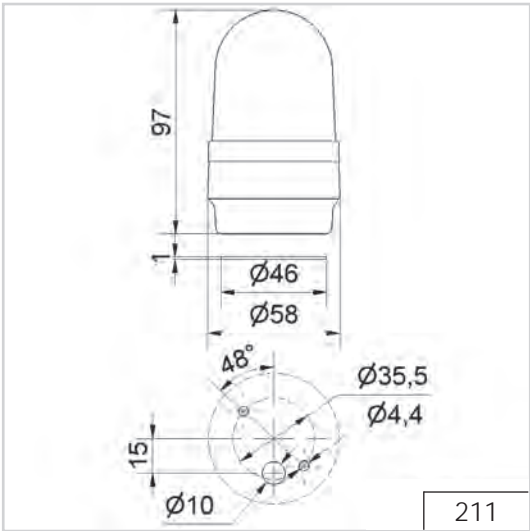
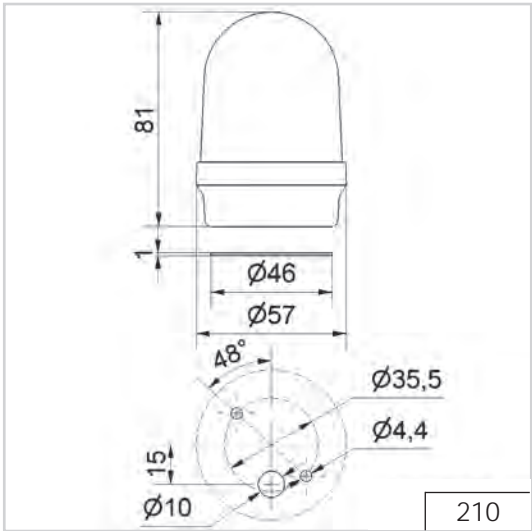
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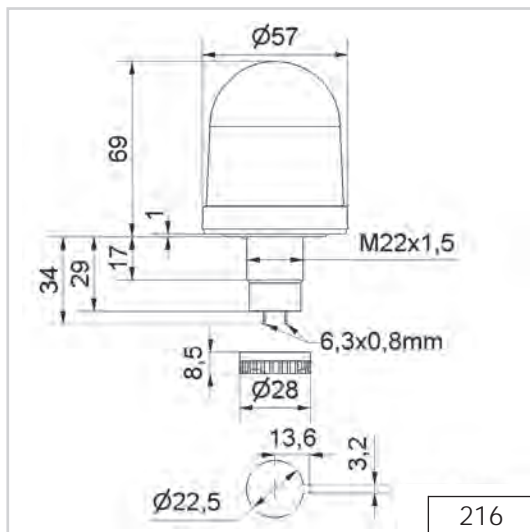
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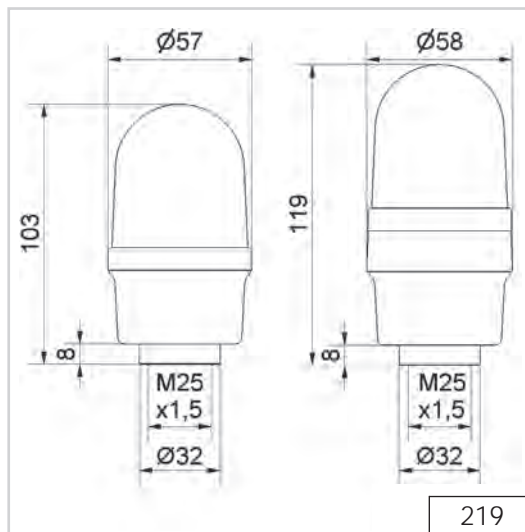
# Technical Diagrams



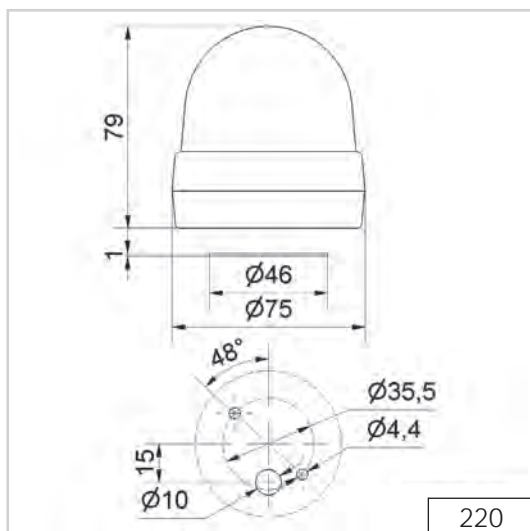
Technical  
Diagrams



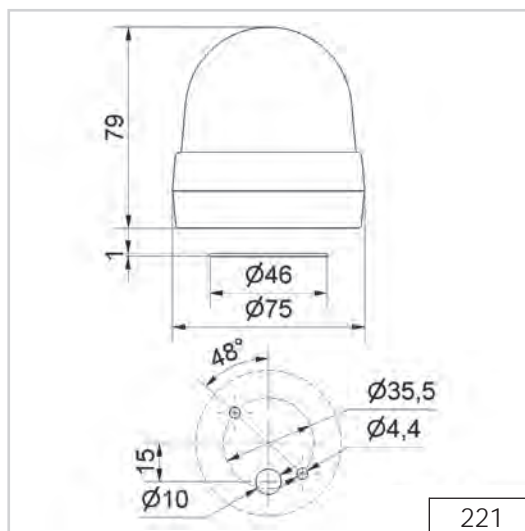
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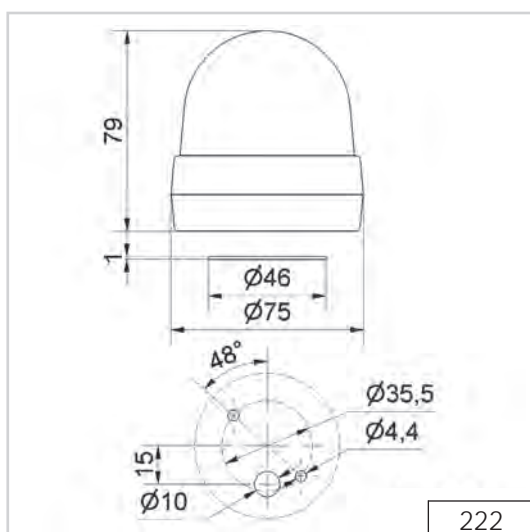
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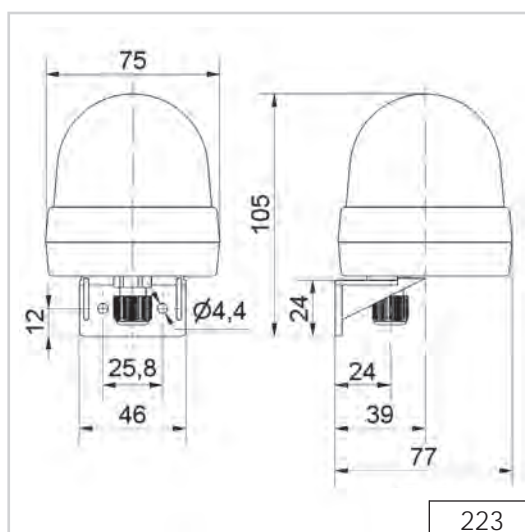
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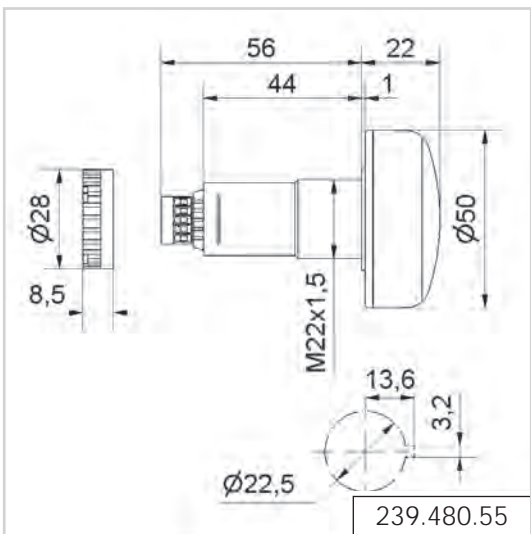
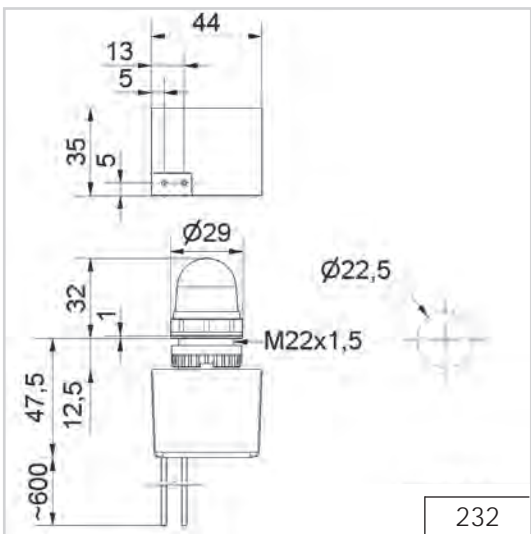
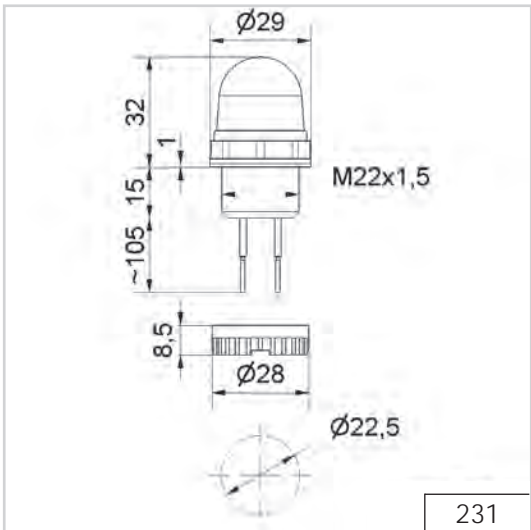
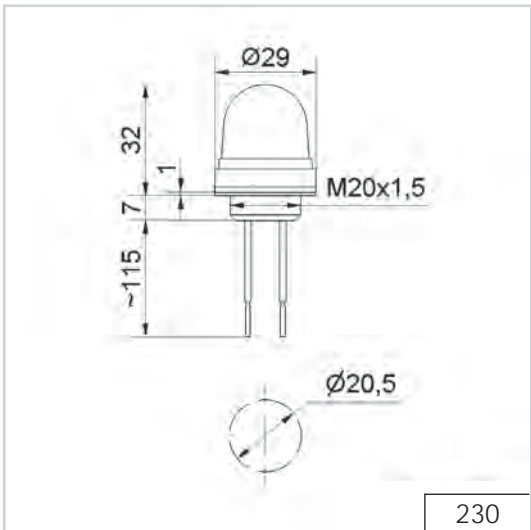
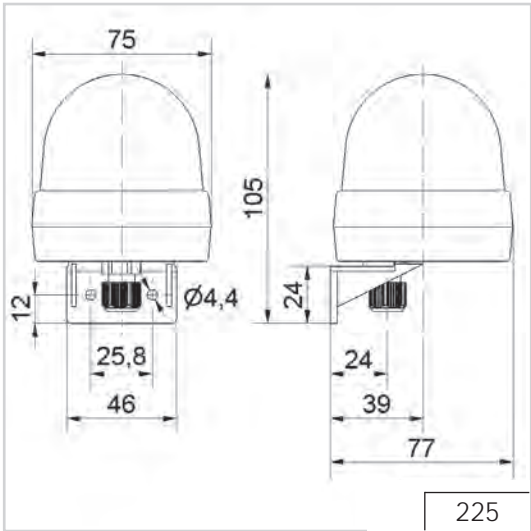
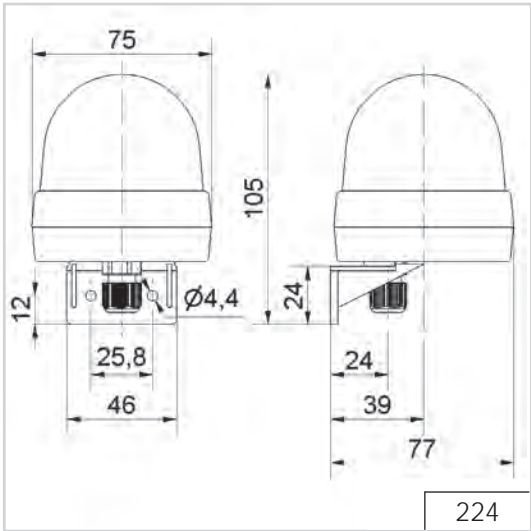
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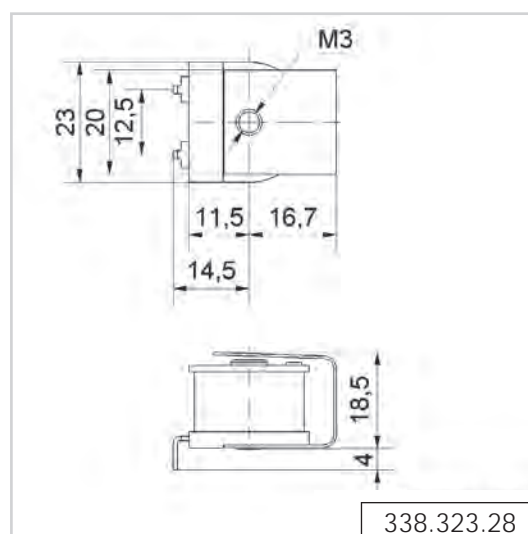
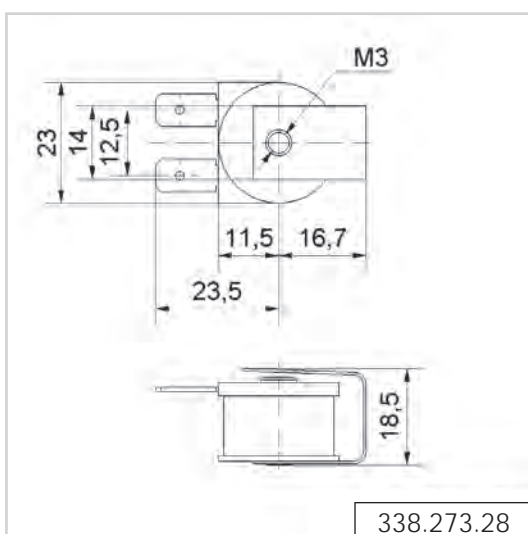
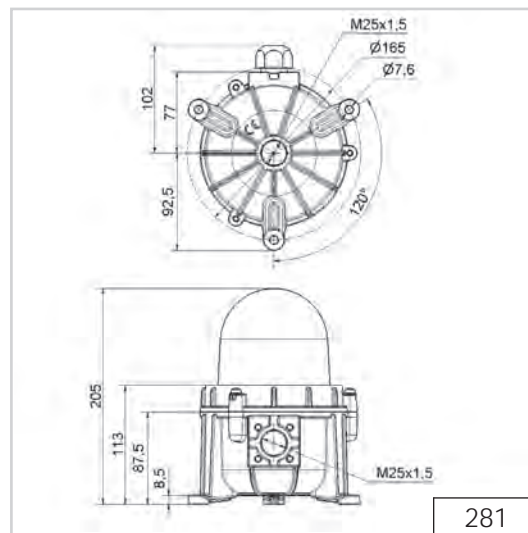
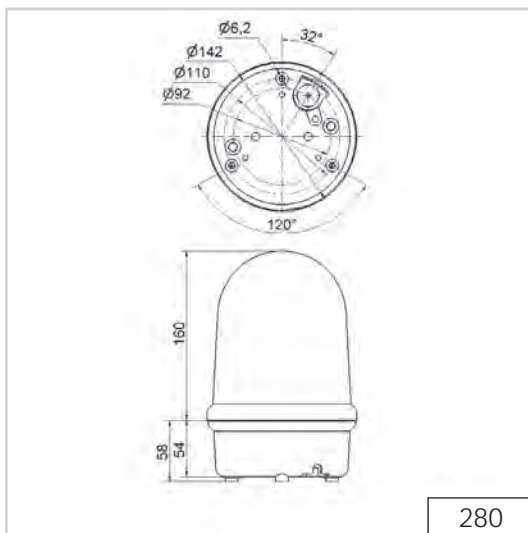
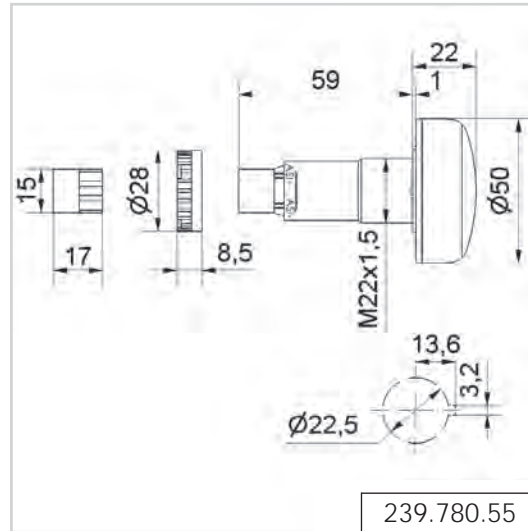
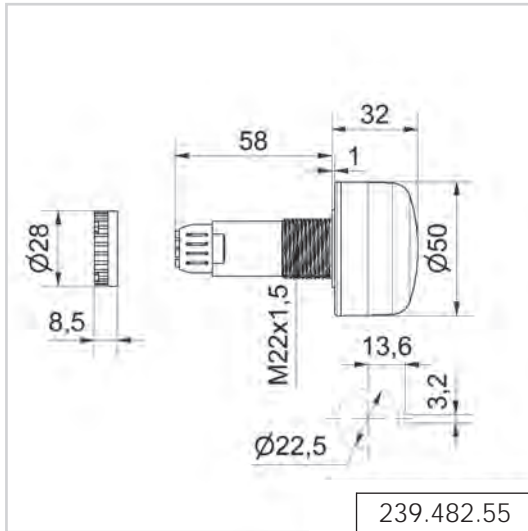
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# Technical Diagrams



Technical  
Diagrams

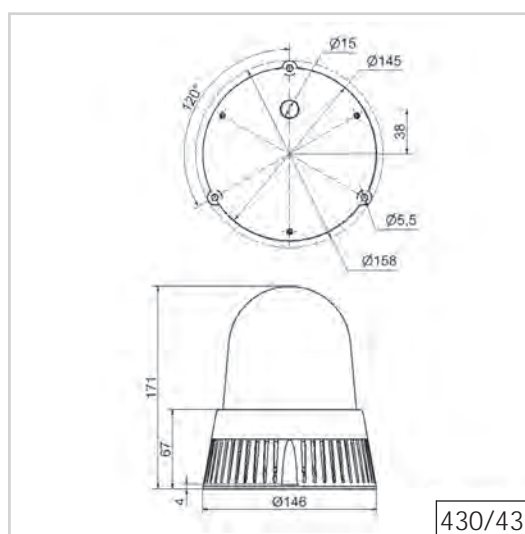
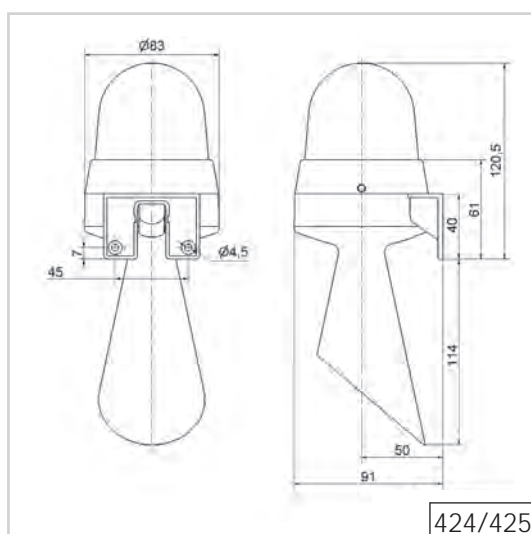
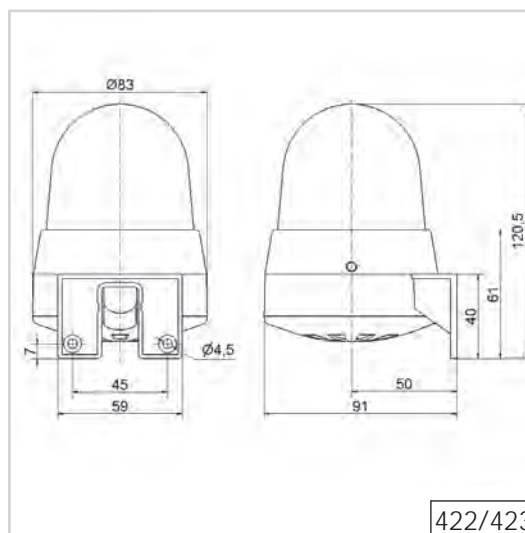
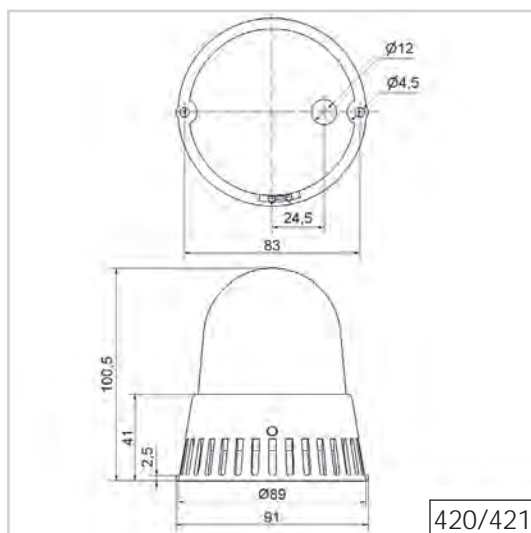
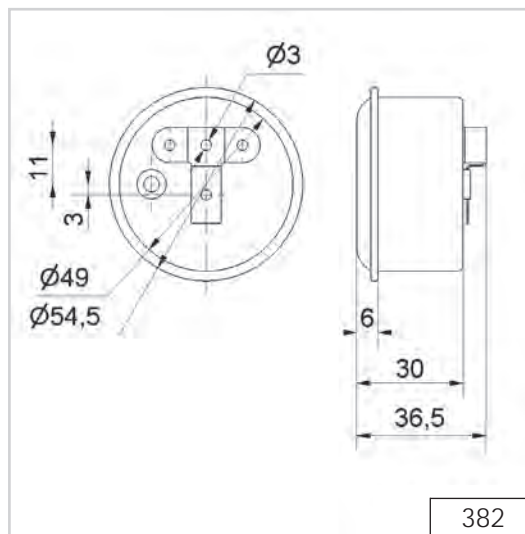
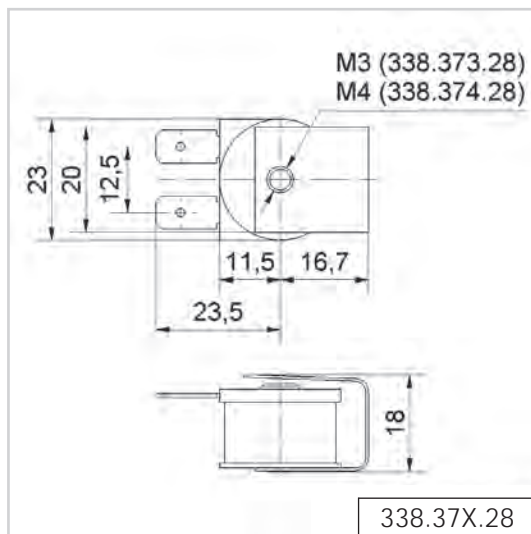


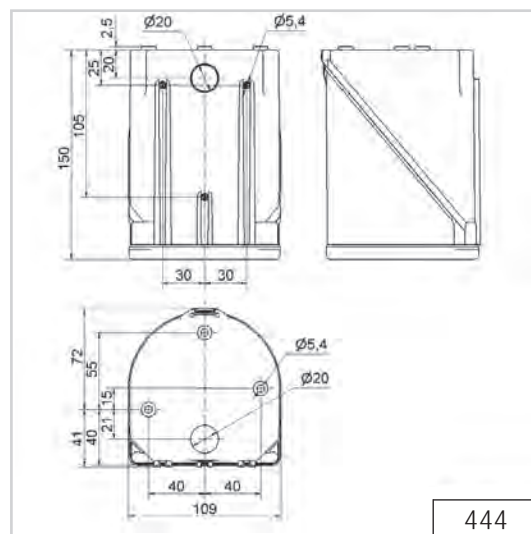
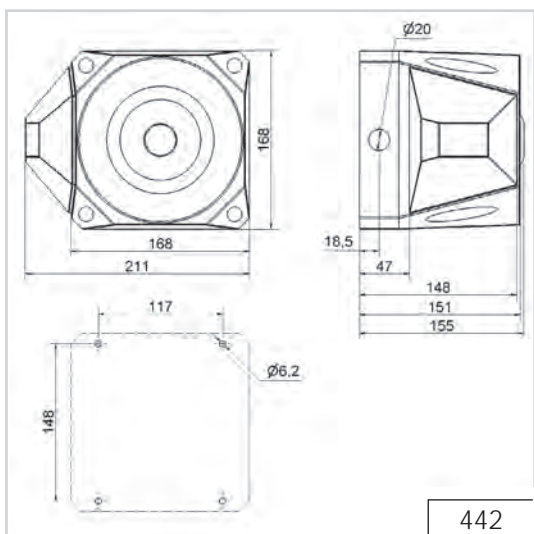
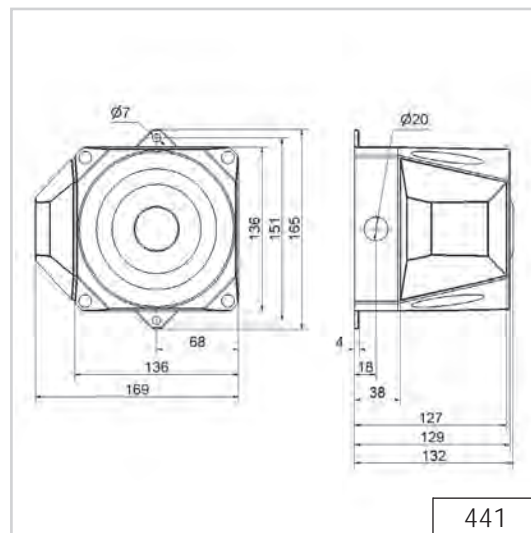
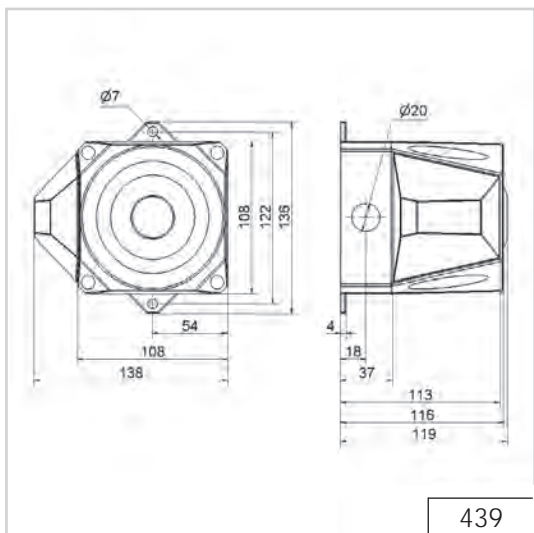
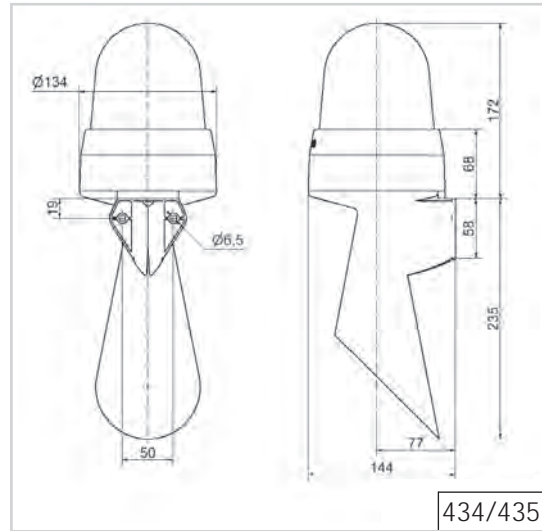
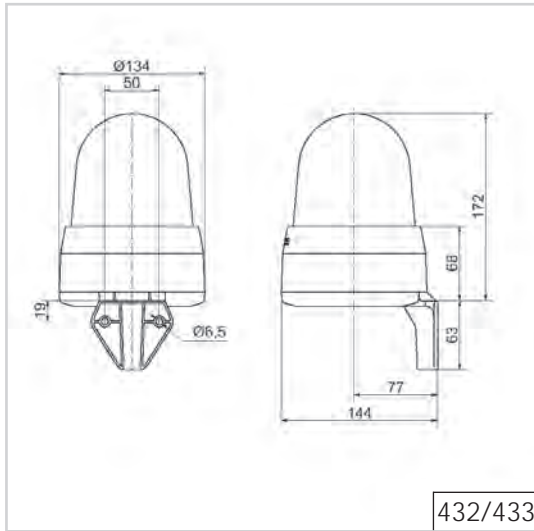
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# Technical Diagrams

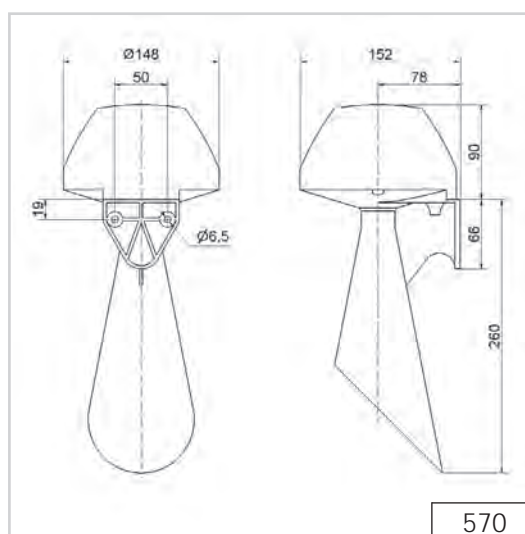
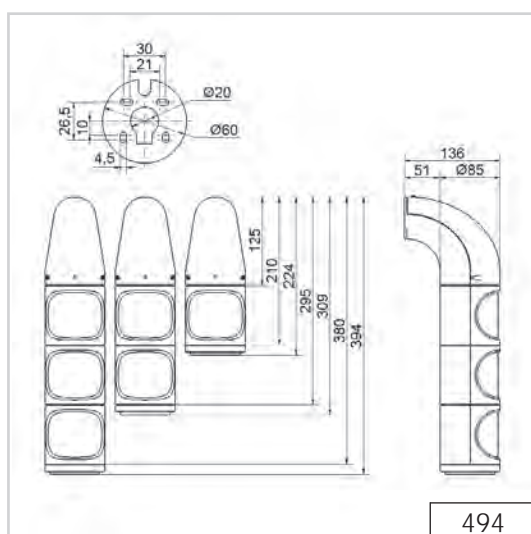
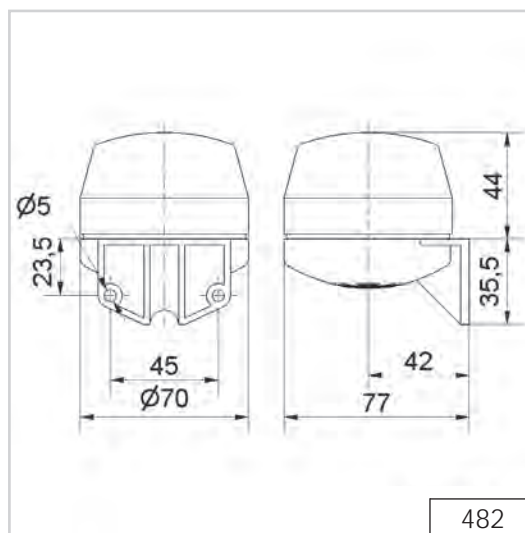
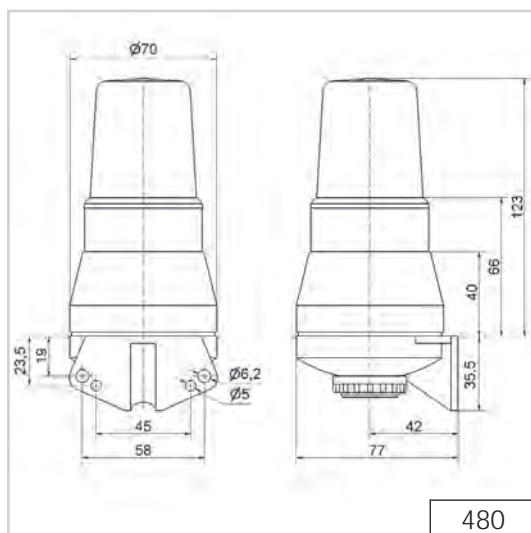
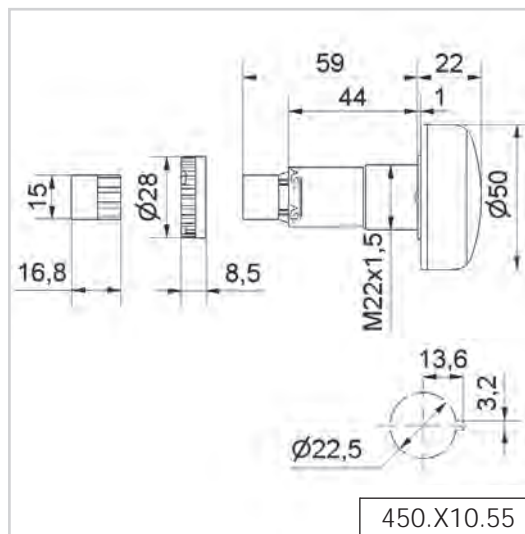
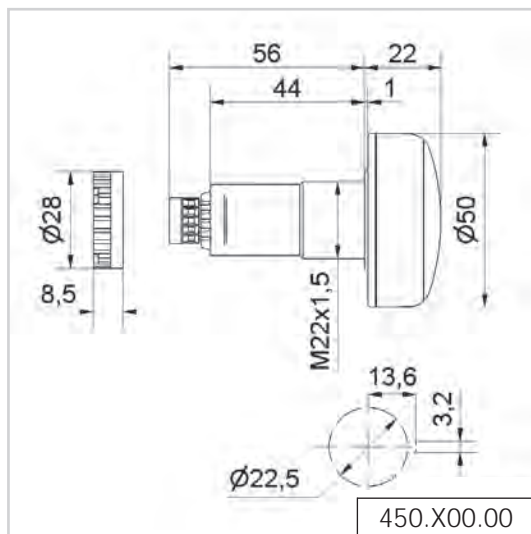


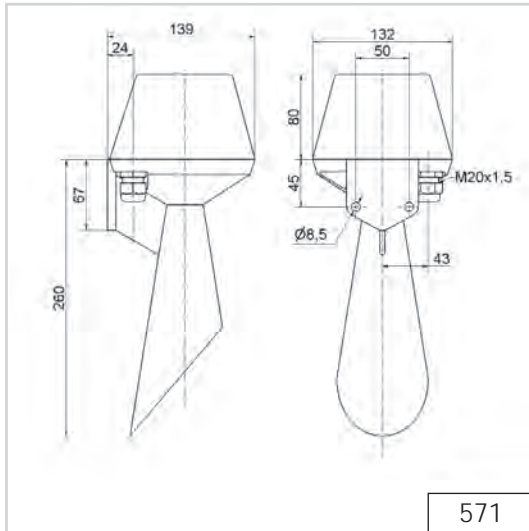


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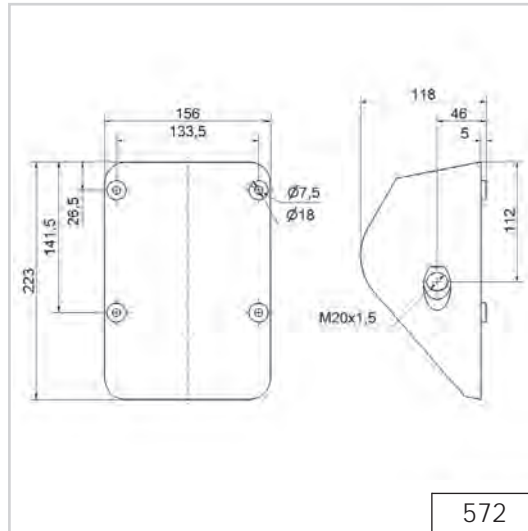
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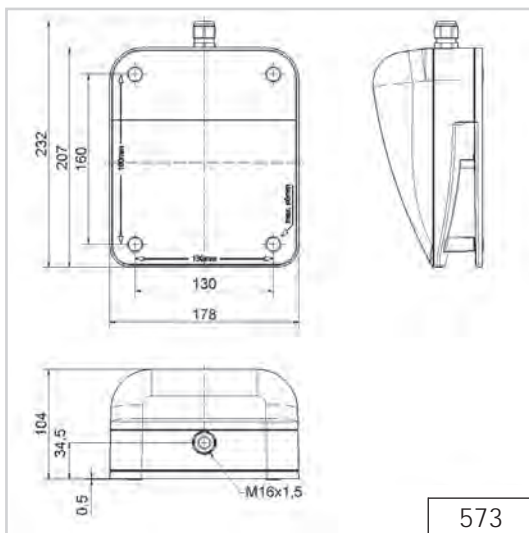




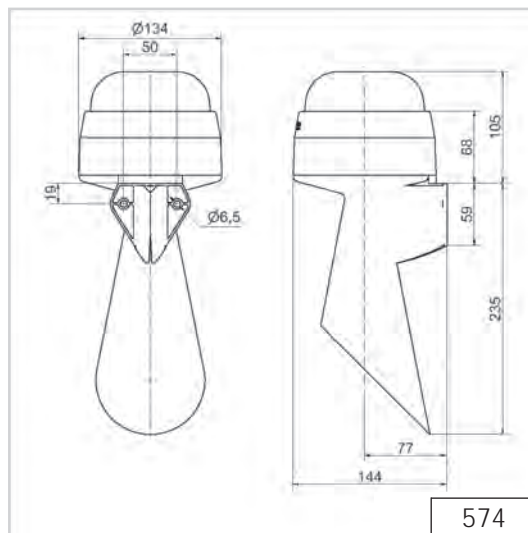
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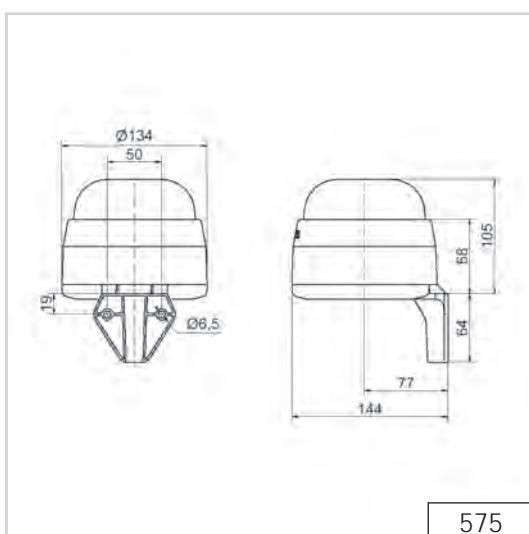
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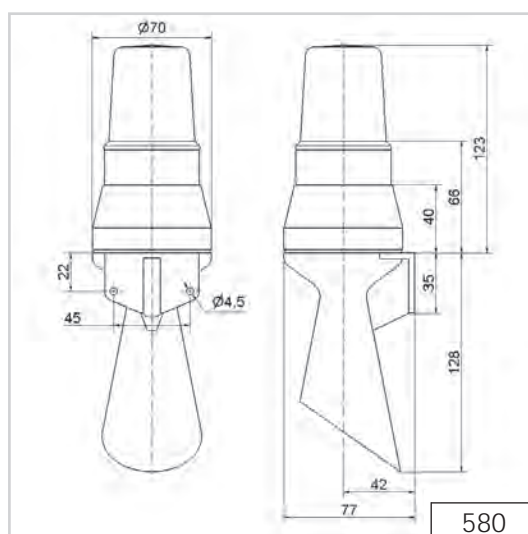
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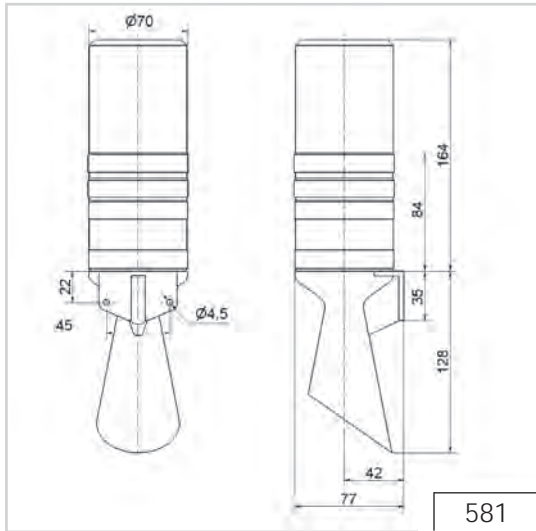


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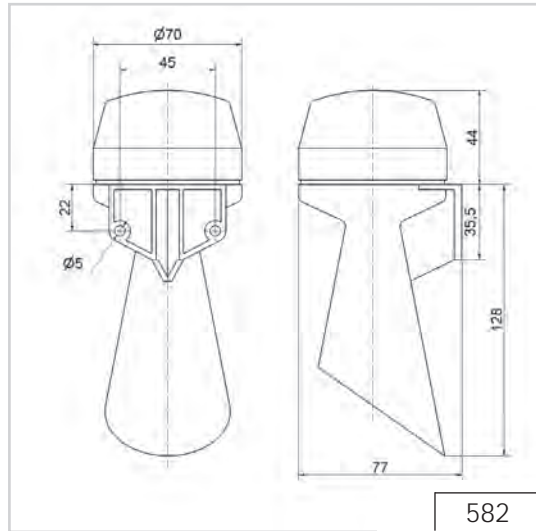
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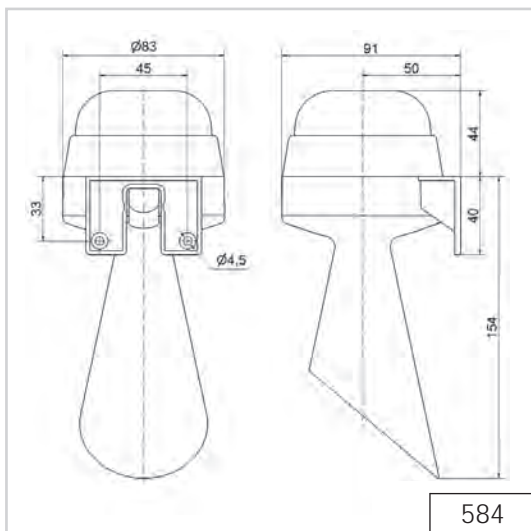
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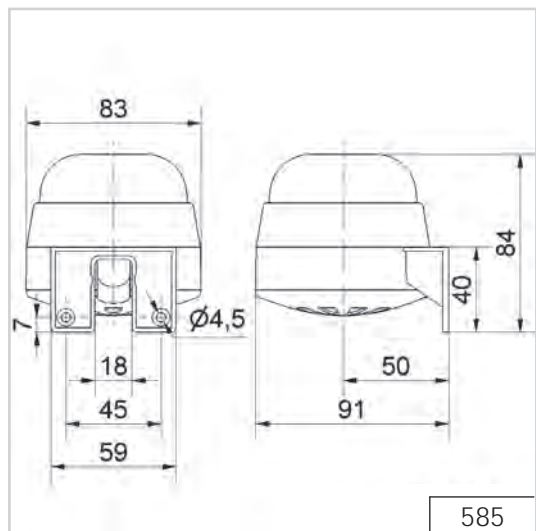
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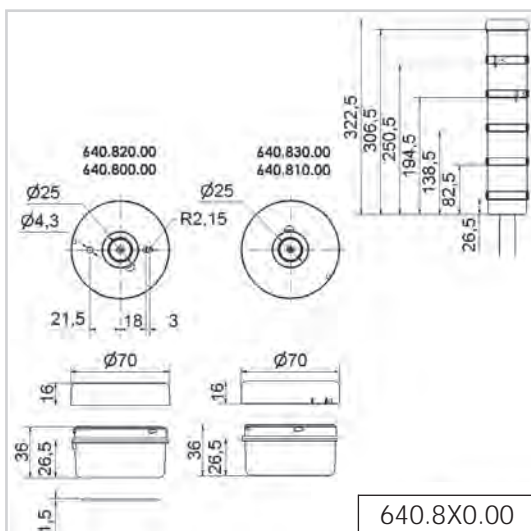
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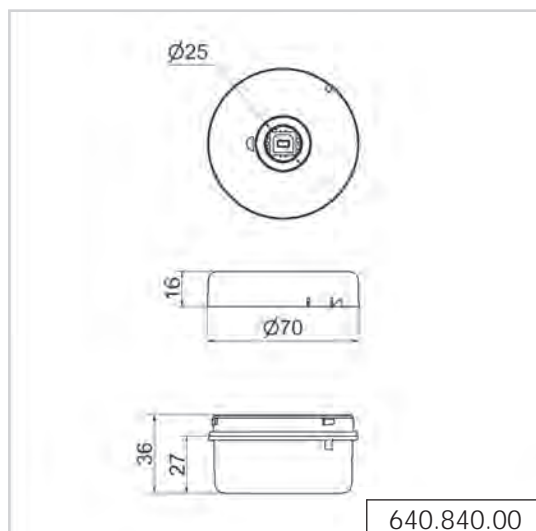
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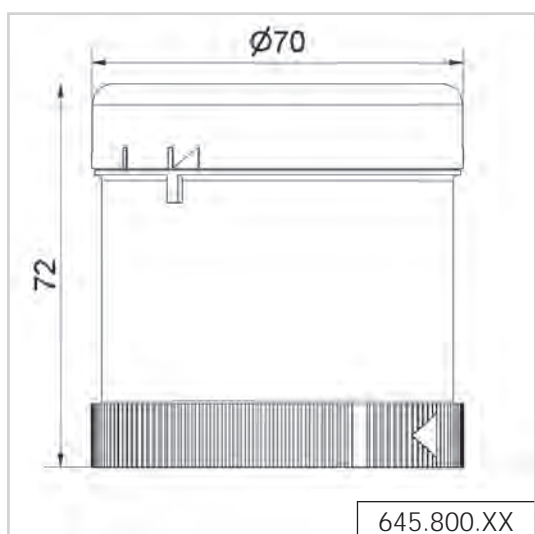
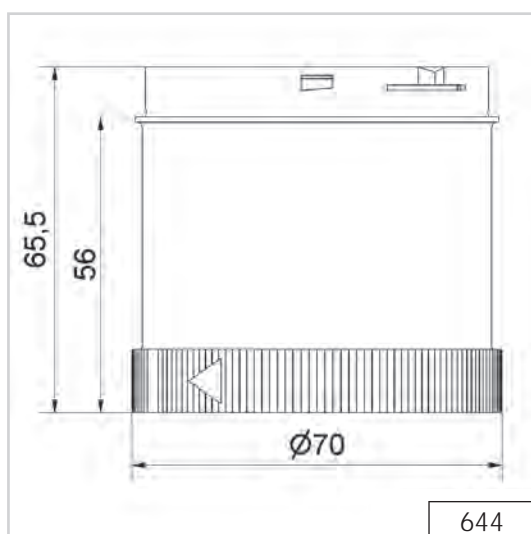
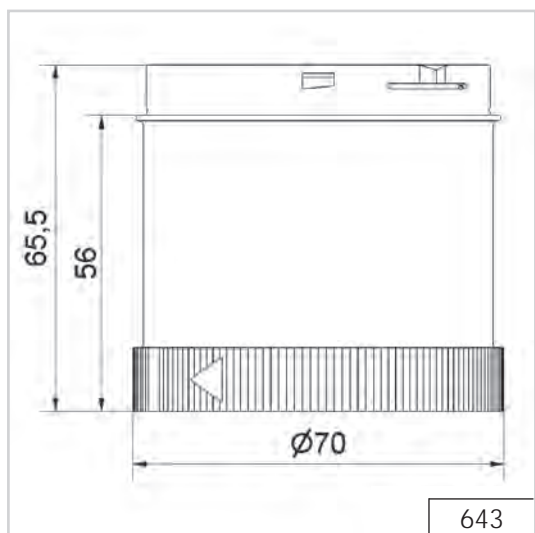
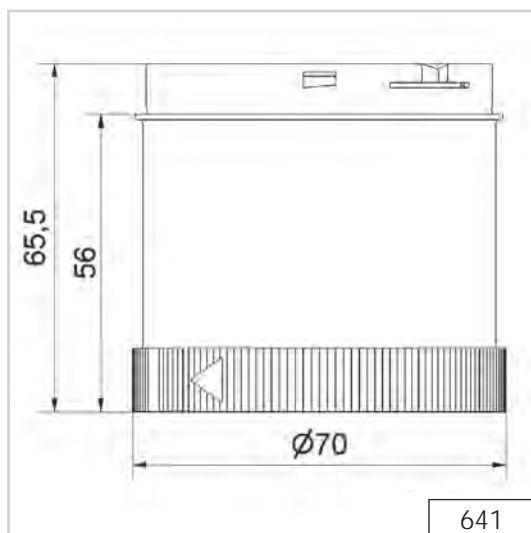
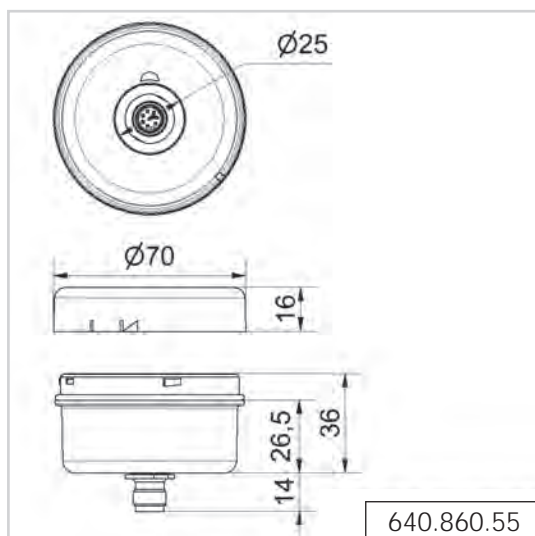
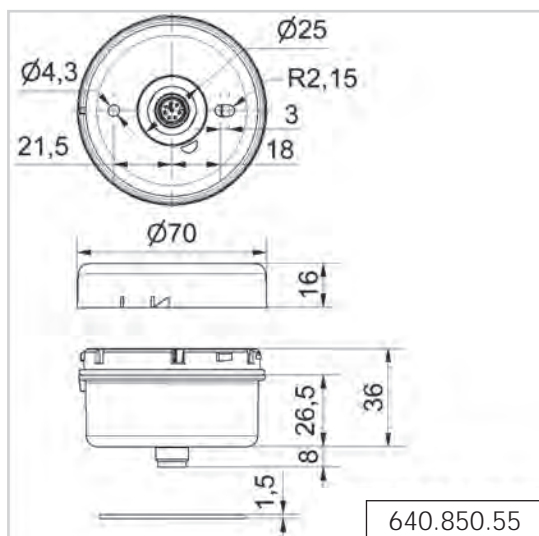


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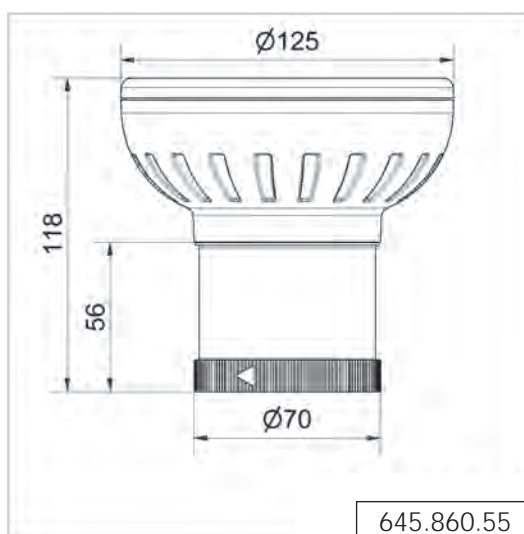
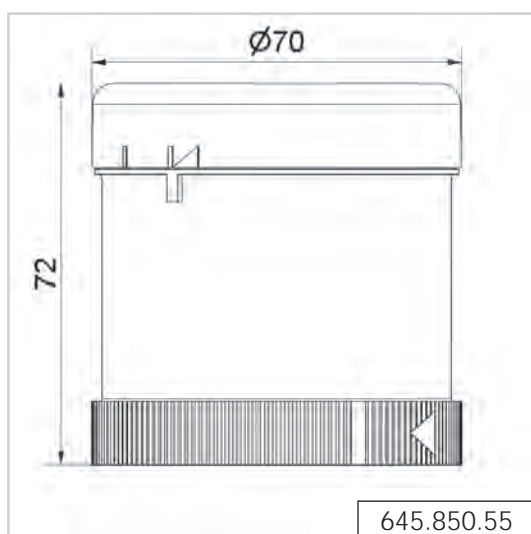
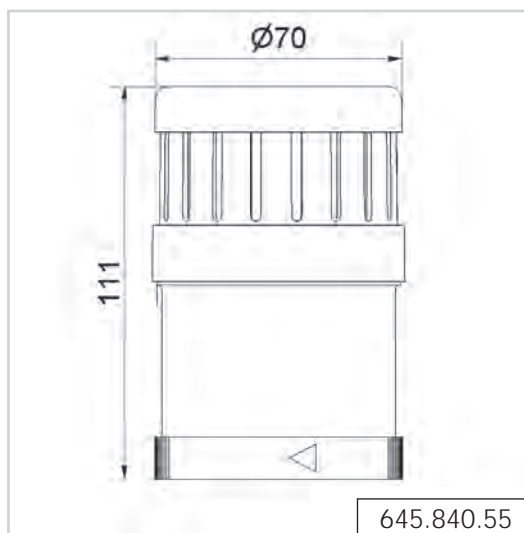
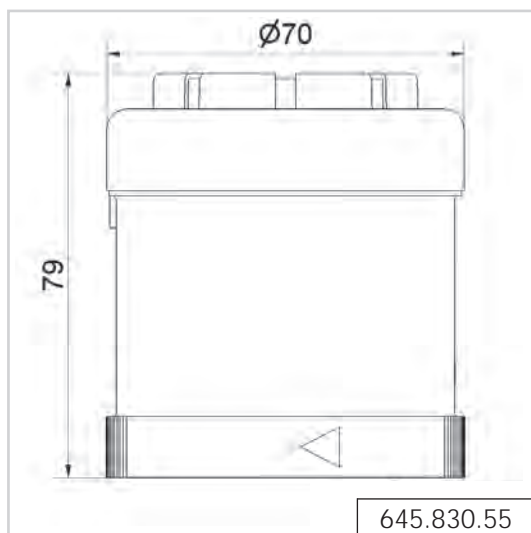
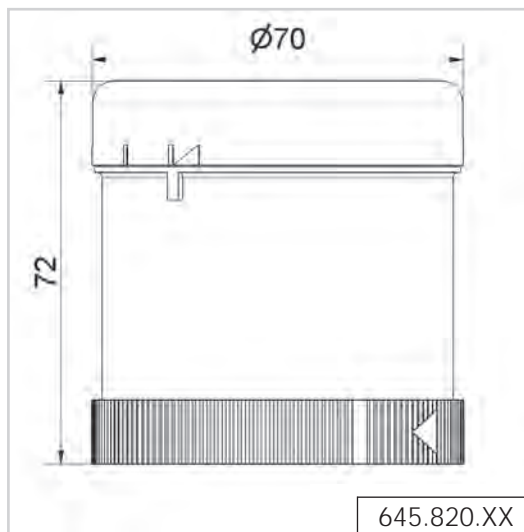


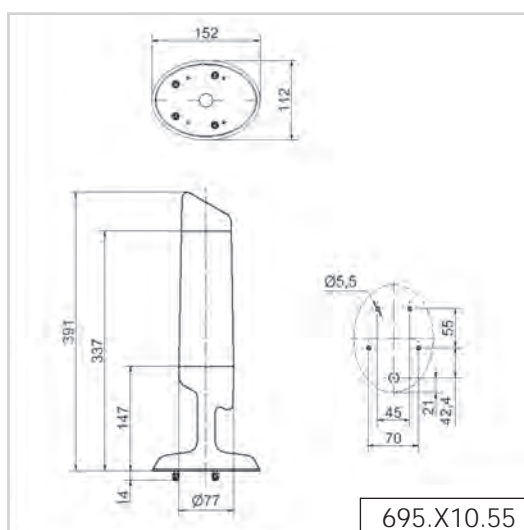
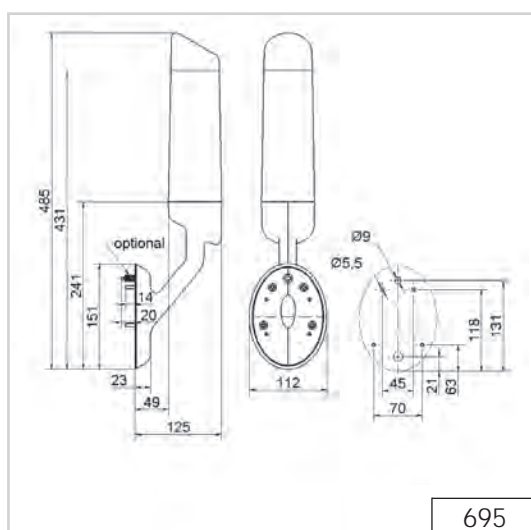
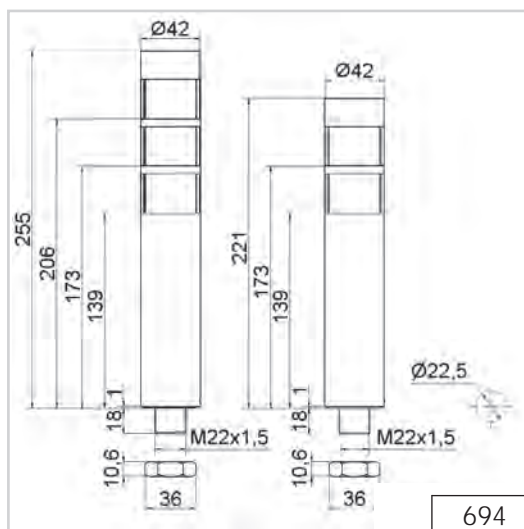
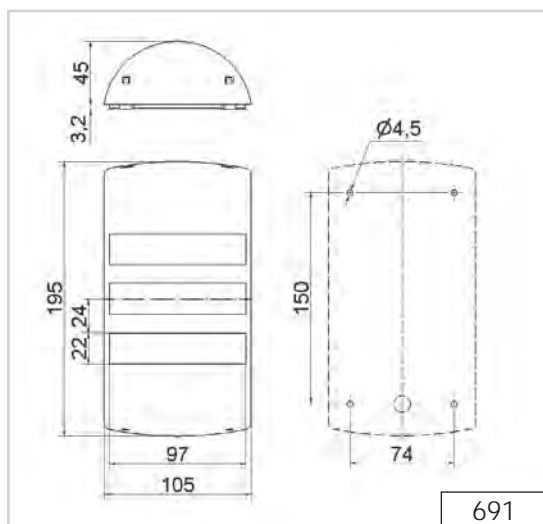
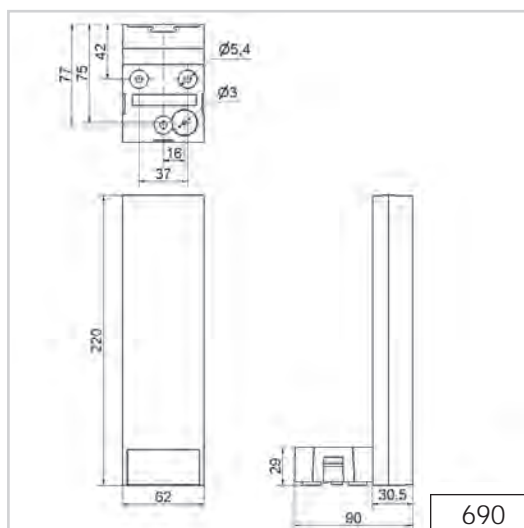
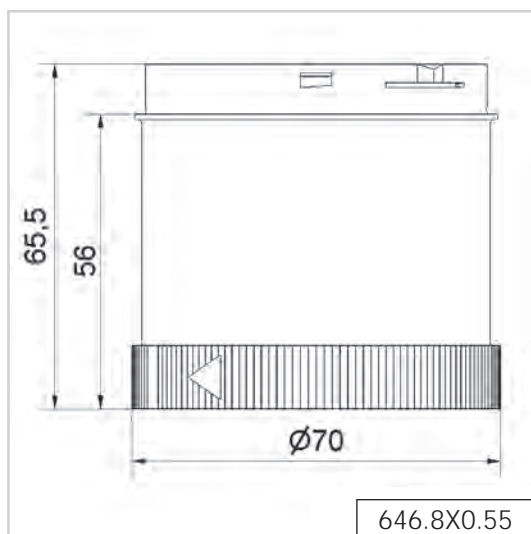


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# Technical Diagrams

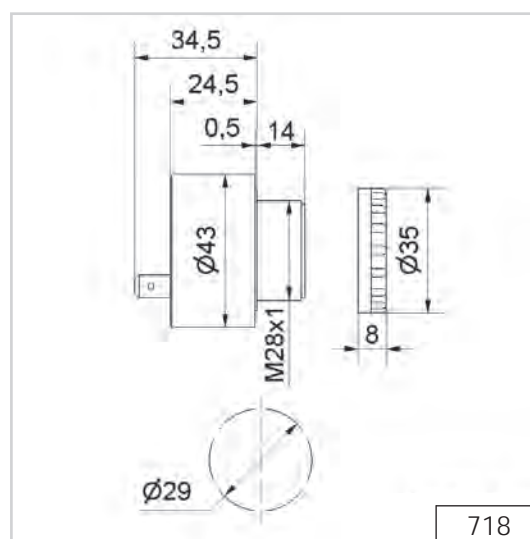
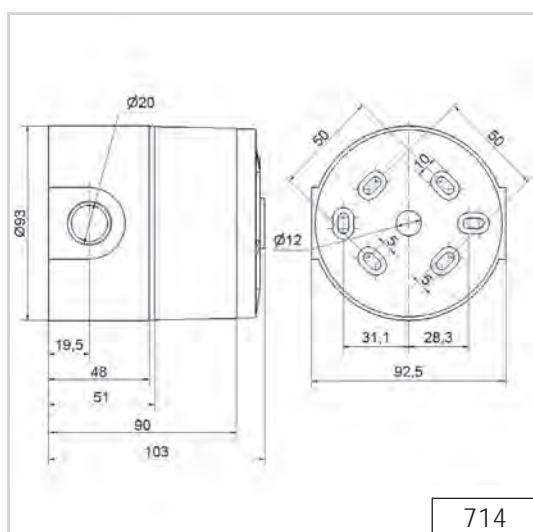
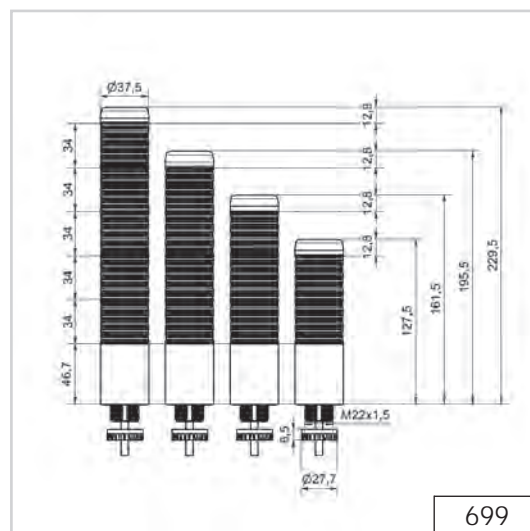
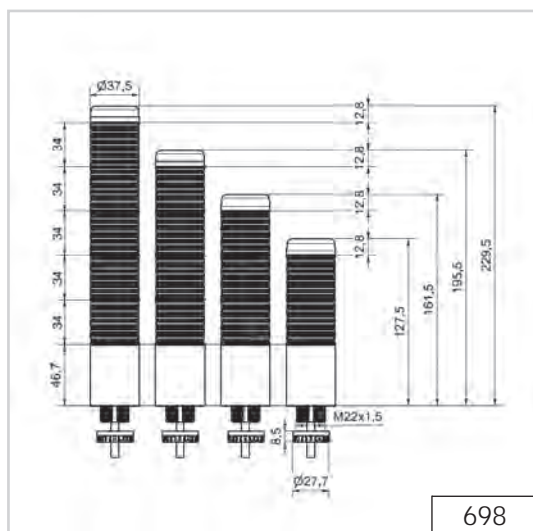
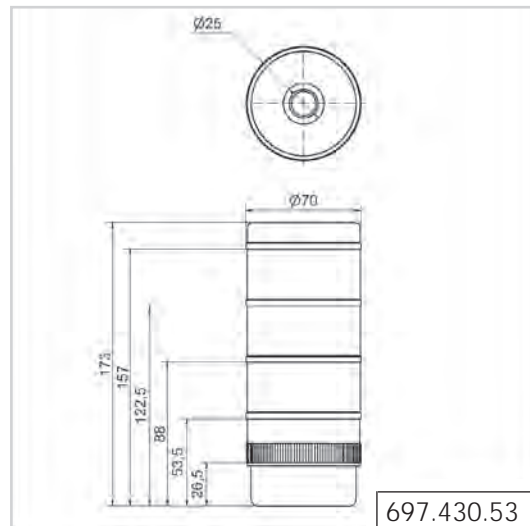
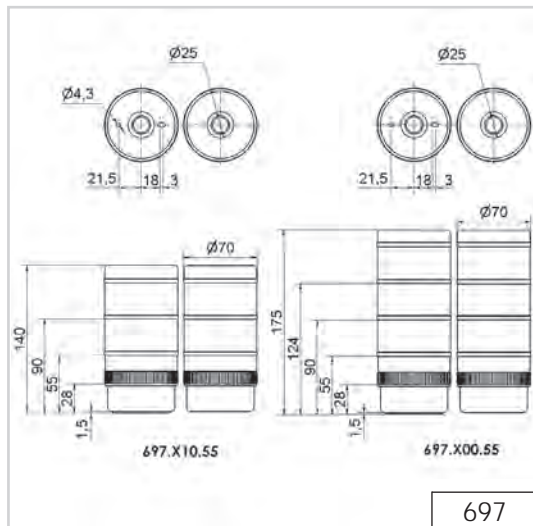


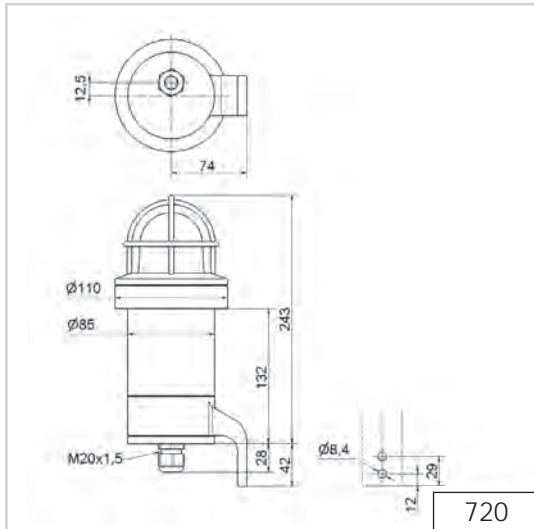


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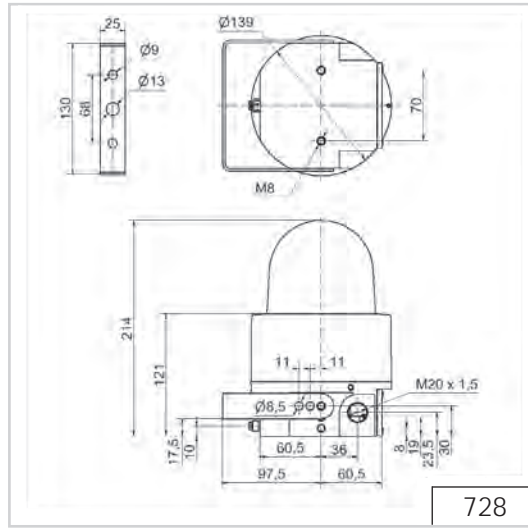
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## Technical Diagrams

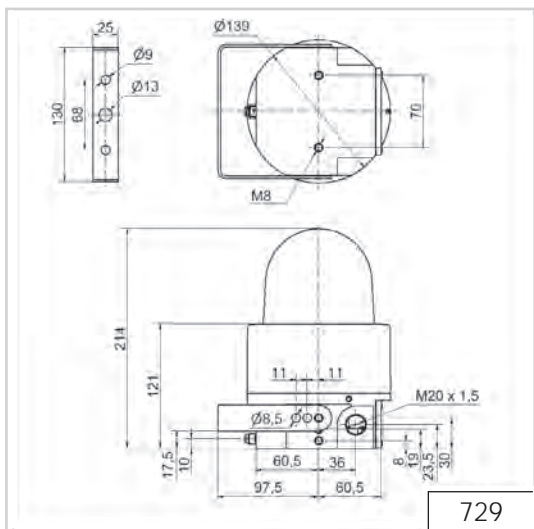




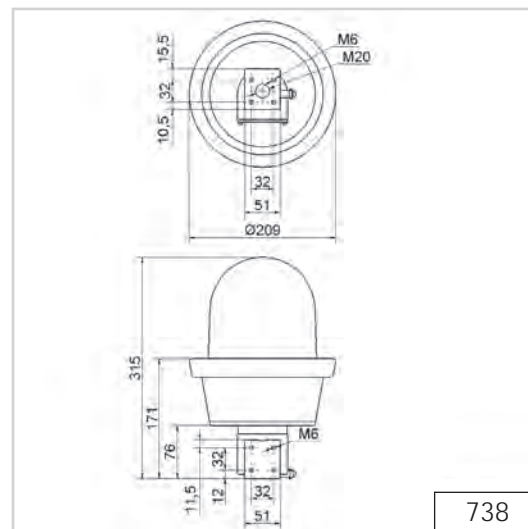
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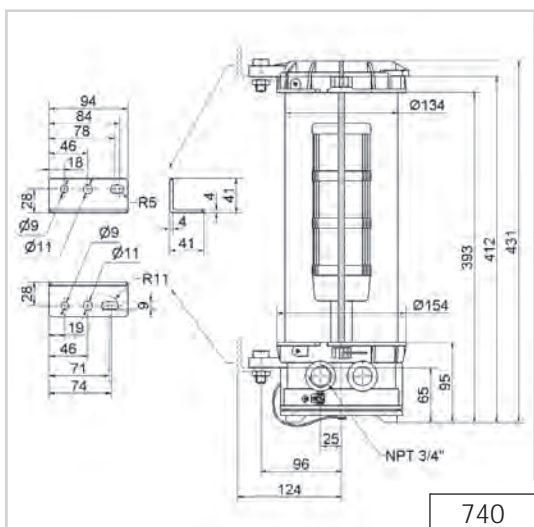
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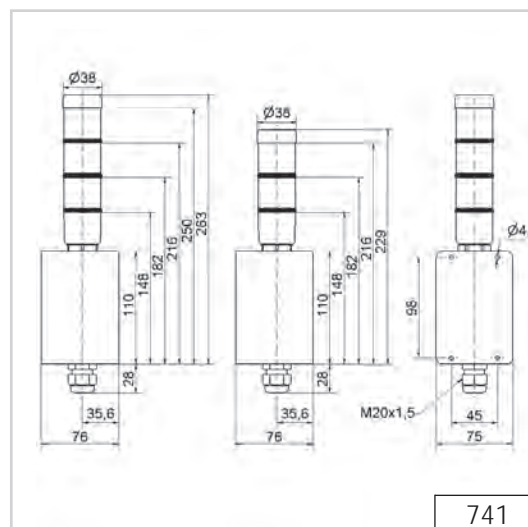
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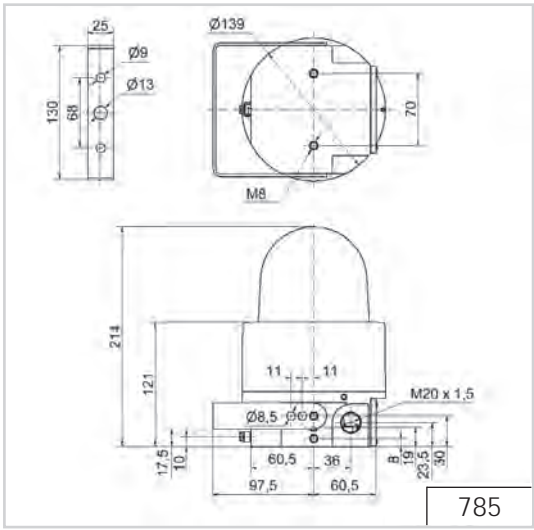
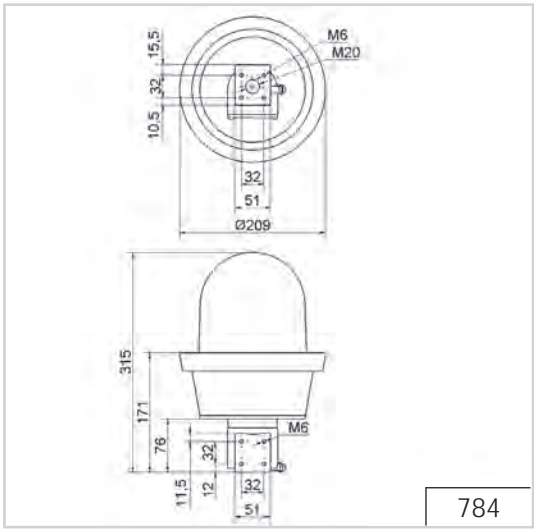
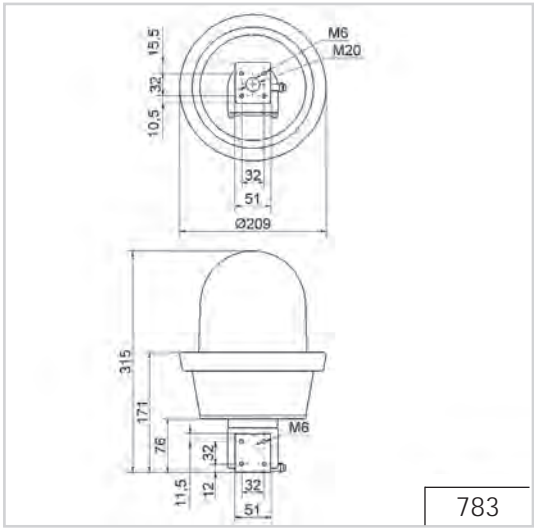
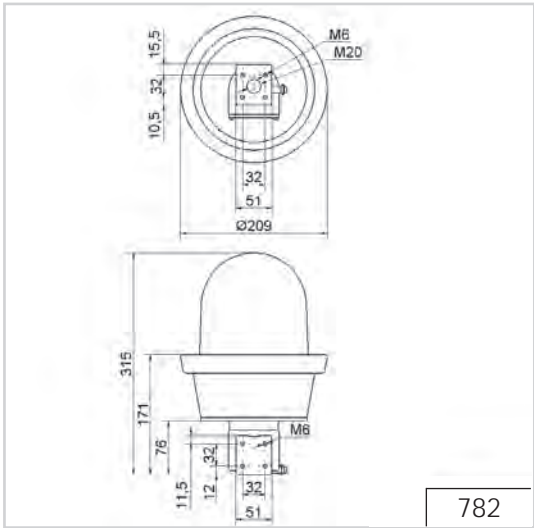
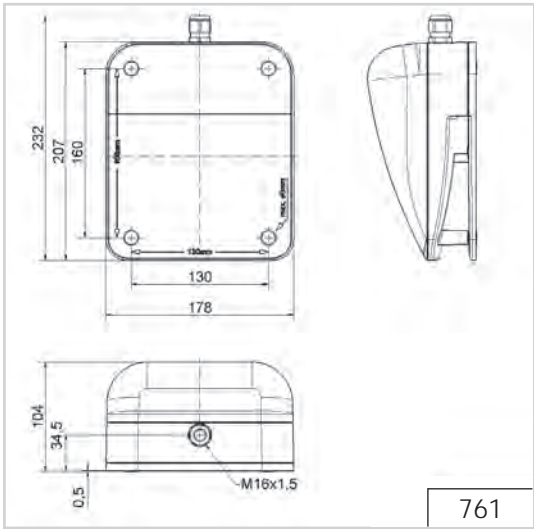
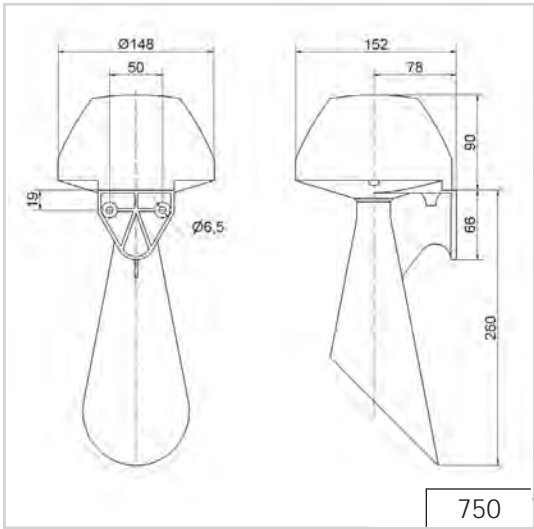


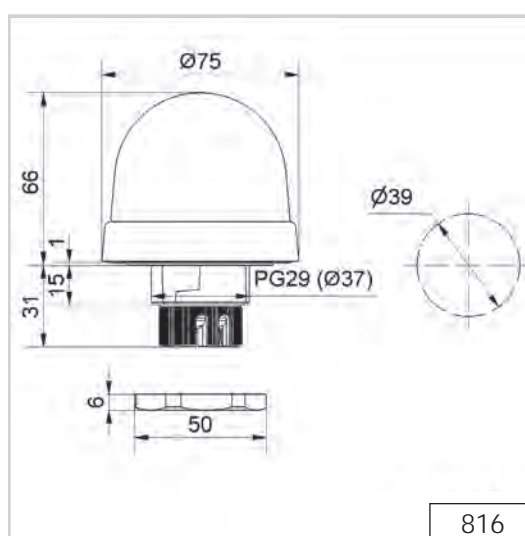
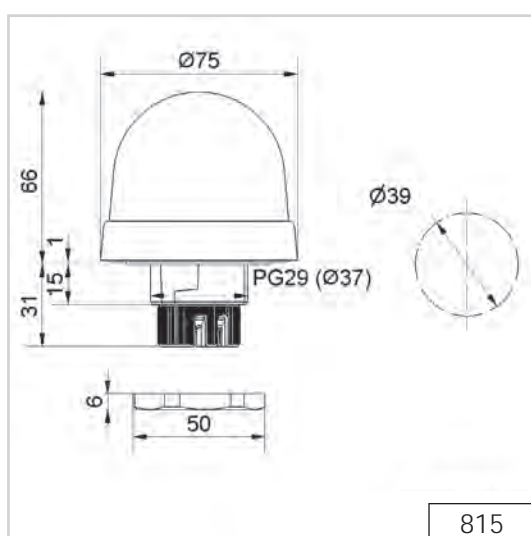
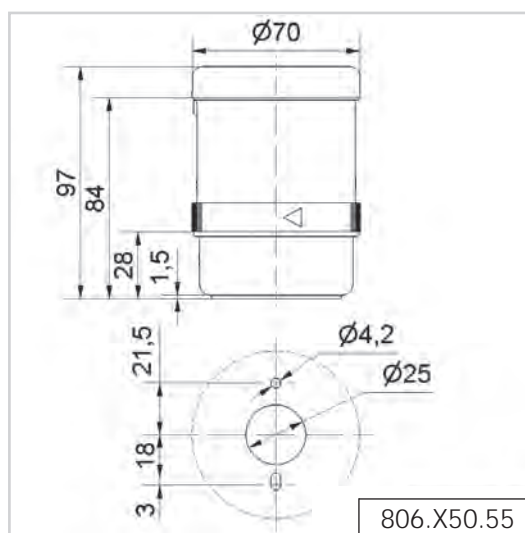
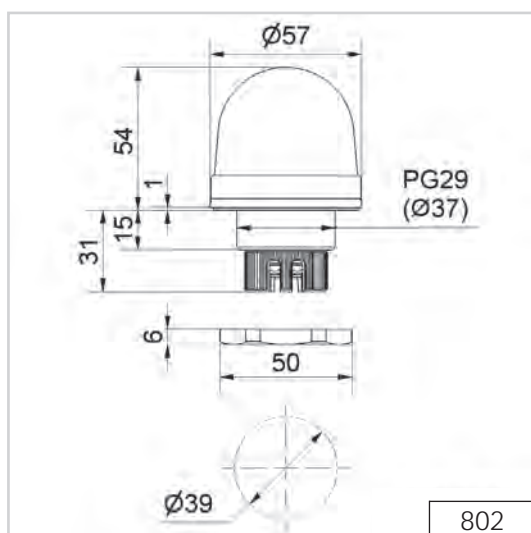
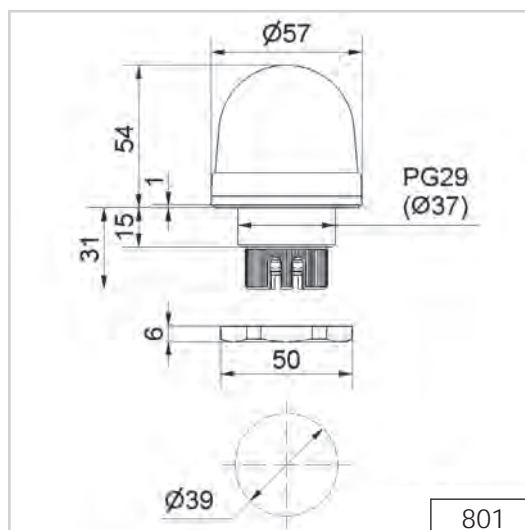
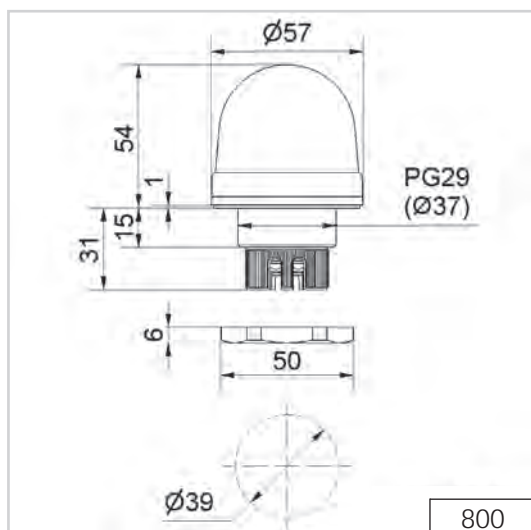
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# Technical Diagrams

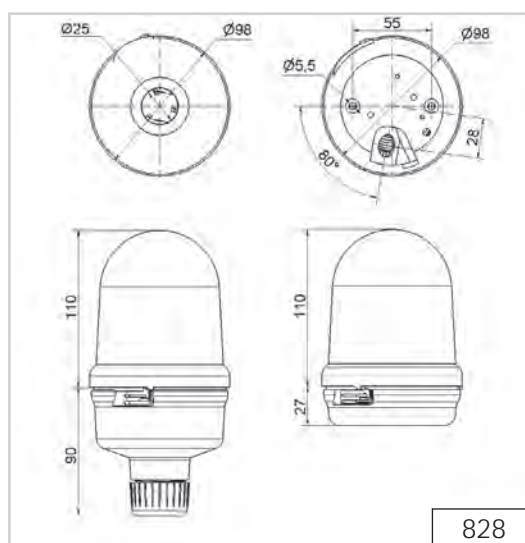
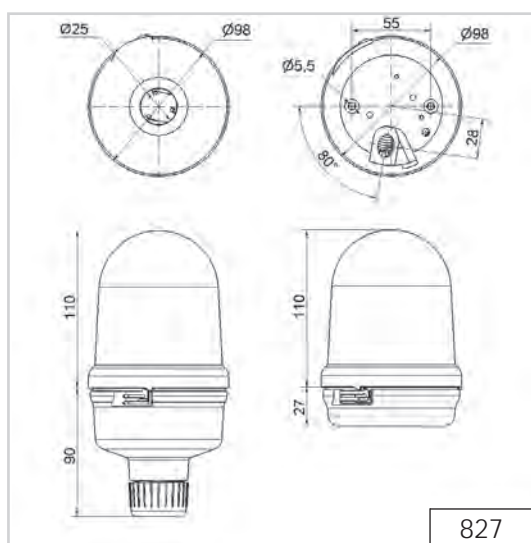
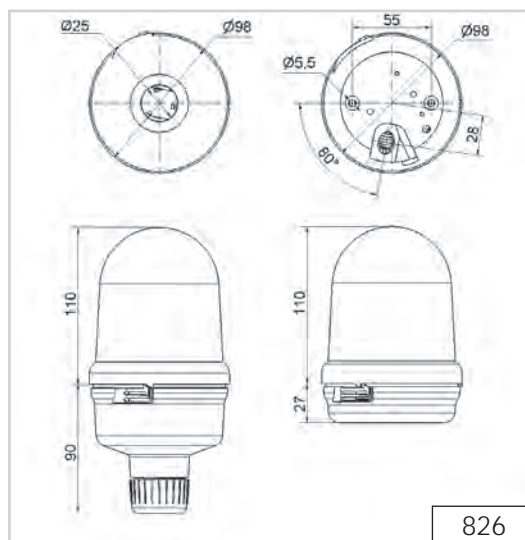
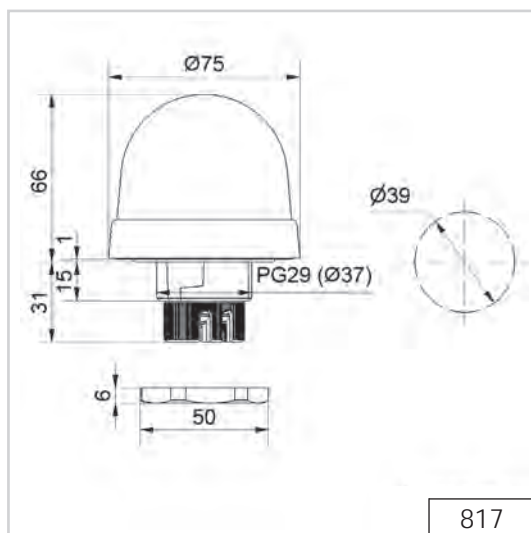
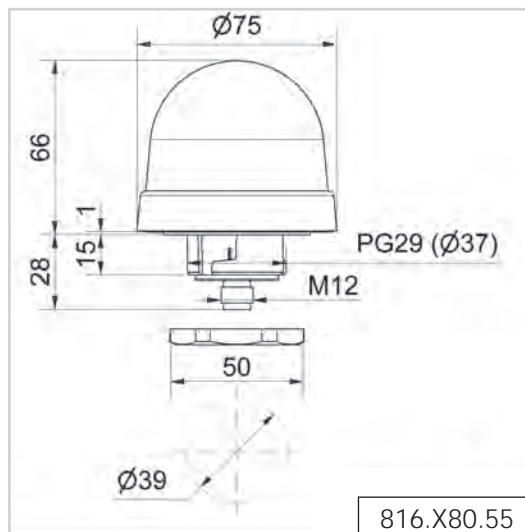
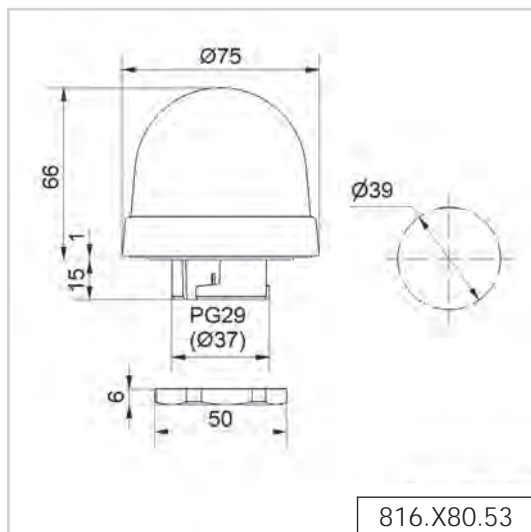


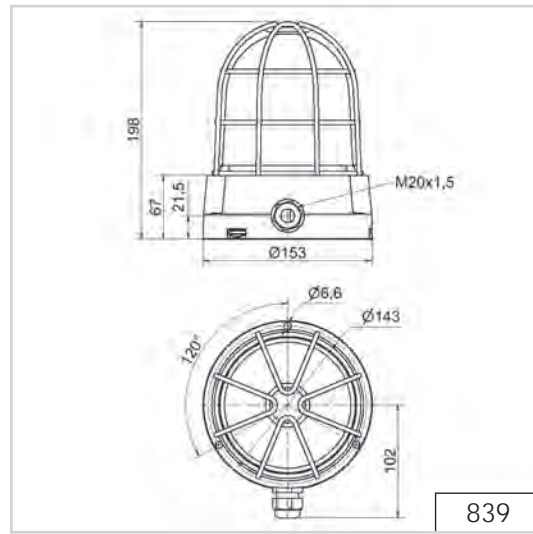
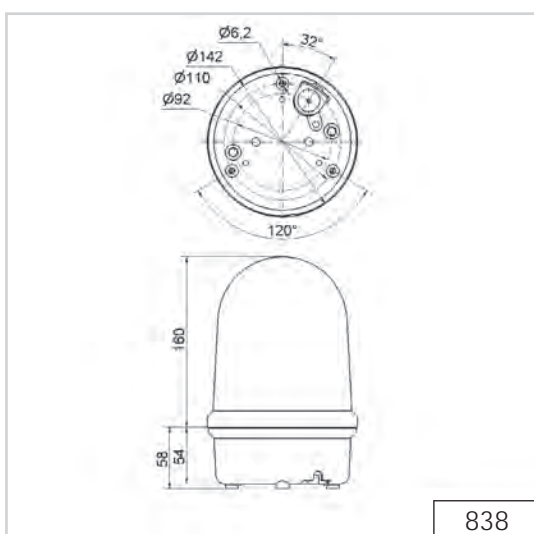
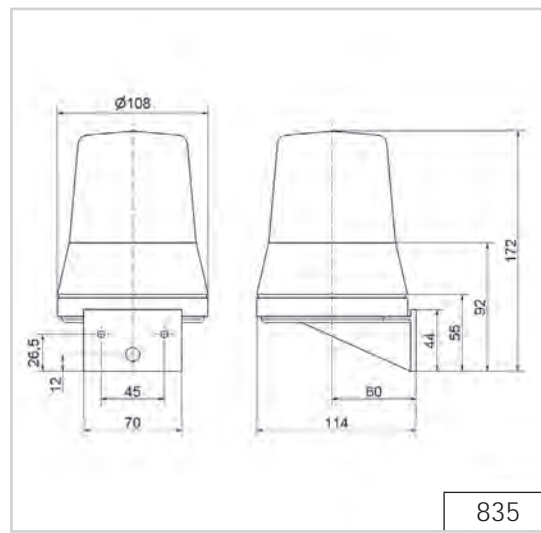
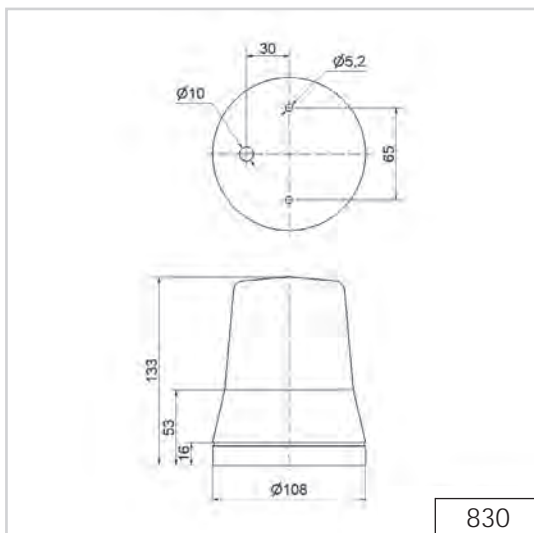
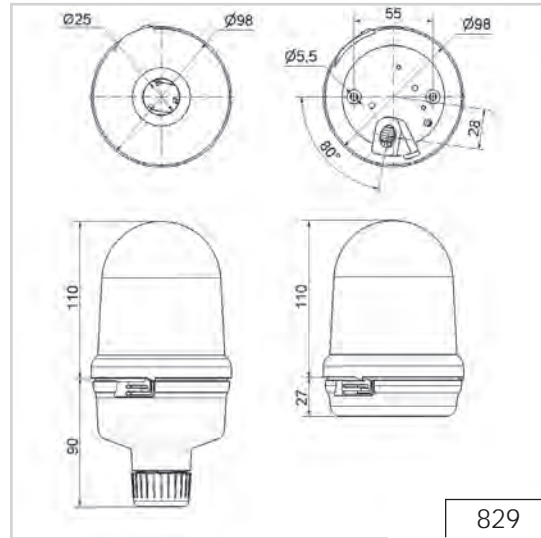
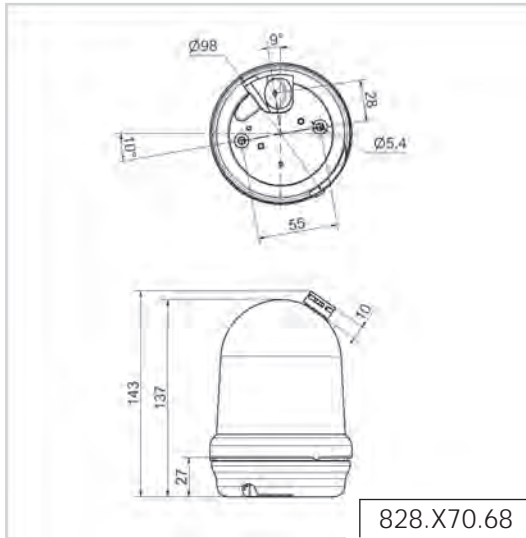


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# Technical Diagrams

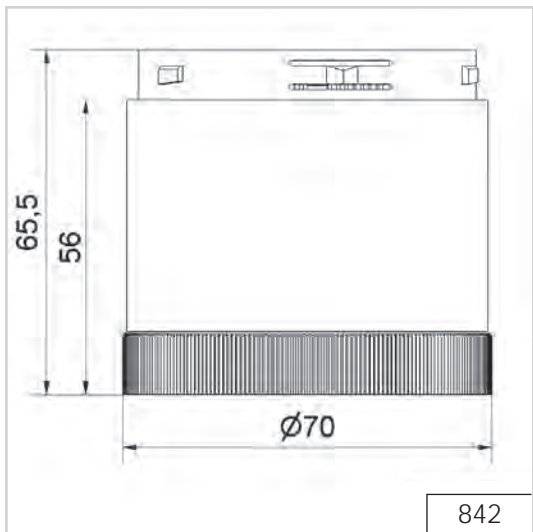
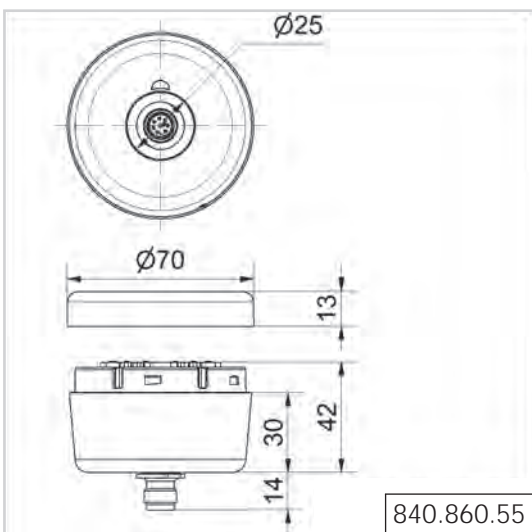
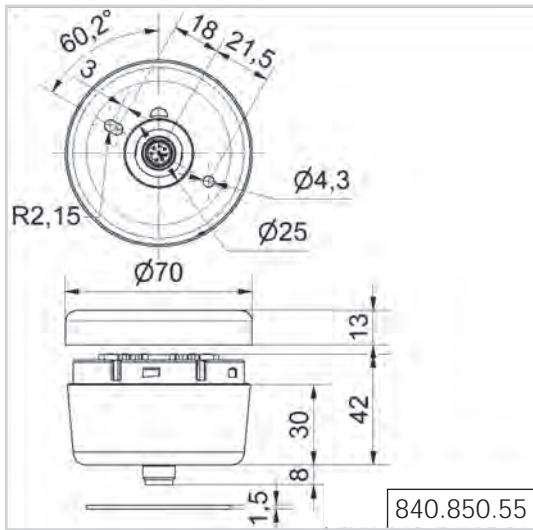
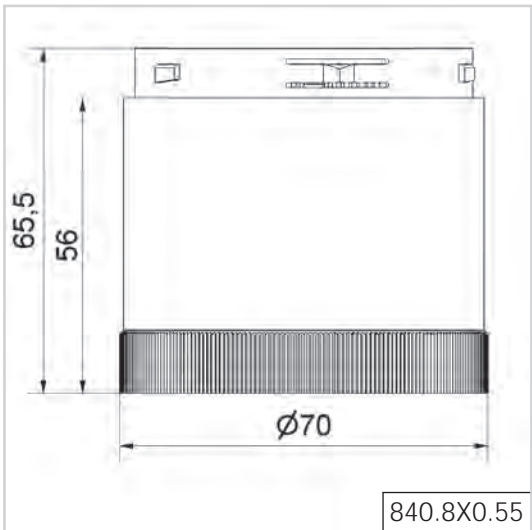
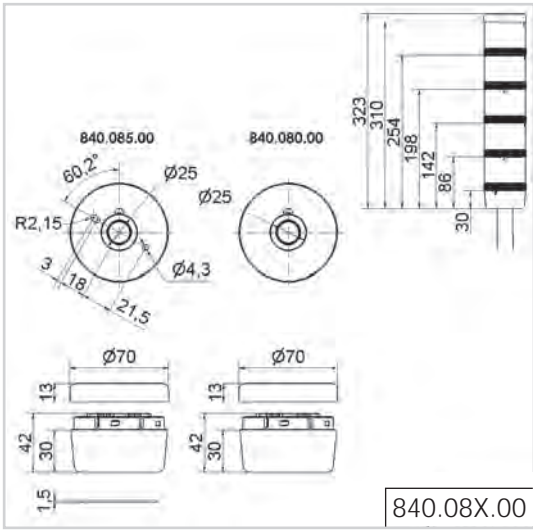
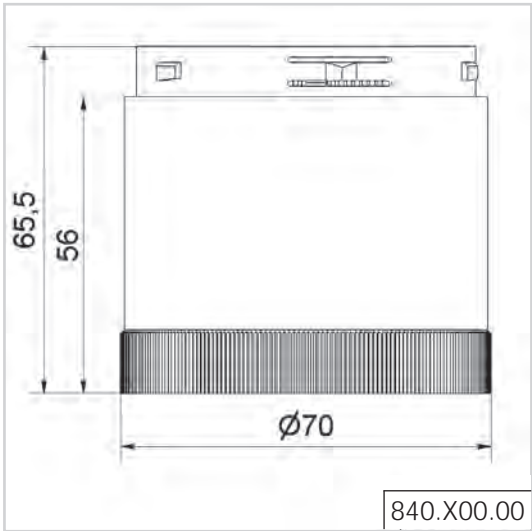




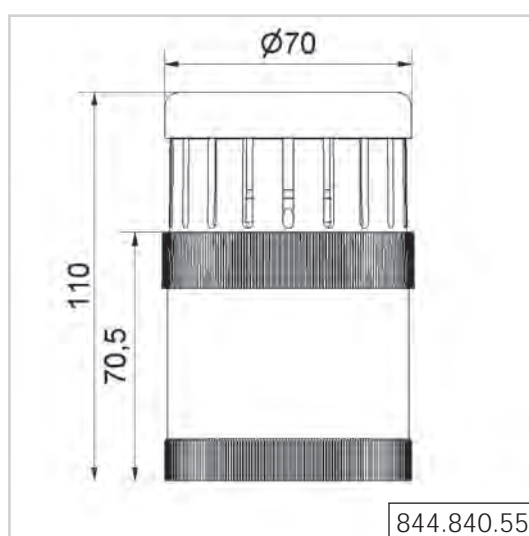
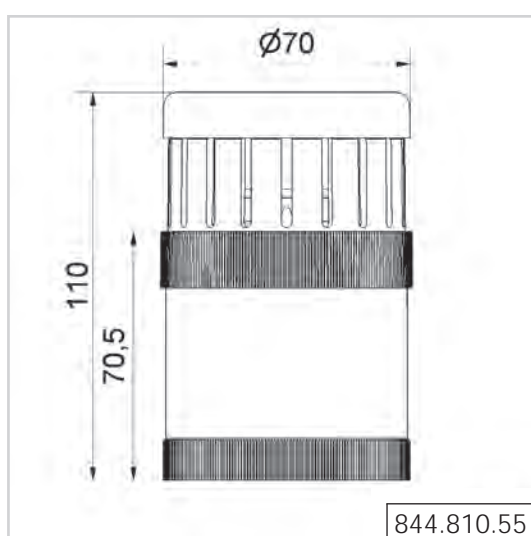
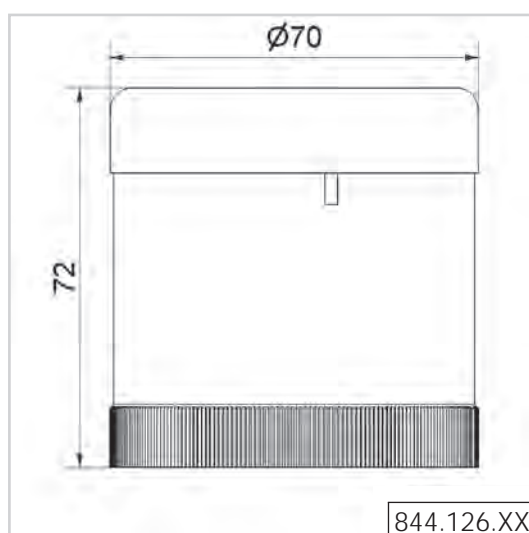
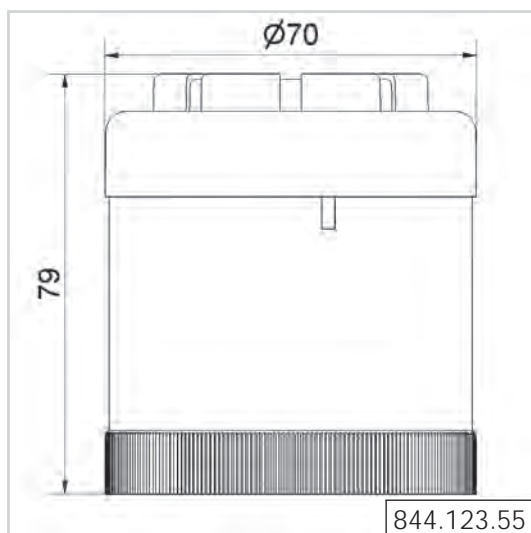
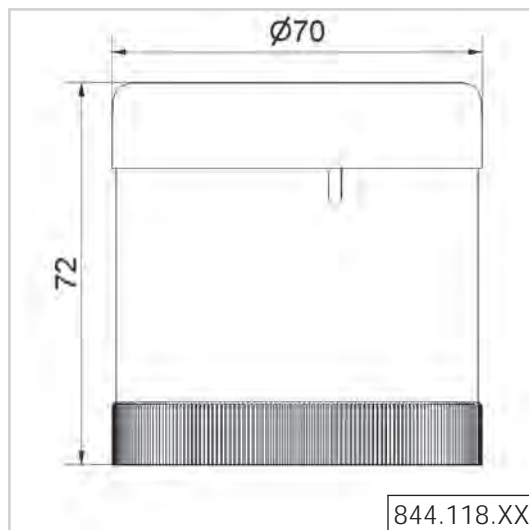
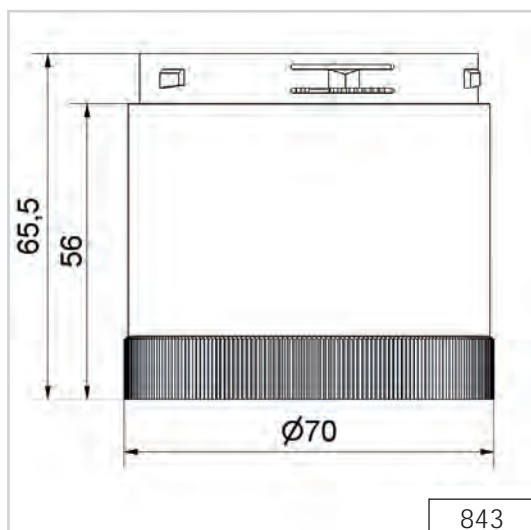
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# Technical Diagrams



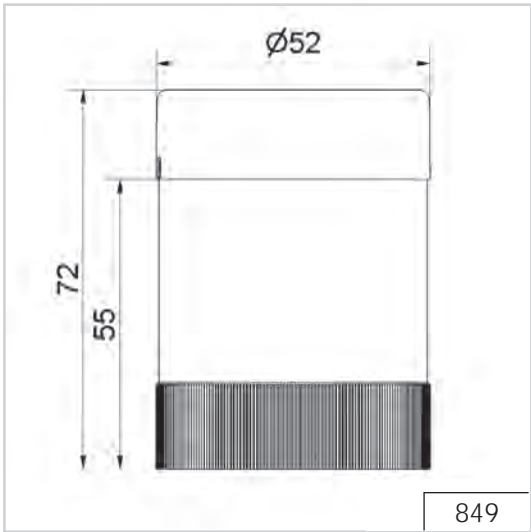
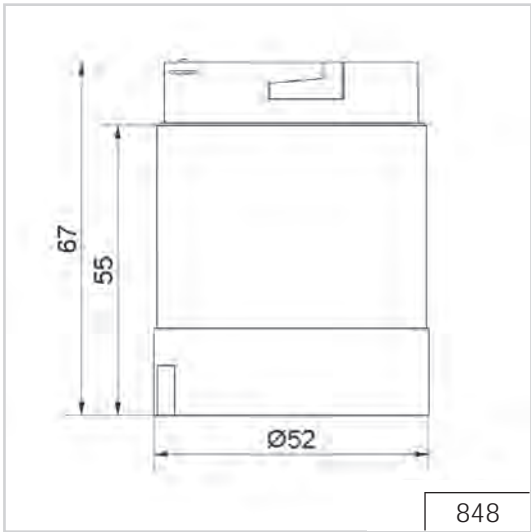
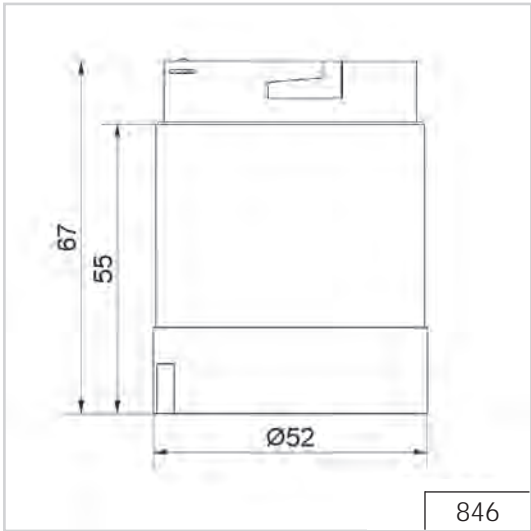
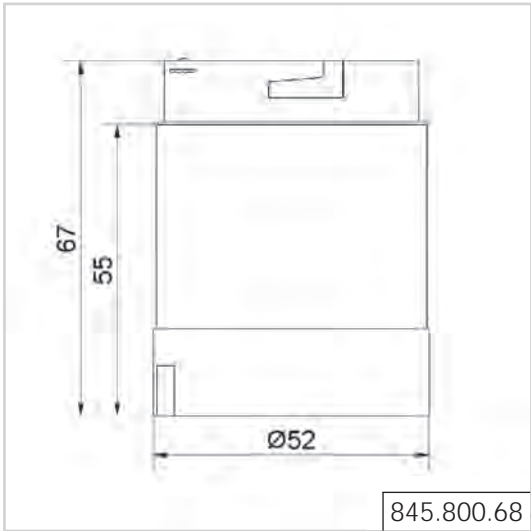
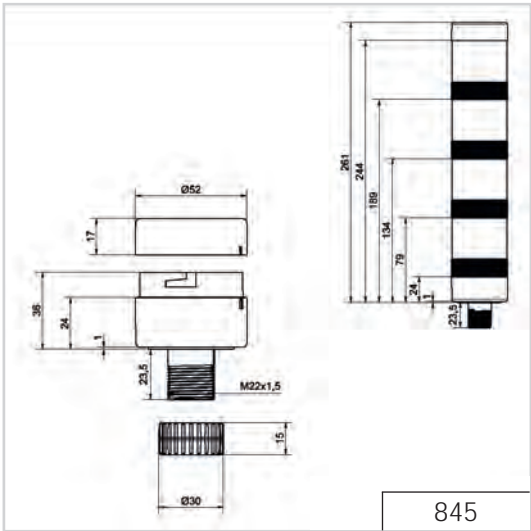


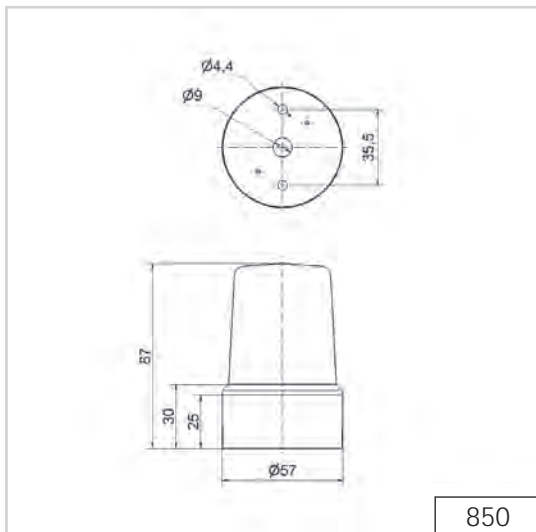


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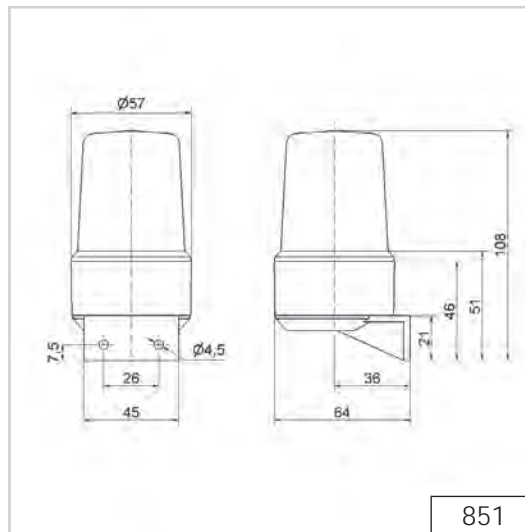
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# Technical Diagrams

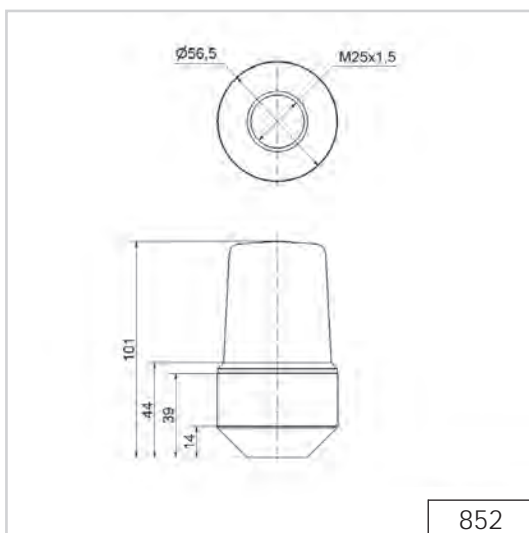




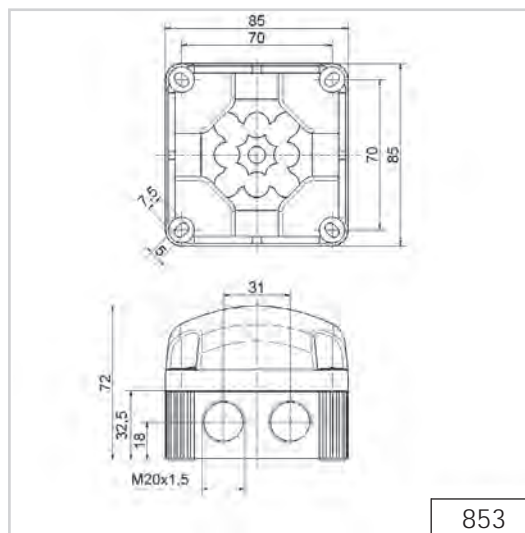
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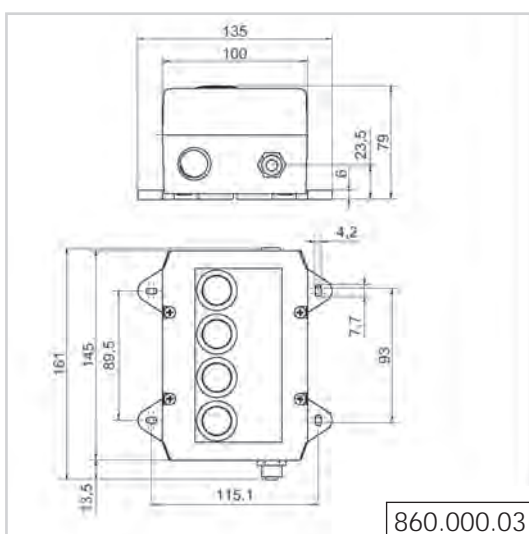
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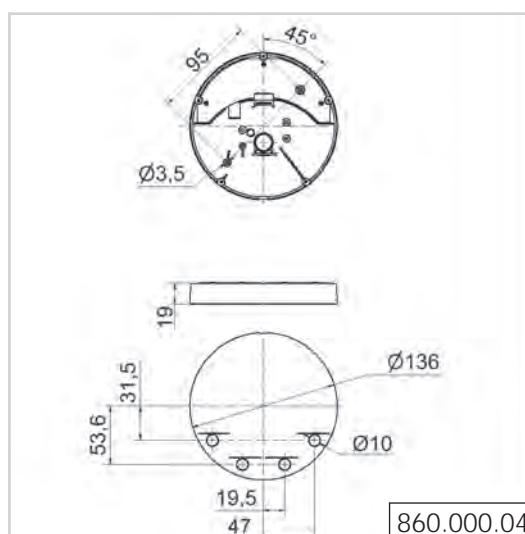
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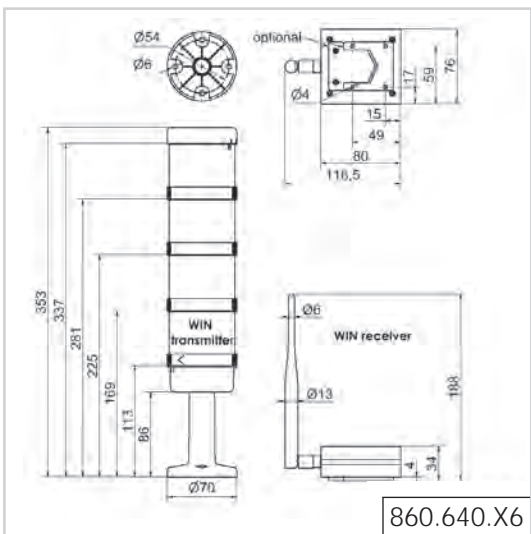
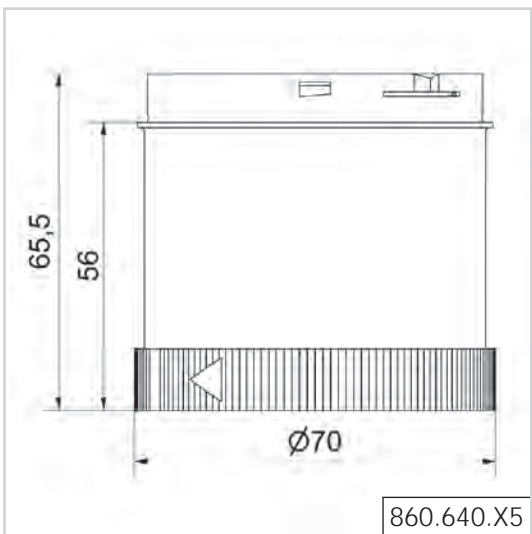
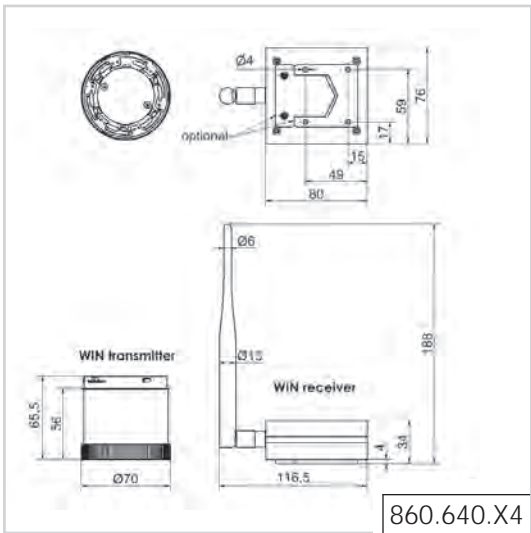
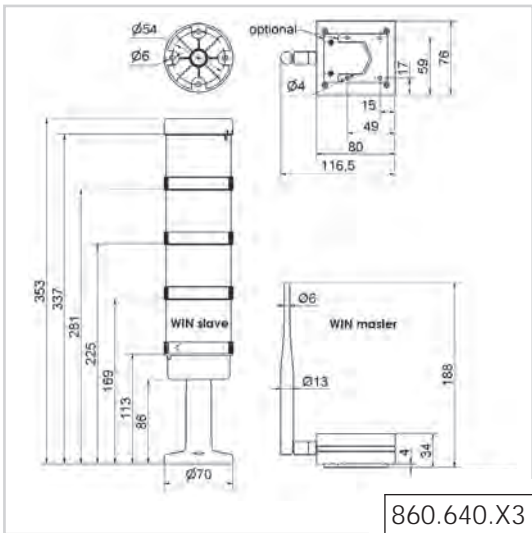
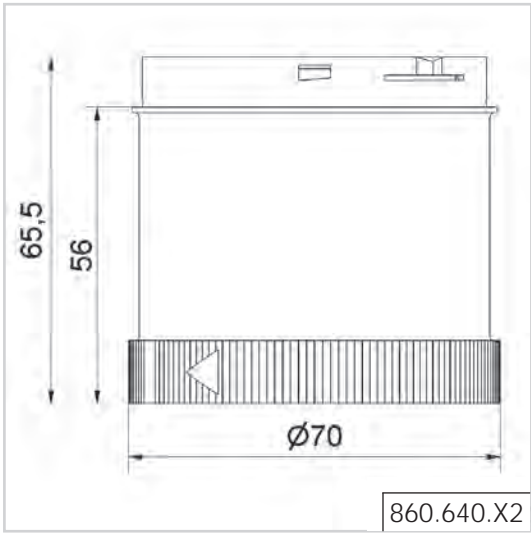
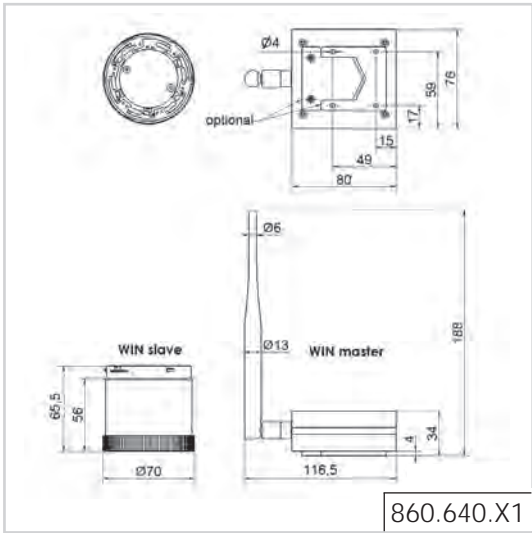
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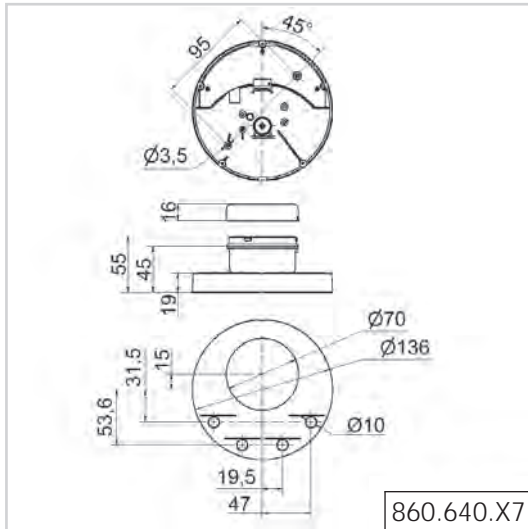


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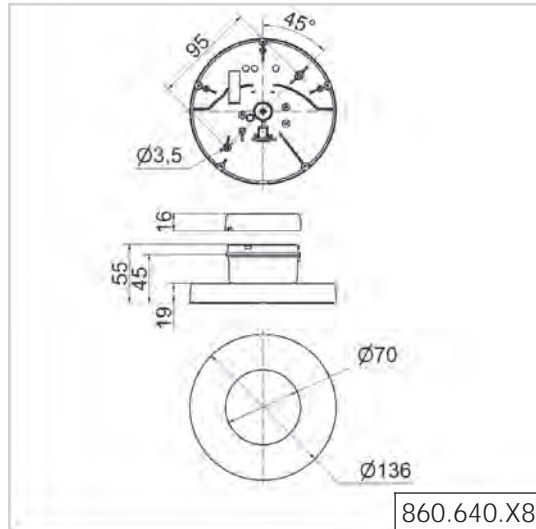
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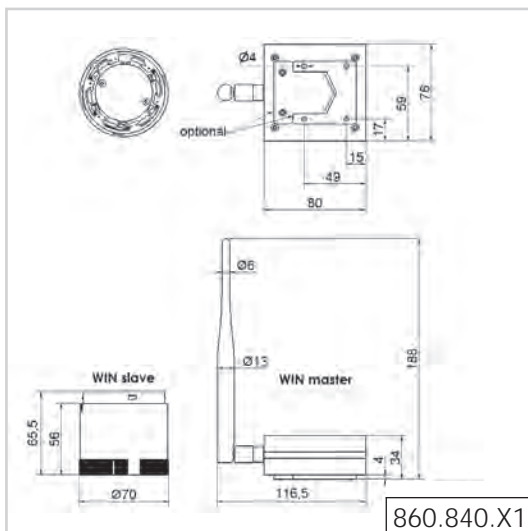




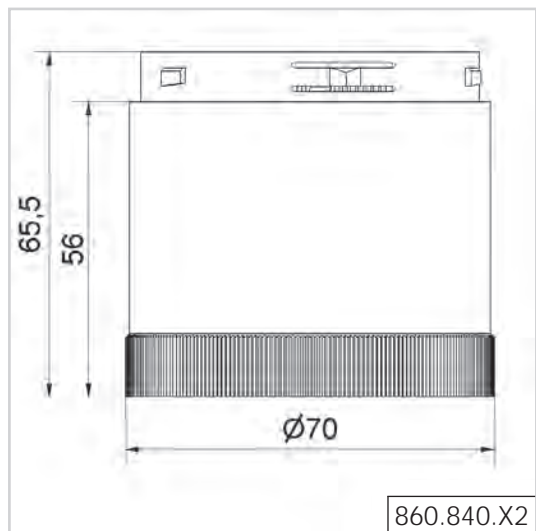
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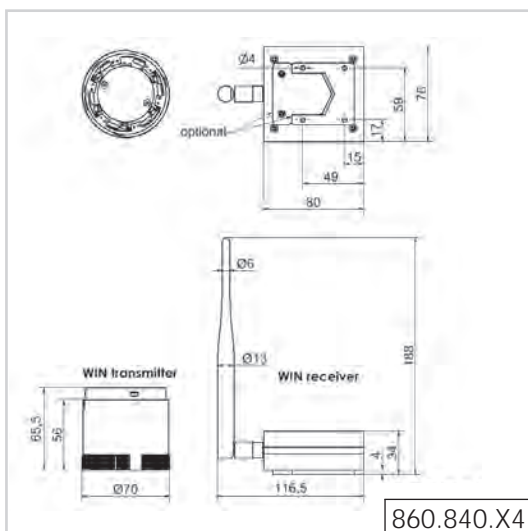
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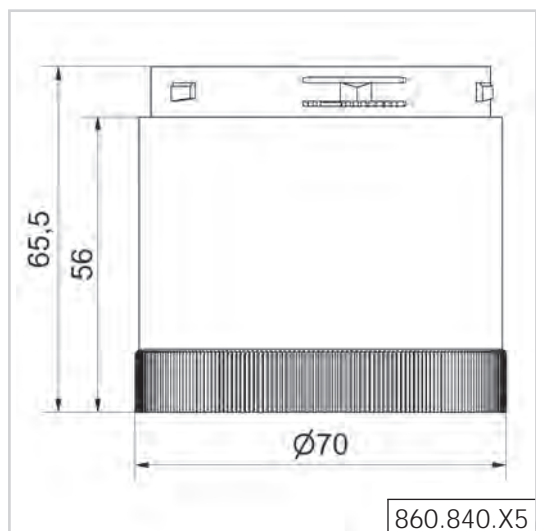
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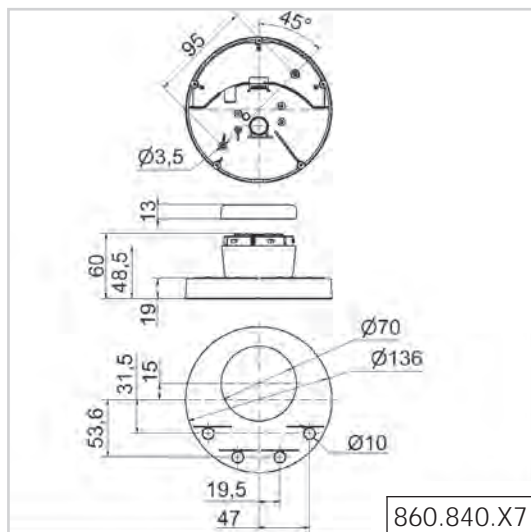


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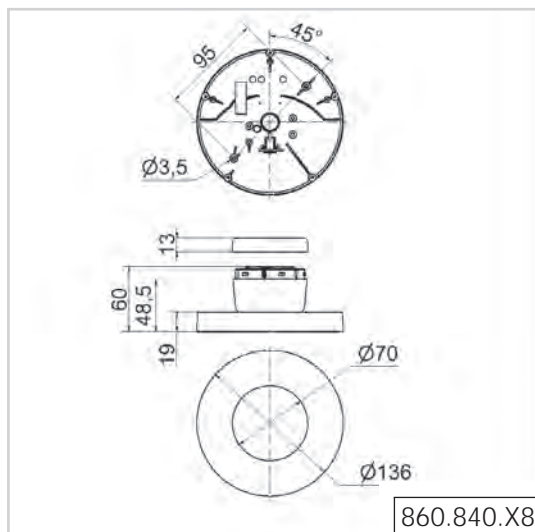
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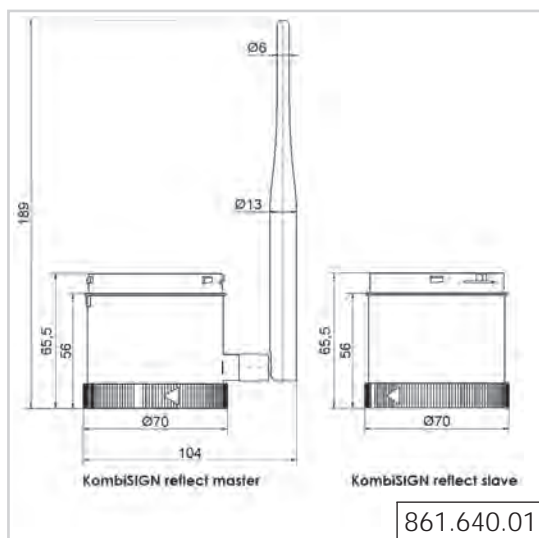
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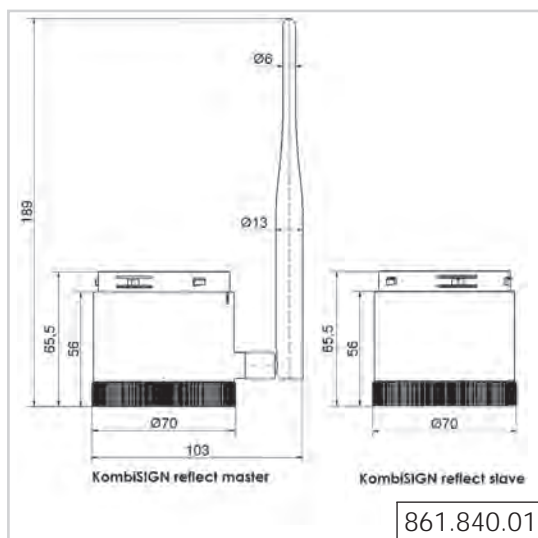
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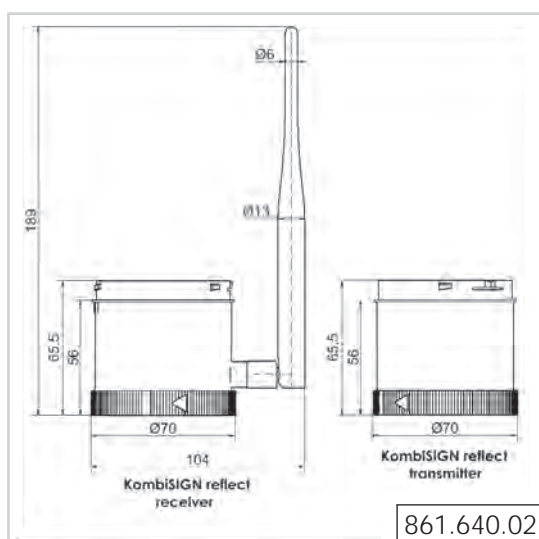
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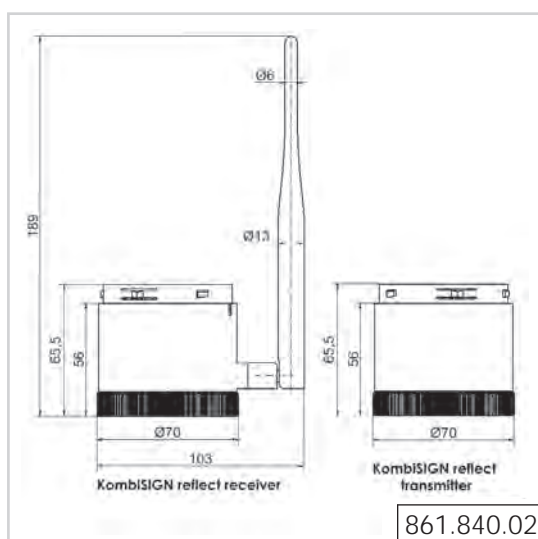
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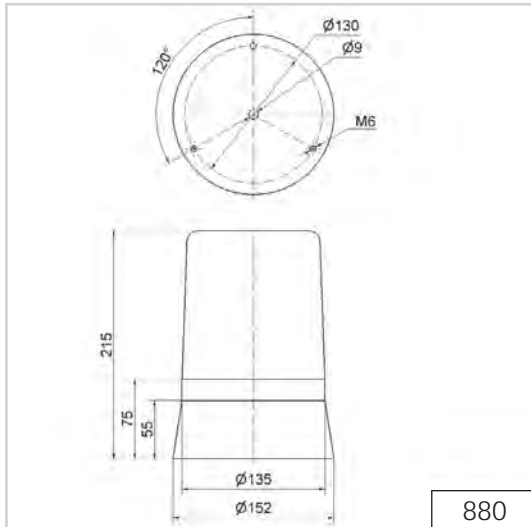
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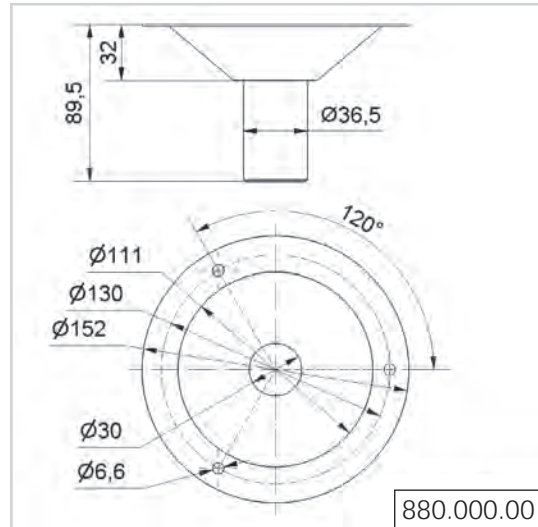
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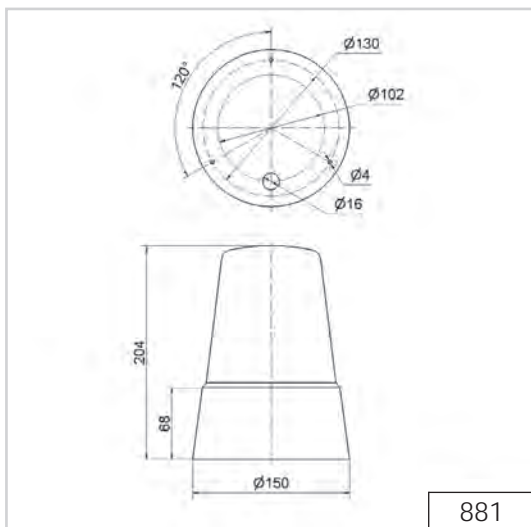
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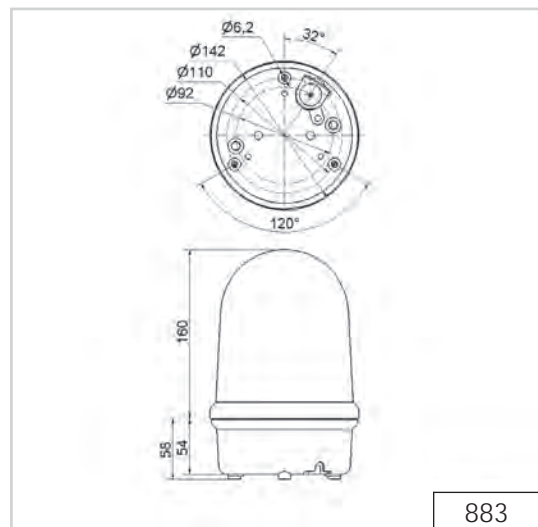
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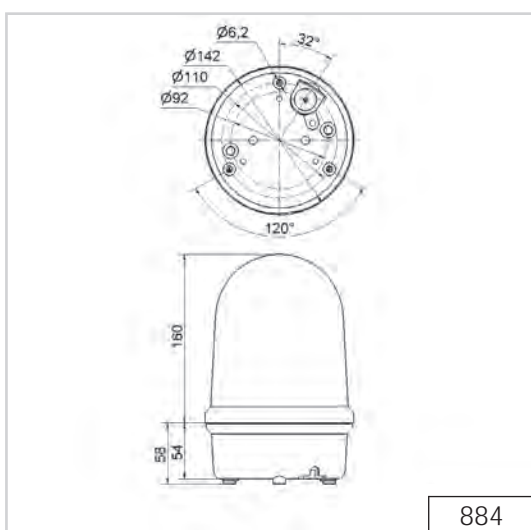
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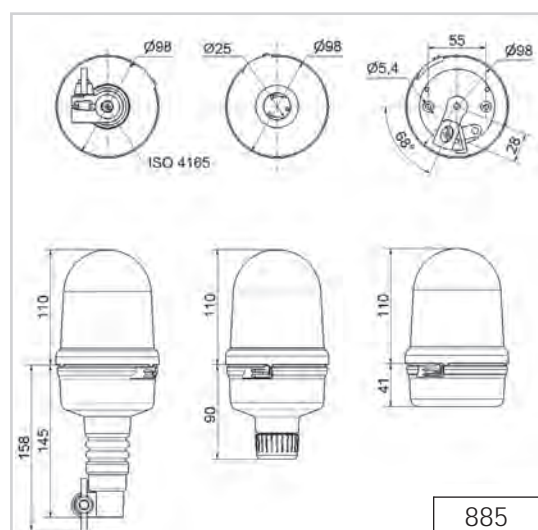
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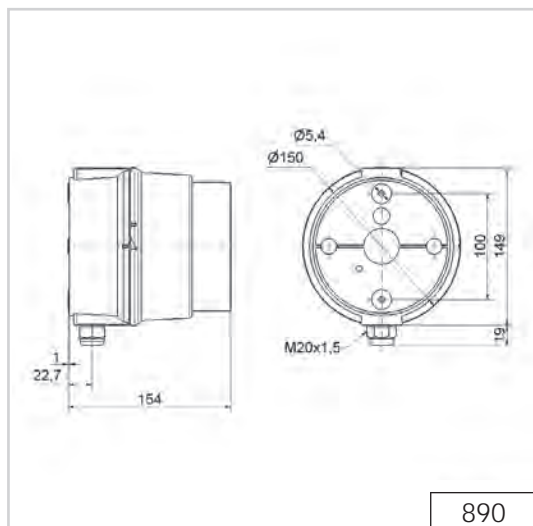
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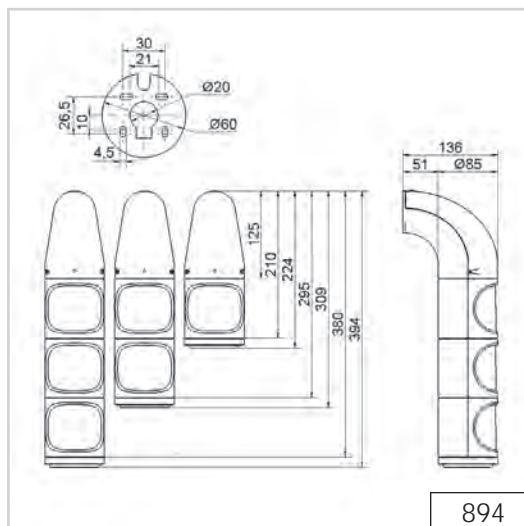
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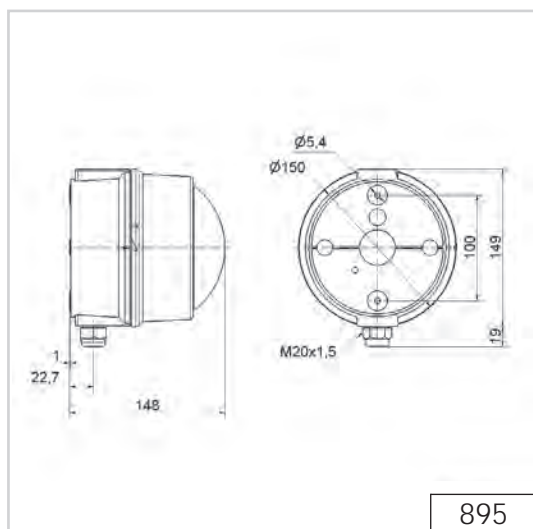
# Technical Diagrams



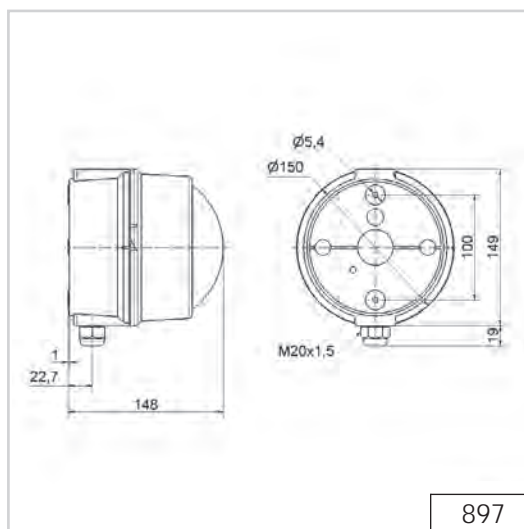
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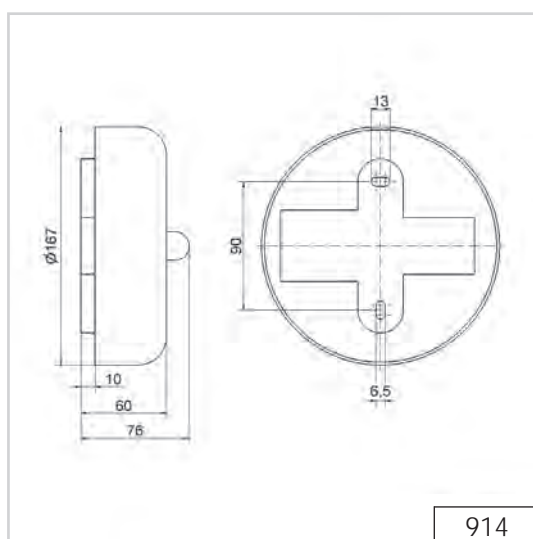
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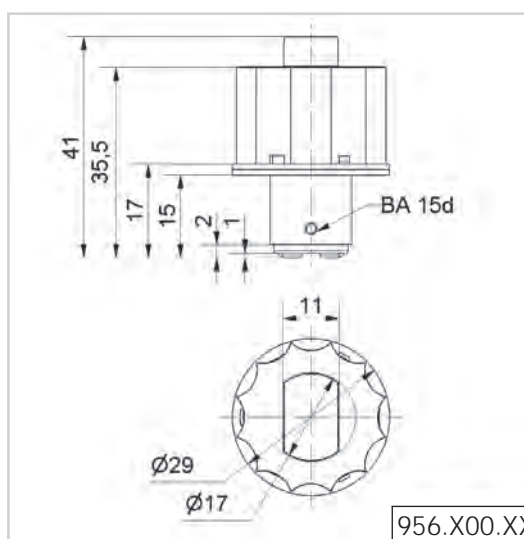
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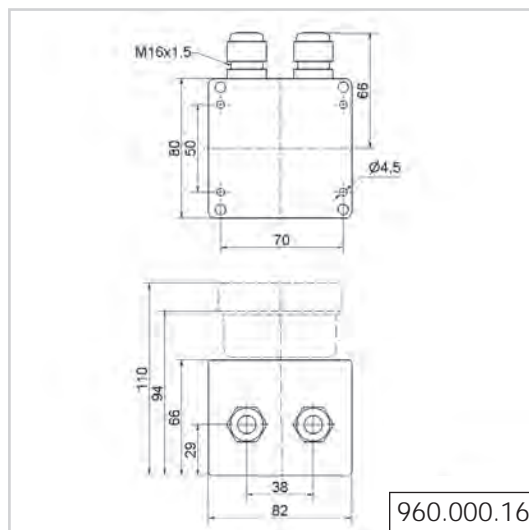
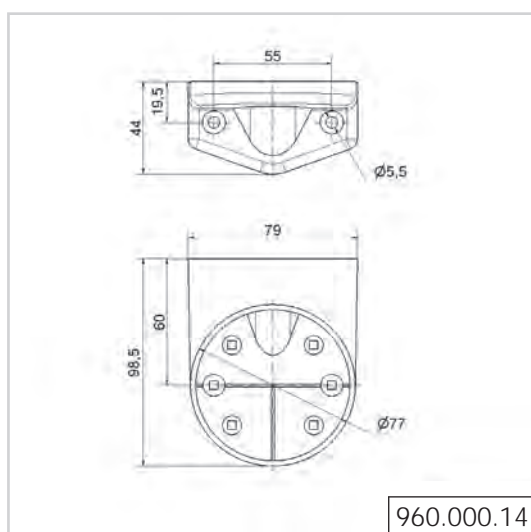
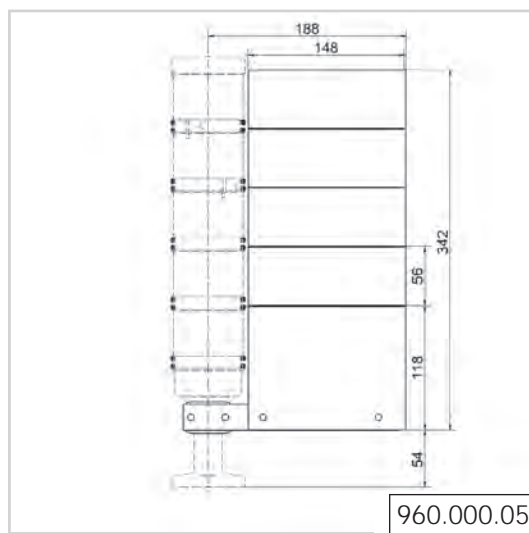
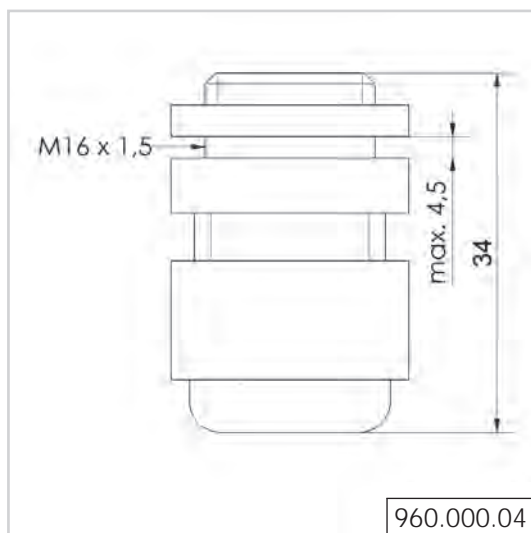
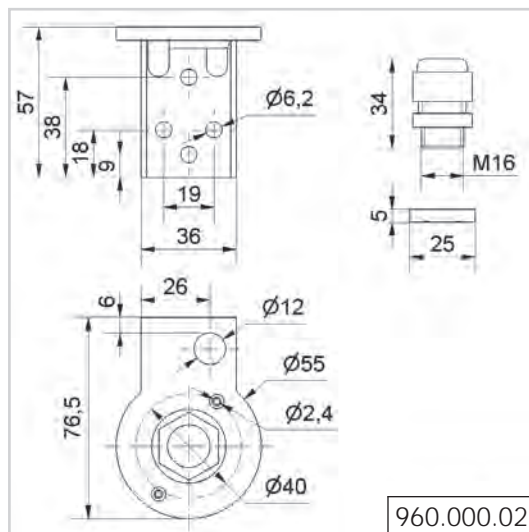
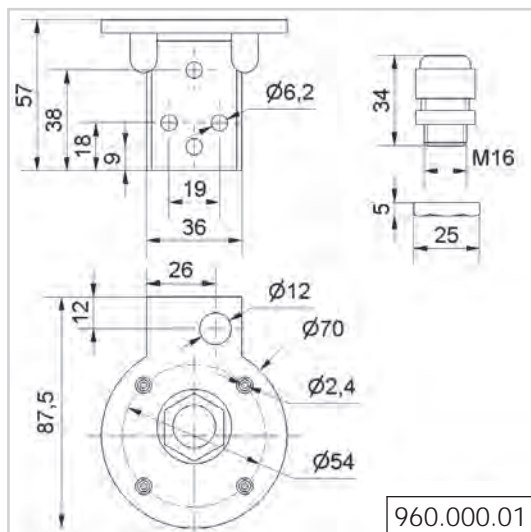
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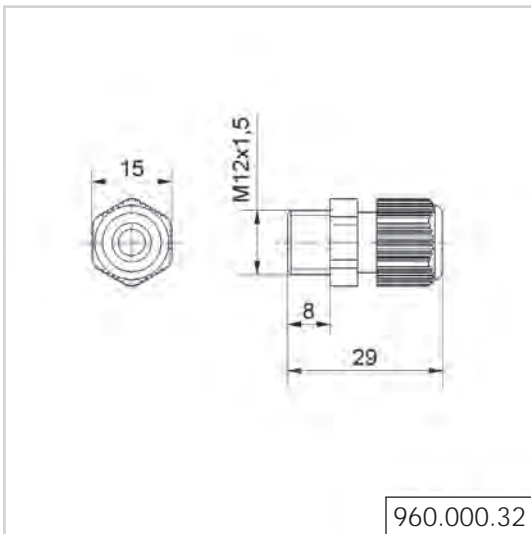
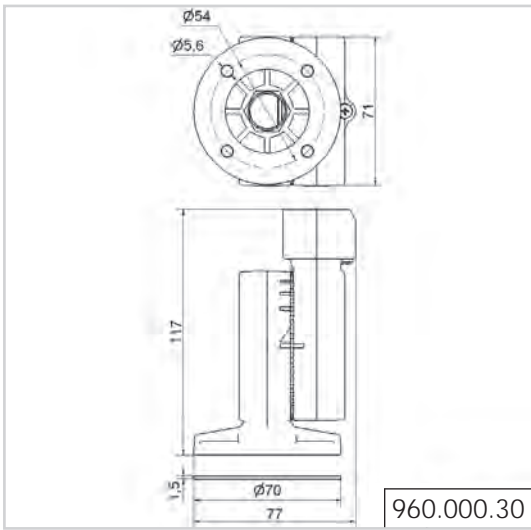
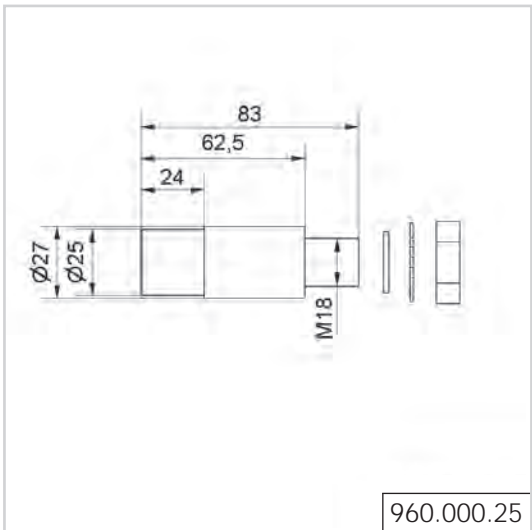
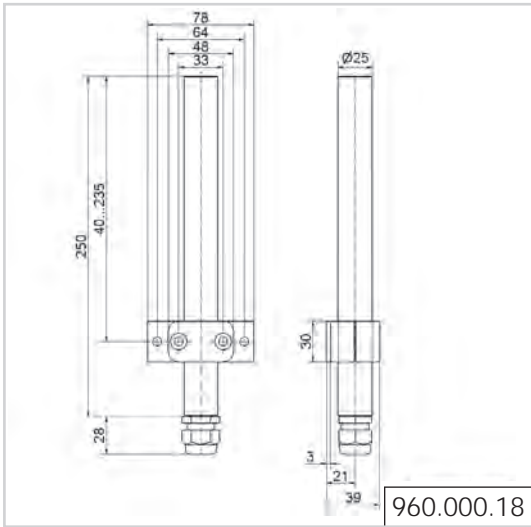
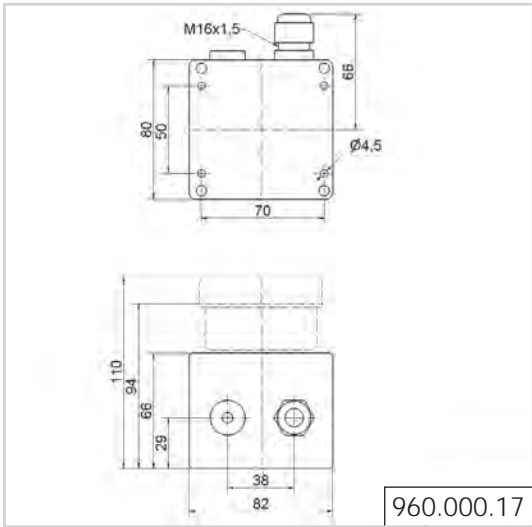
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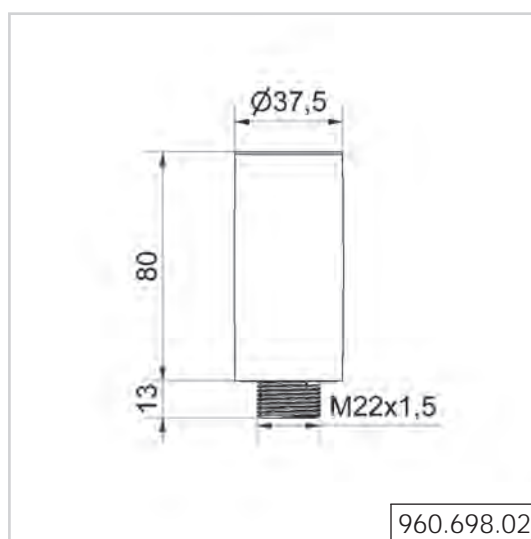
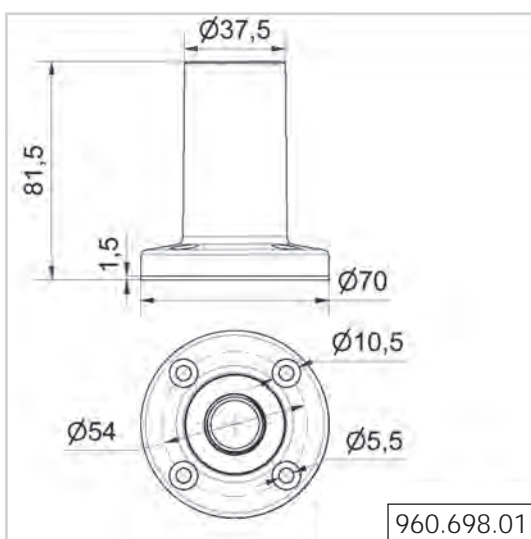
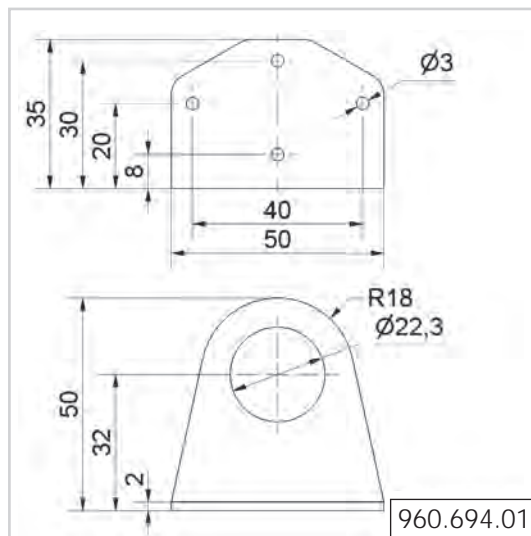
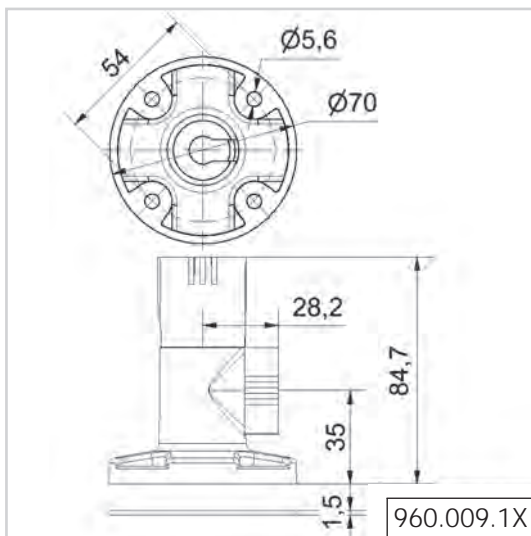
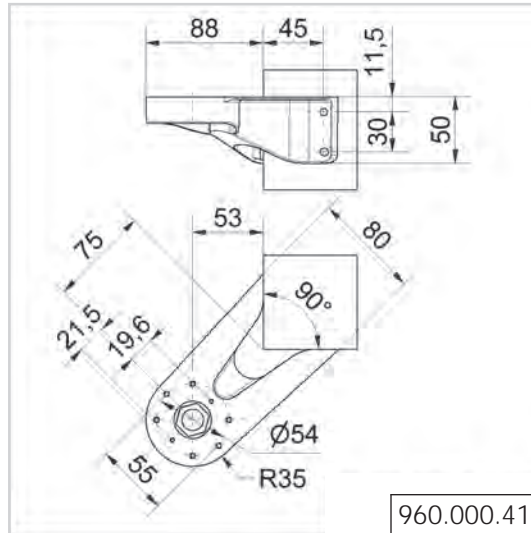
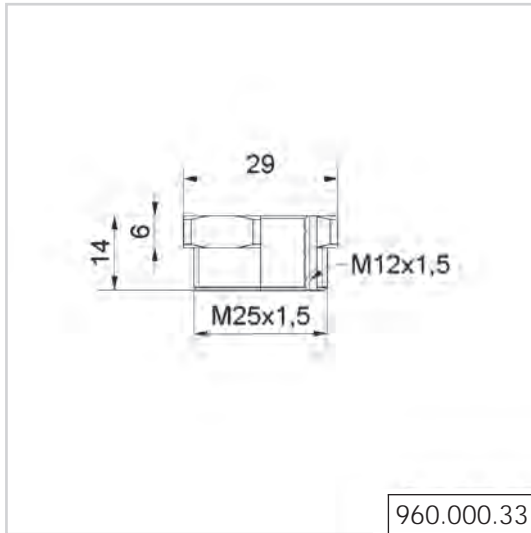
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# Technical Diagrams



Technical  
Diagrams

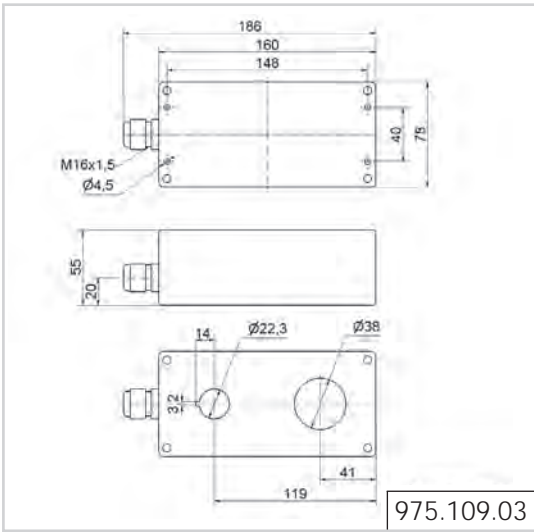
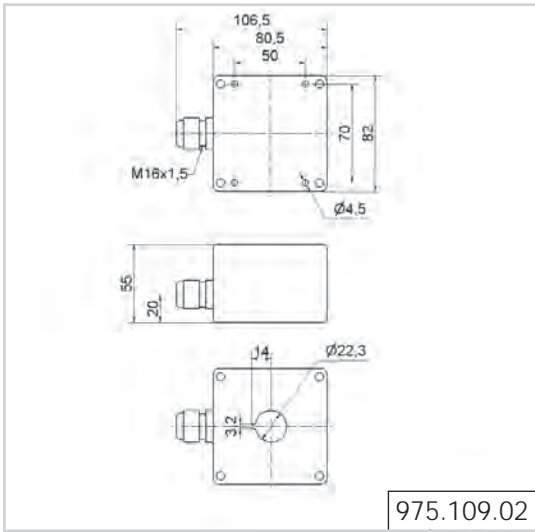
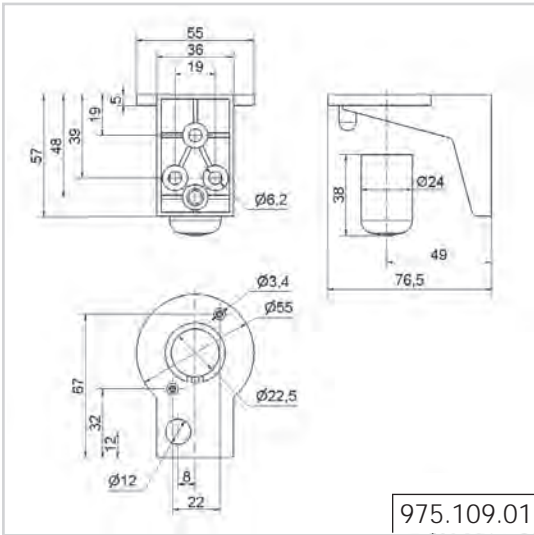
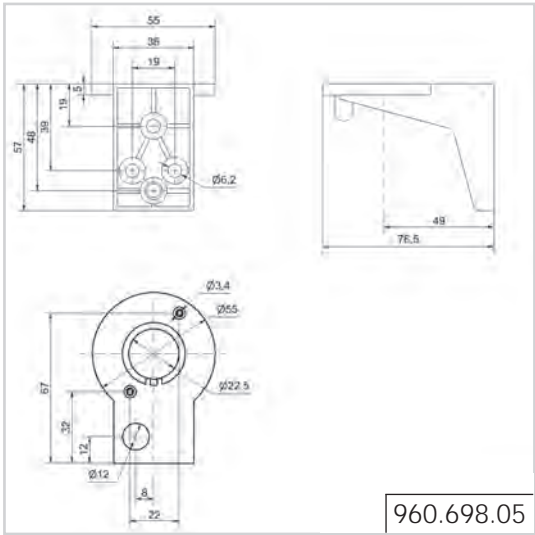
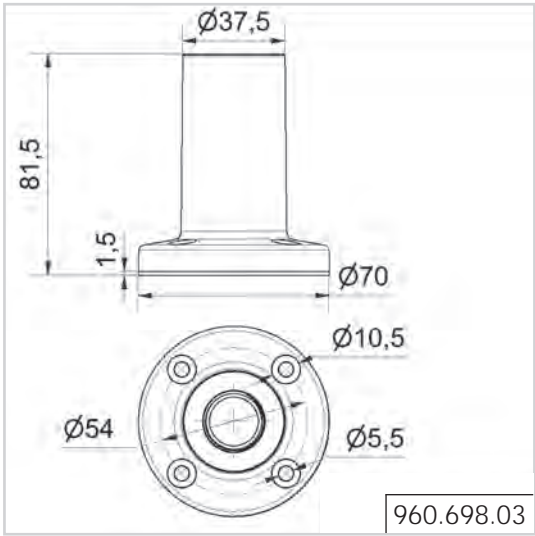


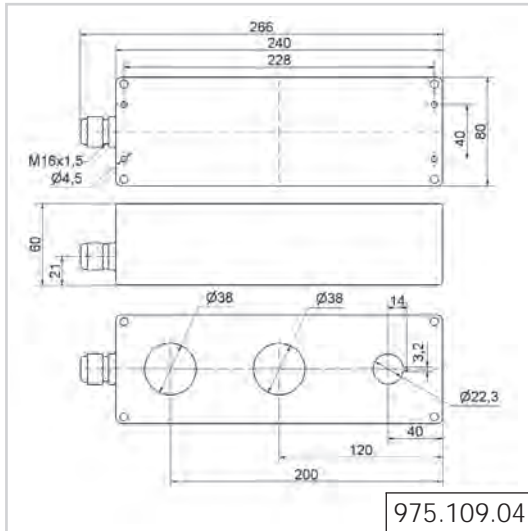


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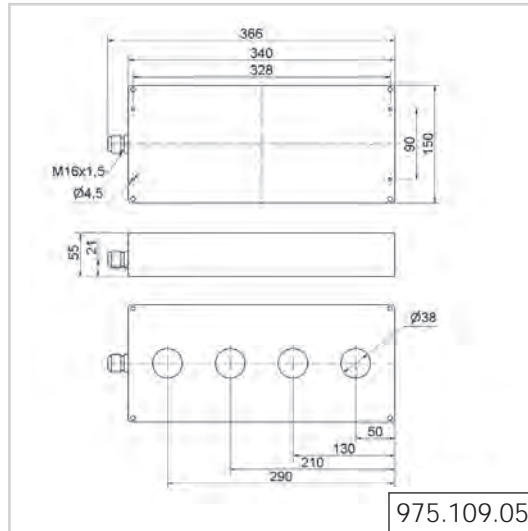
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# Technical Diagrams

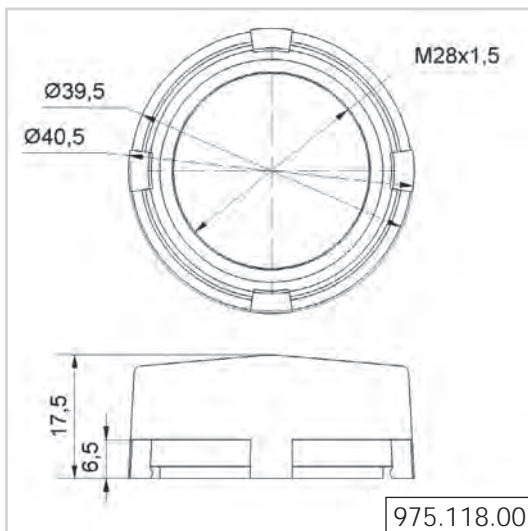




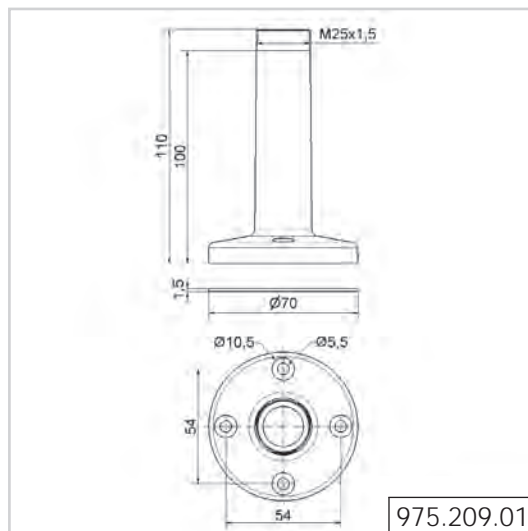
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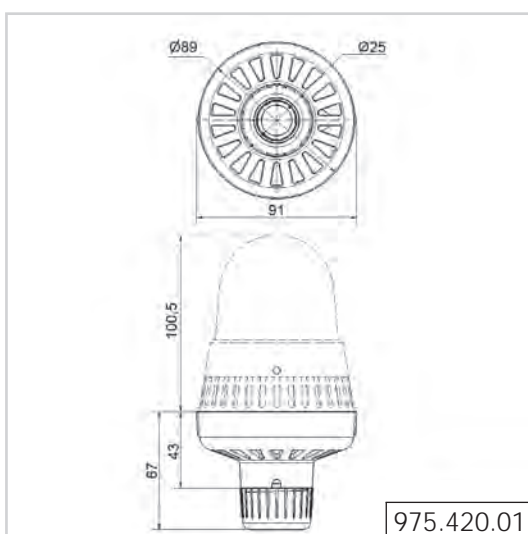
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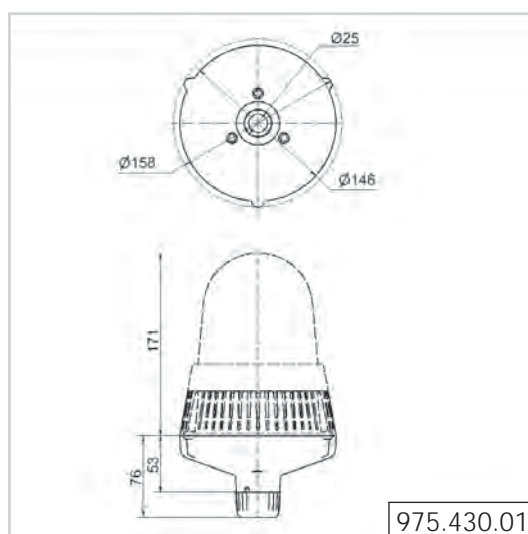
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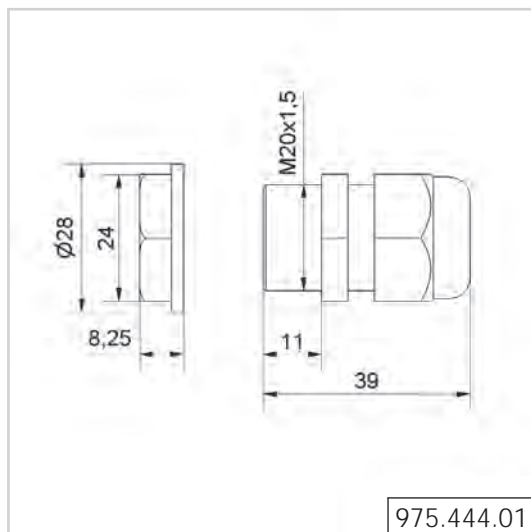
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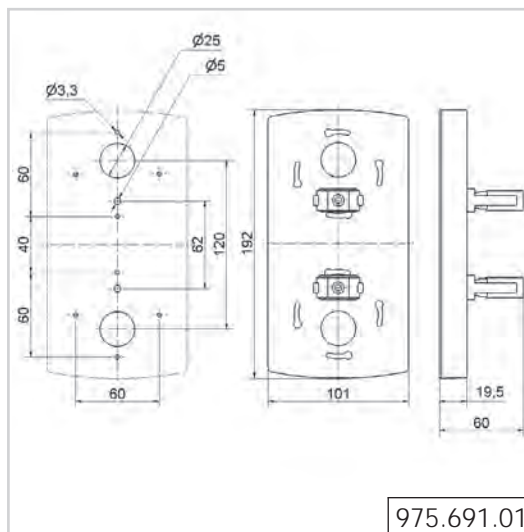
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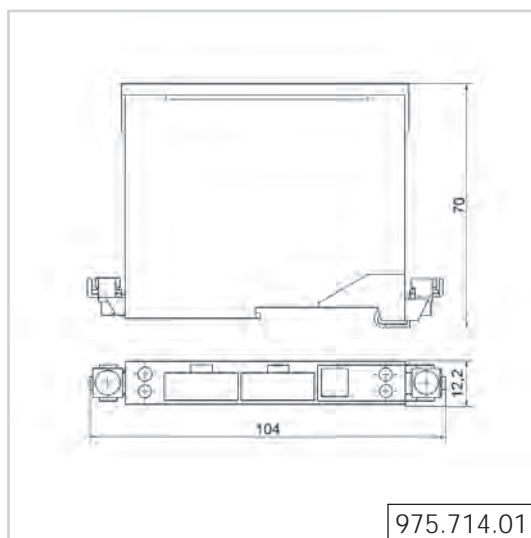
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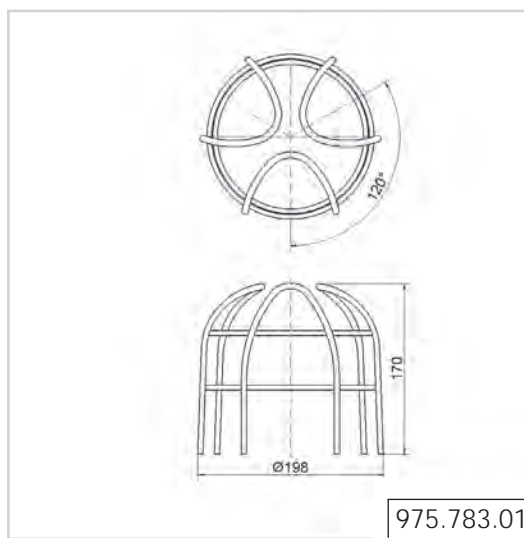
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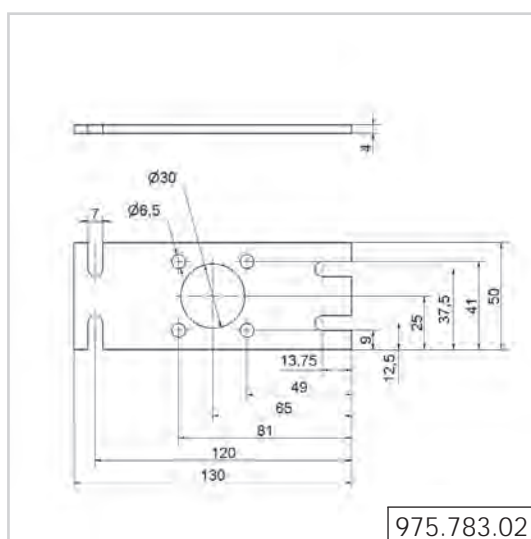
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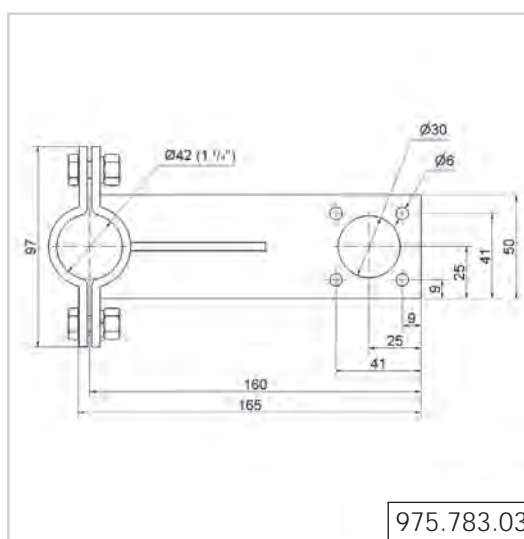
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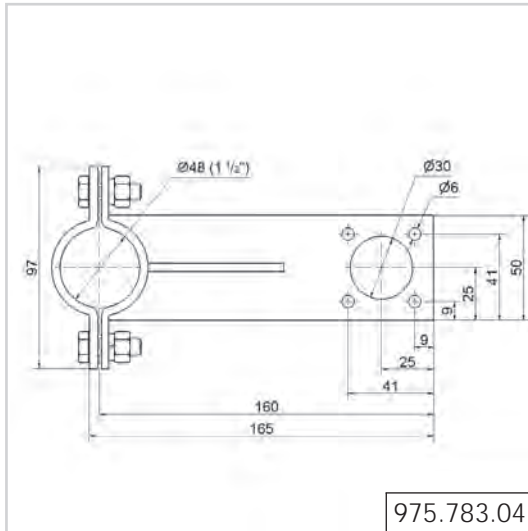
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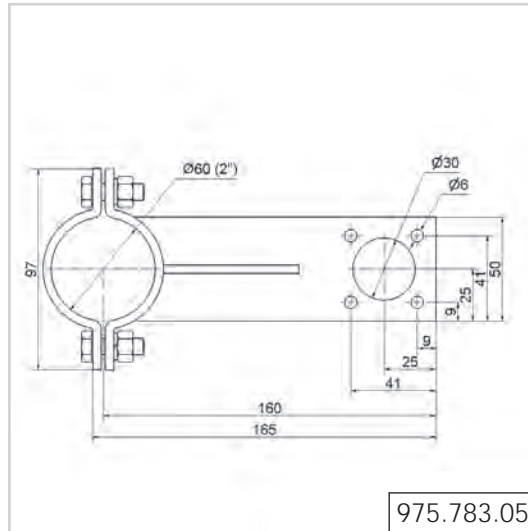
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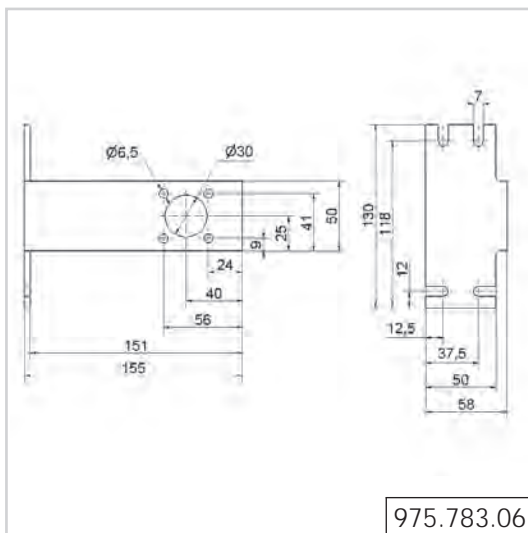
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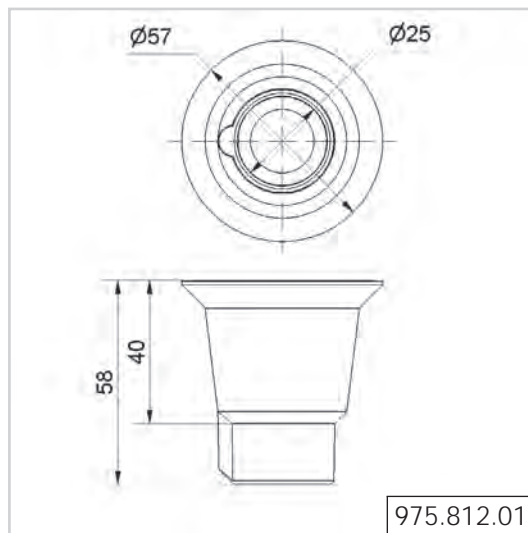
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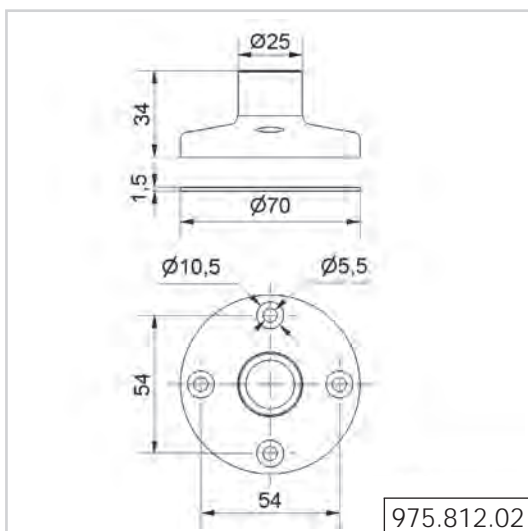
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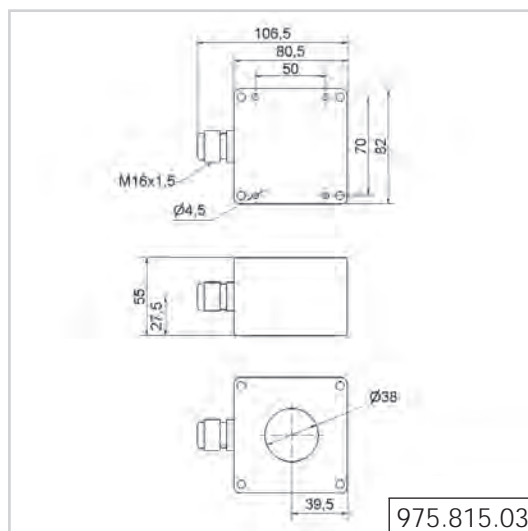
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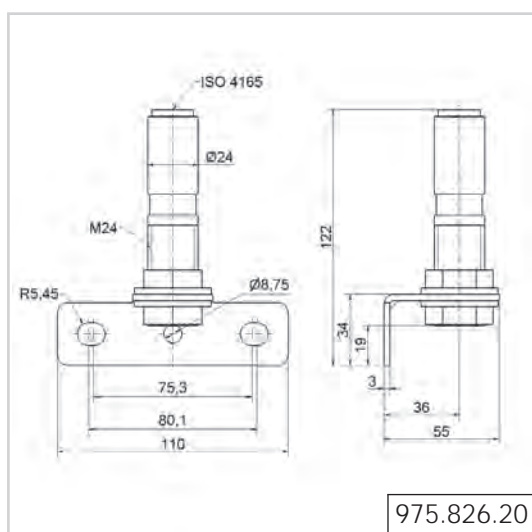
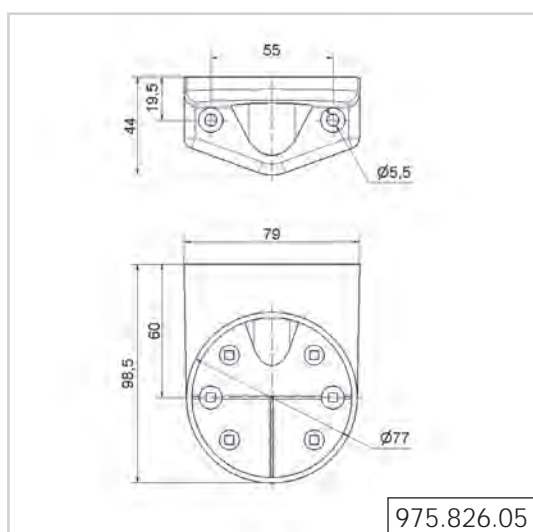
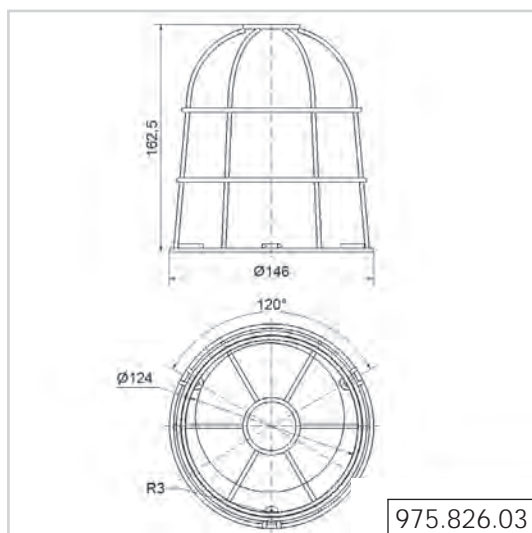
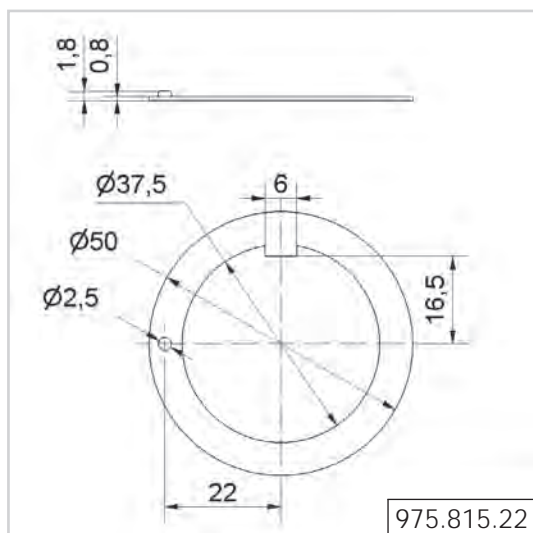
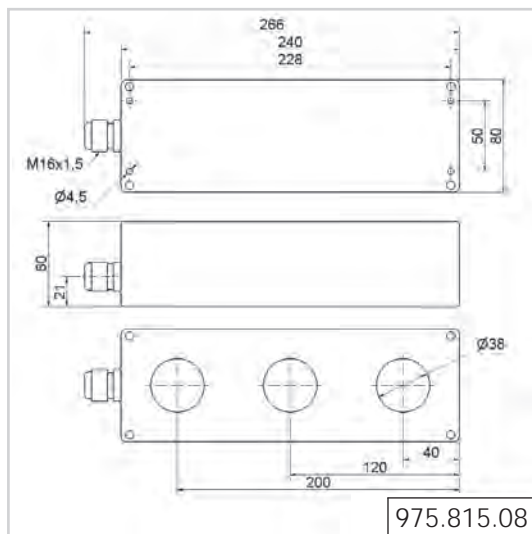
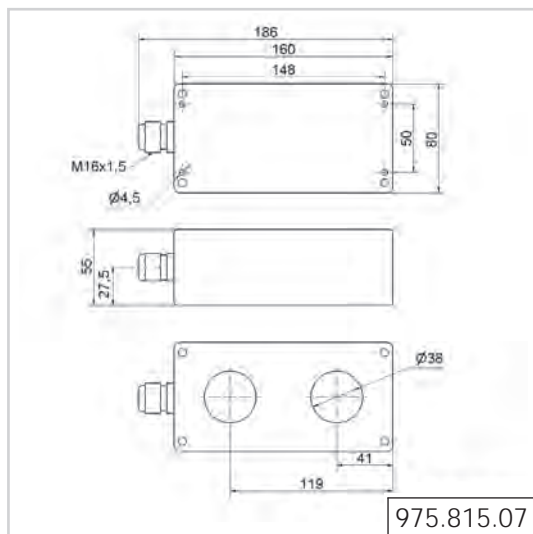


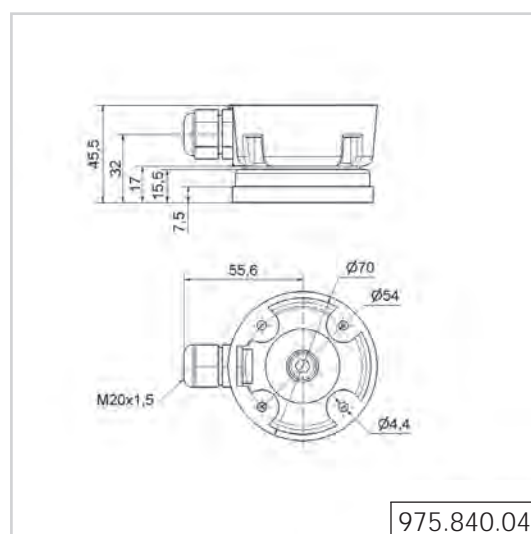
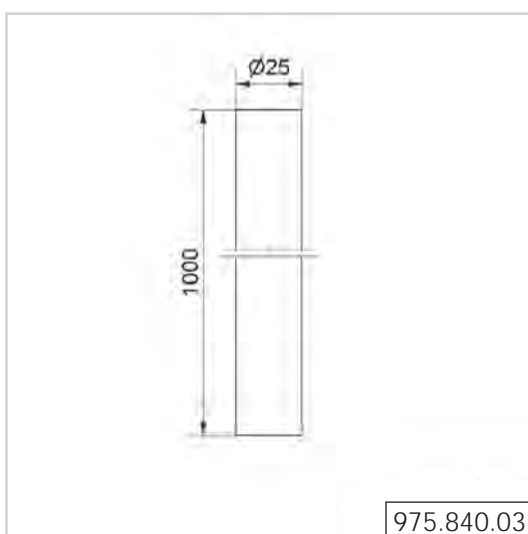
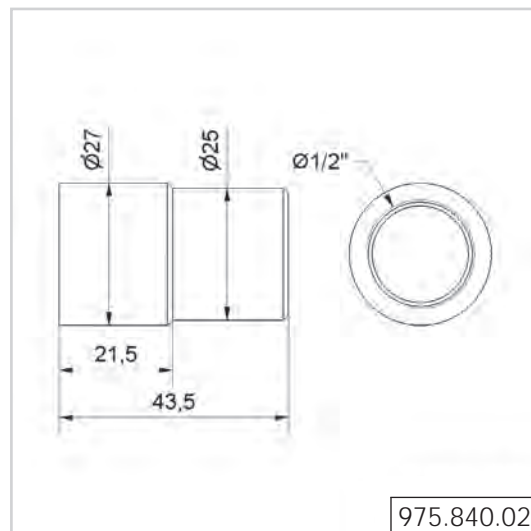
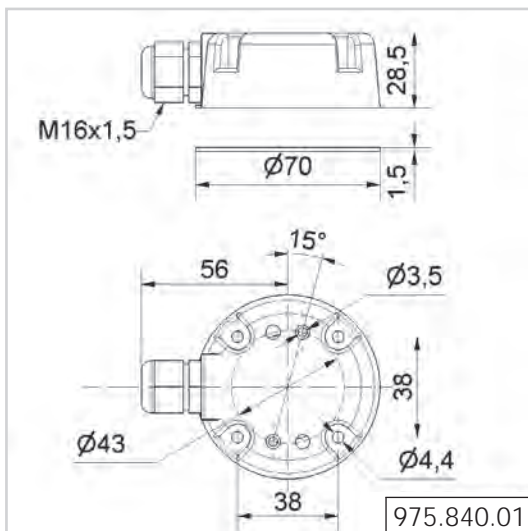
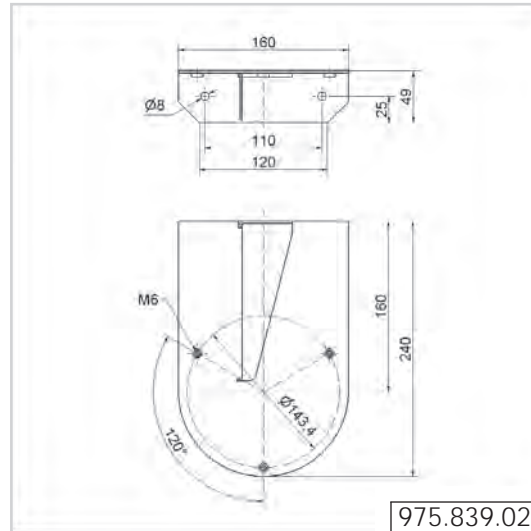
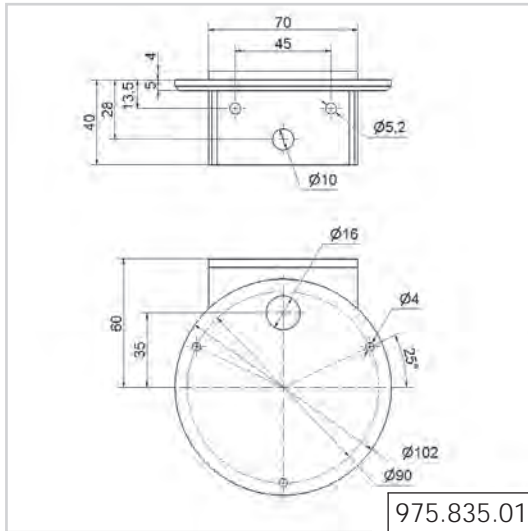
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# Technical Diagrams

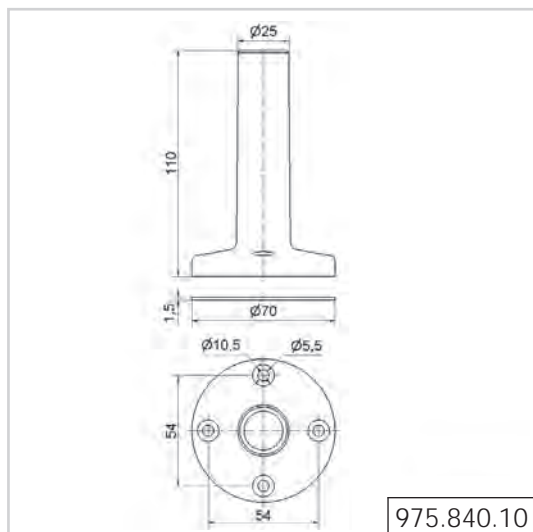




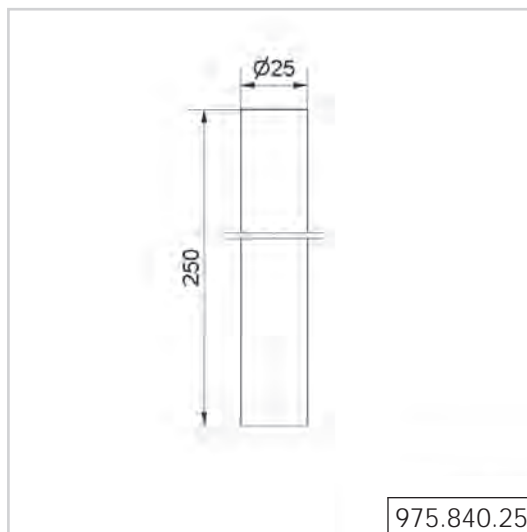
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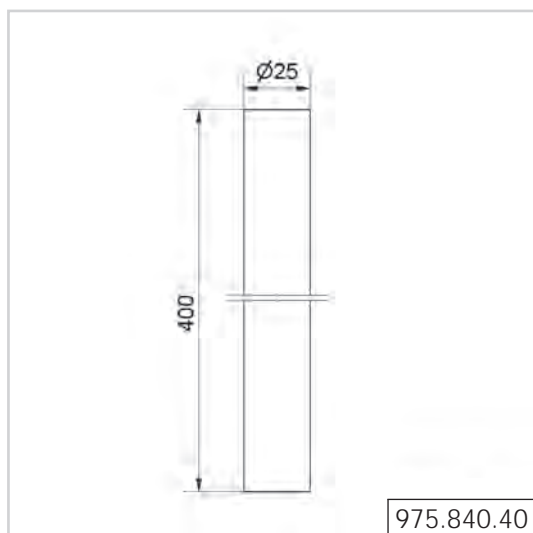
# Technical Diagrams



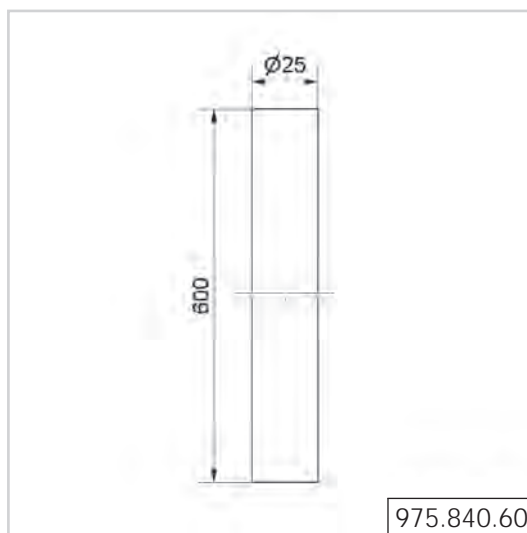
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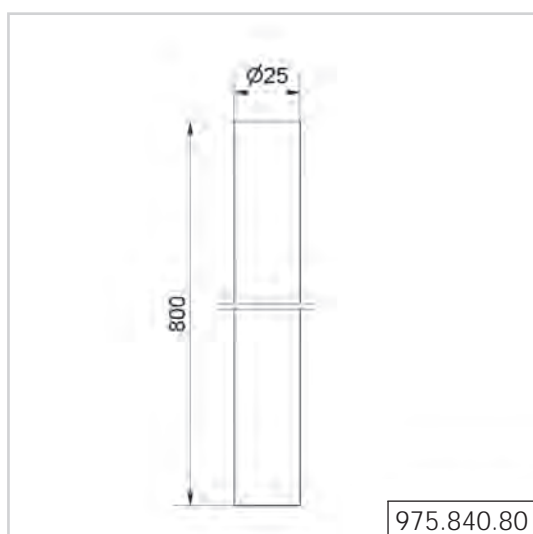
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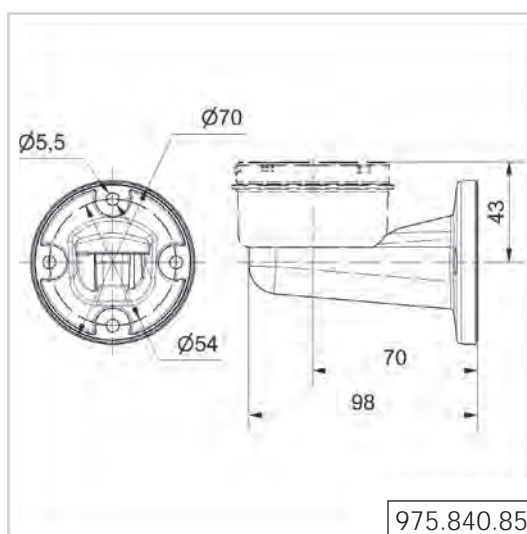
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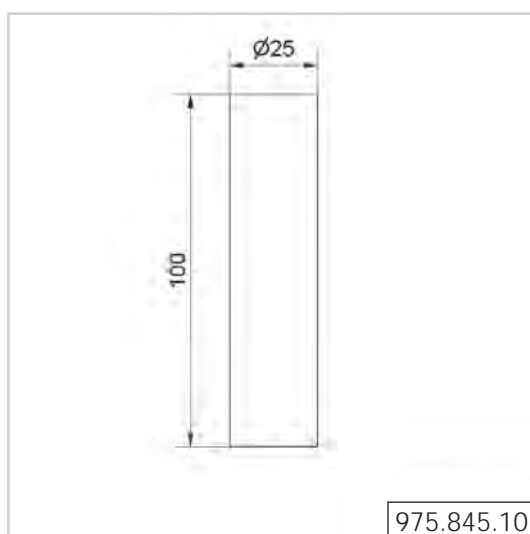
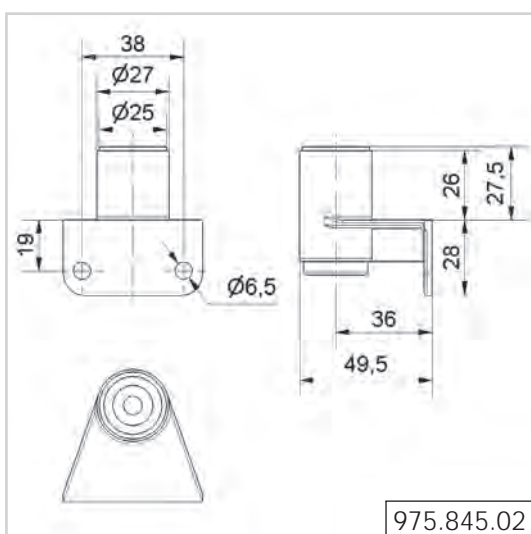
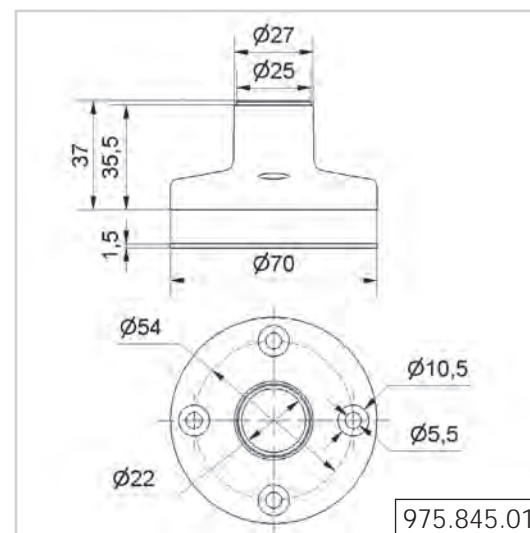
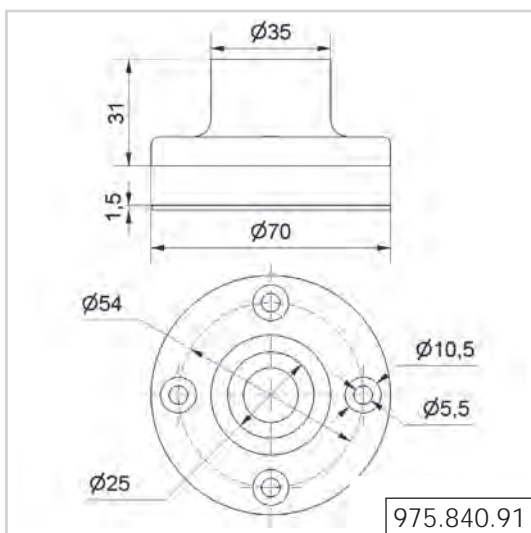
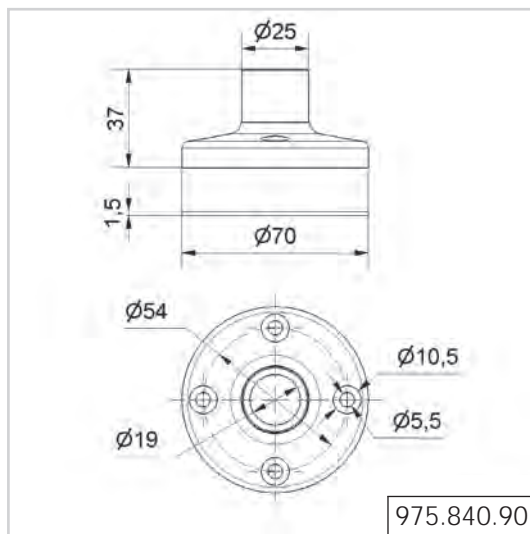
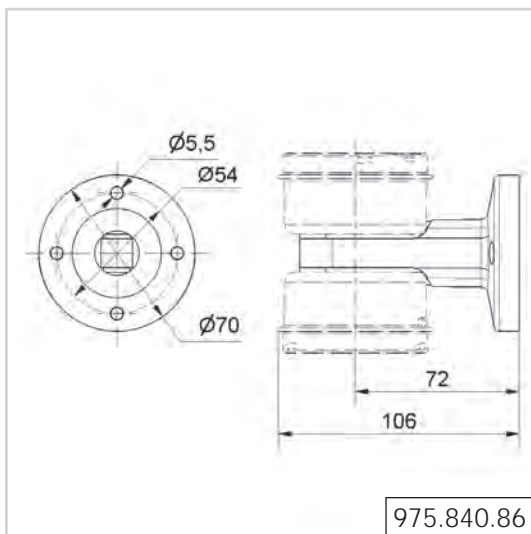
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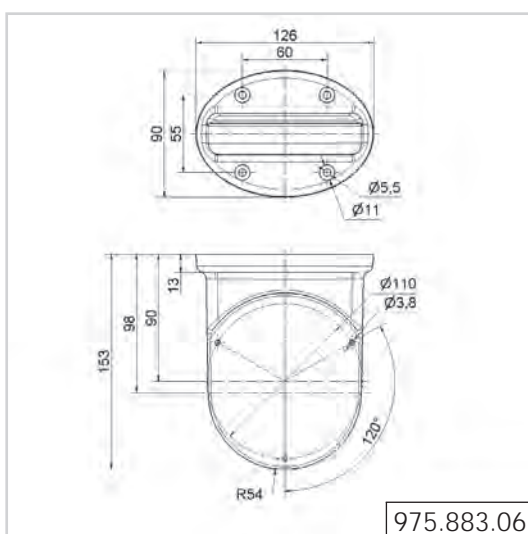
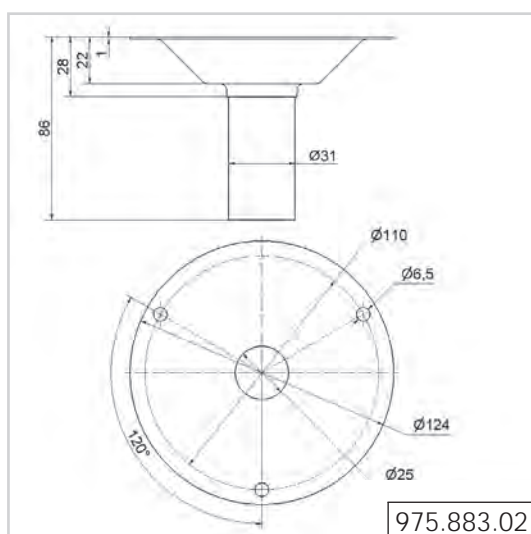
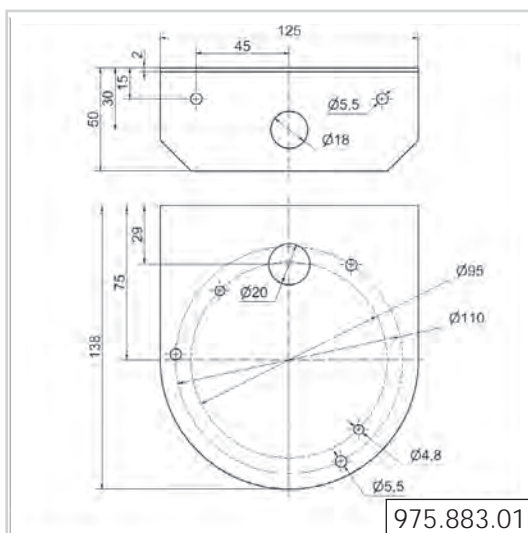
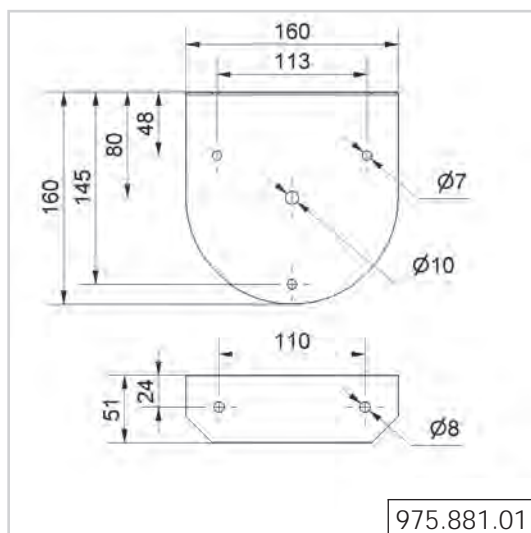
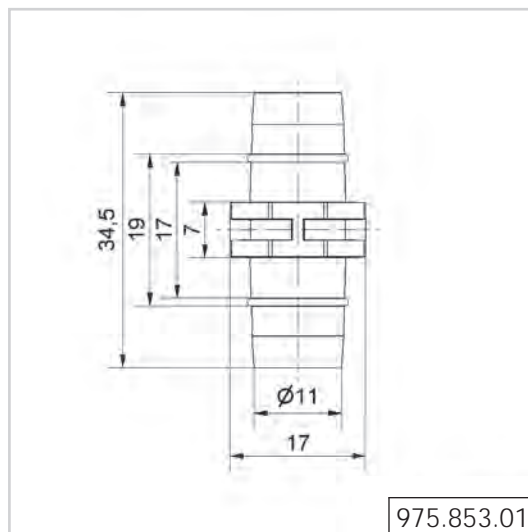
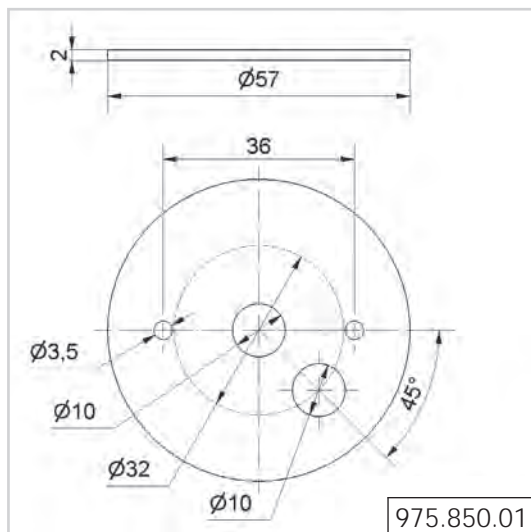
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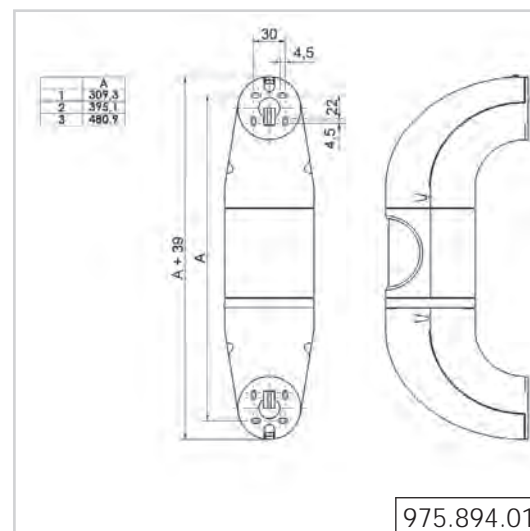
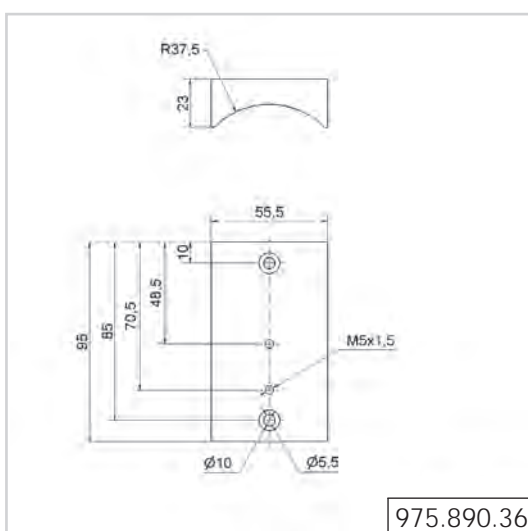
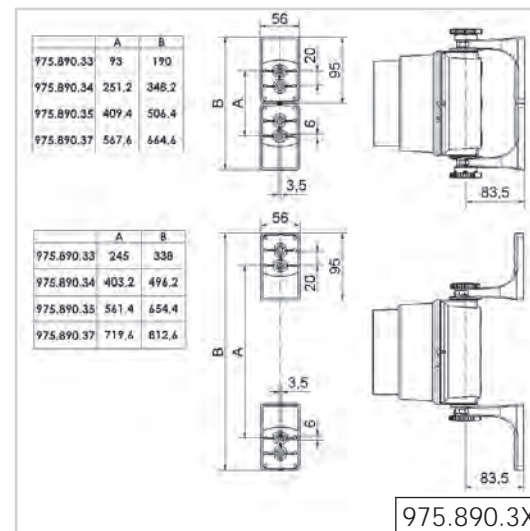
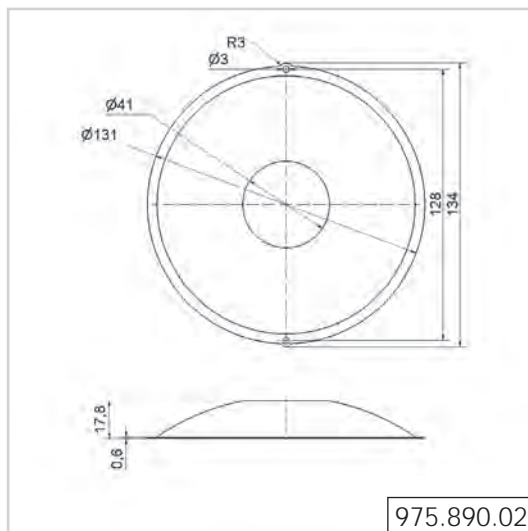
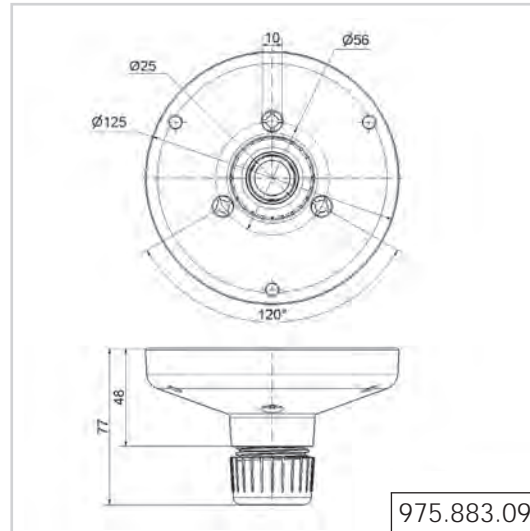
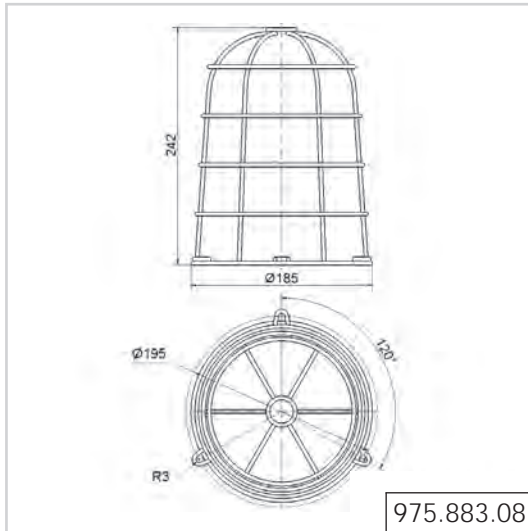
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# Technical Diagrams



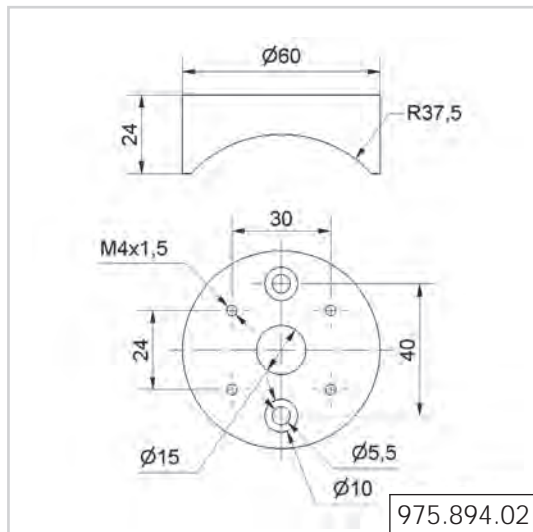




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# Technical Diagrams



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## Notes

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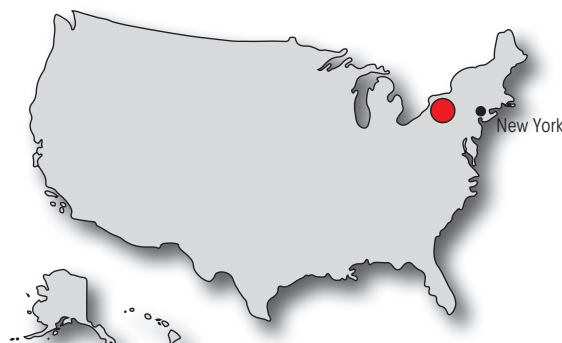
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41 - 44 PS Industriervertretungen Peter Schulz  
50 - 54 Rathausstr. 19 b  
56, 58/59 52459 Inden/Altdorf  
Tel. (0 24 65) 90 50 00  
Fax (0 24 65) 90 52 50  
E-Mail: schulz.inden@t-online.de

40 KWS - Elektronik  
45 - 49 Wolfgang Schumacher  
Saarstr. 19 a  
53919 Weilerswist  
Tel. (0 22 54) 33 80  
Fax (0 22 54) 18 58  
E-Mail: k-w-s-@t-online.de  
Internet: www.kws-elektronik.com

35/36/55 IBV Becker + Kraus GmbH  
60 - 69 Innerer Ring 6  
97 63486 Bruchköbel  
Tel. (0 61 81) 97 44 - 0  
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E-Mail: info@ibv-becker.de  
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80 - 96 GT-Glas GmbH  
Industrie- & Handelsvertretung  
Flößerstr. 5  
86415 Mering  
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70 - 79 **Location:**  
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## SaLeS Network - worLdwide

Details of our international sales network can be found at [www.werma.com](http://www.werma.com)



# Terms and Conditions for Delivery and Payment

All supplies and services from our Rietheim, Germany plant are subject to the "General Conditions of Supply for Products and Services of the Electronic Industry" (ZVEI). Any divergent conditions are set in italics.

The foremost articles are listed hereto:

## 1. General conditions

The scope of the supplies or services (hereinafter called "Supplies") are defined by the written declarations of both parties to the contract. General terms and conditions of the Purchaser apply only where expressly accepted in writing by the Supplier or service provider (hereinafter called "Supplier"). Partial Supplies are permissible where they can be reasonably expected of the Purchaser.

## 2. Prices and terms of payment

Our prices are net prices, without V.A.T. or packaging charges and are valid from factory premises. Initial deliveries are on the basis of prepayment either by credit card, by bank transfer or cash on delivery (where available).

All payments are to be effected at the latest within 30 days of the date of invoice unless otherwise stated. WERMA grants 2% discount for payments effected within 14 days from the date of invoice.

## 3. Retention of title

The items of Supplies (Secured Goods) remain property of the Supplier until each and every claim against the Purchaser to which the Supplier is entitled under this business relationship has been duly satisfied. If the value of all security rights of the Supplier exceeds the value of all secured claims by more than 20%, the Supplier will release a corresponding part of the security rights at the Purchaser's request.

In cases of breaches of liabilities on the part of the Purchaser, in particular a default in payment, the Supplier is entitled to termination and to take back the goods. The taking back or assertion of the retention of title does not require termination by the Supplier.

No termination of contract shall arise in these circumstances or on a seizure of the goods by the Supplier, unless the Supplier should have expressly declared this.

WERMA's proprietary right expires only upon full payment.

## 4. Time for delivery and delay

Observance of the stipulated time for delivery is conditional upon the timely receipt of all documents, necessary permits and releases, especially of plans to be provided by the Purchaser, as well as fulfillment of the agreed terms of payment and other obligations by the Purchaser.

If non-observance of the time for delivery is due to force majeure such as mobilization, war, riot or similar events, e.g. strike or lock-out, such time shall be extended accordingly.

## 5. Transfer of risk

Even where "carriage paid" delivery has been agreed, the risk passes to the Purchaser as follows:

If the supply does not include assembly or erection, when goods have been delivered to or picked up by carrier. At the Purchaser's request and expense, supplies can be insured by the Supplier against the ordinary risks of transport.

## 6. Taking delivery

The purchaser may not refuse acceptance of deliveries on account of minor defects.

Goods may only be returned using the standard postal service with prior agreement. A Return Request must be completed and authorized by WERMA. Materials correctly supplied will be subject to a 20% handling fee on return.

Damaged goods, goods in not saleable or customized products (i.e. all articles which are not listed with order number in the currently valid catalogue) are not returnable. Return costs are the purchaser's responsibility.

## 7. Warranty

The Supplier shall be liable for material defects as follows:

All those parts or services which display a material defect within the limitation period (regardless of the period of operation) shall at the discretion of the Supplier be improved subsequently without payment, re-delivered or re-rendered, provided that the cause of this was already present at the time of passing of risk.

Claims for material defect shall be barred after 24 months.

This shall not apply in as far as statute prescribes longer periods by virtue of sections 438 (1) (2) (buildings and building materials), 479 (1) (claim under a right of recourse) and 634a (1) (2) (building defects) BGB.

The Purchaser shall notify the Supplier in writing of material defects without delay.

Payments by the Purchaser may be withheld on notification of defect to such an extent as bears a reasonable relationship to the material defects arising. The Purchaser may only withhold payments if notification of a defect is given, for which there is unquestionable justification. The Supplier may require the Purchaser to reimburse the expenses arising from cases where the notification of defect is unjustifiable.

The Supplier shall initially always be allowed the opportunity of subsequent performance within a reasonable period of time. The Purchaser may rescind the contract or reduce the payment regard

less of any claims for damages in pursuance of section 9 hereto, if the subsequent performance shall fail to be effective.

Claims based on a defect shall not arise merely for a slight discrepancy from the agreed characteristic, for merely slight impairment to usefulness, for natural wear or loss which arises following the passing of risk as a consequence of improper or negligent treatment, excessive use, unsuitable operating materials, defective building work, unsuitable building ground or which arise by reason of particular external influences which are not anticipated by the contract, as well as for defects in software which are not reproducible.

No claims based on a defect shall similarly arise for the consequences resulting from improper modifications made or improper repair work carried out by the Purchaser or third party. Claims by the Purchaser for expenses necessitated for the purposes of subsequent performance, in particular costs of carriage, transport, work and materials are excluded to such an extent as the expenses increase because the subject matter of the delivery has been subsequently conveyed to a location other than the place of business of the Purchaser, unless the conveyance corresponds with its use according to contract.

Legal claims by the Purchaser against the Supplier under a right of recourse shall only arise inasmuch as the Purchaser has not entered into any agreements with its customer over and above the statutory claims arising for defects. The preceding paragraph shall further apply correspondingly to the extent of the claims under a right of recourse of the Purchaser against the Supplier.

Furthermore, section 9 hereto (further liability) shall apply to claims for damages. More far-reaching or further claims by the Purchaser against the Supplier and those acting on its behalf on account of a defect other than those regulated in this section are excluded.

#### **8. impossibility of performance, revision of contract**

The Purchaser may demand damages to such extent as the delivery is impossible unless the Supplier is not responsible for the impossibility.

The claim for damages of the Purchaser shall however be limited to 10 % of the value of that part of the delivery which cannot be taken into useful operation by reason of the impossibility. This limitation shall not apply in so far as liability is imposed by law in cases of willfulness, gross negligence or on account of death, physical injury or impairment to health. An alteration in the onus to proof to the detriment of the Purchaser is not connected herewith. The right of the Purchaser to rescind the contract shall remain unaffected.

Where unforeseeable events as described in Art. 4 paragraph 2 substantially change the economic importance or the contents of the supplies or considerably affect the Supplier's business, the contract will be adapted accordingly with due regard to the principle of good faith. Where this is not economically reasonable, the Supplier has the right to terminate the contract. If the Supplier wants to make use of this right of termination, he has to notify the Purchaser in writing immediately after becoming aware of the signi-

ficance of the event. This applies even where at first an extension of the delivery time had been agreed with the Purchaser.

#### **9. Further liability**

Claims by the Purchaser for compensation and reimbursement of expenses (hereinafter called "further liability") on whatever legal basis, in particular on account of breach of duties arising out of the contractual obligation and from tortious acts, are excluded.

This shall not apply where liability is imposed by law, for example, pursuant to the law of product liability, in cases of willfulness, gross negligence, on account of death, physical injury or impairment to health, or on account of breach of material contractual obligations.

The further liability for breach of material contractual obligations shall however be limited to foreseeable damage typical for a contract, unless willfulness or gross negligence is present or liability exists on account of death, physical injury or impairment to health.

An alteration in the onus of proof to the detriment of the Purchaser is not connected with the said provisions.

#### **10. Competent Court**

Sole competent court for any dispute arising directly or indirectly from the above contract is D-78532 Tuttlingen.

All contractual business is regulated by German law, not regarding the United Nations Agreement concerning international sales (CISG).

#### **11. Validity of the contract**

Even in case of legal invalidity of individual items, the remaining parts of the contract remain binding save where adherence to the contract would mean an undue hardship on one of the parties.

#### **12. alterations**

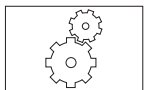
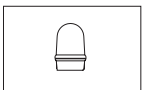
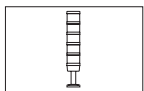
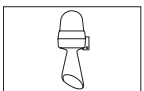

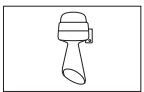
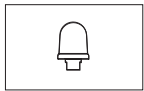

*WERMA reserves the right to alter its products to the end of technical improvement.*

**wer Ma tax Number 21083/05258**



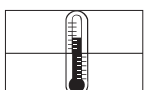

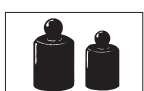
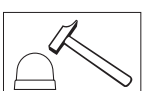
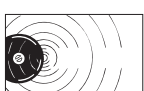

**these terms and Conditions apply to wer Ma r ietheim. terms and Conditions for other countries are available on request.**

# General Information


## Key to Pictograms "Product Groups"

	Product Group "Systems for Process Optimisation in Production, Assembly and Logistic areas"		Product Group "Optical Signal Devices · Free-standing Beacons"
	Product Group "Signal Towers · Modular"		Product Group "Optical-Audible Signal Devices"
	Product Group "Signal Towers · Completely pre-assembled"		Product Group "Audible Signal Devices"
	Product Group "Optical Signal Devices · Installation Beacons"		Product Group "Ex Signal Devices"

## Key to Pictograms "Product Descriptions"

	Protection rating according to EN 60 529. Explanation page 318		Number of possible tones
	Working temperature in °C, highest and lowest rating		Flash energy in watt seconds (Joules)
	Net weight excluding packaging, in grams, ie. kgs		Impact resistance in Joules
	Volume in decibels (dB (A)) measured at 1m distance		Suitable for triggering via PLC

## Key to Pictograms "Marks of conformity and protection types"

	All WERMA products bearing the CE mark conform to current EU regulations and are tested for adherence to EMC codes.		Products in compliance with the AS-Interface specifications (EN 50295, IEC 62026-2) and which have been certified by the AS International Association are marked with the AS-Interface certification logo (shadowed logo).
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This mark confirms that the product is suited to the intended application and conforms to the relevant standards and guidelines. In addition, the technical specifications provided by the manufacturer are certified by the TÜV.



The Eurasian conformity symbol EAC is granted by the customs union Russia/Belarus/Kazakhstan. The EAC symbol confirms that the product has undergone the conformity procedures and has met its technical requirements. It will replace the current GOST R certificate in the summer of 2014.



Products with this mark have been tested and registered by UL for the North American market. This certification is also valid for Canada. The WERMA production facility is audited by UL.

Products with the addendum "Class 2" may only be used in electric circuits that have been constructed in accordance with UL Class 2.



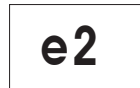
German Lloyd sets technical, quality and safety standards for the industrial and maritime sector.

In addition to the classification of ships of all types, German Lloyd is also active as a world-wide technical monitoring society.



The aim of EHEDG (European Hygienic Engineering and Design Group) is to prepare and publish guidelines for hygienic engineering in the manufacturing and packaging of foodstuffs.

The certification by this consortium confirms compliance with strict design criteria for avoiding weaknesses in construction and for minimising the risk of contamination.



This approval symbol documents that the product fulfills the minimum technical requirements for use on vehicles.



The IECEx certification confirms that the product has been certified as suitable for use in explosion endangered applications. The product has been manufactured at a site which is continuously assessed by the responsible authorities. The certificate is recognised in all countries participating in the IECEx system.



The Fraunhofer Institute certificate for production engineering and automation (IPA) is a test label for products which have been qualified according to recognised standards and guidelines as to their objective suitability for use in clean rooms.



Devices bearing this mark and number are authorised for use in hazardous areas. Ex devices guarantee a high level of resistance to extreme conditions.



The special organisation of the United Nations has given the ICAO (International Civil Aviation Organisation) the task of establishing and developing uniform regulations governing the safety and economic viability of civil aviation processes. The guidelines of the ICAO will only be applicable to all member states but must also be transferred into local statutes of law.

# General Information

## General notes on catalogue descriptions

### Sound levels and frequencies

The specified sound levels are based on tests carried out in our factory. These levels are typical for the specific products and inevitably subject to variation. Mounting position and/or type can alter specifications.

The rated frequencies of buzzers are also dependent on the tolerances of the individual components and can vary up to 500 Hz from the quoted rating. No frequency rating can be stated for horns as the spectrum is so wide that any stated rating cannot be accurate. The fundamental frequency for AC devices is 100 Hz, for DC devices c. 200 - 500 Hz. This means that they emit a deeper tone than piezo devices which have values typically between 2000 and 3000 Hz.

### Current consumption

The current consumption levels quoted are standard values. The ratings are based on the virtual value for AC, i.e. the average value for Dc.

The measured value is normally calculated over a period of 10 seconds. The highest current consumption rating can be considerably higher than the calculated rating.

The starting current of a product can be above the rated current by ten fold.

### Assured values

The technical specifications of our products have been rigorously and thoroughly tested. A quality guarantee according to § 463 BGB is however only applicable where expressly stated. WERMA is only liable for damage arising from the failure of guaranteed properties when the guarantee was expressly intended to protect the customer from this damage.

Measurements, weights, ratings and illustrations are subject to technical amendment.

## Product descriptions

The product descriptions found in the price list and on all documents are made up of the following information:

<b>Product type:</b> Electronic Buzzer LED Permanent Beacon etc.	<b>Fixing:</b> BM = Base mounting BWM = Base/Bracket mounting EM = Installation mounting RM = Tube mounting WM = Bracket mounting	<b>Tone type:</b> 32 tones 4 tones etc.  alternating cont./pulse continuous pulse	<b>Voltage:</b> 12 V 24 V 115 V 230 V etc.	<b>Colour:</b> BK = black BU = blue CL = clear GN = green GY = grey RD = red YE = yellow WH = white MC = multicolour
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### Examples:

Electr. Buzzer EM Continuous tone 115 V UC  
LED Permanent Beacon EM 24 V DC RD

**Note:** Colour order of a signal tower from the bottom to the top

## Technical Drawings, CAD Drawings and Connection Diagrams

A detailed drawing of each product can be found under the heading **"Technical Diagrams"** beginning on page 294 onwards. The technical diagrams are in the numerical order of the first three digits of the article number.






To help customers find the technical diagrams for the desired product even more quickly, we have included a reference on the relevant product page stating the page number for the corresponding diagram located in the "Technical diagrams" section.

You are welcome to request the technical diagrams in **digital form**. The relevant **3D models**, **instruction leaflets** and **connection diagrams** can be obtained from us or downloaded from our home-page at any time.

Select the required product or search with the aid of the part number, go to "downloads" and click on "drawing" and save the file.



## Key to optical signals

<b>Colour: Red</b>  <b>Meaning:</b> extreme danger / hazardous conditions	<b>Colour: Yellow</b>  <b>Meaning:</b> beware / dangerous conditions imminent	<b>Colour: Green</b>  <b>Meaning:</b> normal conditions	<b>Colour: White/ Clear</b>  <b>Meaning:</b> no particular meaning	<b>Colour: Blue</b>  <b>Meaning:</b> conditions requiring defined action
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## Key to audible signals



<b>Multi-Tone</b> <b>Description</b> scale in differing frequencies (various high / low frequencies) with regular, cyclical intervals  <b>Meaning:</b> extreme danger / immediate action	<b>Two-Tone</b> <b>Description</b> scale in differing frequencies (one high, one low frequency) with regular, cyclical intervals  <b>Meaning:</b> extreme danger / immediate action	<b>Alternating Tone</b> <b>Description</b> continuous tone with graduated decrease and increase of sound frequencies  <b>Meaning:</b> danger / immediate action	<b>Pulse Tone</b> <b>Description</b> regular intervals between on and off cycle  <b>Meaning:</b> danger / immediate reaction	<b>Continuous tone</b> <b>Description</b> continuous tone in specific frequency  <b>Meaning:</b> safety
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## MTTF values

"**MTTF**" is the abbreviation for **Mean Time To Failure** and is also described as the average life cycle or "**MTTF<sub>d</sub>**" (= the average time until failure leading to a dangerous situation).

The European Norm **EN ISO 13849-1** has caused a new significance to be attached to "MTTF" values, because they are used to evaluate machine safety within the conformity tests.

The MTTF is a statistical value, which is calculated by **means of testing or experience** of past values. It does not provide a guaranteed life duration or a guaranteed functional period.

MTTF values have been calculated for a variety of **WERMA products**. Please contact us for further details.

## Contamination at the site

Devices with the protection rating of IP54 or higher, or which are exposed on one side, may only be installed in areas which have a

contamination degree of 2 or better. Or the exposed side must be sealed with an additional sealing element.

# General Information

## Protection ratings



**Protection ratings for signal devices:** Protection ratings for housings DIN EN 60529 (DIN VDE 0470 IEC 60529).

### First digit:

degree of protection against contact with dangerous parts and the intrusion of foreign particles.

**IP 0X** no protection

**IP 1X** protection against contact with the back of the hand.

**IP 2X** protection against finger contact with live or moving parts in the appliance. The test finger with Ø 12 mm and 80 mm length must not come into contact with dangerous parts. A ball of 12.5 mm diameter should not be able to fully penetrate the housing.

**IP 3X** test bar Ø 2.5 mm may not penetrate the housing.

**IP 4X** a wire with Ø 1 mm may not penetrate the housing.

**IP 5X** complete protection against dust cannot be guaranteed, but dust is not able to accumulate in such a way as to impair the operation of the device.

**IP 6X** total protection against dust (no penetration).

### Second digit:

degree of protection against water.

**IP X0** no protection

**IP X1** protection against vertically falling water drops.

**IP X2** protection against water drops so long as the device is tilted to an angle of 15°.

**IP X3** protection against water spraying at any angle up to 60° to the vertical.

**IP X4** protection against water spraying at any angle.

**IP X5** protection against jets of water directed from any angle at the appliance.

**IP X6** protection against heavy seas. A strong jet of water may not harm the appliance.

**IP X7** protection against occasional immersion.

**IP X8** protection against permanent immersion.

**IP X9k** protection against water during high pressure / steam cleaning.

## Comparison between NEMA and IEC protection ratings - classification

NEMA Protection Type Number	Protection	IEC Protection Classification Designation
1	Falling dirt	IP 10
2	Dripping water and falling dirt	IP 11
3	Wind blown dust, rain and hail; no damage due to external ice formation	IP 54
3 R	Rain and hail; no damage due to external ice formation	IP 14
3 S	Wind blown dust, rain and hail; can be operated even with external ice formation	IP 54
4	Wind blown dust, rain, splashes and a direct jet of water; no damage due to external ice formation	IP 56
4 X	Wind blown dust, rain, splashes and a direct jet of water; no damage due to external ice formation, corrosion protection	IP 52
5	Dust, falling dirt, dripping non-corrosive liquids	IP 67
6	Direct jet of water, temporary submersion; no damage due to external ice formation	IP 67
6 P	Direct jet of water, longer periods of submersion; no damage due to external ice formation	IP 67
12 and 12 K	Circulating dust, falling dirt, dripping non-corrosive liquids	IP 52
13	Dust, splashes of water, oil, non-corrosive liquids	IP 54

Cannot be used to convert IEC Classification Designations to NEMA Type Numbers.

Note: This comparison is based on tests specified in IEC Publication 60529.

## AS-Interface

AS-Interface, the Actuator Sensor Interface and its distinctive 'yellow cable' is one of the most innovative networking solutions in modern automation technology.

Conceived in 1990 as a cost-efficient, feature-rich alternative to conventional hard-wiring, AS-Interface has now been proven in hundreds of thousands of products and applications spanning the entire automation spectrum.

AS-Interface offers many of the benefits of more powerful and expensive fieldbuses, but at much lower cost and at much simpler application. The complete network is controlled automatically by a 'master' which polls the network sending and receiving data from each connected device in turn. It automatically senses and registers any connected devices, thus neither configuration nor application-specific software for the master is necessary.

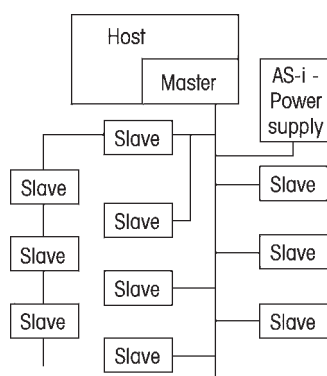
### Unique technology

Due to the cable structure, AS-Interface offers a unique mounting technology. Without any cutting or removal of insulation, sharp pins penetrate the cable insulation making the electrical contact as the connection elements are closed. This technology ensures protection up to IP 65.

### Cost savings

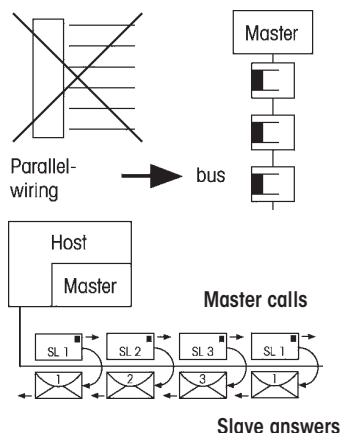
In general, applications from as few as ten sensors and actuators to very large systems can benefit, especially when the whole life cost advantages are taken into account. Distributing the input and output functionality is one starting point for cost savings, enabling point to point wiring systems to be reduced to a single cable, eliminating or reducing cable trees, service cabinets and multiple connectors. The special AS-Interface connection technology replaces labour-intensive wiring. The tree structure permits better optimised system design and improved layouts, bringing easier installation and maintenance. Network configuration is eliminated.

### System Survey



- Single master-slave principle
- Up to 62 slaves with one master
- Per slave up to 4 digital inputs + 4 digital outputs
- Max. 248 digital inputs and outputs
- Additional 4 parameter bits/slave
- Also possible: analogue I/O
- Electronic addressing of slaves
- Free structure of the network

### How AS-Interface® works



- AS-Interface® - a bus system, which substitutes parallel wired installation from pic to sensors and actuators
- Data and energy in the same cable
- 1 Master and max. 62 slaves
- Total cycle time < 10 ms - with max. number of 32 slaves
- Master-slave principle: The master calls and the slave answers immediately

### Cable power

The yellow cable can carry up to 8 A, which means that no additional wiring is required in typical installations. Several hundred mA may be drawn by a single slave device on the network. Where higher power is needed, or for emergency stop situations, a black secondary DC or AC power cable offers complementary advantages. If round cable is preferred, a wide variety of screw and push-fit termination modules offer this, with no performance compromise.

### Products with AS-Interface

WERMA Signaltechnik GmbH & Co. KG has been a member of the AS - Interface® Association since 1996.



WERMA's product range encompasses the LED/Buzzer Combination 450 with acknowledgement function for AS-Interface®. The combination unites a very bright light signal with the powerful sound of a buzzer. By gently pressing the front surface of the product the audible

signal can be turned off in a matter of seconds. This acknowledgement signal is fed back to the master via the AS-Interface Bus.



In addition, the LED Installation Beacon (Multicolour) 239 is available for AS-Interface®. This is suitable for the extended addressing (A/B engineering) of up to 62 modules. This beacon is provided with electricity via the bus.



WERMA's product range also contains products with AS-Interface® for Kombi SIGN 50, 70 and 71 as well as customised developments. The entire BUS electronic system is integrated in the element placed at the base of the signal tower. The Kombi SIGN AS-Interface® elements offer the customer beneficial features such as an addressing socket and status LEDs. A user-friendly sliding switch inside the module can be used to provide the power supply required for the signal

towers from an external 24 V auxiliary voltage or via the integrated bus bypass.

**Patent approved**

A groundbreaking innovation in LED technology opens up a completely new dimension in optical signalling. Enhanced Visibility System, or the electronic improvement of visibility, EVS for short, is the name WERMA has given to this latest development which promises to bring about a revolution in signal technology.

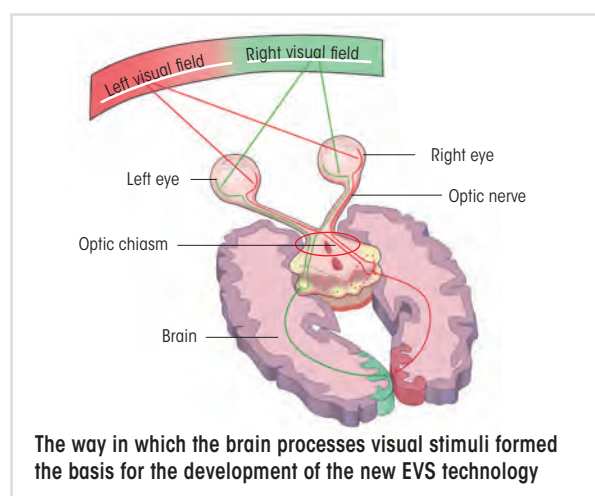
## EVS - attention-grabbing neurobiological light effect



This filter has a "protective" function. During sleep it reduces disturbing stimuli to a minimum and assists in "overlooking" regular or continuous signals.

Irregular light impulses can circumvent the brain's filter function. Random light signals fail to generate an acclimatisation effect and the brain is unable to escape the stimulus, even when the flickering continues for an extended period.

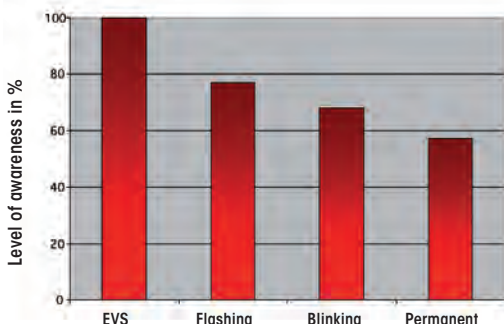
The flickering of neon lamps and comparable lighting effects are highly effective at attracting our attention. The neurobiological basis of this phenomenon is explained by a university scientist as follows: Light signals are processed in the human brain, not directly in the eye. In order to be consciously registered there, incoming stimuli first have to pass through a form of filter.



## EVS - flickering light without acclimatisation

### Laboratory Test Results

Level of awareness generated by different light effects



On the basis of this understanding, WERMA's R+D department set out to find a flickering light with a high degree of effectivity in attracting attention. In a multi-stage laboratory experiment test candidates were asked to judge a series of different light signals and determine the most eye-catching light.

The result of the study was a stochastic flickering light with optimal attention-grabbing characteristics: EVS - Enhanced Visibility System! The light effect of this system is completely new and distinguishes it from all previous systems.

## Epilepsy warning



People who suffer from photosensitive epilepsy may suffer epileptic fits or other loss of consciousness if exposed to certain types of flashing lights or other light effects. This might also occur in people who thus far have not suffered any sort of epileptic fit.

## EVS signal devices communicate highly urgent situations



As a result of the extremely powerful signal effect, the EVS light is especially suited to signalling acute or highly important conditions. The EVS element can also be deployed in hazardous situations or in areas where immediate action is required.

Integrated into KombiSIGN Signal Towers, the EVS LED Element generates a highly attention-grabbing signal (see page 46 and 31).

This innovative technology is also used in the 853, 280 and 829 series (page 152 onwards) and in the optical-audible combinations 444 (page 211 onwards) and 43x (page 200 onwards).

## EVS - unique light effect using LED technology



For the EVS system WERMA employs light emitting diodes. A microprocessor generates random light signals.

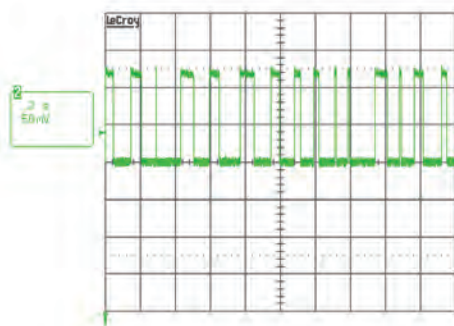
This gives the light a very "agitated" character which proves highly effective in drawing the attention of those in its vicinity - even when seen out of the corner of the eye.



Up to now LED signal devices have confined themselves to imitating the light effects of light bulbs or xenon flashes, EVS however utilises the strengths of light emitting diodes. LEDs are capable of generating the required high flickering frequency with ease - frequencies which xenon flashes are for example incapable of generating.

There are a series of additional, classical advantages to LEDs - their resistance to vibration and shocks, their long life duration as well as their low energy consumption.

Typical 2 second section of an EVS LED element's illumination sequence





# LED Element „ultrabright“

Good visibility, even in direct sunlight, is a basic precondition for the reliable deployment of signal devices in outdoor areas. This is a standard feature of the signal towers and beacons from WERMA Signaltechnik. There are however applications which place even more extreme demands on the visibility of optical signalling.

## Up to 20 times brighter

Thanks to its sophisticated triggering, the innovative LED element „ultrabright“ is up to 20 times brighter than conventional LED beacons - making it almost certainly the **brightest permanent light** that the world of signalling technology currently has to offer.

Furthermore, the **intelligent electronics** ensure that the LEDs operate at maximum brightness, depending on the ambient and operating temperatures. The „ultrabright“ LED element is therefore always working at its optimum, and the energy-saving LED technology ensures that power consumption is kept to a minimum.



## Brighter than sunlight

For example, the signalling of **mobile crane movements** on large construction sites must be clearly visible over large distances, even when the signal beacon is exposed to direct sunlight.

The „ultrabright“ LED signal tower element for the WERMA signal towers KombiSIGN 70 and 71, effortlessly meets these requirements. Its **bundled light** is brighter than the incidental sunlight, making it clearly visible.



## “Ultrabright“ masters the reflection of sunlight in snowy conditions

Skiers on the piste enjoy the sunlight. However, at the lift **turnstiles** sunlight reflected from the snow can be debilitating. Even in these extreme conditions, the KombiSIGN „ultrabright“ element wins out against the blinding sunlight, **providing a clear and unambiguous signal**: “Please enter now!”

In short: Wherever the sun or other lighting factors impede visual perception, the WERMA signal towers KombiSIGN 70 and 71 triumph with their „ultrabright“ LED element.

You will find further technical information together with the order data on page 50 (KombiSIGN 70) and page 35 (KombiSIGN 71).



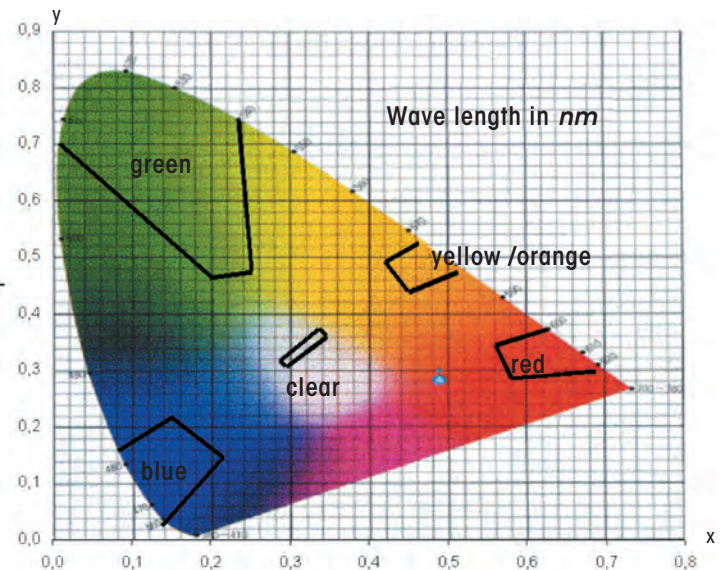
# Light in Signalling technology

## Types of optical signal devices

We differentiate between permanent, blinking and flashing beacons as well as beacons with rotating light. The appropriate signal type must be chosen to meet the needs of the specific application, whether as a warning, an informative signal or a simple piece of information.

Signalling technology relies mainly on the colours green, red, yellow, blue and clear.

The following diagram shows the position of these colours in the spectrum:



## WERMA offers all round capabilities in optical and audible signals for the most arduous conditions

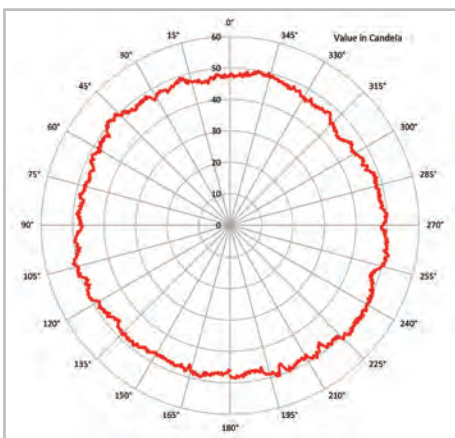


WERMA places very high demands on itself with regard to product quality and life duration. High investment in our laboratory and development areas underpin this activity.

WERMA has risen to a new technological level through the work with its Light Laboratory and Thermo Analysis equipment, both of which have led to improved flexibility and know-how within the development department. This in turn leads to a quicker response to customer demands - all of course within the confines of the high WERMA quality.

The sophisticated Thermoanalysis equipment and our in-house Light Laboratory is leading to much more objective evaluation of the life duration of our products. This means it is possible to offer an optimised product with the longest possible life duration, brightest or most appropriate light picture and best thermodynamics.

WERMA has an unprecedented know how and quality in the field of LED technology.



### Performance Measurement:

- Light distribution charts (Polardiagram) in Candela.
- Light intensity measurement.
- Timed lapse measurement of light in Candela and Lux.
- Flash intensity measurement in Candela.

# Light in Signalling technology

## Optical Signals in everyday life

The field of signalling technology offers us not only the possibility of audible signals, but also that of optical signals. These are to be found everywhere in everyday life; at traffic lights, in alarm systems or where obstructions arise. Countless uses can also be found in the industrial sector, above all in the signalisation of a machine operating status.



## The generation of light - a summary of the possibilities

Light can be generated in various ways. Signalling technology mostly uses bulbs, halogen bulbs, electric discharge tubes and LEDs.



### Bulbs

A tungsten filament is heated up to a high temperature, so radiating energy over a wide wavelength. This is perceived as light similar to sunlight. The tungsten filament evaporates with time. When the tungsten content falls below a certain level, the maximum life duration of the bulb is reached. As tungsten oxidises quickly and is destroyed when it comes into contact with air, the filament must be kept in a non-oxidising atmosphere such as vacuum. This leads us to the familiar light bulb with its sealed glass body.



### Halogen bulbs

These are bulbs wherein the tungsten filament is enclosed by a small amount of halogen. The resulting chemical reaction has the effect of lengthening the life of the tungsten and stabilising the light output throughout the entire life duration of the bulb.



### Electric discharge tubes

Xenon flash tubes are widely used in signalling technology. They consist of a glass tube filled with the inert gas xenon. A sufficiently high voltage leads to a discharge of energy with a spark gap and a flash of high intensity.



### LED

Light emitting diodes are constructed using certain semiconductors. Foreign atoms are built into the semiconductor with the purpose of optimising the conductivity. Half of the semiconductor (n-region) is doped with foreign atoms that contain one bonding electron more than the semiconductor atom. This surplus atom can move freely and increases conductivity. The other half (p-region) is doped with foreign atoms containing one electron less than the semiconductor. When the LED is switched on, these faults ("holes") fill up with free electrons (recombination). Energy in the form of radiant photons is hereby released. The energy and therefore the colour of the light emitted is determined by the material the semiconductor is made of; e.g. GaAsP (Gallium Arsenic Phosphide) results in red light.

## LED - Beacons with many advantages

LEDs offer many advantages when compared with conventional light bulbs:

- ✓ Minute dimensions
- ✓ Low current consumption
- ✓ Low heat generation
- ✓ Extremely high life duration of up to 50,000 hours
- ✓ All major colours can be realised
- ✓ Vibration and shock resistance
- ✓ Immediate illumination



## Fundamental units of light magnitude

The fields of lighting and signalling technology differentiate between fundamental units to define light itself. The most important of these are the units Lumen, Candela and Lux.

### ✓ Lumen (unit lm)

Light current is measured in Lumen; this is the unit for the entire visible light output of a light-emitting source. The light current is defined by the following formula known as the brightness characteristic:

Light current  $\phi$  [in lm] = radiation capacity x brightness characteristic  $V(\lambda)$

The brightness impression upon the human eye is based on a sensitivity curve  $V(\lambda)$  which reproduces the sensation felt by the eye in relation to the wavelength. The maximum point on this curve is at about 555 nm; we see best at this wavelength;  $V(555 \text{ nm}) = 1$ .

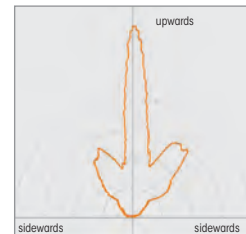
### ✓ Candela (unit cd)

In signalling technology only the part of the light current that is emitted in a certain direction is of importance. This light intensity is measured in Candela. It is defined by the light current of a lamp and the steradian measure  $\frac{1}{4\pi \text{ sr}}$

Light intensity [in cd] =  $\frac{\text{Light current } \phi}{\text{Steradian measure } \Omega}$

A complete sphere has a dihedral angle of  $\Omega = 4\pi \text{ sr}$ . sr stands for the steradian and is the unit for the dihedral angle.

Example: a household candle emitting a light intensity of 12,566 Lumen has a light intensity in relation to the steradian measure  $\frac{12,566 \text{ lm}}{4\pi \text{ sr}} \approx 1 \text{ cd}$ . This explains the name: candela is the Latin word for candle.



### ✓ Lux (unit lx)

Illumination density is an important unit in lighting installations. It is the measure of the brightness with which an area is illuminated. Whereas light intensity (in cd) is a property of a light source, illumination density is calculated in regard to the area to be illuminated.

Where the light current emitted is constant, the following formula is applicable:

Light density E [in lux] =  $\frac{\text{Light current } \phi}{\text{Surface A}}$



# Acoustics in Signalling technology

## Research and development at WERMA



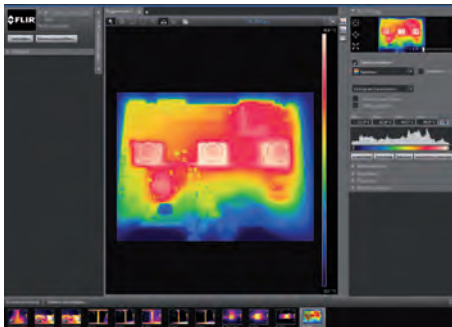
For over 50 years WERMA has been developing audible signal devices of the highest quality. Year after year we invest in research and development, enabling us to offer our customers innovative products employing state of the art technology.

Today our development team has a number of acoustic specialists in its ranks, equipped with the latest laboratory and test equipment.

WERMA places great importance on acoustic measuring technology and life duration testing facilities. Our products are only brought onto the market after they have passed the toughest of product tests.

The optimal sound generation and diffusion is achieved by means of extensive calculations, simulations and subsequent tests. For example, the horn dimensions of an audible signal device are precisely tailored to the required frequency.

## Most demanding requirements for industrial applications



Especially in general industry our products are subject to extreme environmental influences. This might include temperature variation, voltage changes, electromagnetic interference and other such influences which may not however have any impact on the functionality of our products.

Extensive and exhaustive tests are carried out to ensure that these factors are eliminated in the most effective manner.

WERMA has the most effective and sophisticated Electromagnetic test equipment to carry out such work.

This enables us to offer an appropriate product even for the most demanding applications - naturally within any relevant guidelines and norms.

### Performance Measurements:

- Thermographic image equipment
- Temperature measurement over time
- Resistance to interference - SURGE, Burst, Power Fail, ESD
- Resistance to interference analyses





## Audible signals are everywhere!

Audible signals warn, protect and guide us in the modern industrial world. They function where caution, prudence and clarity are imperative, indicate emergencies and demand direct action. They are globally understood, irrespective of language, written or spoken.

Audible signals are deployed where an optical signal is insufficient or inappropriate. A wide range of products belong to this essential group of audible signal devices: The car horn, indispensable for driving in traffic, the buzzer of an egg timer, the school bell signalling break times and the siren on emergency vehicles.

Audible devices also enjoy a wide range of applications in industrial environments where they are deployed to indicate malfunctions or to provide a warning in dangerous situations. The basic signal is provided by one or more tones or a sequence of tones, and is to raise awareness and alert to a specific danger.



## Types of sound generation used in signal technology

### ✓ Electromechanical sound generation

Electromechanical signal horns from WERMA work according to the oscillating armature principle. This can also be described as a special form of Wagner's interrupter, whereby an electromagnetic oscillation generator produces mechanical oscillations.



The oscillation generator is composed of a solid iron core with a field coil and a moving armature that is held at rest by a plate spring (membrane). When an electric current passes through the field coil, the armature is pulled i.e. pushed from its resting position. If the amplitude or the direction of the current changes continually, the armature oscillates. This is achieved by means of an alternating current or an appropriately prepared direct current. The mechanical adjustment is such that the armature strikes the iron core, leading to a considerable amplification of the principle audible vibrations (structure-borne noise).

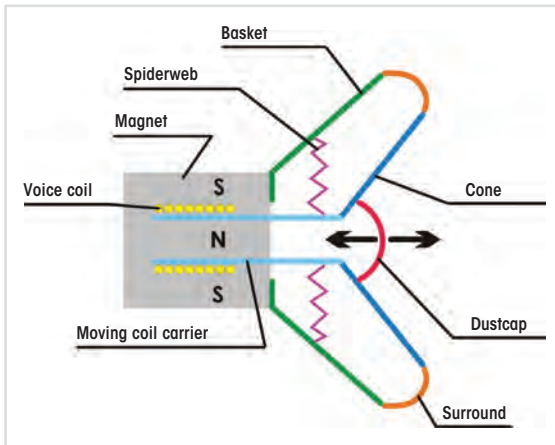
As opposed to the classical Wagner's interrupter where the oscillating element simultaneously controls the current flow (interrupter), producing considerable radio interference voltages, the oscillating armature operating with an alternating current does not produce any interference voltages. When operating with a constant current the suppressors can be integrated into the required driving circuits.

As a result of this operating principle such systems are resistant to extreme temperatures and humidity. The life duration is solely determined by the mechanical wear and tear of the parts.

# Acoustics in Signalling technology

## ✓ Loudspeakers (electro-dynamic sound generation)

A loudspeaker converts an alternating electric current into sound waves. This occurs by means of the interaction between the electric current and a permanent magnet. The coil is positioned within the magnetic field of the permanent magnet. When an electric current is applied to the coil, the Lorentz force generated leads to a deflection of the coil, causing the membrane to vibrate.



As a result of the centering spider this proceeds in an up and down motion. It centres the coil and, together with the bead, ensures that it returns to the resting position.

With the use of the appropriate size of membrane and material, as well as different drives (coils and permanent magnets), loudspeakers can be optimised for a variety of different frequency ranges.

## ✓ Acoustic capsule (electromagnetic sound generation)

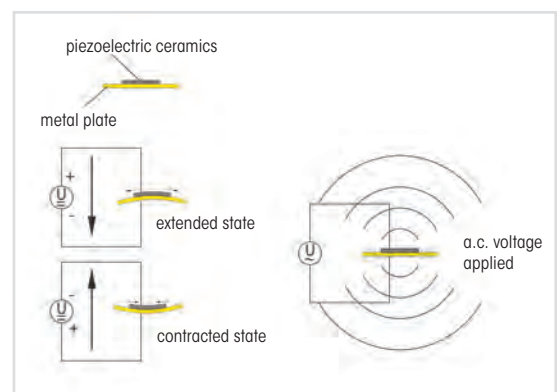
The acoustic capsule belongs to the group of electromagnetic sound generators. This principle was previously used for telephone earpieces. Within the capsule a permanent magnet serves to pre-magnetise the armature which is connected to the membrane. This is made to oscillate and these oscillations are then converted into audible tones. The acoustic capsule is characterized by a relatively simple construction and a compact form and displays a high degree of effectivity.



## ✓ Piezo disc

Piezoelectricity (also known as the piezoelectric effect, or for short: piezo effect) refers to the interaction of mechanical pressure (Greek piezein = to press) and electrical currents in solid bodies. It describes the phenomenon whereby the deformation of certain materials leads to the generation of an electric charge at the surface (direct piezoelectric effect).

In a reverse process these materials (predominately crystals) deform when a voltage is applied. The deflection is relatively small so they need to be transmitted to a membrane, from where the oscillations excite air molecules which are then perceived as sound.



## Audibility factor of audible signals devices

One of the most important properties of audible signals is their sound output and therefore their audibility factor. The signal must be able to be heard without disturbing those around it.

The audibility of an audible signal is dependent on a number of different factors:

- ✓ the sound output of the signal (in dB)
- ✓ the tone frequency (in Hz)
- ✓ the distance between signal device and recipient
- ✓ the noise level of the surrounding area
- ✓ other influences (for example air humidity, wind direction)



## Principle acoustic parameters

### ✓ Sound output level

The sound output level  $L_p$  refers to the logarithmic relationship of the square of the sound output of an acoustic event to the square of the reference value  $p_0 = 20 \mu\text{P}$ . The result is given in decibels (abbreviation dB).

$$L_p = 10 \log_{10} \left( \frac{p_1^2}{p_0^2} \right) \text{ dB} = 20 \log_{10} \left( \frac{p_1}{p_0} \right) \text{ dB}$$

When indicating an absolute level (with reference to the standardized reference level  $p_0$  the abbreviation "SPL" (sound pressure level) is added.

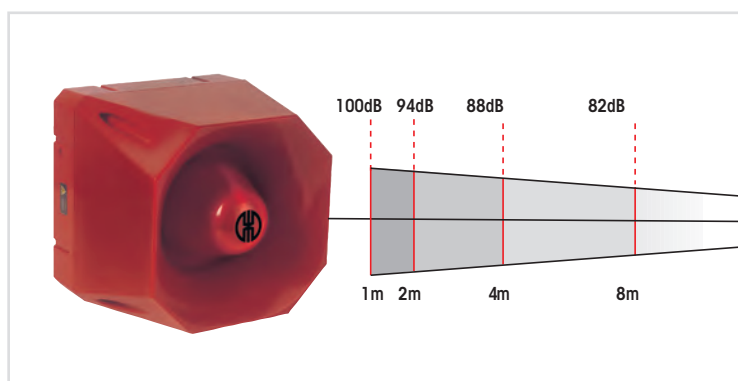
With intermediate to high levels and frequencies a sound output difference of 10 dB is heard as approximately twice as loud. Differences of 3 dB are clearly audible. The perceived sound level is not just dependent on the sound output level, but also on the spectrum of the sound signal and its temporal progression. Single tones are perceived as being considerably louder than a broadband audible signal with the same sound output level. Audible signals with sharply changing levels are also perceived as being significantly louder than uniform audible signals with the same average level.



Weighting curves (A, B and C according to DIN EN 61672-1, formerly IEC/DIN 651) are the curves from weighting filters that are applied to the sound output signal. They are designed to reproduce a similar frequency response as that of the human ear for a specific sound level. However they are only able to achieve a rough approximation, the values obtained for the weighted sound output measurements do not exactly match those of the human ear.

Weighting levels are indicated by the corresponding letter of the frequency weighting, e.g. a C weighting sound output level is given in dB (C). In the field of technical acoustics the A weighting level is predominately employed. For this reason WERMA specifies levels in dB (A).

# Acoustics in Signalling technology



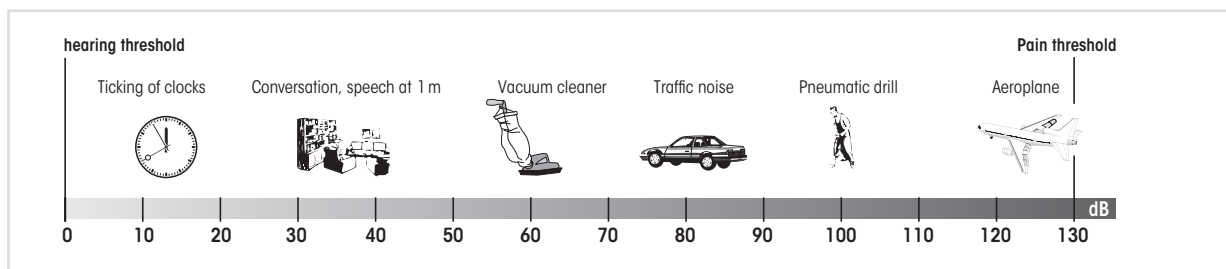
The sound output level is always dependent on the distance from the source of the sound. WERMA specifications are always based on a measuring distance of 1 m, unless otherwise stated.

In the case of point sound sources (generally applies for all sources radiating equally in all directions), the sound output level decreases by **6 dB** with each doubling of the distance from the source.

## Table of working range

		Distance in m												
		1	2	3	5	10	20	30	50	100	200	300	500	1000
Sound pressure level dB (A)	120	114	110	106	100	94	90	86	80	74	70	66	60	
	118	112	108	104	98	92	88	84	78	72	68	64	58	
	116	110	106	102	96	90	86	82	76	70	66	62	56	
	114	108	104	100	94	88	84	80	74	68	64	60	54	
	112	106	102	98	92	86	82	78	72	66	62	58	52	
	110	104	100	96	90	84	80	76	70	64	60	56	50	
	108	102	98	94	88	82	78	74	68	62	58	54	48	
	106	100	96	92	86	80	76	72	66	60	56	52	46	
	104	98	94	90	84	78	74	70	64	58	54	50	44	
	102	96	92	88	82	76	72	68	62	56	52	48	42	
	100	94	90	86	80	74	70	66	60	54	50	46	40	
	98	92	88	84	78	72	68	64	58	52	48	44	38	
	96	90	86	82	76	70	66	62	56	50	46	42		
	94	88	84	80	74	68	64	60	54	48	44	40		
	92	86	82	78	72	66	62	58	52	46	42	38		
	90	84	80	76	70	64	60	56	50	44	40			
	85	79	75	71	65	59	55	51	45	39				
	80	74	70	66	60	54	50	46	40					
	75	69	65	61	55	49	45	41						
	70	64	60	56	50	44	40	36						
	65	59	55	51	45	39	35							

## Examples of noise in everyday life



## Tone frequency

Sound is a series of fluctuations in the air pressure at different amplitudes occurring at a specific rate per unit of time. This rate is termed frequency and is measured in the unit  $1/s = 1\text{ Hz}$  (Hertz). It is named after the German physicist Heinrich Rudolf Hertz. A tone is generated by an oscillation at a certain frequency. The musical tone A for example, has a frequency of 440 Hz. Noise is the term used to describe a number of overlapping tones.

The human ear is only capable of hearing tones within a certain frequency range. In the case of children this range is between 20 and 20,000 Hz. This sensitivity declines with increasing age: by the age of 50 the limit is approximately 12,000 Hz, and with advanced age this is often as low as 5,000 Hz.

The human ear hears tones of different frequencies at different relative strengths. The limit of audibility and the pain threshold are therefore dependent on the respective frequency. For this reason audible signal devices generally operate at a frequency between 500 and 3,000 Hz.

## Environmental factors

In addition to the sound output level, the tone frequency and the distance to the signal device, environmental factors are also decisive for the quality of the signal. Wind, humidity or even rain all have an effect on audibility. A very important factor is the ambient noise level.

In industrial environments in particular, the ambient noise level produced by machines is often very high. Accordingly, the signal devices must produce a sufficiently high sound output in order to be heard.



WERMA has developed loud signal horns and sirens for this purpose. With fluctuating ambient noise levels, the use of a siren with a self-adjusting sound level is recommended - a patented invention from WERMA.



# Product number index

Product no.	Page
107	228
109	229
110	237
111	230
114	231
118	233
118 483	234
119	233
119 483	234
123	240
126	241
127	235
128	236
129	238
133	242
134	243
139	246
140	244
141	247
142	248
144	250
150	218
153	252
170	258
172	259
190	253
200	122
201	123
202	147
203	122
204	123
205	147
206	104
207	105
208	114
209 LED	125
209 Permanent	124
209 Flash	148
210	126
211	127
212	149
213	126
214	127
215	149
216	106

Product no.	Page
219 Permanent	128
219 LED	129
219 Flash	150
220	132
221	133
222	151
223	132
224	133
225	151
230	98
230 Economy	99
231	100
231 Economy	101
232	113
239	102
239 As-Interface	103
280 LED Permanent	143
280 LED Double Flash	163
280 LED EVS	164
280 LED LED Obstruction Light	145
280 LED Rotating Beacon	170
281	146
338	232
382	232
420 LED/Buzzer	192
420 LED/Multi Tone	193
421 Flash/Multi Tone	195
421 Flash/Buzzer	194
422 LED/Buzzer	192
422 LED/Multi Tone	193
423 Flash/Multi Tone	195
423 Flash/Buzzer	194
424	196
425	197
430	200
431 LED Permanent/Flash/EVS	201
431 LED Rotating/Multi Tone	202
432	200
433 LED Permanent/Flash/EVS	201
433 LED Rotating/Multi Tone	202
434	204
435 LED Permanent/Flash/EVS/Horn	205
435 LED Rotating/Horn	206
439	207
441	208

Product no.	Page
442	209
444	211
444 EVS	212
450 with acknowledgement function	219
450 for AS-Interface	220
480	198
482	263
494	214
570	255
571	256
572	256
573	257
574	261
575	262
580	199
581	199
582	263
584	264
585	264
640 Terminal elements	43
641	33
643	34
644 ultrabright	35
644 LED elements	33
644 EVS	36
644 multicolour	37
645 Audible elements	38
645 Vocal element (88 dB)	40
645 Vocal element (102 dB)	41
645 Self-Adjusting	42
646 AS-Interface Element	45
690	87
691	85
694	83
695	91
697	77
697 USB Interface	78
698	74
699	74
714	289
718	288
720	287
728	286
729 LED Permanent	276
729 LED Double Flash	284

Product no.	Page
<b>729</b> LED EVS	283
<b>729</b> LED Rotating Beacon	280
<b>738</b>	285
<b>740</b>	274
<b>741</b>	275
<b>750</b>	290
<b>761</b>	291
<b>782</b> LED Permanent	277
<b>782</b> LED Rotating Mirror	281
<b>783</b>	279
<b>784</b>	272
<b>785</b>	278
<b>800</b>	107
<b>801</b>	108
<b>802</b>	115
<b>806</b>	134
<b>815</b>	109
<b>816</b>	110
<b>816</b> USB multicolour	112
<b>816</b> multicolour	111
<b>816</b> LED	117
<b>817</b>	116
<b>826</b>	136
<b>826</b> monitored	137
<b>827</b>	156
<b>828</b> for use in road tunnels	158
<b>828</b> Flash	157
<b>829</b> LED Permanent	138
<b>829</b> LED Double Flash	159
<b>829</b> LED EVS	160
<b>829</b> LED Permanent	169

Product no.	Page
<b>829</b> monitored	140
<b>829</b> with external triggering	139
<b>830</b>	155
<b>835</b>	155
<b>838</b>	162
<b>839</b> LED Permanent	142
<b>839</b> Rotating Mirror	167
<b>839</b> LED Permanent	168
<b>839</b> Double Flash	161
<b>840</b> Permanent	48
<b>840</b> Terminal elements	58
<b>840</b> AS-Interface Element	59
<b>842</b>	49
<b>843</b> LED elements	48
<b>843</b> EVS	51
<b>843</b> ultrabright	50
<b>843</b> multicolour	52
<b>844</b> Audible elements	53
<b>844</b> Self-Adjusting	57
<b>844</b> Vocal element (88 dB)	55
<b>844</b> Vocal element (102 dB)	56
<b>845</b> Terminal elements	65
<b>845</b> AS-Interface Element	66
<b>846</b>	62
<b>848</b>	62
<b>849</b>	64
<b>850</b>	130
<b>851</b>	130
<b>852</b>	130
<b>853</b> LED	135
<b>853</b> LED Double Flash	152

Product no.	Page
<b>853</b> LED EVS	153
<b>860</b> WIN Kombi/SIGN 71	16
<b>860</b> WIN Kombi/SIGN 70	18
<b>860</b> Andon products	20
<b>861</b> Kombi/SIGN reflect	27
<b>880</b>	173
<b>881</b>	174
<b>883</b>	172
<b>884</b>	171
<b>885</b>	165
<b>890</b> LED	175
<b>890</b>	176
<b>894</b>	180
<b>895</b>	141
<b>897</b>	154
<b>914</b>	260
<b>955</b>	184
<b>956</b>	182

## Our Products

If you are searching for a specific product, then our overview pages at the beginning of each product section provide additional support. All product variants for the specific product group are arranged according to their features (for example light effect or sound output).

<b>Systems</b>  Page 11 onwards	<b>Signal Towers · modular</b>  Page 29 onwards	<b>Signal Towers · pre assembled</b>  Page 71 onwards	<b>Installation Beacons</b>  Page 95 onwards	<b>Free-standing Beacons</b>  Page 119 onwards	<b>Optical-Audible Signal Devices</b>  Page 187 onwards	<b>Audible Signal Devices</b>  Page 225 onwards	<b>Ex Signal Devices</b>  Page 267 onwards
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**WERMA**  
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