Catalogue 2008

auer
SIGNALGERÄTE

Your Signalling Solution

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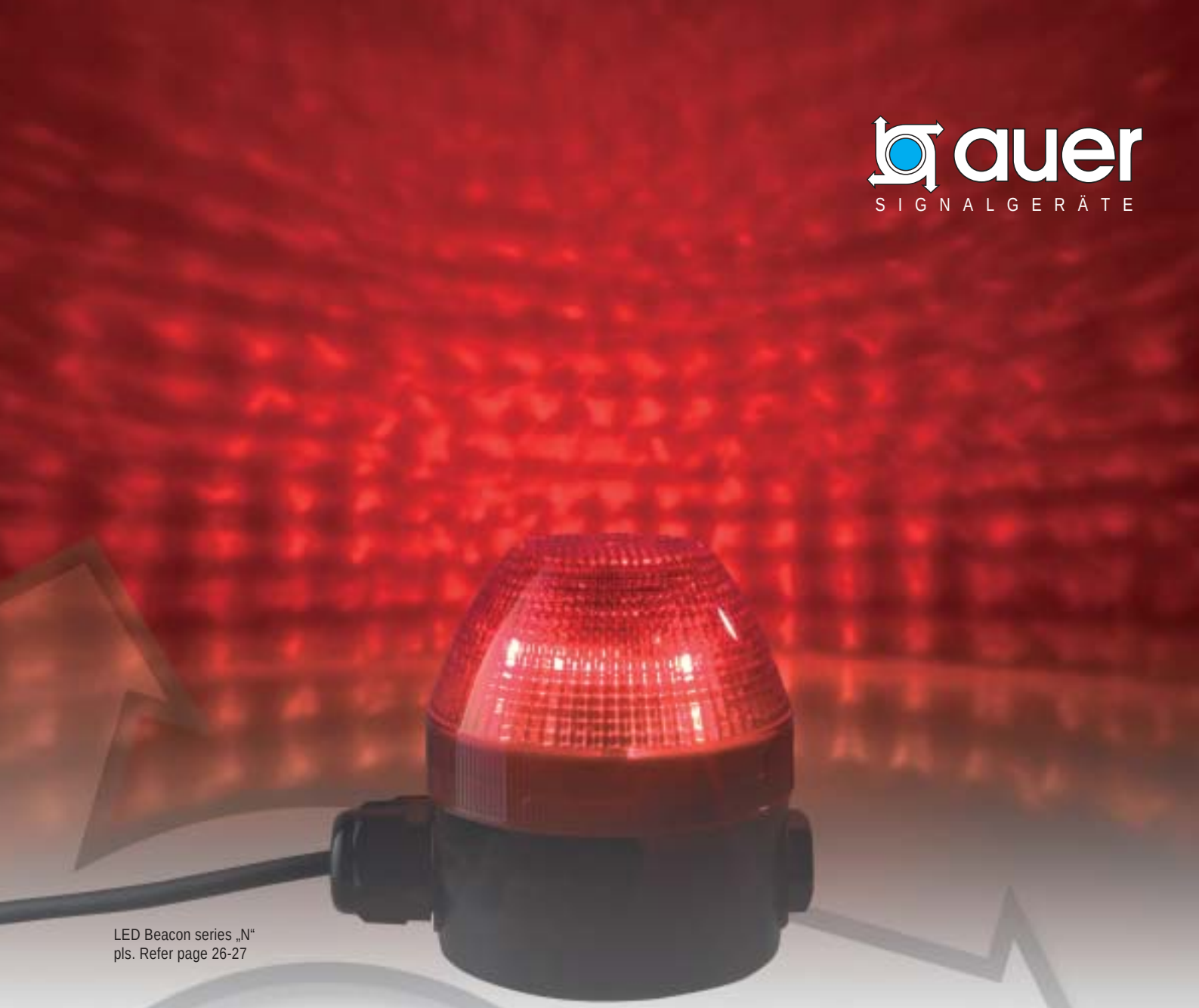

LED Beacon series „N“
pls. Refer page 26-27

Dear reader,

the team AUER is pleased, to present you our completely revised catalogue 2008.

Since the last edition we have added many innovative products which has significantly enlarged and completed our range of signalling products.

Our products combine state-of-the-art technology with high product quality, approvals for the world market and attractive, competitive pricing.

The continuously growing success with customers in more than 50 countries world-wide confirms the soundness of our concisely followed strategy, to provide our customers with a broad range of standard signalling products but to also offer individual customised product solutions.

Our subsidiary for the distribution in Germany, J. AUER Signalgeräte GmbH in Neuss, also developed very well and can among other things, while this new catalogue becomes available offer the most comprehensive range of signal towers of all european manufacturers.

The continuous extension of our product offering as well as the continuously increasing demand for AUER products requires the lasting expansion of our production and service capabilities.
These will be established mid 2007 with a new AUER plant for production and administration in a modern industrial park in the southern part of Vienna.

This represents three years before the 100 years anniversary of company AUER founded 1910 another milestone in the company history and is the base for a further future expansion.

We have still many ideas for market orientated new products in order to meet with our customers' requirements and the spirit of our slogan

Your Signalling Solution!

We look forward to a continued good co-operation with our customers and distribution partners and appreciate you contacting us.

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ACCESSORIES

GENERAL INFORMATION

Catalogue Structure

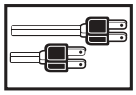
The products in this catalogue are laid out according to the following information structure.Therefore you can find all relevant data quickly and clearly.

PRODUCT DENOMINATION and TYPE CODE
in the headline, e.g. LED Steady-/Flashing Beacon NES

TYPICAL PRODUCT
PICTURES completed (right side) with
PRODUCT DETAILS

FEATURES AND SYMBOLS
The main product criteria are summarized in the form of symbols to demonstrate the most important data/ approvals of the products.

TECHNICAL DATA
Material, Mounting, Performance Data, Protection Class, etc.

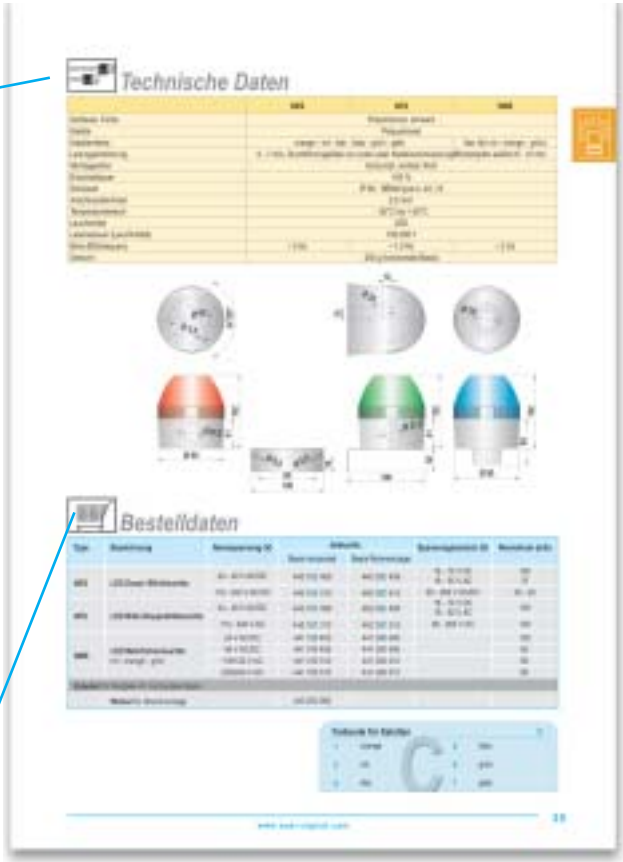

Symbol for technical data

ORDER DATA
All particular information to order a product correctly: Type code, description,nominal voltage, order number, voltage range, nominal current, accessories.

Required light sources are shown next to the order data in dark grey colour.

The order data table completed by the Colour Code “C”, Length Code “L” etc., to determine the correct order information easily.


Symbol for order data

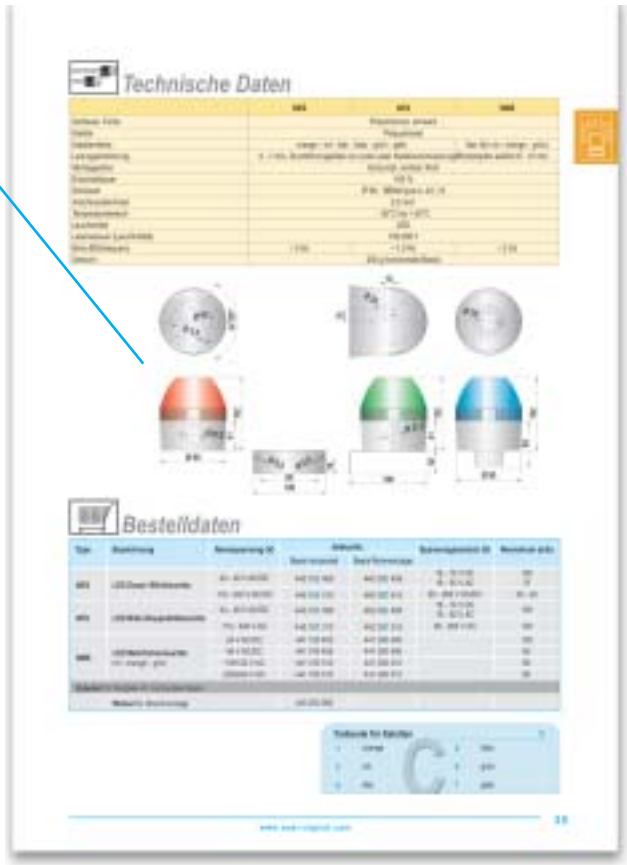


Catalogue Structure

DRAWINGS
Informs about product dimensions

GENERAL INFORMATION on page 12 -

in this chapter you find general information about protection class, standard and quality marks, catalogue data notes, information about product- and article terms and finally the



TYPE-INDEX and ORDER NUMBER-INDEX
The **type index** enables the quick search via type code and refers to the appropriate pages in the catalogue.

The **order number** index enables the quick search via order number to the appropriate pages in the catalogue.

Two very helpful indices, if customers only have partial information about required products.

A **specific search for products** is also possible via:

- The **product overview** at the beginning of each product category (flag on the right side). In there you will find a table including all products arranged in typical criteria

- The **index of contents** on page 4-7- sorted by product categories, it enables a quick search of possible products.


Serie „M“ Ø 160 mm
Page 18-23
Series „M“ Ø 120 mm
Page 18-23
Series „G“ Ø 120 mm
Page 24-25
Lightbar ILL
Page 26-27
Series „Z“ Ø 70 mm
Page 30-31
Series „N“ Ø 90 mm
Page 28-29
Serie „M“ Ø 90 mm
Page 18-23

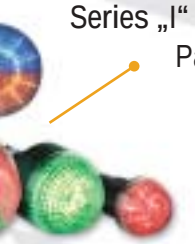
Overview Visual Signalling Equipment

	Series	Type	Lens Ø mm	Page
Steady Beacons	M	MLL	160	18-23
		MLM	120	18-23
		MLS	90	18-23
	G	WLG	120	24-25
	K	WLK	60	34-37
LED-Steady Beacons	G	DLG	120	24-25
		ILL		26-27
	N	NES	90	28-29
	K	WLK+LLL	60	34-37
Flashing Beacons	M	MBL	160	18-23
		MBM	120	18-23
		MBS	90	18-23
	G	BKG	120	24-25
LED-Flashing Beacons	G	BLG	120	24-25
	N	NES	90	28-29
		BC1	70	30
	K	WLK+LLB	60	32
LED-Strobe Beacons	N	NFS	90	28-29
LED-Multicolour Beacons		NMS	90	28-29
Strobe Beacons	M	MFL	160	18-23
		MFM	120	18-23
		MFS	90	18-23
	G	FLG	120	24-25
	Z	BZL	72	30-31
		BZG	72	30-31
		XB2	70	32
	K	FLK	60	33
Rotating Mirror Beacons	M	MRL	160	18-23
		MRM	120	18-23
		MRS	90	18-23
M22 Panel Mount Beacons				
LED-Steady-/Flashing Beacons	I	IBL	65	38-41
		IBM	45	38-41
		IBS	30	38-41
LED-Multicolour Beacons	I	IDL/ITL	65	38-41
		IDM/ITM	45	38-41
		IDS/ITS	30	38-41
Strobe Beacons	I	ISL	65	38-41
		ISM	45	38-41
		ISS	30	38-41

M22 Panel Mount Beacons

Series „I“ Ø 65 - 45 - 30 mm

Page 38-41



Series „K“ Ø 60 mm

Page 34-37

BC1 Ø 65 mm

Page 32

XB2 Ø 65 mm

Page 33

Visual signalling equipment is used in various industrial applications (status signalling on machines, enclosures etc.) but also in building applications they are required frequently for visual warning (garages, obstacles, access controls etc.). They signal with colours, light intensity/brightness and flashing time and provide visual information to people to avoid in time danger or mistakes.

BEACON TYPES

4 types of visual signalling products are generally offered, providing different levels of signalling effects.

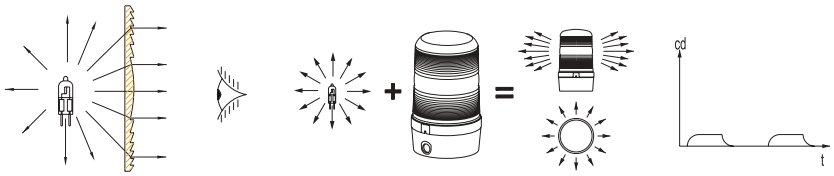
STEADY BEACONS

Lowest signalling effect, the light intensity of a steady or in general a signal beacon varies with

- distance between signalling device and viewer
- power of light source
- use of different lens types (by using a particularly designed „Fresnel“-ribbing pattern the light spot in a beacon is distributed over the whole lens height and by that the best signalling effect achieved)

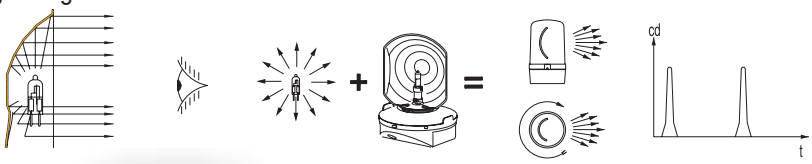
FLASHING BEACONS

Increase the attention by periodic switching on/off of the light source, the flashing frequency is usually between 1 – 2 Hz. Powerful beacons cycle usually slower as the afterglow time is getting longer the more powerful a bulb or halogen bulb is.

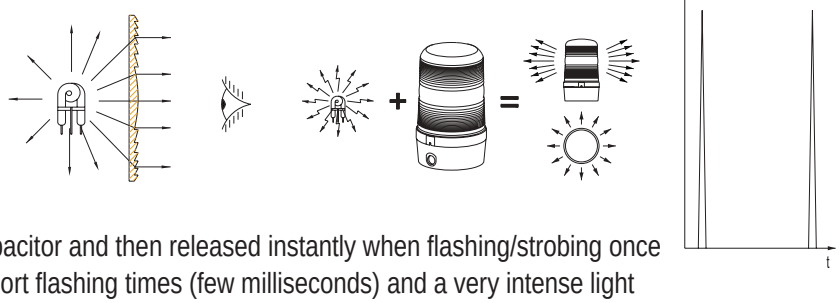


ROTATING MIRROR BEACONS

By divertising a light spot in a particular direction and by focussing the light a rotating light beam is produced. The moving light causes high attention; by using different rotation speeds the attention can be further increased.
Rotating mirror beacons use smooth lenses for achieving the maximum visual signalling effect.

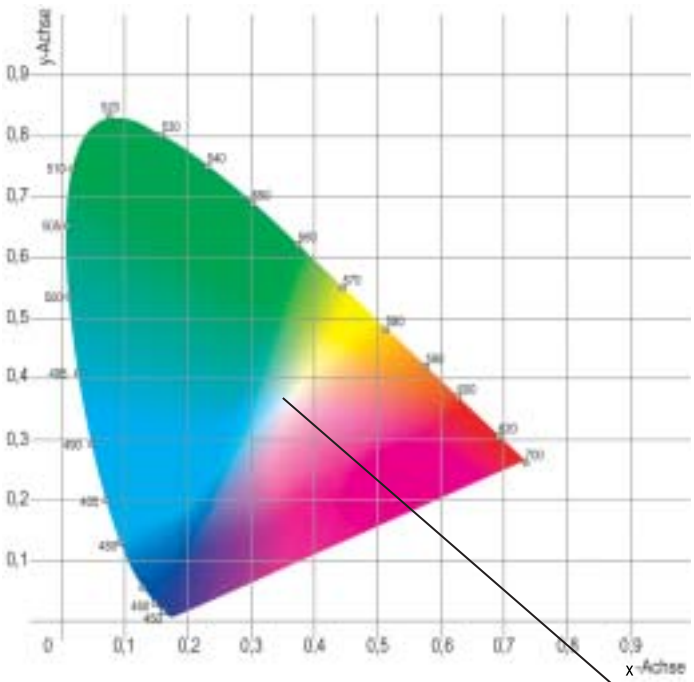


STROBE OR XENON BEACONS



Electrical energy is stored in a capacitor and then released instantly when flashing/strobing once via the strobe/xenon tube. Very short flashing times (few milliseconds) and a very intense light impulse is achieved resulting in highest signalling effect and attention.
By using a ribbed „Fresnel“ lens the signalling effect to the side is increased.

SIGNAL COLOURS



▲ CIE-table – position of signalling colours in the spectrum

The signalling technique uses mainly the signal colours amber, red, green, blue, clear and yellow.
The visual light covers a range from 380 nm to 780 nm.

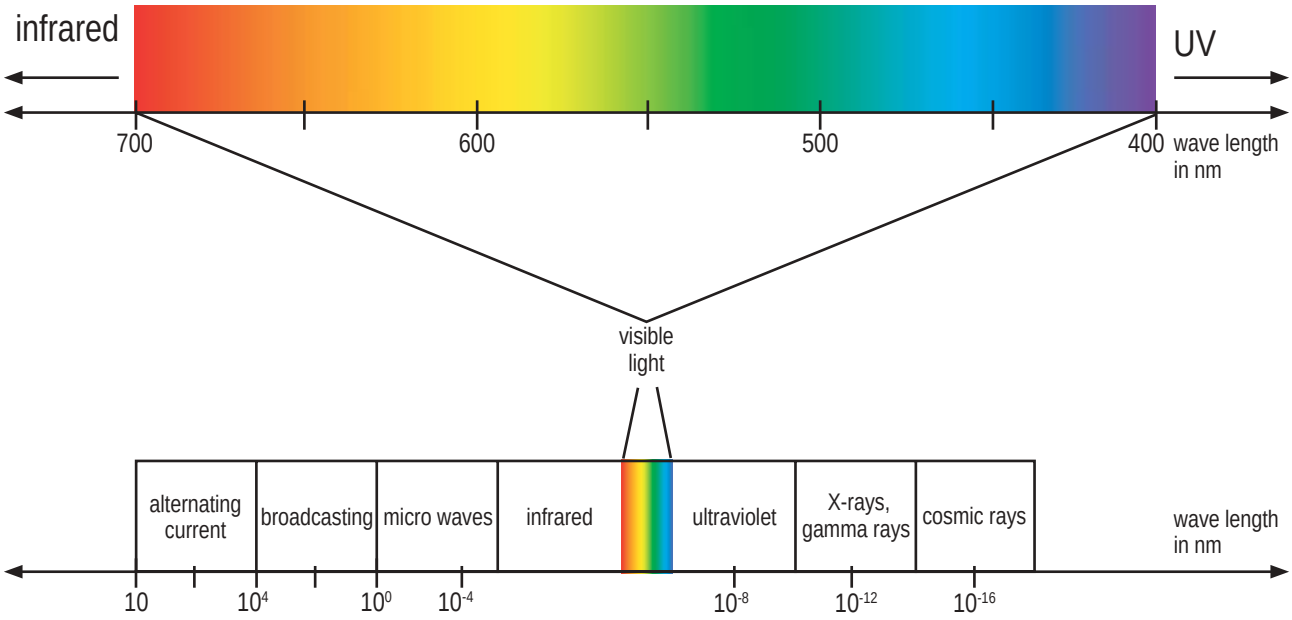
Light wave lengths of colours

blue	470 nm
cyan	510 nm
green	540 nm
yellow	590 nm
red	700 nm

The chromatic colour model (also called CIE-colour model) is bi-dimensional; the colour values for red, green and blue are shown as percentages on the axes.

VISUAL SPECTRUM OF THE LIGHT

The wave length of the visible light is between 770nm and 400nm and is called **visual spectrum.**
The visual spectrum itself is composed by various electromagnetic waves, which produce different colour perceptions in our eyes.



MEANING OF COLOURS IN VISUAL SIGNALLING EQUIPMENT

With reference to EN 60204-11:2000 the following general use and meanings of colours for visual signalling equipment can be defined:

Colour	Meaning/Explanation	Action by the operator
	emergency dangerous situation	immediate action for reacting in a dangerous situation
	abnormal situation upcoming critical situation	monitor and/or action
	normal situation	optional
	indication of situation requiring a defined action by the operator	conclusive action
	neutral – no particular meaning for other situations to be used if doubts exist when to use red, yellow, green or blue	monitor

LIGHT TRANSPARENCY

The light transparency decreases by using coloured lenses:

Reduction of light transparency in %						
	clear	yellow	amber	red	blue	green
Halogen bulb	0 %	- 6 %	- 30 %	- 73 %	- 80 %	- 85 %
Strobe/xenon tube	0 %	- 7 %	- 30 %	- 77 %	- 76 %	- 75 %

LIGHT SOURCES IN AUER SIGNALLING EQUIPMENT

Light can be produced in different ways. The following overview of light sources which are used in AUER signalling devices, informs about particular advantages and disadvantages of these light sources.

BULBS

FUNCTION

a tungsten wire is run on high temperature and emits energy over a wide wave range – also in the visual spectrum.

ADVANTAGE

- simplest and cheapest light source
- well known technique
- availability in various designs, voltages and performances

DISADVANTAGE

- low light output 8 – 18 lm/W
- limited lifetime – approx. 1.000 h for standard bulbs
- significantly reduced lifetime in case of vibrations, shock, flashing mode etc.
- blackening of glass body with increasing lifetime
- „yellow“ light
- relatively high loss of light energy when penetrating coloured lenses

HALOGEN BULBS

FUNCTION

by filling a glass body (smaller volume in comparison with bulbs) with halogenes (iodine, bromine) a lower degeneration of the filament is achieved maintaining almost a constant or higher light output

ADVANTAGE

- higher light output than bulb – up to 25 lm/W
- longer lifetime (approx twice as bulbs, depending on bulb type)
- less blackening of glass body – constant light current during the whole lifetime

DISADVANTAGE

- limited lifetime – approx. 1500 – 3000 h (depending on bulb type and voltage)
- reduced lifetime with vibrations, shock, etc.
- reduced lifetime with flashing mode (peak current during switching)
- relatively high loss of light energy when penetrating coloured lenses

XENON-TUBES RESP. FLUORESCENT LAMPS

FUNCTION

switching a sufficiently high voltage in a xenon gas filled glass body results a very intense light impulse or light flash

ADVANTAGE

- high signalling effect due to intense light impulse

DISADVANTAGE

- xenon tube blackens during its lifetime – decreasing light output
- limited lifetime due to large current density and stressed electrodes or due to degeneration of energy saving device (capacitor)

LED

FUNCTION

LEDs (Light Emitting Diodes) are visual semiconductors, which transfer electrical voltage in visible light. Light with very narrow spectrum results (that means the human eye only recognizes one colour)

ADVANTAGE

- high light output – standard LEDs 8 – 20 lm/W, high performance LEDs up to 70 lm/W
- LED looses due to narrow spectrum little light power in coloured lenses
- significantly reduced nominal current in comparison with bulbs
- very high lifetime – up to 100.000 h
- absolutely resistant against vibrations, shock etc..
- absolutely maintenance free
- small dimensions
- instant light when switching on

DISADVANTAGE

- higher initial cost in many applications, particularly in case of vibrations etc., LED technology amortizes very quickly as no maintenance and long lifetime
- narrow angle/light output (in certain applications also desired)

FUNDAMENTAL TERMS OF LIGHT

Signalling technology distinguishes between several basic terms with which light can be determined.
The most important standardised units of measurement are **Lumen**, **Candela** and **Lux**.

LUMEN (lm) – LIGHT CURRENT

The light current is a measurement for the whole visible radiation emitted by a radiation source.
It determines how much light is emitted by a radiation source in all directrions. This value is weighed for the spectral recognition of human beings. The light current is well suitable for describing the effectiveness of a light source.

CANDELA (CD) – LIGHT POWER

The light power describes the radiation emitted into a specific direction. It is calculated from the light current as

Light power [cd] = Light current [lm] / angle in space (steradiant) [sr]

and a measurement for the light distribution in the space.
The technical definition describes Candela as the light power of a radiation source that emits a monochromatic radiation with a frequency of 540 x 106 Hz (equal to 555 nm wave length) with a performance of 1/683 Watt per steradiant.

A standard candle emits a light power of 1 Cd, which means it emits 12,556 lm into all directions.

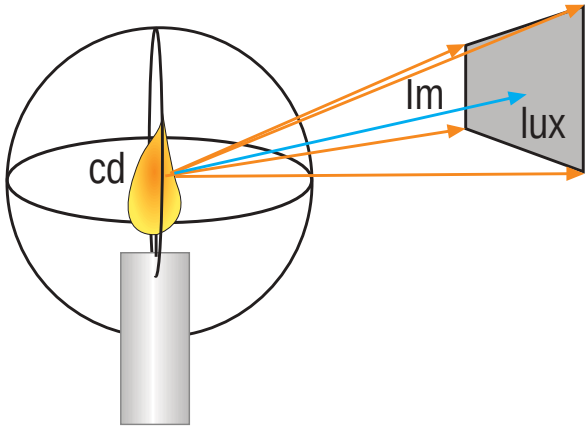
As the way of emitting of a visual signalling device is not only defined by the light source but also by the type of lens, the light power is best suitable to characterize the signalling effect of visual signalling devices.

LUX (LX) – ILLUMINATION POWER

The illumination power is a measurement for the brightness with which an area is lit. It is calculated as quotient of light current and area (lm/m2).

The illumination power indicates how much light current of a light source per area unit arrives on a receiving area A.

Connections between the various measurements demonstrated in one picture:
The illumination power is reversably proportional to the square of the distance, that means a doubling of the distance results in a reduction of the illumination power to one fourth.



LIGHT RESULT/OUTPUT (lm/W)

The light output describes the produced light current in dependence of the electrical energy required; it corresponds to a „visual“ efficiency degree.

	lm/W
bulb:	8 – 18
halogen bulb:	14 – 25
energy saving bulb:	35 – 75
fluorescent lamp:	50 – 100
mercury vapour lamp:	30 – 60
LED white:	to 80

STATE OF THE ART LED TECHNOLOGY IN AUER BEACONS

AUER meets with the trend for LED products to be seen in the past few years and has significantly enlarged its range of LED beacons.
Due to the main advantages of LEDs

- not sensitive against vibrations, shocks etc
- low nominal current resp. low energy consumption
- extremely long lifetime (up to 100.000 h)
- absolutely maintenance free
- instant light when switching on
- low heat during operation

more and more LED-applications are requested.

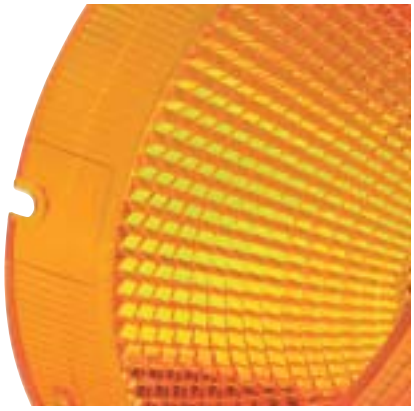
AUER offers a range of innovative products using LED-technology

- LED-Signal towers modular or compact
- LED-Steady-/Flashing beacons
- LED-Strobe-/Double strobe beacons
- LED-Multicolour beacons
- LED-bulbs

AUER LED-products not only qualify because of their brightness and varibility in their configuration but offer above all a very attractive price/performance ratio which allows a fast amortization and investment into LED technology.

The LED bulbs have also been modified with new state-of-the-art led technology and offer improves brightness ideal for use in signal towers and other visual signalling equipment.

When developing the AUER 90mm “N-Series” LED beacons particularly optically designed lenses were used in combination with high power leds for maximum light output and signalling effect.



The lifetime of LEDs is very high and is in general more than 100.000 h (equal to a constant light time of approx. 11 1/2 years).
After that time the LED does not fail completely, just the light current underpasses a certain value (e.g. 50%). In reality the lifetime however depends very much on the conditions of the individual application (temperature, etc.).
A poorly positioned LED light source can result in drastically reduced lifetime. The peripheric circuit plays a significant role in the lifetime analyses.

Due to the lack of bulb changes and service measures LED bulbs resp. LED products are already today the most economic solutions for visual signalling products.

auer SIGNALGERÄTE

Your partner for
standard and customized solutions of LED products with best possible price/performance ratio.

ø 160 mm
MLL · MBL · MFL · MRL

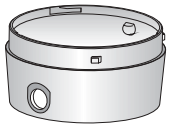
ø 120 mm
MLM · MBM · MFM · MRM

ø 90 mm
MLS · MBS · MFS · MRS

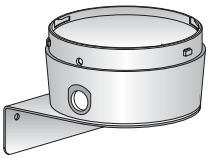
MODULES

IP 65 | - 25 °C + 60 | 30 J (MFL) 15 J (MFM) 7 J (MFS) | c UL us | CE

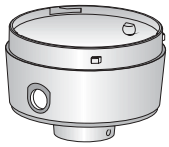
MOUNTING	OPERATING UNITS	LENS TYPE	SIZES



horizontal

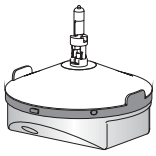


vertical (bracket)

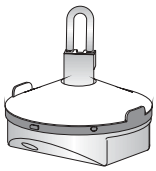


pole

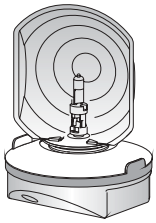
magnet



steady light unit
flashing light unit



strobe unit



rotating mirror unit

FRESNEL TYPE
steady beacons
strobe beacons
flashing beacons

SMOOTH
rotating mirror beacons

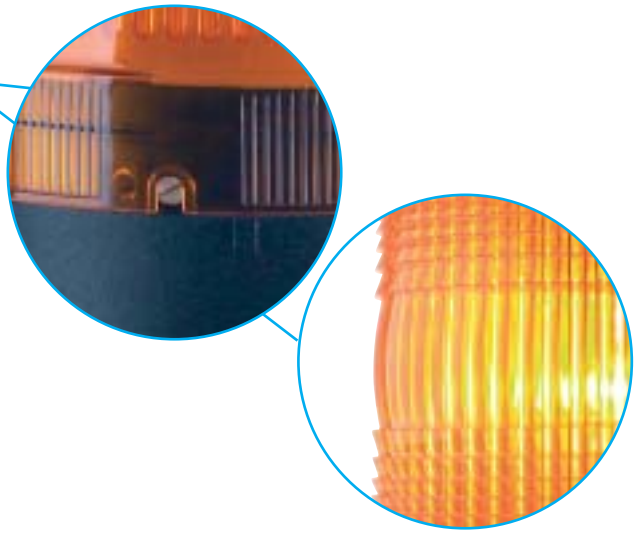
ø 160 mm ø 120 mm ø 90 mm

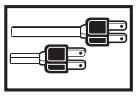
Models	160 mm	120 mm	90 mm
Steady beacon	MLL	MLM	MLS
Flashing beacon	MBL	MBM	MBS
Strobe beacon	MFL	MFM	MFS
Rotating mirror beacon	MRL	MRM	MRS

Features

- modular beacon series
- powerful, flexible and robust system
- easy to mount and service, maintenance friendly design
- M20 cable gland/M20 blind plug and grommet in bottom
- safety screw for lens cannot be lost
- distinct lens ribbing – optimal light dispersion
- temperature monitoring in 160 mm strobe beacons
  - automatic strobe energy/frequency reduction in extreme situations
- rotating mirror beacons:
  - synthetic bearings – extremely high operating safety (no corrosion possible)
  - speed selection 90/180 rpm as standard
  - speed monitoring by foto cell (constant rotating speed independent of voltage, age, temperature)

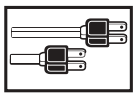
Legend		M_ _ Modular Beacons „M“	
_L_	steady beacon		
_B_	flashing beacon	_ _L	L = Large / ø 160 mm
_F_	strobe beacon	_ _M	M = Medium / ø 120 mm
_R_	rotating mirror beacon	_ _S	S = Small / ø 90 mm





Technical data

	Steady Beacons			Flashing Beacons		
Type	MLL	MLM	MLS	MBL	MBM	MBS
Diameter	160 mm	120 mm	90 mm	160 mm	120 mm	90 mm
Housing, Colour	polycarbonate, black					
Lens, Colour	polycarbonate, amber, red, clear, blue, green, yellow					
Cable entry	bottom grommet or cable gland					
	from the side 5-12 mm bottom 7-14 mm		from t. side 5-12 mm bottom 5-7 mm	from the side 5-12 mm bottom 7-14 mm		from t. side 5-12 mm bottom 5-7 mm
Mounting	horizontal, vertical, pole, magnet					
Duty cycle factor	100 %					
Protection class	IP 65 (IEC529) · UL Type 4,4X,13					
Terminals	2,5 mm²					
Temperature range (Einsatz)	-25 °C to +50 °C		-25 °C to +60 °C	-25 °C to +60 °C		
Type of light	halogen bulb					
Socket	GY 6.35 / G 6.35					
Life time (light source)	1.500-5.000 h					
Wattage	50 W	35 W	20 W	50 W	35 W	20 W
Flashing/Strobe frequency				1 Hz		

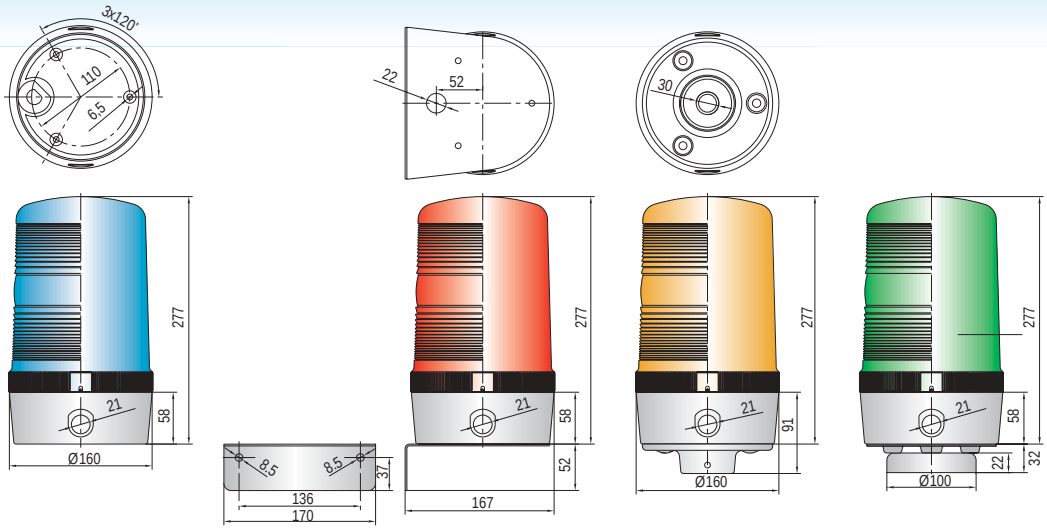


Technical data

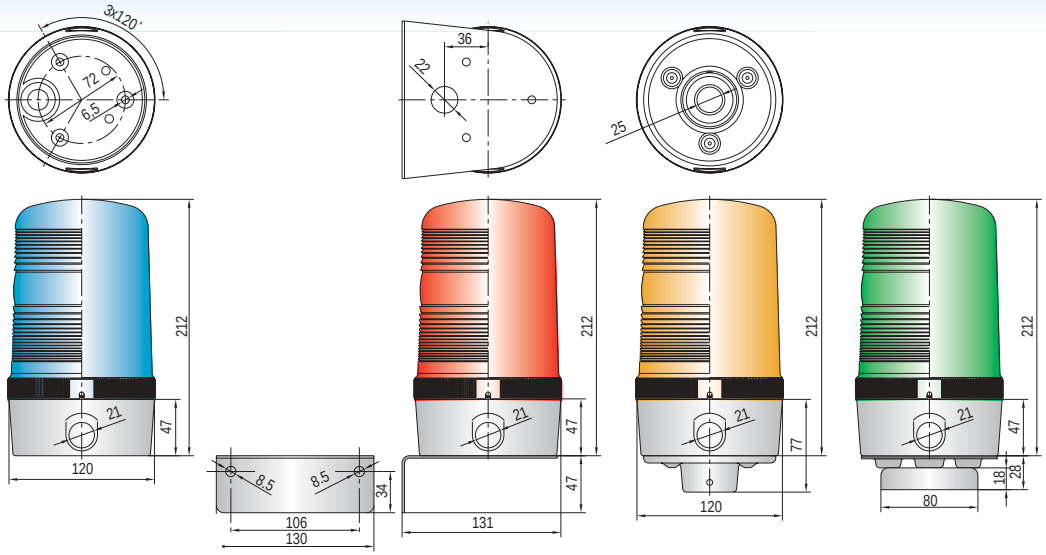
	Strobe Beacons			Rotating Mirror Beacons		
Type	MFL	MFM	MFS	MRL	MRM	MRS
Diameter	160 mm	120 mm	90 mm	160 mm	120 mm	90 mm
Housing, Colour	polycarbonate, black					
Lens, Colour	polycarbonate, amber, red, clear, blue, green, yellow					
Cable entry	bottom grommet or cable gland					
	from the side 5-12 mm bottom 7-14 mm		from t. side 5-12 mm bottom 5-7 mm	from the side 5-12 mm bottom 7-14 mm		from t. side 5-12 mm bottom 5-7 mm
Mounting	horizontal, vertical, pole, magnet					
Duty cycle factor	100 %					
Protection class	IP 65 (IEC529) · UL Type 4,4X,13					
Terminals	2,5 mm²					
Temperature range (Einsatz)	-25 °C to +60 °C			-25 °C to +50 °C		-25 °C to +60 °C (12/24 V) -25 °C to +50 °C (120/240 V)
Type of light	xenon tube			halogen bulb		
Socket	screw terminal		soldered	GY 6.35 / G 6.35		
Life time (light source)	1.500-5.000 h					
Life tome (motor)				5.000 h	5.000 h	3.000 h
Wattage	30 J	15 J	7 J	50 W	35 W	20 W
Flashing/Strobe frequency	1 Hz					
Mirror rotation speed				90/180 rqm switchable		

Note: All models of modular beacons „M“ are supplied as standard with separately packed light source !

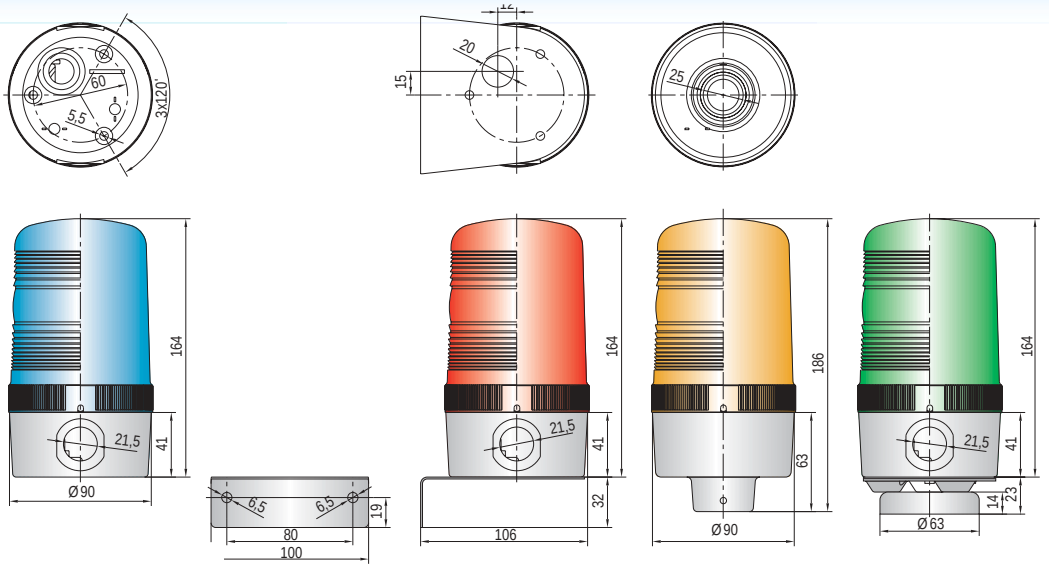
MLL-MBL-MFL-MRL



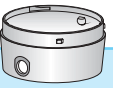
MLM-MBM-MFM-MRM

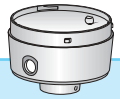


MLS-MBS-MFS-MRS



Order data

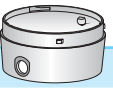


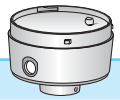


160 mm

Type	Denomination	Nominal voltage (V)	Order No.				Nominal current (A)
			Base horizontal mounting	Weight (g)	Base pole mounting	Weight (g)	
MLL	Steady beacon	12 V AC/DC	819 10C 404	800	819 30C 404	1300	4,0
		24 V AC/DC	819 10C 405		819 30C 405		2,1
		110/120 V AC	819 10C 310		819 30C 310		0,42
		230/240 V AC/DC	819 10C 313		819 30C 313		0,21
MBL	Flashing beacon	12 V AC/DC	839 10C 404	820	839 30C 404	1320	4,0
		24 V AC/DC	839 10C 405		839 30C 405		2,1
		110/120 V AC	839 10C 310		839 30C 310		0,42
		230/240 V AC	839 10C 313		839 30C 313		0,21
MFL	Strobe beacon	24 V AC/DC	849 10C 405	920	849 30C 405	1420	1,9
		110/120 V AC	849 10C 310		849 30C 310		0,7
		230/240 V AC	849 10C 313		849 30C 313		0,35
MRL	Rotating mirror beacon	12 V AC/DC	419 10C 404	970	419 30C 404	1470	4,2
		24 V AC/DC	419 10C 405		419 30C 405		2,3
		110/120 V AC	419 10C 310		419 30C 310		0,58
		230/240 V AC	419 10C 313		419 30C 313		0,39
	Accessories for models with horizontal mounting						
	Bracket		819 200 900	500			
	Bonding kit		819 201 900	15			
	Mounting plate		819 202 900	220			
	Magnetic mount		819 203 900	1.030			

Order data

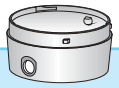




120 mm

Type	Denomination	Nominal voltage (V)	Order No.				Nominal current (A)
			Base horizontal mounting	Weight (g)	Base pole mounting	Weight (g)	
MLM	Steady beacon	12 V AC/DC	818 10C 404	480	818 30C 404	760	2,9
		24 V AC/DC	818 10C 405		818 30C 405		1,5
		110/120 V AC	818 10C 310		818 30C 310		0,29
		230/240 V AC/DC	818 10C 313		818 30C 313		0,15
MBM	Flashing beacon	12 V AC/DC	838 10C 404	500	838 30C 404	780	2,9
		24 V AC/DC	838 10C 405		838 30C 405		1,5
		110/120 V AC	838 10C 310		838 30C 310		0,29
		230/240 V AC	838 10C 313		838 30C 313		0,15
MFM	Strobe beacon	12-24 V AC/DC	848 10C 405	520	848 30C 405	800	24 V: 0,8 (12 V: 1,3)
		110/120 V AC	848 10C 310		848 30C 310		0,32
		230/240 V AC	848 10C 313		848 30C 313		0,15
MRM	Rotating mirror beacon	12 V AC/DC	418 10C 404	620	418 30C 404	900	3,2
		24 V AC/DC	418 10C 405		418 30C 405		1,7
		110/120 V AC	418 10C 310		418 30C 310		0,32
		230/240 V AC	418 10C 313		418 30C 313		0,17
	Accessories for models with horizontal mounting						
	Bracket		818 200 900	320			
	Bonding kit		819 201 900	15			
	Mounting plate		818 202 900	130			
	Magnetic mount		818 203 900	600			

Order data




90 mm

Type	Denomination	Nominal voltage (V)	Order No.				Nominal current (A)
			Base horizontal mounting	Weight (g)	Base pole mounting	Weight (g)	
MLS	Steady beacon	12 V AC/DC	817 10C 404	260	817 30C 404	450	1,7
		24 V AC/DC	817 10C 405		817 30C 405		0,83
		110/120 V AC	817 10C 310		817 30C 310		0,17
		230/240 V AC/DC	817 10C 313		817 30C 313		0,085
MBS	Flashing beacon	12 V AC/DC	837 10C 404	270	837 30C 404	460	1,7
		24 V AC/DC	837 10C 405		837 30C 405		0,83
		110/120 V AC	837 10C 310		837 30C 310		0,17
		230/240 V AC	837 10C 313		837 30C 313		0,085
MFS	Strobe beacon	12-24 V AC/DC	847 10C 405	310	847 30C 405	520	24 V AC: 0,48 (12 V AC: 0,83) 24 V DC: 0,36 (12 V DC: 0,65)
		110/120 V AC	847 10C 310		847 30C 310	500	0,21
		230/240 V AC	847 10C 313		847 30C 313		0,12
MRS	Rotating mirror beacon	12 V AC/DC	417 10C 404	370	417 30C 404	560	1,8
		24 V AC/DC	417 10C 405		417 30C 405		0,95
		110/120 V AC	417 10C 310	390	417 30C 310	580	0,3
		230/240 V AC	417 10C 313		417 30C 313		0,27
	Accessories for models with horizontal mounting						
	Bracket		817 200 900	120			
	Bonding kit		819 201 900	15			
	Mounting plate		817 202 900	80			
	Magnetic mount		817 203 900	340			

Colour code for lens			C
1	amber	5	blue
2	red	6	green
4	clear	7	yellow

NOTE: All models of modular beacons „M“ are supplied as standard with separately packed light source !

Replacement light source:

Halogen bulbs				
Type	Nominal voltage	Socket	Wattage (W)	Order No.
MLL-MBL-MRL				
HL51	12 V	GY 6.35	50 W	890 050 904
HL52	24 V			890 050 905
HL55	110/120 V	G 6.35		890 050 910
HL56	230/240 V			890 050 913
MLM-MBM-MRM				
HL31	12 V	GY 6.35	35 W	890 035 904
HL32	24 V			890 035 905
HL33	110/120 V	G 6.35		890 035 910
HL36	230/240 V			890 035 913
MLS-MBS-MRS				
HL21	12 V	GY 6.35	20 W	890 020 904
HL22	24 V			890 020 905
HL25	110/120 V	G 6.35		890 020 910
HL26	230/240 V			890 020 913

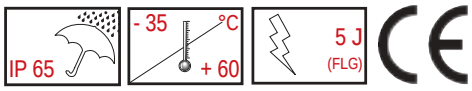
Xenon tubes			
Type		Strobe-energy	Order No.
XT30	MFL	30 J	890 130 900
XT15	MFM	15 J	890 115 900
XT07	MFS	7 J	890 107 900

Steady-/Flashing-/Strobe Beacon WLG-BKG-FLG
LED-Steady- /LED-Flashing-Beacon DLG-BLG

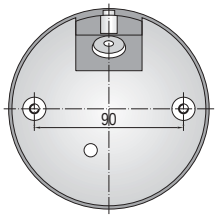
auer SIGNALGERÄTE

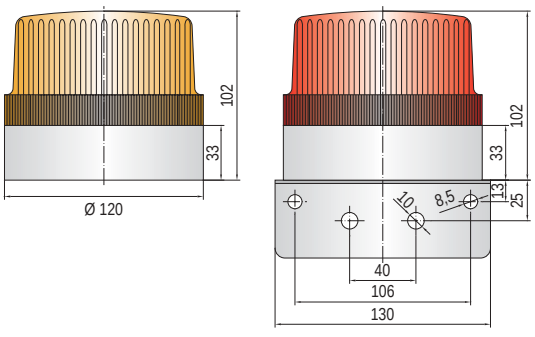
Features

- 120 mm Ø large
  WLG steady beacon, BKG flashing beacon
  FLG strobe beacon
  DLG LED-steady beacon, BLG LED-flashing beacon
- bayonet locking – easy opening with push button
- 6 lens colours, 2 housing colours
- WLG – BKG: easy bulb change without tools
- DLG – BLG: excellent brightness (48 LEDs)
  shock and vibration proof, maintenance free
  low nominal current – long lifetime
  inrush current limitation, EMC proof
  wide voltage range



Only fpr BLG + DLG
Tested according to following IEC-standards:
IEC 60068-2-30 Db – cyclic damp-heat test
IEC 60068-2-6 Fc – vibration test
IEC 60068-2-29 Eb – shock test

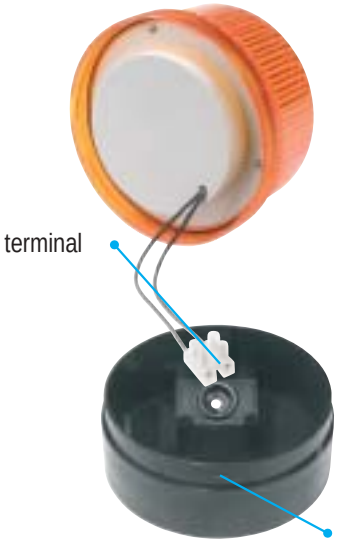




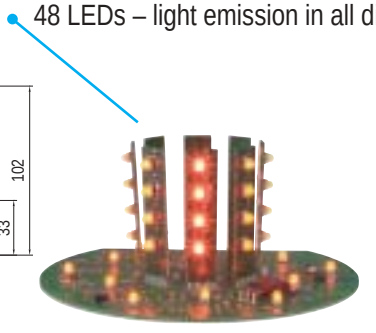
WLG STEADY BEACON · BKG FLASHING BEACON

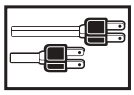
FLG STROBE BEACON

~ 5 J strobe energy



DLG LED-STEADY BEACON
BLG LED-FLASHING BEACON





Technical data

Type	WLG	BKG	FLG	DLG	BLG
Housing, Colour	ABS, grey or black				
Lens, Colour	polycarbonate, amber, red, clear, blue, green, yellow				
Cable entry	7 mm - 10 mm, grommet at bottom				
Mounting	horizontal or vertical with bracket				
Duty cycle factor	100 %				
Terminals	2,5 mm²				
Temperature range (operation)	-30 °C to +60 °C		-30 °C to +50 °C	-35 °C to +60 °C	
Light source	bulb/BA15d		xenon tube	LED	
Lifetime (light source)			~ 3 Mio. flashes	~ 100.000 h	
Wattage	max. 25 W		5 J		
Flashing-/Strobe frequency		~ 1 Hz			~ 2 Hz
Weight (g)	230	250	320	270	

Order data

Type	Denomination	Nominal voltage (V)	Order No. Housing grey	Order No. Housing black	Nominal current (A)	Voltage range (V)
WLG	Steady beacon	up to 250 V AC/DC	822 10C 900	822 50C 900		
BKG	Flashing beacon	12 V AC/DC	832 10C 404	832 50C 404		
		24 V AC/DC	832 10C 405	832 50C 405		
		110/120 V AC	832 10C 310	832 50C 310		
		230/240 V AC	832 10C 313	832 50C 313		
FLG	Strobe beacon	12 V AC/DC	842 14C 404	842 54C 404	0,7	
		24 V AC/DC	842 14C 405	842 54C 405	0,32	
		110/120 V AC	842 13C 310	842 53C 310	0,2	
		230/240 V AC	842 13C 313	842 53C 313	0,1	
	Models with 2 strobe frequencies					
FLG-A	30/60 flashes/min.	24 V AC/DC	842 16C 405	842 56C 405	0,28	
FLG-B	30/90 flashes/min.		842 17C 405	842 57C 405	0,40	
DLG	LED-Steady beacon	24 V AC/DC	827 10C 405	827 50C 405	0,11	17-32 V DC
		48 V AC/DC	827 10C 408	827 50C 408	0,085	17-26 V AC
		110/120 V AC	827 10C 310	827 50C 350	0,06	
		230/240 V AC	827 10C 313	827 50C 313	0,06	
BLG	LED-Flashing beacon	24 V AC/DC	807 10C 405	807 50C 405	0,11	35-62 V DC
		48 V AC/DC	807 10C 408	807 50C 408	0,085	35-57 V AC
		110/120 V AC	807 10C 310	807 50C 350	0,06	
		230/240 V AC	807 10C 313	807 50C 313	0,06	
	Bracket for wall mounting		822 200 900			

ORDER DATA ACCESSORIES
Bulb 25 W, BA15d

Type	Order No.	Nominal voltage
GL21	890 025 904	12 V
GL22	890 025 905	24 V
GL25	890 025 910	110/120 V
GL26	890 025 913	230/240 V

NOTE:
Light sources have to be ordered separately (pls. refer to order data accessories).

Colour code for Lens C

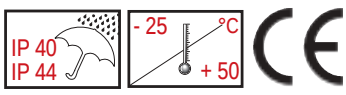
1	amber	5	blue
2	red	6	green
4	clear	7	yellow

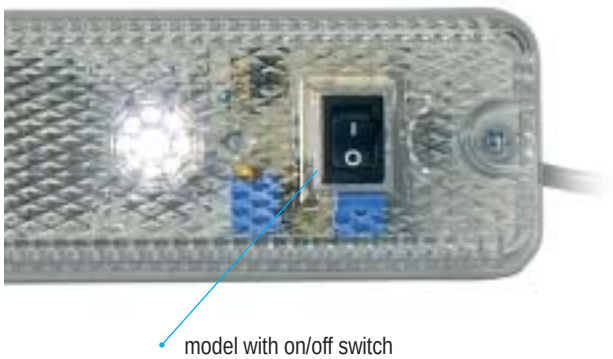
excellent light output due to use of high performance LEDs

Features

- LED-light bar with excellent light output for universal applications – e.g. illumination of work places, cabines in vehicles etc.
- specially designed lens optics with light focus on ~70°
- switched mode power supply for constant light output though changing voltages (e.g. use in vehicles)
  16 – 72 V DC, 16 – 52 V AC nominal current <320 mA
  90 – 320 V DC, 90 – 250 V AC nominal current <70 mA
- models with and without built-in on/off switch
- all advantages of modern LED-technology
  – long lifetime >30.000 h
  – vibrationproof
  – low nominal current
- SPS-fit (leagake / inrush current)
- easy mounting
- for horizontal and vertical mounting

LED light bar for universal applications – specially designed lens optics with light focus on ~70°

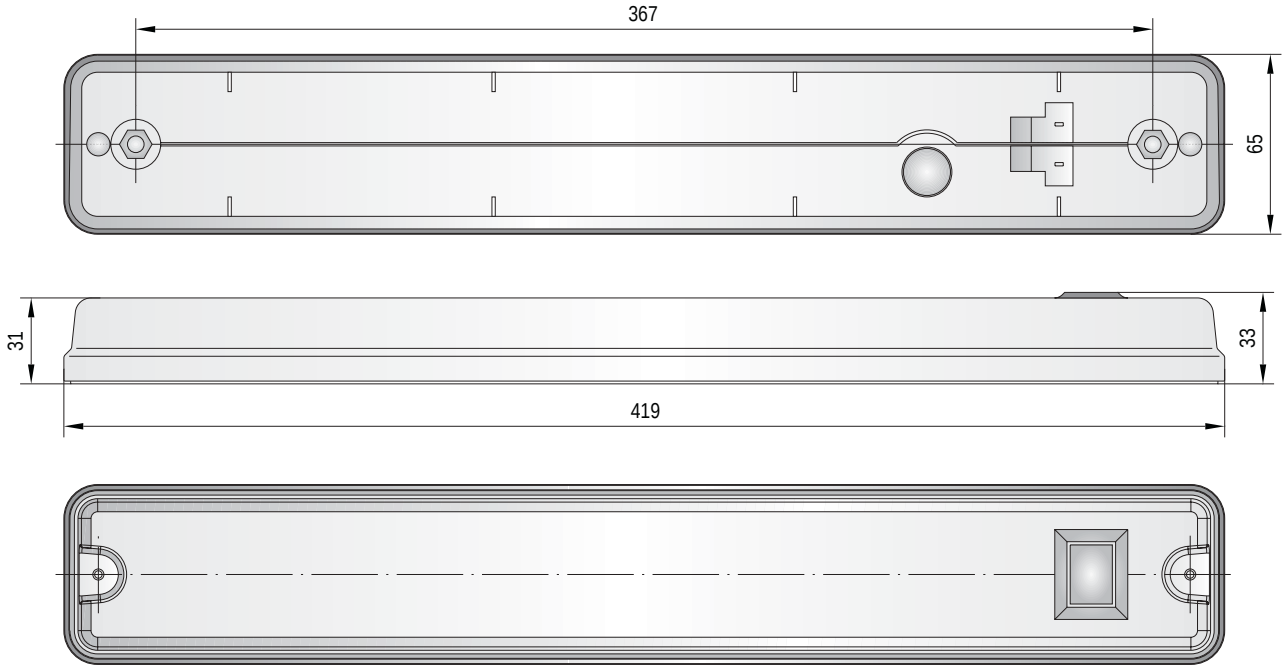




model with on/off switch

Technical data

	ILL42
Housing material	polycarbonate
Housing colour	grey
Lens material	polycarbonate
Lens colour	clear
Temperature range	-25° to +50° C
Type of light	LED-steady light
Light emission	~70°
Leakage	3 mA
Protection class	without on/off switch: IP 44 · with on/off switch: IP 40
Weight	400 g
Cable Entry	6,5 - 9 mm



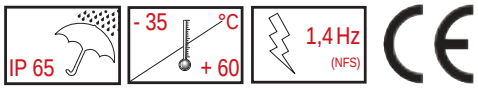
Order data

Type	Denomination	Order No.	Nominal voltage (V)	Voltage range (V)	Nominal current (mA)
ILL42	LED-Light Bar without on/off switch	805 100 405	24 - 48 V AC/DC	16 - 72 V DC 16 - 52 V AC	<320 mA
	LED-Light Bar without on/off switch	805 100 413	110/120 - 230/240 V AC/DC	90 - 320 V DC 90 - 250 V AC	<70 mA
ILL42	LED-Light Bar with on/off switch	805 110 405	24 - 48 V AC/DC	16 - 72 V DC 16 - 52 V AC	<320 mA
	LED-Light Bar with on/off switch	805 110 413	110/120 - 230/240 V AC/DC	90 - 320 V DC 90 - 250 V AC	<70 mA

LED Steady/Flashing Beacon NES
LED Strobe/Double Strobe Beacon NFS
LED Multi Colour Beacon NMS

Features

- 90 mm Ø large
  LED steady- and LED flashing beacon (NES)
  LED strobe/ double strobe beacon (NFS)
  LED multi-colour beacon (NMS)
- wide voltage range due to SMPS technique (NES)
  24 – 48 V AC/DC, 110 – 240 V AC/DC
- very good brightness – highest optical efficiency
- up to date LED-technology
- absolutely shock and vibration proof, maintenance free
- long life time ~ 50.000 h
- low nominal current
- inrush current limitation, EMC safe,
  leakage up to 3 mA possible
- modular design – mounting options horizontal,
  vertical and pole



Light selection by terminal

NES LED Steady-/Flashing Beacon

Terminal selection			
x	x	x	LED steady light
x	x		LED flashing light

NFS LED Strobe/ Double Strobe Beacon

Terminal selection				DIP-switch	
x	x		LED strobe light	0	Double strobe
				1	Single strobe

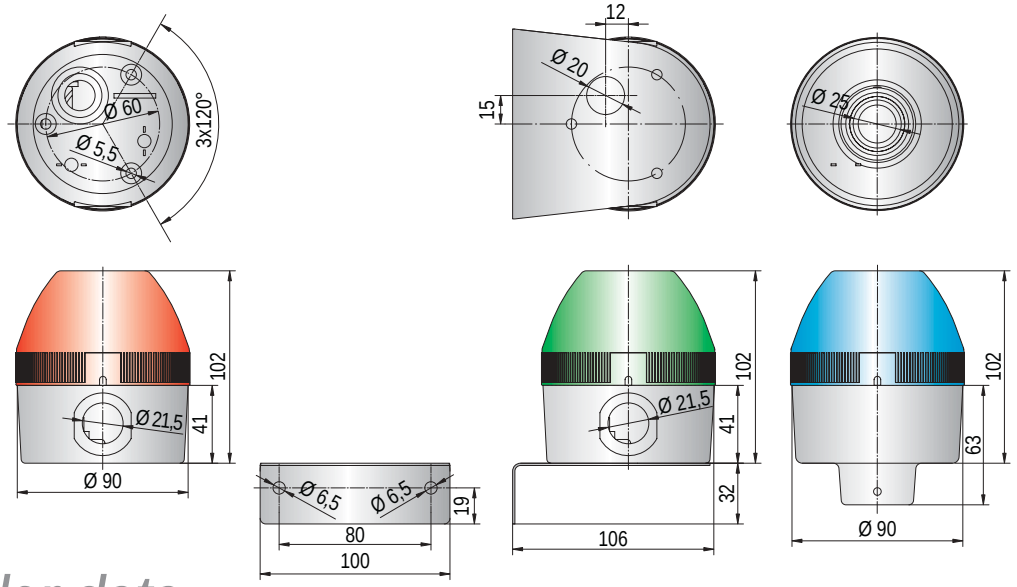
NMS LED Multi Colour Beacon · green - red - yellow

Terminal selection				DIP-switch	
x	x			1	LED flashing light green
x		x		1	LED flashing light red
x			x	1	LED flashing light yellow
x	x			0	LED steady light green
x		x		0	LED steady light red
x			x	0	LED steady light yellow
x	x		x		LED alternate flashing light green - red
x	x	x			LED alternate flashing light green - yellow
x		x	x		LED alternate flashing light red - yellow
x	x	x	x		LED alternate flashing light green - red - yellow

specially designed and
optimized lens/optics

Technical data

Type	NES	NFS	NMS
Housing, Colour	polycarbonate, black		
Lens	polycarbonate		
Lens Colour	amber, red, clear, blue, green, yellow		clear
Cable entry	5 - 7 mm, grommet or cable gland/blind plug on side 6 - 12 mm		
Mounting	horizontal, vertical, pole		
Duty cycle factor	100 %		
Protection class	IP 65, UL type 4, 4X, 13		
Terminals	2,5 mm²		
Temperature range	-35 °C to +50 °C	-35 °C to +60 °C	
Light source	LED		
Life time (light source)	50 .000 h		
Flashing frequency	~ 2 Hz	~ 1,4 Hz	~ 1 Hz
Weight	250 g (horizontal base)		



Order data

Type	Denomination	Nominal voltage (V)	Order No.		Voltage range (V)	Nominal current (mA)
			Base horizontal	Pole base		
NES	LED Steady-/Flashing beacon	24 - 48 V AC/DC	440 10C 408	440 30C 408	16 - 80 V DC	270
					16 - 60 V AC	180
		110 - 240 V AC/DC	440 10C 413	440 30C 413	80 - 265 V AC/DC	40
NFS	LED Strobe beacon	24 - 48 V AC/DC	442 10C 408	442 30C 408	16 - 60 V DC	295
					16 - 52 V AC	300
		110/120 V AC	442 10C 310	442 30C 310	+/- 10%	70
		230/240 V AC	442 10C 313	442 30C 313	+/- 10%	70
NMS	LED Multi-Colour beacon green-red-yellow	24 V AC/DC	441 100 405	441 300 405	+/- 10%	155
		48 V AC/DC	441 100 408	441 300 408	+/- 10%	90
		110/120 V AC	441 100 310	441 300 310	+/- 10%	100
		230/240 V AC	441 100 313	441 300 313	+/- 10%	105
Accessories for models with horizontal base						
	Bracket for wall mounting		817 200 900			

Colour code for lens C

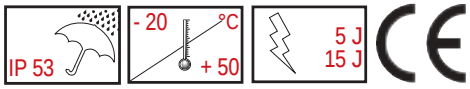
1	amber	5	blue
2	red	6	green
4	clear	7	yellow

Strobe Beacons BZL – BZG

BZL

Features

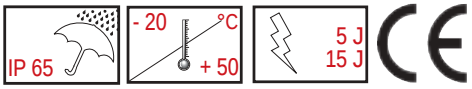
- well designed strobe beacon
- high strobe energy – 15 J
- for dry or humid areas indoor
- models with 2 strobe frequencies

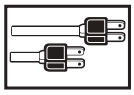


BZG

Features

- robust strobe beacon with aluminium die cast housing epoxy-powder coated RAL 7000
- high strobe energy – 15 J
- watertight, corrosion proof
- models with 2 strobe frequencies

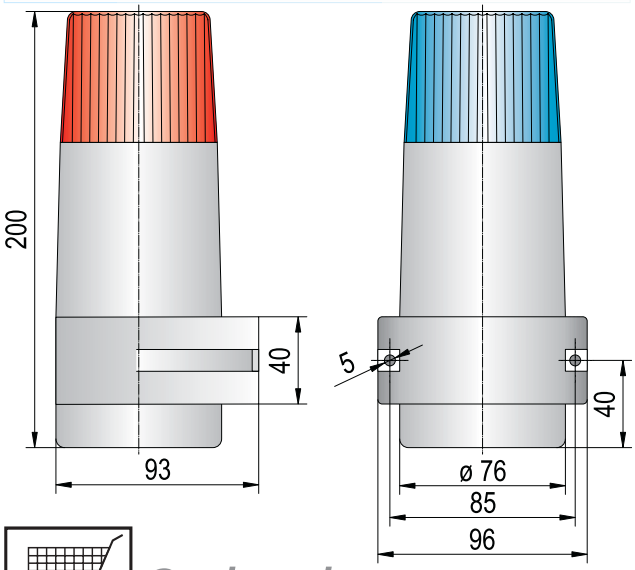




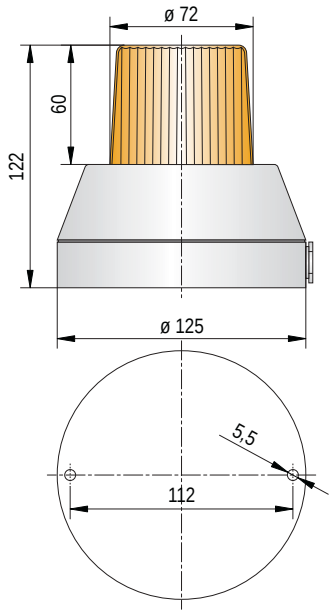
Technical data

Type	BZL	BZG
Housing, Colour	ABS, grey	alu-die cast, epoxy-powder-coated, RAL 7000
Lens, Colour	polycarbonate, amber, red, white, clear, blue, green, yellow	
Cable diameter	5 - 12 mm	
Cable entry	surface or buried	
Duty cycle factor	100 %	
Terminals	up to 2,5 mm^2	
Temperature range	-20 °C to +50 °C	
Light source	xenon tube	
Strobe energy	5 or 15 J	
Strobe frequency	1 Hz	
Lifetime (light source)	~ 5 Mio. flashes	

BZL



BZG



Order data

Type	Strobe energy (J)	Nominal voltage (V)	Order No.	Nominal current (A)	Weight (g)
BZG	5	12 V AC/DC	741 01C 404	0,47	625
		24 VAC/DC	741 01C 405	0,28	
		110/120 V AC	741 01C 310	0,10	595
		230/240 V AC	741 01C 313	0,04	
		12 V DC	741 02C 004	0,47	625
		24 V DC	741 02C 005	0,28	
BZG	15	110/120 V AC	741 03C 310	0,55	845
		230/240 V AC	741 03C 313	0,23	610
		24 V DC	741 04C 005	0,70	635
BZL	5	110/120 V AC	740 01C 310	0,01	265
		230/240 V AC	740 01C 313	0,05	
		12 V DC	740 02C 004	0,50	300
		24 V DC	740 02C 005	0,28	
BZL	15	110/120 V AC	740 03C 310	0,55	520
		230/240 V AC	740 03C 313	0,23	300
		24 V DC	740 04C 005	0,70	300

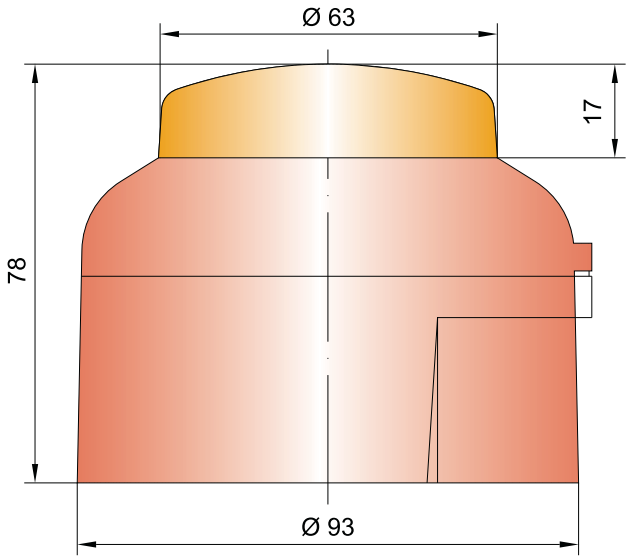
Special models BZL with 2 strobe frequencies		
30/60 flashes/min.	joint plus	BZL-A
30/90 flashes/min.		BZL-B
30/60 flashes/min.	joint minus	BZL-C
30/90 flashes/min.		BZL-D

Colour code for lens C

1	amber	4	clear	7	yellow
2	red	5	blue		
3	white	6	green		

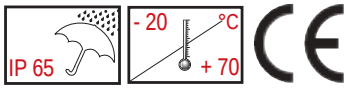
BZL: models with 2 strobe frequencies						
Type	Strobe energy (J)	Nominal voltage (V)	Order No.	Nominal current (A)	Weight (g)	
BZL-A	5	24 V DC	740 16C 005	0,28	300	joint positive
BZL-B			740 26C 005	0,28		
BZL-C			740 36C 005	0,28	380	joint negative
BZL-D			740 46C 005	0,28		

LED Flashing Beacon BC1



Features

- cost effective LED flashing beacon
- lower power consumption (3 – 5 mA)
- lens diameter 60 mm
- simple mounting – bayonet system
- surface cable entry from side possible



Technical data

	BC1
Housing colour	red, white
Lens colour	amber, red
Duty cycle factor	100 %
Temperature range	-20 °C to +70 °C
Light source	LED
Flashing frequency	1 Hz
Lifetime (light source)	~ 50.000 h

Order data

Type	Nominal voltage (V)	Order No.		Nominal current (mA)	Voltage range (V)	Weight (g)
		Housing red	Housing white			
BC1	24 V DC	C112 62C 005	C112 22C 005	3 - 5	20 - 35	165

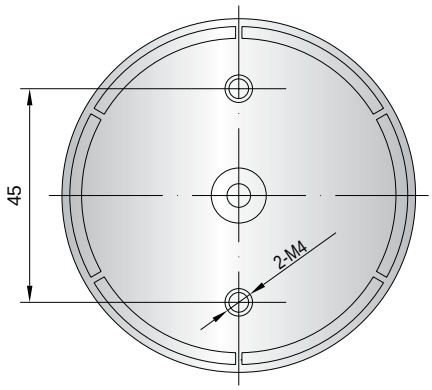
Colour code for lens C

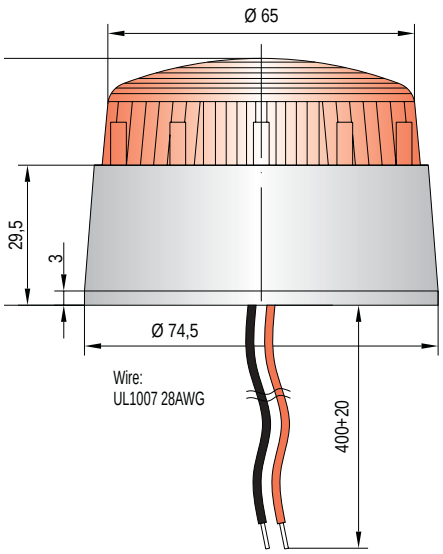
1 amber

2 red

Strobe Beacon XB2

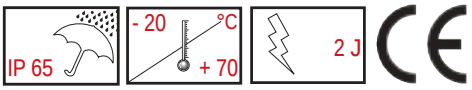
with optional
mounting adapter





Features

- cost effective small strobe beacon
- lens diameter 65 mm
- simple mounting
- optional mounting adapter included
- reduced nominal current
- pre-wired ready to use (400 mm cable)



Technical data

	XB2
Housing colour	black
Lens colour	amber, red, clear, blue, green
Duty cycle factor	100 %
Temperature range	-20 °C to +70 °C
Light source	xenon tube
Flashing frequency	~ 1 Hz

Order data

Type	Nominal voltage (V)	Order No.	Nominal current (mA)	Weight (g)
XB2	12 V DC	D118 52C 004	200	110
	24 V DC	D118 52C 005	100	
	24 V AC	D118 52C 305	120	
	230 V AC	D118 52C 313	25	120

Colour code for lens C

1	amber	5	blue
2	red	6	green
4	clear		

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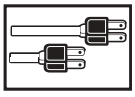
Features

- 60 mm Ø large
  - WLK steady beacon (bulb 7 W)
    LED steady beacon (LED-bulb LLL)
    LED flashing beacon (LED-bulb LLB)
  - FLK strobe beacon
- WLK – easy bulb change without tools (bayonet)
- wide range of mounting options
- 6 lens colours, 2 housing colours
- with pole connection box additional installation possibilities



Technical data

Type	WLK	FLK
Housing, Colour	ABS, grey or black	
Lens	polycarbonate	
Lens colour	amber, red, clear, blue, green, yellow	
Cable entry	6,5 mm - 12 mm	
Mounting	horizontal, vertical, pole, quick mount	
Duty cycle factor	100 %	
Terminals	1,5 mm^2	2,5 mm^2
Light source	bulb/BA15d	xenon tube
Wattage	7W (12 V: 5W)	1 J
Lifetime (light source)		~ 10 Mio. flashes
Strobe frequency		~ 1,4 Hz
Weight	pls. refer to general weight list page 164-167	

CONFIGURATION

WLK

GL

bulb 7 W

LLL

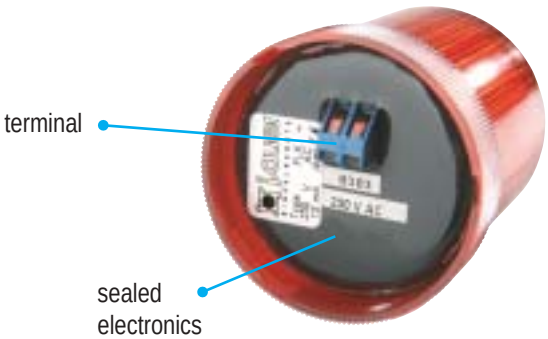
LLB

LED-bulbs,
steady light (LLL) – flashing light (LLB)

BHW BVW BRW BSW BWW BSS BFW

BWW + BSS

FLK



BHF BVF BRF BSF BWF BSS BFF

BWF + BSS

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Order data

Type		Light source		Nominal voltage (V)	Order No.	
		bulb	LED-bulb		Housing grey	Housing black
WLK	Steady light	GL	LLL	up to 250 V AC/DC	820 00C 900	
	Flash. light	---	LLB			
BHW	Base for horizontal mounting				820 120 900	820 520 900
BVW	Base for vertical mounting				820 130 900	820 530 900
BRW	Pole mount base on aluminium tube with plastic foot				820 10L 900	820 50L 900
BSW	Pole mount base on stainless steel tube with zinc die-cast foot, powder coated				820 11L 900	820 51L 900
BWW	Pole mount base on aluminium tube for horizontal mounting with screw				820 14L 900	820 54L 900
BSS	Set for vertical mounting (additional to BWW)				200 400 900	200 800 900
BFW	Pole mount base on aluminium tube with foot adapter for quick mount*				820 15L 900	820 55L 900

ORDER DATA ACCESSORIES		
Type	Nominal voltage (V)	Order No.
GL01	12 V 5 W	890 010 904
GL02	24 V 7 W	890 010 905
GL03	48 V 7 W	890 010 908
GL04	60 V 7 W	890 010 909
GL05	110/120 V 7 W	890 010 910
GL06	230/240 V 7 W	890 010 913
LED-Bulb BA15d		Steady light
LLL	12 V AC/DC	893 00C 404
	24 V AC/DC	893 00C 405
	48 V AC/DC	893 00C 408
	110/120 V AC	893 00C 310
	230/240 V AC	893 00C 313
		Flashing light
LLB	12 V AC/DC	893 01C 404
	24 V AC/DC	893 01C 405
	48 V AC/DC	893 01C 408
	110/120 V AC	893 01C 310
	230/240 V AC	893 01C 313

NOTE:
Light sources have to be ordered separately (pls. refer to order data accessories).

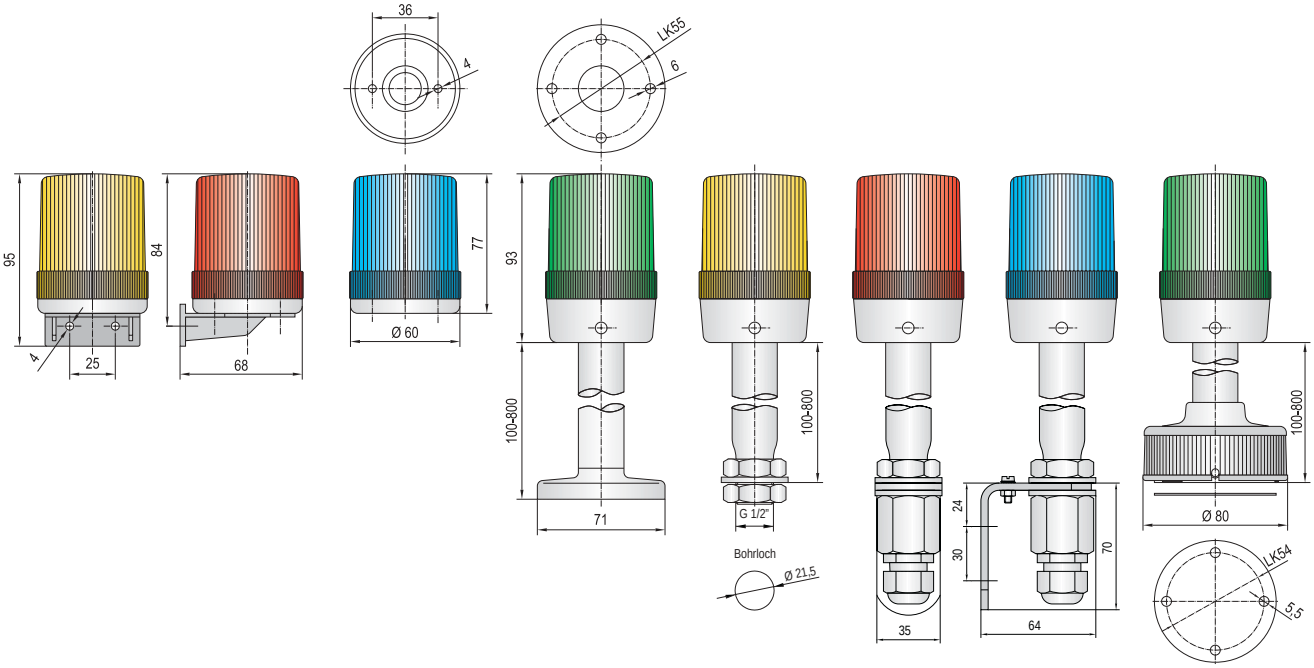
Order data

Type	Description	Light source	Nominal voltage (V)	Order No.		Nominal current (mA)
				Housing grey	Housing black	
FLK	Strobe light	xenon tube (built-in)	12-24 V AC/DC	840 00C 405		12 V: 120 24 V: 95
			110/120 V AC	840 00C 310		21
			230/240 V AC	840 00C 313		15
BHF	Base for horizontal mounting			840 101 900	840 501 900	
BVF	Base for vertical mounting			840 102 900	840 502 900	
BRF	Pole mount base on aluminium tube with plastic foot			840 12L 900	840 52L 900	
BSF	Pole mount base on stainless steel tube with zinc die-cast foot, powder coated			840 13L 900	840 53L 900	
BWF	Pole mount base on aluminium tube for quick mounting with screw			840 15L 900	840 55L 900	
BSS	Set for vertical mounting (additional to BWF)			200 400 900	200 800 900	
BFF	Pole mount base on aluminium tube with foot adapter for quick mounting*			840 16L 900	840 56L 900	

Colour code for lens		C	
1	amber	5	blue
2	red	6	green
4	clear	7	yellow

Length code for tubes		L	
1	50 mm (not for BFW, BFF)	5	500 mm
2	100 mm	6	600 mm
3	250 mm	7	800 mm
4	400 mm		

*For more details on Quick mounting system "Foot adapter" pls. refer to page 51.



WLK:	BVW	BHW	BRW / BSW	BWW	+ BSS	BFW
FLK:	BVF	BHF	BRF / BSF	BWF		BFF

ACCESSORIES: POLE CONNECTION BOXES

for additional installation possibilities with pole mount base BRW and BRF:

- surface installation in protection class IP 65 – horizontal or vertical
- mounting on magnetic base, for mobile mountings in protection class IP 65 on metal surfaces

BDW

BDM

BDV

Order data

Type		Order No. Housing grey	Order No. Housing black	Weight (g)
BDW	Pole connection box for horizontal mounting	841 10T 900	841 50T 900	90
BDV	Pole connection box for vertical mounting	841 11T 900	841 51T 900	110
BDM	Pole connection box for magnetic mounting	841 12T 900	841 52T 900	330

Code for thread T

1	M 20	3	PG 16
2	NPT 1/2“		

M22 Panel Mount Beacons „I“

LED Steady-/Flashing beacon IBL-IBM-IBS
LED Multicolour beacon IDL-IDM-IDS / ITL-ITM-ITS
Strobe beacon ISL-ISM-ISS

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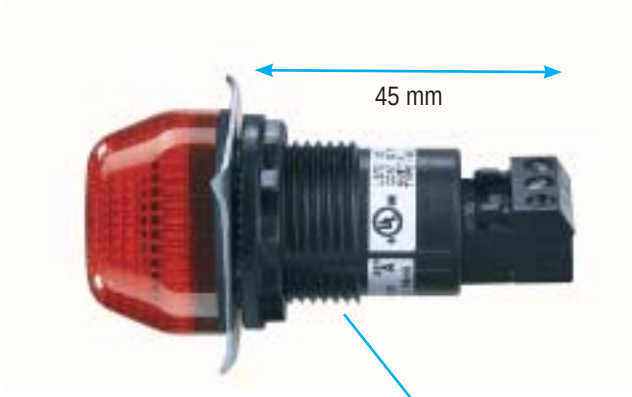
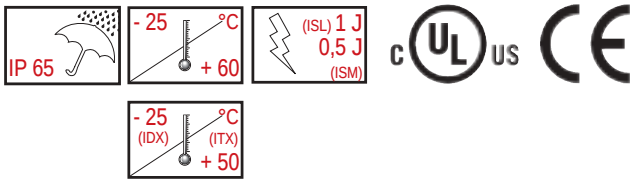
Features

- versatile usable panel mount beacon series
  for mounting in Ø 22mm bore holes
- 3 sizes Ø 65 – 45 – 30 mm
- Models:
  IBL-IBM-IBS LED steady-/flashing beacons
  ISL-ISM-ISS strobe beacons
  IDL-IDM-IDS LED multicolour beacons –
  whole lens with each 1 colour visible
  ITL-ITM-ITS LED multicolour beacons –
  2 colours visible – separated colour areas
- selection of steady-/flashing function resp. desired colour via terminal
- maintenance free – long lifetime
- PLC fit (leakage/inrush current)
- particular lens pattern for optimum light dispersion
- adapter for 30,5 mm bore holes





housing and lens made of impact resistant polycarbonate, grey or black

steady-/flashing light and colour selectable via terminal connection (easy electrical connection on plug in terminal, comfortable mounting onto panel mount beacon).

LED STEADY-/FLASHING BEACONS

IBL
Ø 65 mm

IBM
Ø 45 mm

IBS
Ø 30 mm

STROBE BEACONS
in built-in condition

ISL
Ø 65 mm

ISM
Ø 45 mm

ISS
Ø 30 mm

LED Steady-/Flashing Beacons

Light selection

La	N	Lb		
X	X		flashing light	IBL – IBM – IBS
X	X	X	steady light	IBL – IBM – IBS

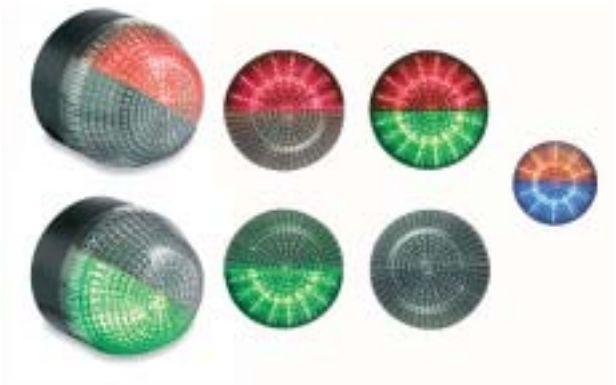
LED MULTICOLOUR BEACONS
1 of 2 colours visible
(whohle lens Illuminated)

IDL
Ø 65 mm

IDM
Ø 45 mm

IDS
Ø 30 mm

LED MULTICOLOUR BEACONS
2 separate colours visible
(half lens Illuminated)



ITL
Ø 65 mm

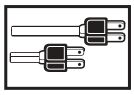
ITM
Ø 45 mm

ITS
Ø 30 mm

LED Multicolour Beacons

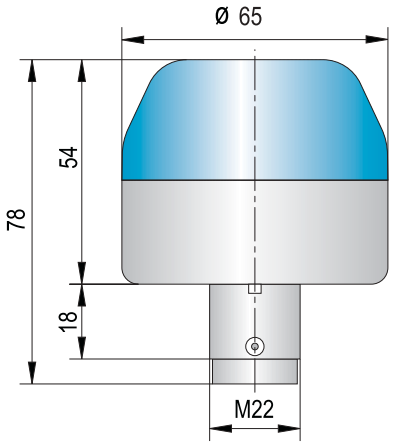
Colour selection

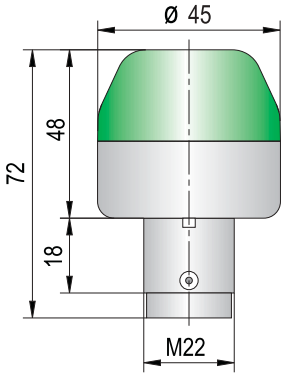
La	N	Lb		
X	X		steady light Colour 1	IDL – IDM – IDS ITL – ITM – ITS
	X	X	steady light Colour 2	IDL – IDM – IDS ITL – ITM – ITS

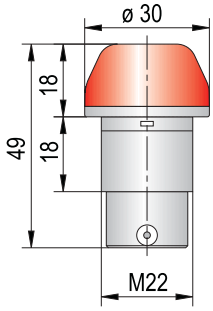


Technical data

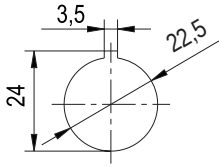
Type	IBL	IBM	IBS	IDL	IDM	IDS	ITL	ITM	ITS	ISL	ISM	ISS
Size Ø mm	65	45	30	65	45	30	65	45	30	65	45	30
Housing, Colour	polycarbonate, grey or black											
Lens, Colour	polycarbonate, amber, red, clear, blue, green, yellow			polycarbonate, clear			polycarbonate, clear			polycarbonate, amber, red, clear, blue, green, yellow		
Mounting	M22 – for Ø or 30,5mm bore holes (with adapter)											
Light type	steady- or flashing light			steady beacon – 2 colours full lens illumination - 1 colour visible			steady beacon – half lens illumination – 2 colours visible			strobe light		
Light source	LED									xenon tube		LED flashing
Strobe-/Flashing frequency	1 Hz									1,4 Hz		
Strobe energy										1 J	0,5 J	
Life time (Light source)	~ 100.000 h									min. 10 Mio. flashes		~ 100.000 h
Duty cycle factor	100 %											
Protection class	IP 65, UL type 4, 4X, 13											
Terminals	up to 2,5 mm²											
Temperature range	-25 °C to +60 °C			-25 °C to +50 °C			-25 °C to +50 °C			-25 °C to +60 °C		
Weight (g)	75	55	30	75	55	30	77	56	31	85	65	30

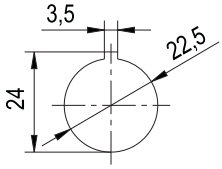


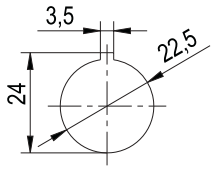


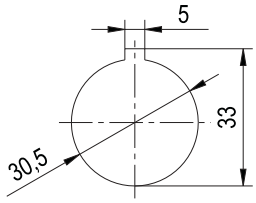


with Adapter









Order data

Type	Nominal voltage (V)	Order No.		Nominal current (mA)
		Housing grey	Housing black	
LED Steady-/ Flashing beacons				
IBL	12 V AC/DC	802 10C 404	802 50C 404	80
	24 V AC/DC	802 10C 405	802 50C 405	60
	110/120 V AC	802 10C 310	802 50C 310	30
	230/240 V AC	802 10C 313	802 50C 313	31
IBM	12 V AC/DC	801 10C 404	801 50C 404	62
	24 V AC/DC	801 10C 405	801 50C 405	37
	110/120 V AC	801 10C 310	801 50C 310	30
	230/240 V AC	801 10C 313	801 50C 313	30
IBS	12 V AC/DC	800 10C 404	800 50C 404	45
	24 V AC/DC	800 10C 405	800 50C 405	26
	110/120 V AC	800 10C 310	800 50C 310	18
	230/240 V AC	800 10C 313	800 50C 313	19
Strobe beacons				
ISL	12-24 V AC/DC	802 11C 405	802 51C 405	150 (12V: 150)
	110/120 V AC	802 11C 310	802 51C 310	30
	230/240 V AC	802 11C 313	802 51C 313	20
ISM	12-24 V AC/DC	801 11C 405	801 51C 405	110 (12V: 110)
	110/120 V AC	801 11C 310	801 51C 310	20
	230/240 V AC	801 11C 313	801 51C 313	12
ISS	12 V AC/DC	800 11C 404	800 51C 404	60
	24 V AC/DC	800 11C 405	800 51C 405	46
	110/120 V AC	800 11C 310	800 51C 310	18
	230/240 V AC	800 11C 313	800 51C 313	21

Type	Nominal voltage (V)	Order No.		Nominal current (mA)
		Housing grey	Housing black	
LED Multicolour beacons - 1 of 2 colours visible				
IDL	24 V AC/DC	802 2CC 405	802 6CC 405	71
	110/120 V AC	802 2CC 310	802 6CC 310	61
	230/240 V AC	802 2CC 313	802 6CC 313	61
IDM	24 V AC/DC	801 2CC 405	801 6CC 405	46
	110/120 V AC	801 2CC 310	801 6CC 310	35
	230/240 V AC	801 2CC 313	801 6CC 313	35
IDS	24 V AC/DC	800 2CC 405	800 6CC 405	28
LED Multicolour beacons - 2 separate colour areas visible				
ITL	24 V AC/DC	802 3CC 405	802 7CC 405	44
	110/120 V AC	802 3CC 310	802 7CC 310	41
	230/240 V AC	802 3CC 313	802 7CC 313	41
ITM	24 V AC/DC	801 3CC 405	801 7CC 405	39
	110/120 V AC	801 3CC 310	801 7CC 310	35
	230/240 V AC	801 3CC 313	801 7CC 313	34
ITS	24 V AC/DC	800 3CC 405	800 7CC 405	30
Adapter M30,5		812 500 900		

NOTE
for models with separate colour area (ITL-ITM-ITS):

When beacon is correctly mounted (rear orientation notch is on the top position), the first colour code C defines the colour in the upper beacon half and the second colour code C defines the colour in the lower beacon half

Example:

model ITM red-green, housing black, 24 V AC/DC

801 7CC 405	801 726 405	red – top green – bottom

Colour code for lens				C
1	amber		5	blue
2	red		6	green
4	clear		7	yellow

modulSIGNAL

modulSIGNAL70
Page 44-51

modulCOMPACT

modulCOMPACT30
Page 58-63

modulCOMPACT

modulSIGNAL50
Page 52-57

modulSIGNAL

halfDOME

half DOME 90
Page 70-73

modulCOMPACT70
Page 64-69

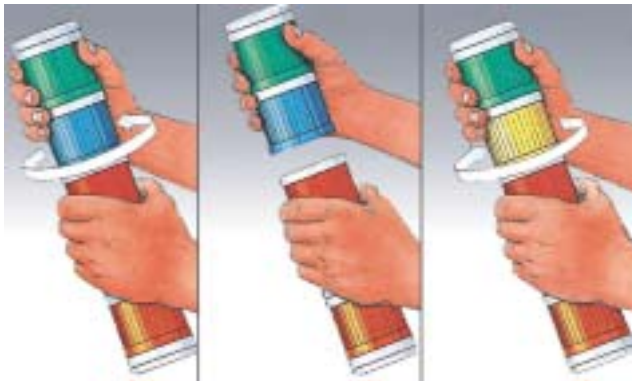
Overview Signal towers

Assembled by customer	Ø mm	Page
modulSIGNAL70	70	44-51
modulSIGNAL50	50	52-57

Assembled by manufacturer	Ø mm	Page
modulCOMPACT70	70	58-63
modulCOMPACT30	30	64-69

half DOME	Ø mm	Page
half DOME 90	90	70-73

auer SIGNALGERÄTE



- modulary construction with bayonet locking system
- fast and easy to operate, mount, configurate and change of modules
- troublefree and fingersafe bulb change at any position without using any tools

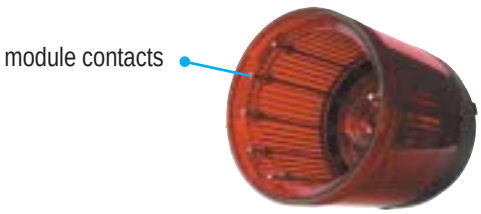
Features

- modularly designed, versatile, flexible and powerful signal towers
- any desired combination possible for many different kind of applications
- complete range of visual and audible modules in all conventional voltages
- extensive mounting options
- 6 lens colours
- PLC ft (leakage/inrush current)
- UL certified, Protection class IP 65, UL type 4, 4X, 13

QUICK MOUNT SYSTEM „FOOT ADAPTER“

(Pat.No. 501053) (Base type BFR)

Quick mounting system “Foot adapter” saves the customer the electrical connection and eases considerably mounting of signal tower for machine manufacturers and their customers.
Detailed description see page 51.



CONFIGURATION

SIGNAL TOWER modulSIGNAL70

LIGHT MODULES	Light source	Type
Steady light	bulb or LED-bulb	SLL
Flashing light		SLB
Strobe light	xenon tube	SLF
LED-Steady light	LED	SDC
LED-Flashing light		SDA
LED-Rotating light		SDR
LIGHT-BUZZER-MODULES		
Steady light - Buzzer	bulb or LED-bulb	SLP
Steady light - Buzzer light and tone separately addressable		SLD
Flashing light - Buzzer		SBP
Strobe light - Buzzer	xenon tube	SFP
LED-Steady light - Buzzer	LED	SCP
LED-Flashing light - Buzzer		SAP
LED-Rotating light - Buzzer		SRP
PIEZO BUZZER MODULES	**Volume**	
Continuous or pulsing tone and sound pressure selectable with DIP switches	85-107 dB	SDE
		SPE
Continuous and pulsing tone externally switchable, sound pressure selectable with DIP switches		SDZ
		SPZ
ELECTRONIC SOUNDER MODULES (15 tone types available – pls. refer to sound table page 47.)		
Tone type selectable by DIP switch	64-103 dB	STE
2 tone types externally switchable		STZ

continuous or pulsing tone and volume (92-107 dB) selectable by DIP switch

BASES

horizontal
BMW

vertical
BMV

on aluminium tube with plastic foot
BMR

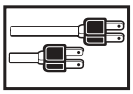
on stainless steel tube with zinc-die cast foot
BSR

on aluminium tube for horizontal mounting with screw
BWS

BWS + BSS

set for vertical mounting
BSS
(for BWS)

on aluminium tube with foot adapter for quick mounting
BFR



Technical data

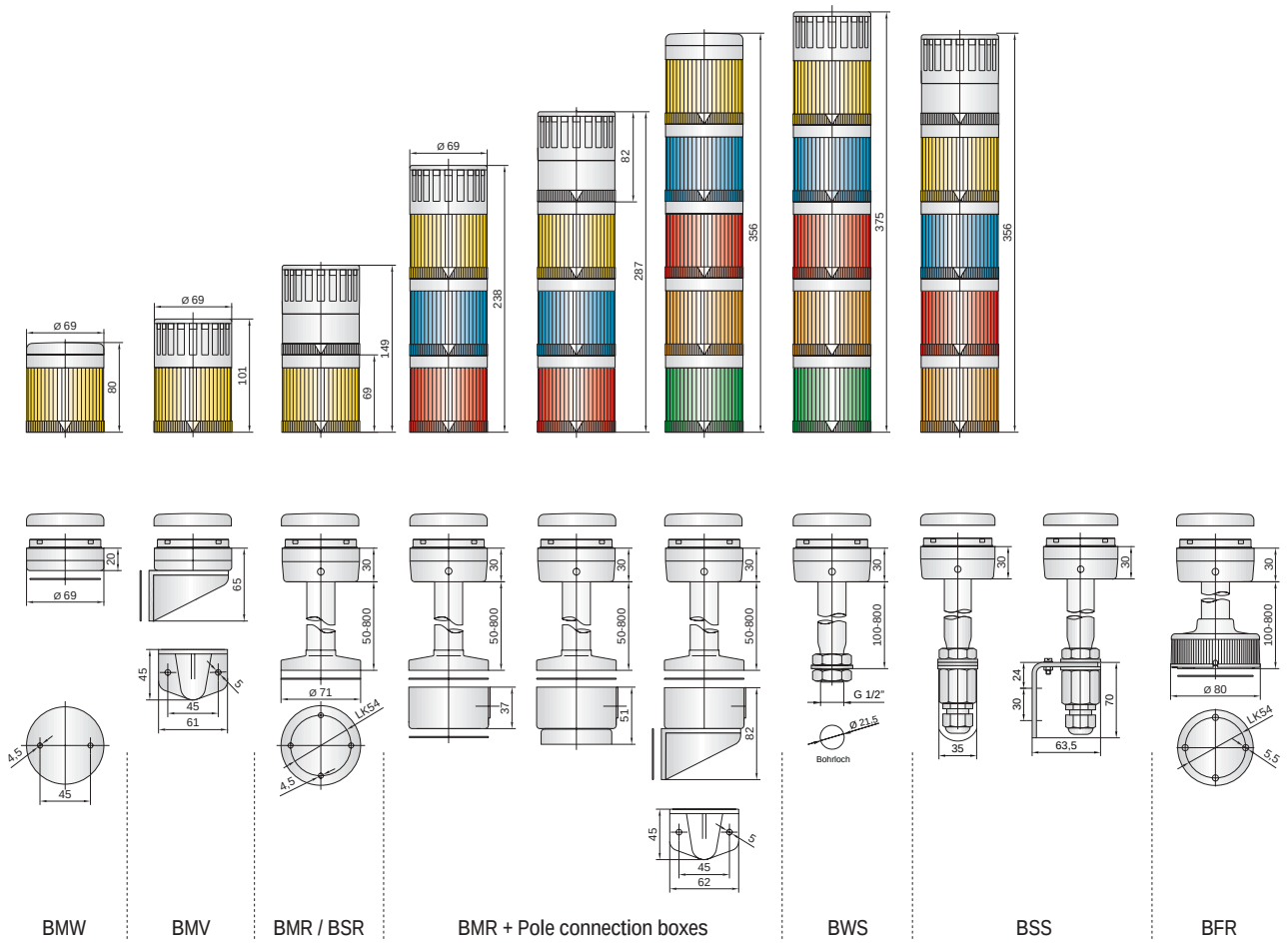
for all modulSIGNAL70 modules/products:

Housing material	polycarbonate, grey or black
Lens material	polycarbonate
Lens colours	amber, red, clear, blue, green, yellow
Terminals	up to 2,5 mm²
Temperature range	-25 °C bis +70 °C

Light modules		SLL	SLB	SLF	SDC	SDA	SDR
Bulb W		7 W					
Socket (BA 15 d)		X					
Flashing-/Strobe frequency			2 Hz	1,4 Hz		2 Hz	
Strobe energy				3 J			
Lifetime				~ 5 Mio. flashes			
Light source LED					X		
Light emission		360°					
Light type		steady light	flashing light	strobe light	LED-steady light	LED-flashing light	LED-rotating light
Leakage		3					
Nominal current	12 V	max. 7 W		285 mA	120 mA		
	24 V			180 mA	70 mA		
	110/120 V			50 mA	43 mA		
	230/240 V			35 mA	41 mA		
Protection class		IP 65, UL type 4, 4X, 13					
Weight		100 g					

Light Buzzer modules		SLP	SLD	SBP	SFP	SCP	SAP	SRP
Bulb		7 W						
Socket (BA15 d)		X						
Flashing-/Strobe frequency				2 Hz	1,4 Hz			
Strobe energy					3 J			
Light source LED						X		
Light emission		360°						
Light type		steady light		flashing light	strobe light	LED-steady l.	LED-flashing l.	LED-rotating light
Leakage		3 mA						
Nominal current	12 V	5 W, 27 mA			310 mA	150 mA		
	24 V	7 W, 45 mA			220 mA	110 mA		
	110/120 V	7 W, 43 mA			93 mA	64 mA		
	230/240 V	7 W, 40 mA			75 mA	61 mA		
Tone type		continuous- or pulsing tone (selectable by DIP switch)						
Tone frequency		3.300 Hz						
Sound pressure (dB)		92 / 107 dB (selectable by DIP switch)						
Protection class		IP 65, UL type 4, 4X, 13						
Weight		130 g						

Piezo Buzzer and Sounder modules		SDE	SPE	SDZ	SPZ	STE	STZ
Tone type		continuous and pulsing tone				15 tone types	
Tone frequency		3.300 Hz				100 - 1.500 Hz	
Sound pressure (dB)		92 / 107 dB	85 / 97 dB	92 / 107 dB	85 / 97 dB	64 - 103 dB potentiometer	
		selectable by DIP switch					
Leakage		3 mA					
Nominal current	12 V	27 mA				35 mA	
	24 V	45 mA				75 mA	
	110/120 V	43 mA				65 mA	
	230/240 V	40 mA				65 mA	
Tone selection		DIP switch		externally switchable		DIP switch	
Protection class		IP 65, UL type 4, 4X, 13	IP 54 UL type 12	IP 54 UL type 12	IP 54 UL type 12	IP 54 UL type 12	
Weight		90 g	100 g		110 g	140 g	
Weight (Bases)		pls. refer to general weight list on page 156-159					



	Tone table							
	STE (tone 1 only)						STZ (tone 1 + 2)	
DIP switch	Tone 1		Speed	Tone frequency (Hz)		Volume	Tone 2	
				lower	upper			
0 1	Triangle tone		7-22 Hz	500 Hz	1.500 Hz	80-100 dB(A)	Continuous tone	
0 1	Continuous tone		-	500-1.500 Hz	▬	83-103 dB(A)	Changing tone	
0 1	Continuous tone		-	500-1.500 Hz	▬	83-103 dB(A)	Interrupted tone	
0 1	Interrupted tone		0.5-1.5 Hz	500-1.500 Hz	▬	83-103 dB(A)	Three tone gong	
0 1	Interrupted tone		0.5-1.5 Hz	500-1.500 Hz	▬	83-103 dB(A)	Siren (non repeating)	
0 1	Changing tone		0.5-1.5 Hz	500-1.500 Hz	500-1.500 Hz	83-103 dB(A)	DIN Emergency Signal	DIN 33404
0 1	Saw tooth tone ascending		0.5-1.5 Hz	500-1.500 Hz	500-1.500 Hz	83-103 dB(A)	Continuous tone	
0 1	Saw tooth tone descending		0.5-1.5 Hz	500-1.500 Hz	500-1.500 Hz	83-103 dB(A)	Interrupted tone	
0 1	Sinus wave tone		0.5-1.5 Hz	500-1.500 Hz	500-1.500 Hz	82-102 dB(A)	DIN Emergency Signal	DIN 33404
0 1	DIN Emergency Signal	DIN 33404	1 Hz	500 Hz	1.200 Hz	82-102 dB(A)	Three tone gong (n. repeat.)	
0 1	Siren (non repeating)		2-4 s	500 Hz	1.500 Hz	83-103 dB(A)	Triangle tone	
0 1	Signal horn (Continuous tone)		-	100-350 Hz	▬	64-80 dB(A)	Continuous tone	
0 1	Three tone gong		2-4 s	660-550-440 Hz		76-95 dB(A)	Sinus wave tone	
0 1	Two tone gong		2-3 s	550-440 Hz		75-93 dB(A)	Two tone gong (n. repeat.)	
0 1	Gong		1-3 s	▬	500-1.500 Hz	75-93 dB(A)	Continuous tone	
	▬ set to maximum (+)							

Order data

Type	Leuchtenmodule	Light options		Tone options		Order No.			Nominal voltage (V)
		Bulb	LED-bulb	Tone type	Sound pressure	Housing grey	Housing black	Housing silver	
SLL	Steady light	GL	LLL, LLB			210 10C 900	210 50C 900	210 80C 900	to 250 V AC/DC
SLB	Flashing light	GL	LLL			220 10C 405	220 50C 405	220 80C 405	12-24 V AC/DC
						220 10C 310	220 50C 310	220 80C 310	110/120 V AC
						220 10C 313	220 50C 313	220 80C 313	230/240 V AC
SLF	Strobe light	xenon tube				230 10C 405	230 50C 405	230 80C 405	12-24 V AC/DC
						230 10C 310	230 50C 310	230 80C 310	110/120 V AC
						230 10C 313	230 50C 313	230 80C 313	230/240 V AC
SDC	LED-Steady light	LED				211 10C 404	211 50C 404	211 80C 404	12 V AC/DC
						211 10C 405	211 50C 405	211 80C 405	24 V AC/DC
						211 10C 310	211 50C 310	211 80C 310	110/120 V AC
						211 10C 313	211 50C 313	211 80C 313	230/240 V AC
SDA	LED-Flashing light					221 10C 404	221 50C 404	221 80C 404	12 V AC/DC
						221 10C 405	221 50C 405	221 80C 405	24 V AC/DC
						221 10C 310	221 50C 310	221 80C 310	110/120 V AC
						221 10C 313	221 50C 313	221 80C 313	230/240 V AC
SDR	LED-Rotating light					231 10C 404	231 50C 404	231 80C 404	12 V AC/DC
						231 10C 405	231 50C 405	231 80C 405	24 V AC/DC
						231 10C 310	231 50C 310	231 80C 310	110/120 V AC
						231 10C 313	231 50C 313	231 80C 313	230/240 V AC
SLP	Steady light - Buzzer	GL	LLL, LLB	conti.	~ 107 dB	250 10C 404	250 50C 404	250 80C 404	12 V AC/DC
						250 10C 405	250 50C 405	250 80C 405	24 V AC/DC
				pulsing	~ 92 dB	250 10C 310	250 50C 310	250 80C 310	110/120 V AC
						250 10C 313	250 50C 313	250 80C 313	230/240 V AC
SLD	Steady light - Buzzer Light/Tone separately switchable 2 required positions	GL	LLL, LLB	conti.	~ 107 dB	212 10C 404	212 50C 404	212 80C 404	12 V AC/DC
						212 10C 405	212 50C 405	212 80C 405	24 V AC/DC
				pulsing	~ 92 dB	212 10C 310	212 50C 310	212 80C 310	110/120 V AC
						212 10C 313	212 50C 313	212 80C 313	230/240 V AC
SBP	Flashing light - Buzzer	GL	LLL	conti.	~ 107 dB	260 10C 404	260 50C 404	260 80C 404	12 V AC/DC
						260 10C 405	260 50C 405	260 80C 405	24 V AC/DC
				pulsing	~ 92 dB	260 10C 310	260 50C 310	260 80C 310	110/120 V AC
						260 10C 313	260 50C 313	260 80C 313	230/240 V AC
SFP	Strobe light - Buzzer	xenon tube		conti.	~ 107 dB	270 10C 404	270 50C 404	270 80C 404	12 V AC/DC
						270 10C 405	270 50C 405	270 80C 405	24 V AC/DC
				pulsing	~ 92 dB	270 10C 310	270 50C 310	270 80C 310	110/120 V AC
						270 10C 313	270 50C 313	270 80C 313	230/240 V AC
SCP	LED-Steady light - Buzzer	LED		conti.	~ 107 dB	251 10C 404	251 50C 404	251 80C 404	12 V AC/DC
						251 10C 405	251 50C 405	251 80C 405	24 V AC/DC
				pulsing	~ 92 dB	251 10C 310	251 50C 310	251 80C 310	110/120 V AC
						251 10C 313	251 50C 313	251 80C 313	230/240 V AC
SAP	LED-Flashing light - Buzzer			conti.	~ 107 dB	261 10C 404	261 50C 404	261 80C 404	12 V AC/DC
						261 10C 405	261 50C 405	261 80C 405	24 V AC/DC
				pulsing	~ 92 dB	261 10C 310	261 50C 310	261 80C 310	110/120 V AC
						261 10C 313	261 50C 313	261 80C 313	230/240 V AC
SRP	LED-Rotating light - Buzzer			conti.	~ 107 dB	271 10C 404	271 50C 404	271 80C 404	12 V AC/DC
						271 10C 405	271 50C 405	271 80C 405	24 V AC/DC
				pulsing	~ 92 dB	271 10C 310	271 50C 310	271 80C 310	110/120 V AC
						271 10C 313	271 50C 313	271 80C 313	230/240 V AC

NOTE:
Light sources have to be ordered separately (pls. refer to order data- accessories).

Order data

Type	Piezo-Buzzer-Modules	Tone options		Order No.			Nominal voltage (V)
		Tone type	Sound pressure	Housing grey	Housing black	Housing silver	
SDE	Piezo Buzzer, IP 65 tone type and sound pressure selectable by DIP switch	■□ continuous □■ pulsing	■□ ~ 107 dB □■ ~ 92 dB	247 100 404	247 500 404	247 800 404	12 V AC/DC
				247 100 405	247 500 405	247 800 405	24 V AC/DC
				247 100 310	247 500 310	247 800 310	110/120 V AC
				247 100 313	247 500 313	247 800 313	230/240 V AC
SPE	Piezo Buzzer, IP 54 tone type and sound pressure selectable by DIP switch	■□ continuous □■ pulsing	■□ ~ 97 dB □■ ~ 85 dB	243 100 404	243 500 404	243 800 404	12 V AC/DC
				243 100 405	243 500 405	243 800 405	24 V AC/DC
				243 100 310	243 500 310	243 800 310	110/120 V AC
				243 100 313	243 500 313	243 800 313	230/240 V AC
SDZ	Piezo Buzzer, IP 65 tone type externally switchable sound pressure adjustable by DIP switch 2 required positions	continuous and pulsing	■□ ~ 107 dB □■ ~ 92 dB	248 100 404	248 500 404	248 800 404	12 V AC/DC
				248 100 405	248 500 405	248 800 405	24 V AC/DC
				248 100 310	248 500 310	248 800 310	110/120 V AC
				248 100 313	248 500 313	248 800 313	230/240 V AC
SPZ	Piezo Buzzer, IP 54 tone type externally switchable sound pressure adjustable by DIP switch 2 required positions		■□ ~ 97 dB □■ ~ 85 dB	244 100 404	244 500 404	244 800 404	12 V AC/DC
				244 100 405	244 500 405	244 800 405	24 V AC/DC
				244 100 310	244 500 310	244 800 310	110/120 V AC
				244 100 313	244 500 313	244 800 313	230/240 V AC
	Electronic Sounder-Modules						
STE	Electronic Sounder, IP 54 tone type selectable by DIP switch, upper/lower frequency and speed infinitely variable	15 tone types see sound table	64-103 dB	241 100 405	241 500 405	241 800 405	12-24 V AC/DC
				241 100 310	241 500 310	241 800 310	110/120 V AC
				241 100 313	241 500 313	241 800 313	230/240 V AC
STZ	Electronic Sounder, IP 54 2 tone types externally switchable, upper/lower frequency and speed infinitely variable			242 100 405	242 500 405	242 800 405	12-24 V AC/DC
				242 100 310	242 500 310	242 800 310	110/120 V AC
				242 100 313	242 500 313	242 800 313	230/240 V AC

ORDER DATA ACCESSORIES		
Type	Nominal Voltage (V)	Order No.
GL01	12 V 5 W	890 010 904
GL02	24 V 7 W	890 010 905
GL03	48 V 7 W	890 010 908
GL04	60 V 7 W	890 010 909
GL05	110/120 V 7 W	890 010 910
GL06	230/240 V 7 W	890 010 913

Type	Nominal Voltage (V)	Order No.
LED-Lampe BA15d		Steady light
LLL	12 V AC/DC	893 00C 404
	24 V AC/DC	893 00C 405
	48 V AC/DC	893 00C 408
	110/120 V AC	893 00C 310
	230/240 V AC	893 00C 313
		Flashing light
LLB	12 V AC/DC	893 01C 404
	24 V AC/DC	893 01C 405
	48 V AC/DC	893 01C 408
	110/120 V AC	893 01C 310
	230/240 V AC	893 01C 313

Colour code for lens C

1	amber	5	blue
2	red	6	green
4	clear	7	yellow

Length code for tubes L

1	50 mm (not for BFR)	5	500 mm
2	100 mm	6	600 mm
3	250 mm	7	800 mm
4	400 mm		

Order data

Type	Bases	Order No.		
		Housing grey	Housing black	Housing silver
BMW	Base for horizontal mounting	200 100 900	200 500 900	200 810 900
BMV	Base for vertical mounting	200 200 900	200 600 900	200 820 900
BMR	Pole mount base on aluminium tube with plastic foot	200 30L 900	200 70L 900	200 80L 900
BSR	Pole mount base on stainless steel tube with zinc die-cast foot, powder coated	200 31L 900	200 71L 900	200 81L 900
BWS	Pole mount base for horizontal mounting with screw	200 33L 900	200 73L 900	200 83L 900
BSS	Set for vertical mounting (for BWS)	200 400 900	200 800 900	
BFR	Pole mount base on aluminium tube with foot adapter for quick mounting	200 34L 900	200 74L 900	200 84L 900
	Cap - is automatically included with each base			

AS-INTERFACE

The integration of the modulSIGNAL70 signal tower into AS-Interface field bus systems is easily possible with the new AS-Interface module type BAZ. The new AS-Interface module BAZ is optionally available with standard-slave or the new A/B technique.

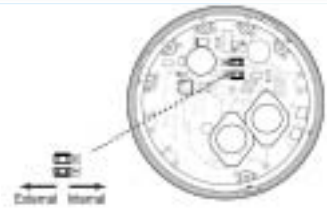
The AS-Interface module with standard slave can address up to 31 modules and maximum 4 modules on the signal tower. The option with A/B technique is able to address up to 62 modules and 3 or 4 modules on the signal tower.

When using internal power supply from the bus system maximum 200 mA are available for the signal tower elements.

Features

- LED-status indicator – check routine
- modules for 31 or 62 addresses
- available with standard or A/B technique
- internal (via bus system) or external power supply selectable
- easy integration of signal tower as actor into the actor-sensor-interface system BAZ-module is mounted as first module directly onto the signal tower base
- significantly reduced wiring work

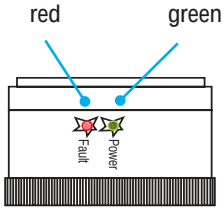
Selection of module powering



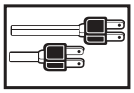
Order Data

Type	Description	Order-Nr.
BAZ	AS-Interface module for 31 slaves	280 500 510
	AS-Interf. module for 62 slaves - up to 3 signal tower modules	280 500 000
	AS-Interf. module for 62 slaves - up to 4 signal tower modules	280 500 100

Status indication



green	red	Status
●	○	Normal operation
●	●	No data exchange
✶	●	No data exchange, Slave-adress = 0
✶	✶	Peripheral fault, overcurrent or low voltage on the output



Technical data

Type	BAZ		
order number	280 500 510	280 500 000	280 500 100
number of slaves	31	62	62
number of modules	4	3	4
IO-Code	8	7	7
ID-Code	F	A	A
ID2-Code		E	7
Datenbits	D0...Modul 0		
	D1...Modul 1		
	D2...Modul 2		
	D3...Modul 3		
current from A S-Interface line	max. 250 mA		
temperature range	-20° bis +50° C		
protection class	IP 65		
AS-Interface voltage range	26,5 - 31,6 V		
module power from the AS-Interface line	max. 200 mA		
external power supply	PELV, 24 V DC +/- 10%, max. 300 mA per Modul		
housing material	polycarbonate, black		

ACCESSORIES POLE CONNECTION BOXES

For additional installation possibilities of pole mount assemblies BMR:

- Surface cable conduits in protection class IP 65 – horizontally or vertically
- Model with magnetic base for mobile mounting, signalling device in protection class IP 65 on metal surfaces

Code for thread		T	
1	M 20	5	PG 16
2	NPT 1/2“		

BDW BDM BDV



Type	Pole connection box	order-Nr. Housing grey	Housing black	Gehäuse silber	Peso (g)
BDW	for horizontal mounting	841 10T 900	841 50T 900	841 80T 900	90
BDV	for vertical mounting	841 11T 900	841 51T 900	841 81T 900	110
BDM	für Montage mit Magnetfuß	841 12T 900	841 52T 900	841 82T 900	330

QUICK MOUNT SYSTEM „FOOT ADAPTER“

(Pat.No. 501053) (Base type BFR)

the foot adapter quick mount system also includes a **shipping cover**, which protects the lower part of the foot adapter from dust and environmental influences during transport or storage of the machine.

Function

- the signal tower with pole mount base on aluminium tube with foot adapter for quick mounting (BFR) is electrically pre-wired
- the foot adapter lower part is mounted on the machine etc. and electrically connected
- the signal tower with foot adapter upper part is inserted into the lower part and firmly mounted by twisting the fixing ring
- the signal tower is immediately fully operable

Advantages

- simple and cost saving disassembly of signal tower for transport of machine etc.
- quick cost saving installation of complete signal tower at client
- immediate function, no electrical connection required at client
- safe transport of signal tower (separately packed)
- additional locking option of signal tower with safety screw that cannot be lost
- signal tower fits only in one position onto the foot adapter lower part – no wrong installation of signal tower possible

How to order Signal Tower modulSIGNAL70

Configuration 24 V AC/DC	Position	Type	Order No. Catalogue	correct order no.
Steady light blue	5	SLL	210 50C 900	210 505 900
Steady light amber	4	SLL	210 50C 900	210 501 900
Steady light clear	3	SLL	210 50C 900	210 504 900
Steady light red	2	SLL	210 50C 900	210 502 900
Steady light green	1	SLL	210 50C 900	210 506 900
Base for horizontal mounting		BMW	200 500 900	200 500 900
5 x bulb		GL02	890 010 905	890 010 905

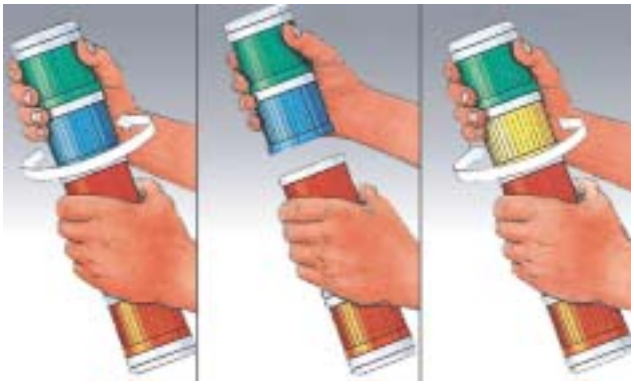
Configuration 230 V AC	Position	Type	Order No. Catalogue	correct order no.
Electronic Sounder module 15 tone types	3	STE	241 100 313	241 100 313
LED-flashing light red	2	SDA	221 10C 313	221 102 313
LED-steady l. green	1	SDC	211 10C 313	211 106 313
Base for vertical mounting		BMV	200 200 900	200 200 900

Configuration 230 V AC	Position	Type	Order No. Catalogue	correct order no.
Flashing module, red	1	SBP	260 50C 313	260 502 313
Base for horizontal mounting		BMW	200 500 900	200 500 900
1 x bulb		GL06	890 010 913	890 010 913

Configuration 24 V AC/DC	Position	Type	Order No. Catalogue	correct order no.
LED-rotating light-buzzer module, red	1	SRP	271 50C 405	271 502 405
Pole mount base on stainless steel tube with zinc die cast foot, powder coated, 100 mm long		BSR	200 71L 900	200 712 900

Configuration 24 V AC/DC	Position	Type	Order No. Catalogue	correct order no.
Strobe light blue	1	SLF	230 10C 405	230 105 405
Pole mount base on aluminium tube with plastic foot, 100 mm long		BMR	200 30L 900	200 302 900
Pole connection box for horizontal mounting		BDW	841 10T 900	841 101 900

auer SIGNALGERÄTE



- modulary construction with bayonet locking system
- fast and easy to operate , mount, configurate and change of modules
- troublefree and fingersafe bulb change at any position without using any tools

- safety screws for additional safety of modules against unauthorized opening

Features

- modularly designed, versatile, flexible and powerful signal towers for smaller machines
- any desired combination possible for many different kind of applications
- complete range of visual and audible modules in all conventional voltages
- extensive mounting options
- PLC ft (leakage/inrush current)
- UL certified, Protection class IP 65, UL type 4, 4X, 13

modul contacts

QUICK MOUNT SYSTEM „FOOT ADAPTER“

(Pat.No. 501053) (Base type VFR)

Quick mounting system “Foot adapter” saves the customer the electrical connection and eases considerably mounting of signal tower for machine manufacturers and their customers.
Detailed description see page 57.

CONFIGURATION

SIGNAL TOWER modulSIGNAL50

LIGHT MODULES	Light source	Type
Steady light	bulb or LED-bulb	VLL
Flashing light		VLB
Strobe light	xenon tube	VLF
PIEZO BUZZER	**Sound pressure**	**Type**
Continuous or pulsing tone and sound pressure selectable with DIP switches	88 -103 dB	VDE
Continuous and pulsing tone externally switchable sound pressure selectable with DIP-switch		VDZ

BASES

horizontal
VMW

vertical
VMV

on aluminium tube
with plastic foot
VMR

on stainless steel tube with zinc die-cast foot
VSR

on aluminium tube for horizontal mounting with screw
VSW

VSW + BSS

set for vertical mounting
BSS
(for VSW)

on aluminium tube with foot adapter for quick mounting
VFR

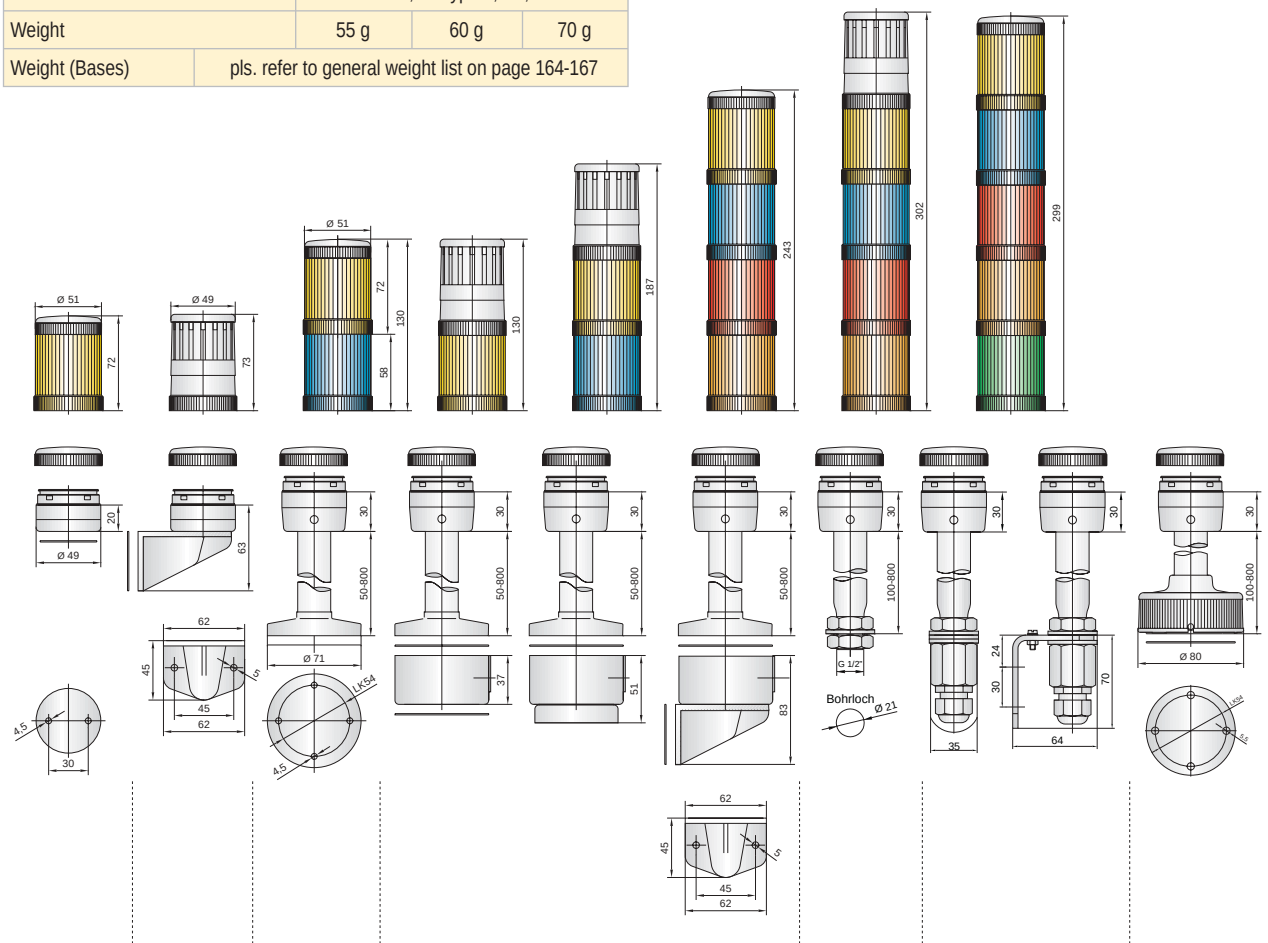
Technical data

for all modulSIGNAL50 modules/products:

Housing material	polycarbonate, grey or black	Terminals	up to 2,5 mm²
Lens material	polycarbonate	Temperature range	-25 °C to +50 °C
Lens colours	amber, red, clear, blue, green, yellow		

Light modules		VLL	VLB	VLF
Bulb		7 W		
Socket BA15d		X		
Flashing-/Strobe frequency			2 Hz	1,4 Hz
Lifetime		~ 10 Mio. flashes		
Strobe energy				1 J
Light emission		360°		
Light type		steady light	flashing l.	strobe light
Leakage		3 mA		
Nominal current	12 V	max. 5 W		110 mA
	24 V	max. 7 W		70 mA
	110/120 V			26 mA
	230/240 V			15 mA
Protection class		IP 65, UL type 4, 4X, 13		
Weight		55 g	60 g	70 g
Weight (Bases)		pls. refer to general weight list on page 164-167		

Buzzer modules		VDE	VDZ
Tone type		continuous and pulsing tone	
Tone frequency		2.800 Hz	
Sound pressure level		88 / 103 dB with DIP-switch selectable	
Leakage		3 mA	
Nominal current	12 V	12 mA	
	24 V	25 mA	
	110/120 V	33 mA	
	230/240 V	33 mA	
Tone selection		DIP-switch	externally switchable
Protection class		IP 65, UL type 4, 4X, 13	
Weight		100 g	



Order data

Type	Light modules	Light options		Order No.			Nominal voltage (V)
		Glühlampe	LED-Lampe				
VLL	Steady light	GL	LLL, LLB	750 00C 900			bis 250 V AC/DC
VLB	Flashing light	GL	LLL	760 00C 405			12-24 V AC/DC
				760 00C 310			110/120 V AC
				760 00C 313			230/240 V AC
VLF	Strobe light	Xenonröhre		770 00C 405			12-24 V AC/DC
				770 00C 310			110/120 V AC
				770 00C 313			230/240 V AC
	Piezo Buzzer modules	Tone options		Housing grey	Housing black	Housing silver	
		Tone type	Sound pressure				
VDE	Piezo Buzzer, IP 65 tone type and sound pressure selectable with DIP-switch	■ continuous	■ 103 dB	781 100 404	781 500 404	781 800 404	12 V AC/DC
				781 100 405	781 500 405	781 800 405	24 V AC/DC
		■ pulsing	■ 88 dB	781 100 310	781 500 310	781 800 310	110/120 V AC
				781 100 313	781 500 313	781 800 313	230/240 V AC
VDZ	Piezo Buzzer, IP 65 tone type extern. switch. sound pressure selectable by DIP-switch 2 required positions	continuous and pulsing	■ 103 dB	782 100 404	782 500 404	782 800 404	12 V AC/DC
				782 100 405	782 500 405	782 800 405	24 V AC/DC
			■ 88 dB	782 100 310	782 500 310	782 800 310	110/120 V AC
				782 100 313	782 500 313	782 800 313	230/240 V AC
	Bases			Housing grey	Housing black	Housing silver	Weight (g)
VMW	Base for horizontal mounting			790 120 900	790 520 900	790 820 900	45
VMV	Base for vertical mounting			790 140 900	790 540 900	790 840 900	85
VMR	Pole mount base on aluminium tube with plastic foot			790 14L 900	790 54L 900	790 84L 900	55-245
VSR	Pole mount base on stain. steel tube with zinc die-cast foot, powder coated			790 15L 900	790 55L 900	790 85L 900	205-955
VSW	Pole mount base for horizontal mounting with screw			790 17L 900	790 57L 900	790 87L 900	
BSS	Set for vertical mounting (for VSW)			200 400 900	200 800 900	200 800 900	
VFR	Pole mount base on aluminium tube with foot adapter for quick mounting			790 18L 900	790 58L 900	790 88L 900	
	Cap - is automatically included with each base						

ORDER DATA ACCESSORIES		
Type	Nominal voltage (V)	Order No.
GL01	12 V 5 W	890 010 904
GL02	24 V 7 W	890 010 905
GL03	48 V 7 W	890 010 908
GL04	60 V 7 W	890 010 909
GL05	110/120 V 7 W	890 010 910
GL06	230/240 V 7 W	890 010 913
LED-Bulb BA15d		Steady light
LLL	12 V AC/DC	893 00C 404
	24 V AC/DC	893 00C 405
	48 V AC/DC	893 00C 408
	110/120 V AC	893 00C 310
	230/240 V AC	893 00C 313
		Flashing light
LLB	12 V AC/DC	893 01C 404
	24 V AC/DC	893 01C 405
	48 V AC/DC	893 01C 408
	110/120 V AC	893 01C 310
	230/240 V AC	893 01C 313

Colour code for lens C

1	amber	5	blue
2	red	6	green
4	clear	7	yellow

Längencode für Rohr L

1	50 mm (not for VFR)	5	500 mm
2	100 mm	6	600 mm
3	250 mm	7	800 mm
4	400 mm		

NOTE:
Light sources have to be ordered separately (pls. refer to order data- accessories).

ACCESSORY SAFETY SCREWS

- additional safety device of modules against unauthorized opening

Type	Description	Order No.
	Safety screw set	700 000 900

AS-INTERFACE

The integration of the modulSIGNAL70 signal tower into AS-Interface field bus systems is easily possible with the new AS-Interface module type VAZ. The new AS-Interface module VAZ is optionally available with standard-slave or the new A/B technique.

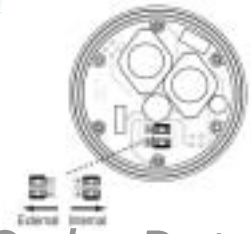
The AS-Interface module with standard slave can address up to 31 modules and maximum 4 modules on the signal tower. The option with A/B technique is able to address up to 62 modules and 3 or 4 modules on the signal tower.

When using internal power supply from the bus system maximum 200 mA are available for the signal tower elements.

Features

- LED-status indicator – check routine
- modules for 31 or 62 addresses
- available with standard or A/B technique
- internal (via bus system) or external power supply selectable
- easy integration of signal tower as actor into the actor-sensor-interface system VAZ-module is mounted as first module directly onto the signal tower base
- significantly reduced wiring work

Selection of module powering

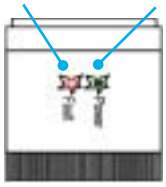


Order Data

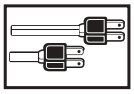
Type	Description	Order-Nr.
VAZ	AS-Interface module for 31 slaves	780 500 500
	AS-Interf. module for 62 slaves - up to 3 signal tower modules	780 500 600
	AS-Interf. module for 62 slaves - up to 4 signal tower modules	780 500 700

Status indication

red green



green	red	Status
●	○	Normal operation
●	●	No data exchange
✶	●	No data exchange, Slave-adress = 0
✶	✶	Peripheral fault, overcurrent or low voltage on the output



Technical data

Type	VAZ		
order number	780 500 500	780 500 600	780 500 700
number of slaves	31	62	62
number of modules	4	3	4
IO-Code	8	7	7
ID-Code	F	A	A
ID2-Code		E	7
Datenbits	D0...Modul 0		
	D1...Modul 1		
	D2...Modul 2		
	D3...Modul 3		
current from AS-Interface line	max. 180 mA		
temperature range	-20° bis +50° C		
protection class	IP 65		
AS-Interface voltage range	26,5 - 31,6 V		
module power from the AS-Interface line	max. 130 mA		
external power supply	PELV, 24 V DC +/- 10%, max. 300 mA per Modul		
housing material	polycarbonate, black		

ACCESSORIES POLE CONNECTION BOXES

For additional installation possibilities of pole mount assemblies BMR:

- Surface cable conduits in protection class IP 65 – horizontally or vertically
- Model with magnetic base for mobile mounting, signalling device in protection class IP 65 on metal surfaces

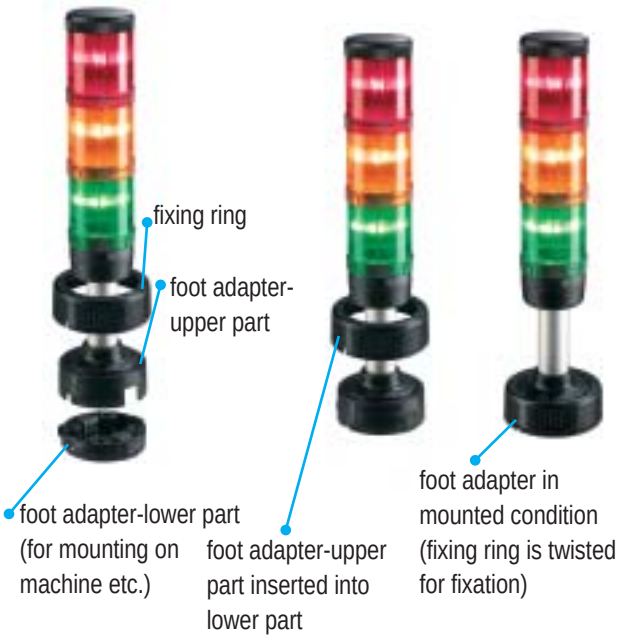
Code for thread T

1	M 20	5	PG 16
2	NPT 1/2“		

BDW BDM BDV

Type	Pole connection box	order-Nr.			Peso (g)
		Housing grey	Housing black	Gehäuse silber	
BDW	for horizontal mounting	841 10T 900	841 50T 900	841 80T 900	90
BDV	for vertical mounting	841 11T 900	841 51T 900	841 81T 900	110
BDM	for magnetic mounting	841 12T 900	841 52T 900	841 82T 900	330

QUICK MOUNT SYSTEM „FOOT ADAPTER“
(Pat.No. 501053) (Base type VFR)



fhe foot adapter quick mount system also includes a **shipping cover**, which protects the lower part of the foot adapter from dust and environmental influences during transport or storage of the machine.

Function

- the signal tower with pole mount base on aluminium tube with foot adapter for quick mounting (VFR) is electrically pre-wired
- the foot adapter lower part is mounted on the machine etc. and electrically connected
- the signal tower with foot adapter upper part is inserted into the lower
  part and firmly mounted by twisting the fixing ring
- the signal tower is immediately fully operable

Advantages

- simple and cost saving disassembly of signal tower for transport of machine etc.
- quick cost saving installation of complete signal tower at client
- immediate function, no electrical connection required at client
- safe transport of signal tower (separately packed)
- additional locking option of signal tower with safety screw that cannot be lost
- signal tower fits only in one position onto the foot adapter lower part – no wrong installation of signal tower possible

How to order Signal Tower modulSIGNAL50

Configuration 24 V AC/DC	Position	Type	Order No. Catalogue	correct order no.
Steady light red	3	VLL	750 00C 900	750 002 900
Flashing light amber	2	VLB	760 00C 405	760 001 405
Steady light green	1	VLL	750 00C 900	750 006 900
Pole mount base on aluminium tube with foot adapter for quick mounting, 100 mm long		VFR	790 58L 900	790 582 900
3 x bulb		GL02	890 010 905	890 010 905

Configuration 24 V AC/DC	Position	Type	Order No. Catalogue	correct order no.
Strobe light amber	3	VLF	770 00C 405	770 001 405
Steady light blue	2	VLL	750 00C 900	750 005 900
Steady light red	1	VLL	750 00C 900	750 002 900
Pole mount base on aluminium tube for horizontal mounting with screw, 250 mm long		VSW	790 57L 900	790 573 900
2 x bulb		GL02	890 010 905	890 010 905

Configuration 230 V AC	Position	Type	Order No. Catalogue	correct order no.
Buzzer-module	4 / 3	VDZ	782 100 313	782 100 313
LED-steady light green	2	VLL	750 00C 900	750 006 900
LED-Bulb green		LLL	893 00C 313	893 006 313
LED-flashing light red	1	VLL	750 00C 900	750 002 900
LED-Bulb red		LLB	893 01C 313	893 012 313
Base for vertical mounting		VMV	790 140 900	790 140 900

optional model modulCOMPACT70

As an option to the standard version (single modules are assembled) in projects with higher quantities with same configuration a single pcb model can be offered. This minimizes in larger projects the cost per signal tower and allows the most economic solution.
This product option is offered with 8 LEDs per position (single modules 10 LEDs)

QUICK MOUNT SYSTEM „FOOT ADAPTER“
(Pat.No. 501053) (Base type DFR)

Quick mounting system “Foot adapter”
saves the customer the electrical connection and eases considerably mounting of signal tower for machine manufactures and their customers. Detailed description see page 61.

Features

- modularly designed flexible LED signal tower system
- signal tower is supplied ready for installation according to buyer’s specifications
- available in voltages 24 V AC/DC, 110/120 V AC and 230/240 V AC
- 6 lens colours, 2 housing colours
- PLC fit (leakage/inrush current)
- UL-certified, protection class IP 65, UL 4, 4X, 13
- excellent price-performance ratio

CONFIGURATION

LED-SIGNAL TOWER modulCOMPACT70

LIGHT MODULES	Light source	Type
LED-Steady light	LED	DLL
LED-Flashing light		DLB
PIEZO BUZZER	Sound pressure	
Continuous tone	100 dB	DDD
	85 dB	DLD
Pulsing tone	100 dB	DDP
	85 dB	DLP
Continuous and Pulsing tone externally switchable	100 dB	DDZ
	85 dB	DLZ

BASES

horizontal
DMW

vertical
DMV

on aluminium pole
with plastic foot
DMR

on aluminium pole
for horizontal
mounting with
screw
DSW

DSW + BSS

set for vertical
mounting
BSS
(with DSW)

on aluminium pole
with foot adapter
for
quick mounting
DFR

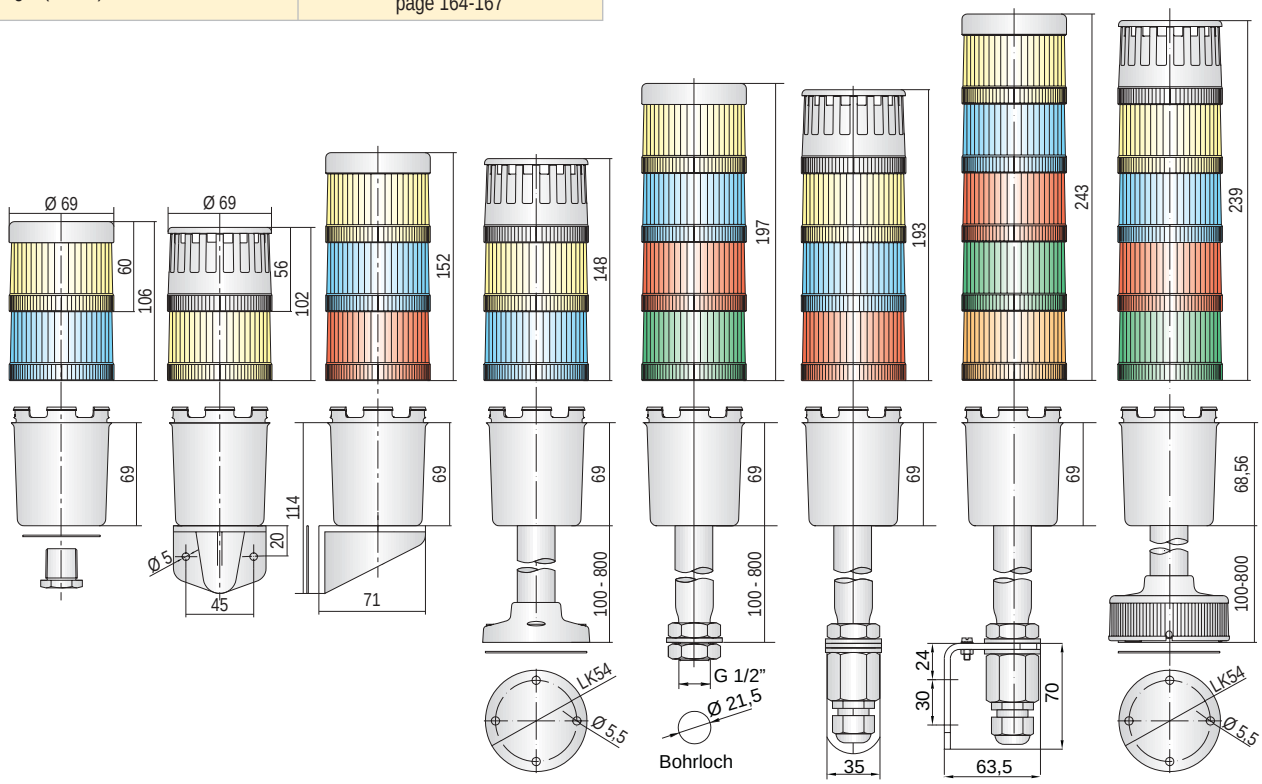
Technical data

for all modulCOMPACT70 modules/products:

Housing material	polycarbonate, grey or black
Lens material	polycarbonate
Lens colours	amber, red, clear, blue, green, yellow
Terminal	pre-wired, 1 m cable length - other lengths availabale on request
Temperature range	-25 °C to +60 °C

Light modules	DLL	DLB
Lighttype - LED	steady light	flashing light
Flashing frequency		2 Hz
Light emission	360°	
Leakage/Inrush current	3 mA	
Nominal current 24 (V)	30 mA	
Protection class	IP 65, UL type 4, 4X, 13	
Weight	15 g	17 g
Weight (Bases)	pls. refer to general weight list on page 164-167	

Buzzer-modules	DDD	DDP	DDZ	DLD	DLP	DLZ
Tone type	continu-ous	pulsing	cont./ pulsing	continu-ous	pulsing	cont./ pulsing
Tone frequency	3.500 Hz					
Sound pressure	100 dB			85 dB		
Leakage	3 mA					
Nominal current 24 (V)	53 mA					
Tone selection			externally switch-able			externally switch-able
Protection class	IP 65, UL type 4, 4X, 13					
Weight	20 g					



DMW | DMV | DMR | DSW | BSS | DFR

QUICK MOUNT SYSTEM „FOOT ADAPTER“
(Pat.No. 501053) (Base type DFR)

the foot adapter quick mount system also includes a **shipping cover**, which protects the lower part of the foot adapter from dust and environmental influences during transport or storage of the machine.

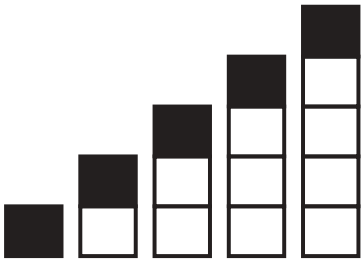
Function

- the signal tower with pole mount base on aluminium tube with foot adapter for quick mounting (DFR) is electrically pre-wired
- the foot adapter lower part is mounted on the machine etc. and electrically connected
- the signal tower with foot adapter upper part is inserted into the lower part and firmly mounted by twisting the fixing ring
- the signal tower is immediately fully operable

Advantages

- simple and cost saving disassembly of signal tower for transport of machine etc.
- quick cost saving installation of complete signal tower at client
- immediate function, no electrical connection required at client
- safe transport of signal tower (separately packed)
- additional locking option of signal tower with safety screw that cannot be lost
- signal tower fits only in one position onto the foot adapter lower part – no wrong installation of signal tower possible

Module combinations



Can be used on position	1	2	3	4	5	Remark
LED-Light modules	OK	OK	OK	OK	OK	to be used in any position
Buzzer-modules (only continuous or pulsing tone)	OK	OK	OK	OK	OK	to be used only on top position
Buzzer-modules, (continuous and pulsing tone, externally switchable)	OK	OK	OK	OK	-	to be used only on top position

auer SIGNALGERÄTE

Order data

Type	Leuchten			Order No.			Nominal voltage (V)
DLL	LED-steady light	LED		705 00C 900P			
DLB	LED flashing light			706 00C 900P			
	Buzzer	Tone type	Sound pressure	Housing grey	Housing black	Housing silver	
DDD	Piezo buzzer	continuous tone	100 dB	707 100 900P	707 500 900P	707 800 900P	
DDP		pulsing tone		707 110 900P	707 510 900P	707 810 900P	
DDZ	Piezo buzzer	continuous/pulsing externally switchable		707 120 900P	707 520 900P	707 820 900P	
DLD	Piezo buzzer	continuous tone	85 dB	707 101 900P	707 501 900P	707 801 900P	
DLP		pulsing tone		707 111 900P	707 511 900P	707 811 900P	
DLZ	Piezo buzzer	continuous/pulsing externally switchable		707 121 900P	707 521 900P	707 821 900P	
	Basen						
DMW	Base for horizontal mounting up to 3 modules			708 100 405M	708 500 405M	708 800 405M	24 V AC/DC
				708 100 310M	708 500 310M	708 800 310M	110/120 V AC
				708 100 313M	708 500 313M	708 800 313M	230/240 V AC
	Base for horizontal mounting up to 5 modules			708 101 405M	708 501 405M	708 801 405M	24 V AC/DC
				708 101 310M	708 501 405M	708 801 405M	110/120 V AC
				708 101 313M	708 501 313M	708 801 313M	230/240 V AC
DMV	Base for vertical mounting up to 3 modules			708 110 405M	708 510 405M	708 810 405M	24 V AC/DC
				708 110 310M	708 510 310M	708 810 310M	110/120 V AC
				708 110 313M	708 510 313M	708 810 313M	230/240 V AC
	Base for vertical mounting up to 5 modules			708 111 405M	708 511 405M	708 811 405M	24 V AC/DC
				708 111 310M	708 511 310M	708 811 310M	110/120 V AC
				708 111 313M	708 511 313M	708 811 313M	230/240 V AC
DSW	Pole mount base on aluminium tube for horizontal mounting with screws, up to 3 modules			708 12L 405M	708 52L 405M	708 82L 405M	24 V AC/DC
				708 12L 310M	708 52L 310M	708 82L 310M	110/120 V AC
				708 12L 313M	708 52L 313M	708 82L 313M	230/240 V AC
	Pole mount base on aluminium tube for horizontal mounting with screws, up to 5 modules			708 13L 405M	708 53L 405M	708 83L 405M	24 V AC/DC
				708 13L 310M	708 53L 310M	708 83L 310M	110/120 V AC
				708 13L 313M	708 53L 313M	708 83L 313M	230/240 V AC
BSS	Set for vertical mounting			200 400 900	200 800 900		
DMR	Pole mount base on aluminium tube with plastic foot, up to 3 modules			708 14L 405M	708 54L 405M	708 84L 405M	24 V AC/DC
				708 14L 310M	708 54L 310M	708 84L 310M	110/120 V AC
				708 14L 313M	708 54L 313M	708 84L 313M	230/240 V AC
	Rohrbasis auf Aluminiumrohr mit Kunststofffuß, bis 5 ModulplätzePole mount base on aluminium tube with plastic foot, up to 5 modules			708 15L 405M	708 55L 405M	708 85L 405M	24 V AC/DC
				708 15L 310M	708 55L 310M	708 85L 310M	110/120 V AC
				708 15L 313M	708 55L 313M	708 85L 313M	230/240 V AC
DFR	Pole mount base on aluminium tube with foot adapter for quick mounting, up to 3 modules			708 16L 405M	708 56L 405M	708 86L 405M	24 V AC/DC
				708 16L 310M	708 56L 310M	708 86L 310M	110/120 V AC
				708 16L 313M	708 56L 313M	708 86L 313M	230/240 V AC
	Pole mount base on aluminium tube with foot adapter for quick mounting, up to 5 modules			708 17L 405M	708 57L 405M	708 87L 405M	24 V AC/DC
				708 17L 310M	708 57L 310M	708 87L 310M	110/120 V AC
				708 17L 313M	708 57L 313M	708 87L 313M	230/240 V AC
	Cap - is automatically mounted						

The supply voltage 24 V AC/DC, 110/120 V AC or 230/240 V AC is determined by selecting the base in the desired Voltage. Any modules mounted on the base always operate with 24 V only.

Colour code for lens			C
1	amber	5	blue
2	red	6	green
4	clear	7	yellow

Length code for tubes			L
1	50 mm (not for DFR)	5	500 mm
2	100 mm	6	600 mm
3	250 mm	7	800 mm
4	400 mm		

Position letter code	P
E	5th position from base
D	4th position from base
C	3rd position from base
B	2nd position from base
A	1st position from base
M = Base mounted	on modules

NOTE:

All base modules/signal towers are prewired as standard with 1 m cable and are supplied ready for use. Individual cable lengths are offered upon request.

Signal tower modulCOMPACT70 are only supplied ready assembled! Therefore one has to indicate the desired configuration by using the position letter code.

How to order Signal Tower modulCOMPACT70

Configuration 230 V AC	Position	Type	Order No. Catalogue	correct order no.
Buzzer pulsing tone	4	DDP	707 510 900P	707 510 900D
LED-flashing light clear	3	DLB	706 00C 900P	706 004 900C
LED-steady light red	2	DLL	705 00C 900P	705 002 900B
LED-steady light blue	1	DLL	705 00C 900P	705 005 900A
Pole mount base on aluminium tube with plastic foot, up to 5 modules, 100 mm long		DMR	708 55L 313M	708 552 313M

Configuration 230 V AC	Position	Type	Order No. Catalogue	correct order no.
LED-steady light red	2	DLL	705 00C 900P	705 002 900B
LED-steady light green	1	DLL	705 00C 900P	705 006 900A
Pole mount base on aluminium tube for horizontal mounting with screws up to 3 modules, 250 mm long		DSW	708 52L 313M	708 523 313M
+ Set for vertical mounting (metal bracket + thread adapter/cable gland)		BSS	200 800 900	200 800 900

Configuration 24 V AC/DC	Position	Type	Order No. Catalogue	correct order no.
LED-steady light red	3	DLL	705 00C 900P	705 002 900C
LED-flashing light amber	2	DLB	706 00C 900P	706 001 900B
LED-steady light green	1	DLL	705 00C 900P	705 006 900A
Pole mount base on aluminium tube with foot adapter for quick mounting up to 3 modules, 100 mm long		DFR	708 56L 405M	708 562 405M

optional model moduICOMPACT30:

As an option to the standard version (single modules are assembled) in projects with higher quantities with same configuration a single pcb model can be offered. This minimizes in larger projects the cost per signal tower and allows the most economic solution.
This product option is offered with 8 LEDs per position (single modules 10 LEDs)

QUICK MOUNT SYSTEM „FOOT ADAPTER“
(Pat.No. 501053) (Base type CFR)

Quick mounting system “Foot adapter”
saves the customer the electrical connection and eases considerably mounting of signal tower for machine manufactures and their customers. Detailed description see page 67.

Features

- modularly designed flexible LED signal tower system
- signal tower is supplied ready for installation according to buyer’s specifications
- available in voltages 24 V AC/DC, 110/120 V AC and 230/240 V AC
- 6 lens colours
- PLC fit (leakage/inrush current)
- UL-certified, protection class IP 65, UL 4, 4X, 13
- excellent price-performance ratio

CONFIGURATION

LED-SIGNAL TOWER modulCOMPACT30






LIGHT MODULES	Light source	Type
LED-Steady light	LED	CLL
LED-Flashing light		CLB
PIEZO BUZZER	Sound pressure	
Continuous tone	85 dB	CDD
Pulsing tone		CDP
Continuous and Pulsing tone externally switchable		CDZ

BASES

on aluminium tube with plastic foot
CMR

on aluminium tube for horizontal mounting with screw
CSW

CSW + CSS

set for vertical mounting
CSS (for CSW)

on aluminium tube with foot adapter for quick mounting
CFR

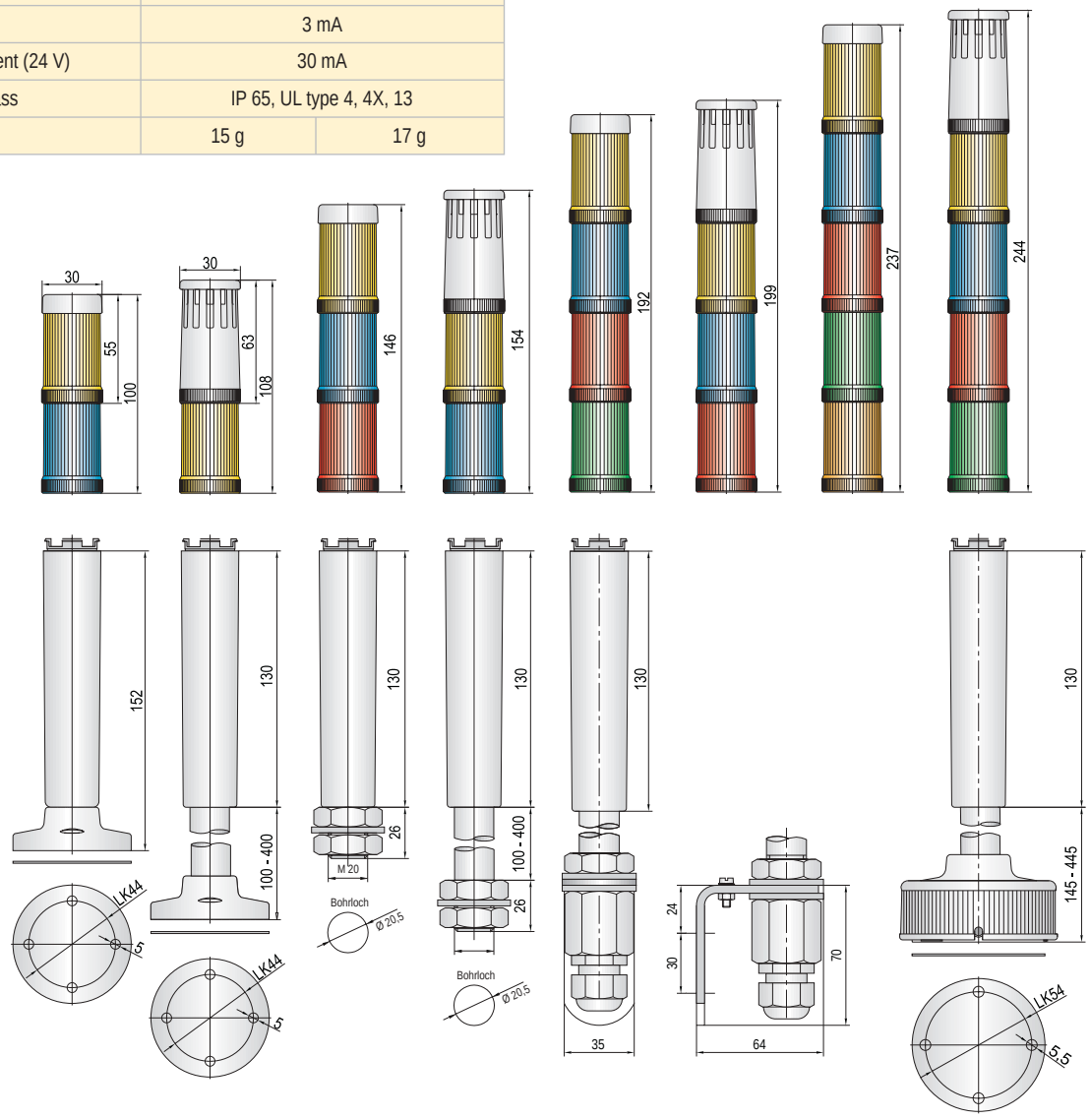
Technical data

for all modulCOMPACT30 modules/products:

Housing material	polycarbonate, grey or black
Lens material	polycarbonate
Lens colours	amber, red, clear, blue, green, yellow
Terminals	prewired, 1 m cable length
Temperature range	-25 °C to +50 °C

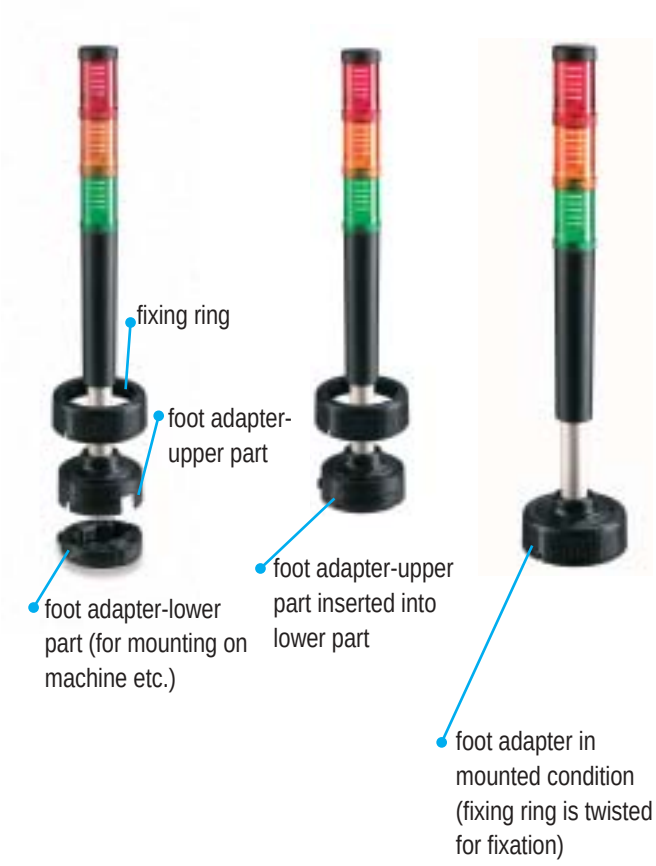
Light modules	CLL	CLB
Light type	LED-steady light	LED-flashing light
Flashing frequency		2 Hz
Light emission	360°	
Leakage	3 mA	
Nominal current (24 V)	30 mA	
Protection class	IP 65, UL type 4, 4X, 13	
Weight	15 g	17 g

Buzzer modules	CDD	CDP	CDZ
Tone type	continuous t.	pulsing tone	cont.-/pulsing t.
Tone frequency	3.500 Hz		
Sound pressure	85 dB		
Leakage	3 mA		
Nominal current (24 V)	40 mA		
Tone selection			extern. switchable
Protection class	IP 65, UL type 4, 4X, 13		
Weight	20 g		
Weight (Bases)	pls. refer to general weight list on page 164-167		



CMR | CSW | CSS | CFR

QUICK MOUNT SYSTEM „FOOT ADAPTER“
(Pat.No. 501053) (Base type CFR)



the foot adapter quick mount system also includes a **shipping cover**, which protects the lower part of the foot adapter from dust and environmental influences during transport or storage of the machine.

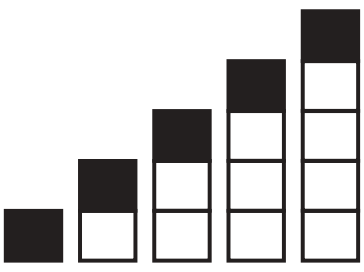
Function

- the signal tower with pole mount base on aluminium tube with foot adapter for quick mounting (CFR) is electrically pre-wired
- the foot adapter lower part is mounted on the machine etc. and electrically connected
- the signal tower with foot adapter upper part is inserted into the lower part and firmly mounted by twisting the fixing ring
- the signal tower is immediately fully operable

Advantages

- simple and cost saving disassembly of signal tower for transport of machine etc.
- quick cost saving installation of complete signal tower at client
- immediate function, no electrical connection required at client
- safe transport of signal tower (separately packed)
- additional locking option of signal tower with safety screw that cannot be lost
- signal tower fits only in one position onto the foot adapter lower part – no wrong installation of signal tower possible

Module combinations



Can be used on position	1	2	3	4	5	Remark
LED-Light modules	OK	OK	OK	OK	OK	to be used in any position
Buzzer-modules (only continuous or pulsing tone)	OK	OK	OK	OK	OK	to be used only on top position
Buzzer-modules, (continuous and pulsing tone, externally switchable)	OK	OK	OK	OK	-	to be used only on top position

Order data

Type	Light modules	Light source		Order No.			
CLL	LED-Steady light	LED		701 00C 900P			
CLB	LED-Flashing light			702 00C 900P			
	Piezosummer-Module	Tone options		Housing grey	Housing black	Housing silver	required positions
		Tone type	Volume				
CDD	Piezo Buzzer	continuous tone	85 dB	703 100 900P	703 500 900P	703 800 900P	1
CDP	Piezo Buzzer	pulsing tone		703 110 900P	703 510 900P	703 810 900P	1
CDZ	Piezo Buzzer	contin./pulsing		703 120 900P	703 520 900P	703 820 900P	2
Type	Bases			Housing grey	Housing black	Housing silver	Nominal voltage (V)
CSW	Pole mount base on aluminium tube for horizontal mounting with screw up to 3 modules			700 11L 405M	700 51L 405M	700 81L 405M	24 V AC/DC
				700 11L 310M	700 51L 310M	700 81L 310M	110/120 V AC
				700 11L 313M	700 51L 313M	700 81L 313M	230/240 V AC
	Pole mount base on aluminium tube for horizontal mounting with screw up to 5 modules			700 12L 405M	700 52L 310M	700 82L 310M	24 V AC/DC
				700 12L 310M	700 52L 310M	700 82L 310M	110/120 V AC
				700 12L 313M	700 52L 313M	700 82L 313M	230/240 V AC
CSS	Set for vertical mounting (zu CSW)			700 130 900	700 530 900		
CMR	Pole mount base on aluminium tube with plastic foot up to 3 modules			700 14L 405M	700 54L 405M	700 84L 405M	24 V AC/DC
				700 14L 310M	700 54L 310M	700 84L 310M	110/120 V AC
				700 14L 313M	700 54L 313M	700 84L 313M	230/240 V AC
	Pole mount base on aluminium tube with plastic foot up to 5 modules			700 15L 405M	700 55L 405M	700 85L 405M	24 V AC/DC
				700 15L 310M	700 55L 310M	700 85L 310M	110/120 V AC
				700 15L 313M	700 55L 313M	700 85L 313M	230/240 V AC
CFR	Pole mount base on aluminium tube with foot adapter for quick mounting up to 3 modules			700 16L 405M	700 56L 405M	700 86L 405M	24 V AC/DC
				700 16L 310M	700 56L 310M	700 86L 310M	110/120 V AC
				700 16L 313M	700 56L 313M	700 86L 313M	230/240 V AC
	Pole mount base on aluminium tube with foot adapter for quick mounting up to 5 modules			700 17L 405M	700 57L 405M	700 87L 405M	24 V AC/DC
				700 17L 310M	700 57L 310M	700 87L 310M	110/120 V AC
				700 17L 313M	700 57L 313M	700 87L 313M	230/240 V AC
	Cap - is automatically mounted						

The supply voltage 24 V AC/DC, 110/120 V AC or 230/240 V AC is determined by selecting the base in the desired Voltage. Any modules mounted on the base always operate with 24 V only.

Colour code for lens C

1	amber	5	blue
2	red	6	green
4	clear	7	yellow

Length code for tubes L

0	0 mm
2	100 mm
3	250 mm
4	400 mm

Position letter code P

E	5th position from base
D	4th position from base
C	3rd position from base
B	2nd position from base
A	1st position from base
M = Base mounted	on modules

NOTE:
All base modules/signal towers are prewired as standard with 1m cable and are supplied ready for use. Individual cable lengths are offered upon request.

Signal tower modulCOMPACT30 are only supplied ready assembled! Therefore one has to indicate the desired configuration by using the position letter code.

How to order Signal tower modulCOMPACT30

Configuration 230 V AC	Position	Type	Order No. Catalogue	correct order No.
Buzzer pulsing tone	5	CDP	703 510 900P	703 510 900E
LED-flashing light red	4	CLB	702 00C 900P	702 002 900D
LED-steady light clear	3	CLL	701 00C 900P	701 004 900C
LED-steady light blue	2	CLL	701 00C 900P	701 005 900B
LED-flashing light amber	1	CLB	702 00C 900P	702 001 900A
Pole mount base on aluminium tube with plastic foot, up to 5 modules, 100 mm long		CMR	700 55L 313M	700 552 313M

Configuration 24 V AC/DC	Position	Type	Order No. Catalogue	correct order No.
LED-steady light red	2	CLL	701 00C 900P	701 002 900B
LED-steady light green	1	CLL	701 00C 900P	701 006 900A
Pole mount base on aluminium tube for horizontal mounting with screw, up to 3 modules 250 mm long &		CSW	700 11L 405M	700 113 405M
Set for vertical mounting (metal bracket + thread adapter/cable gland)		CSS	700 130 900	700 130 900

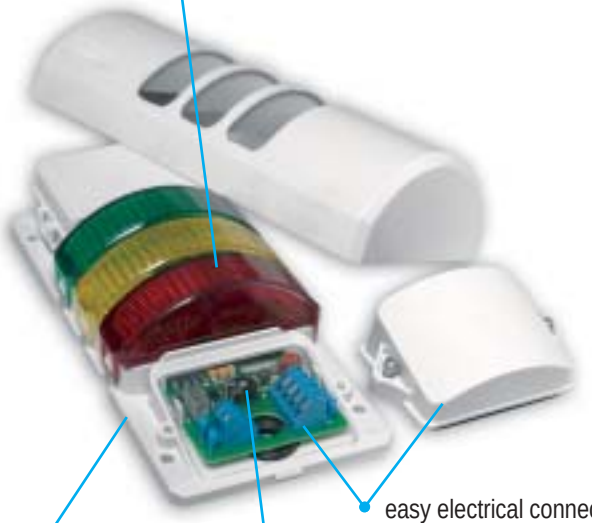
slim design, only 45 mm wide for optimal integration/ combination of signal tower unit in machine/panel building or other (building) applications

IP 65 – for use in damp and dusty environmental conditions, also outdoor

Features

- visual-audible LED-signal tower in half dome design
- for universal industrial, building and other applications
- any colour combination and housing size (2 – 5 positions) available
- 6 lens colours, 2 housing colours (grey, chrome)
- LED-steady light or LED-flashing light for each position selectable
- high protection class IP 65 – suitable for outdoor and indoor
- for horizontal and vertical mounting
- particular lens optics with reflective coating
  - optimal signalling and visibility from each viewing angle (180°)
  - „moving“ bright LED-light
- optional piezo buzzer in upper housing area available
  - tone types continuous and pulsing
  - volume individually adjustable ~70 - 90 dB (A) in 1 m
- SPS-fit (leakage, inrush current)
- available in nominal voltages 24 V AC/DC, 110/120 V AC and 230/240 V AC
- UL-certified – UL 4, 4X, 13

modules always work with 24 V voltage



easy electrical connection (terminals, removable cover)

supply voltage is chosen with the respective base

volume individually adjustable from ~70 – 90 dB

CONFIGURATION
SIGNAL TOWER half DOME 90

LIGHT MODULES	Light source	Type
LED-steady light	LED	HDL
LED-flashing light		HDB
PIEZO BUZZER	**Sound pressure**	**Type**
Continuous and pulsing tone	~70 - 90 dB infinitely adjustable	HDZ
HOUSING	**Housing colour**	**Type**
Housing with 2 lights	grey chrome	HD2
Housing with 3 lights		HD3
Housing with 4 lights		HD4
Housing with 5 lights		HD5

HALF DOME 90

Optimal Signalling and Visibility from each viewing angle (180°)

◗ moving bright LED-light

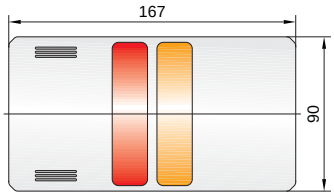
Technical data

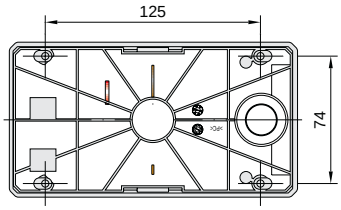
for all HalfDOME90 modules/products:

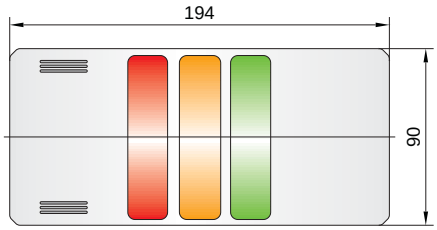
Housing material	polycarbonate
Housing colours	grey or chrome
Lens material	polycarbonate
Lens colours	amber, red, clear, blue, green, yellow
Temperature range	-25 °C to +50 °C

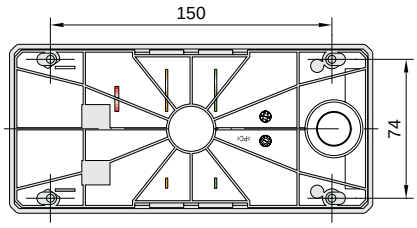
Light modules	HDL	HDB
Type of light	LED-steady light	LED-flashing light
Flashing frequency		2 Hz
Light emission	180°	
Leakage	3 mA	
Nominal current (24 V)	43 mA	
Protection class	IP 65, NEMA 4, 4X, 13	
Weight	2-lights: 273 g	
	3-lights: 319 g	
	4-lights: 376 g	
	5-lights: 419 g	

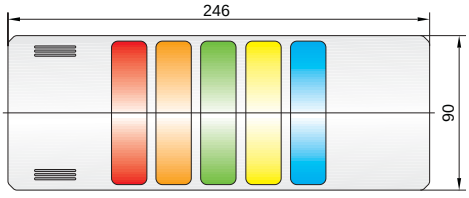
Buzzermodule	HDZ
Tone type	continuos/pulsing
Tone selection	DIP-Switch
Tone frequency	~ 2500 Hz
Sound pressure	~ 70 - 90 dB
Nominal current	65 mA

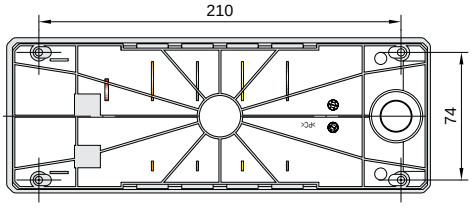


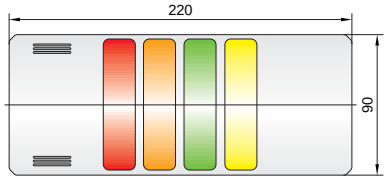


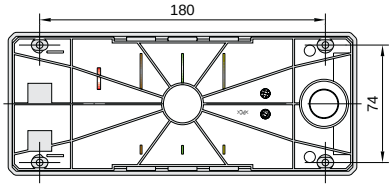












Order data

Type	LIGHTS	Order No.		
HDL	LED steady light (mounted)	745 00C 900P		
HDB	LED flashing light (mounted)	745 01C 900P		
	BUZZER			
HDZ	Buzzer continuous/pulsing tone	745 020 900		
	HOUSING	grey	chrome	Nominal voltage (V)
HD2	Housing for 2 lights	745 102 405	745 502 405	24 V AC/DC
HD3	Housing for 3 lights	745 103 405	745 503 405	24 V AC/DC
HD4	Housing for 4 lights	745 104 405	745 504 405	24 V AC/DC
HD5	Housing for 5 lights	745 105 405	745 505 405	24 V AC/DC
HD2	Housing for 2 lights	745 102 310	745 502 310	110/120 V AC
HD3	Housing for 3 lights	745 103 310	745 503 310	110/120 V AC
HD4	Housing for 4 lights	745 104 310	745 504 310	110/120 V AC
HD5	Housing for 5 lights	745 105 310	745 505 310	110/120 V AC
HD2	Housing for 2 lights	745 102 313	745 502 313	230/240 V AC
HD3	Housing for 3 lights	745 103 313	745 503 313	230/240 V AC
HD4	Housing for 4 lights	745 104 313	745 504 313	230/240 V AC
HD5	Housing for 5 lights	745 105 313	745 505 313	230/240 V AC

NOTE:
The supply voltage 24 V AC/DC, 110/120 V DC or 230/240 V AC is determined by selecting the housing in the desired voltage. The built-in light and sound modules always operate with 24 V only.

How to order HALF DOME 90

Configuration 230 V AC	position	type	order no. in catalogue	correct order no.
LED steady light red	3	HDL	745 00C 900P	745 002 900C
LED flashing light amber	2	HDB	745 01C 900P	745 011 900B
LED steady light green	1	HDL	745 00C 900P	745 006 900A
buzzer continuous/ pulsing		HDZ	745 020 900	745 020 900
grey housing 3 positions		HD3	745 103 313	745 103 313

Configuration 230/240 V AC	position	type	order no. in catalogue	correct order no.
LED steady light clear	5	HDL	745 00C 900P	745 004 900E
LED flashing light blue	4	HDB	745 01C 900P	745 015 900D
LED steady light red	3	HDL	745 00C 900P	745 002 900C
LED flashing light yellow	2	HDB	745 01C 900P	745 017 900B
LED steady light green	1	HDL	745 00C 900P	745 006 900A
chrome housing 5 positions		HD5	745 505 405	745 505 405

Colour code for lens C

1	amber	5	blue
2	red	6	green
4	clear	7	yellow

Position letter code P

E	5th position from base
D	4th position from base
C	3rd position from base
B	2nd position from base
A	1st position from base


KLL - KLF
Page 76-77
90 dB
KDL - KDF
Page 76-77
85-103dB
92-107 dB
100 dB
VS4
Page 83
Series „S“
Page 78-82

Overview Visual-Audible Signalling Equipment

	Type	Sound pressure dB	Page
Mini Horn-Steady Beacon	KLL	90	76-77
	KDL		76-77
Mini Horn-LED-Steady Beacon	KLL + LLL	90	76-77
	KDL + LLL		76-77
Mini Horn-LED-Flashing Beacon	KLL + LLB	90	76-77
	KDL + LLB		76-77
Mini Horn-Strobe Beacon	KLF	90	76-77
	KDF		76-77
Signal Beacon-Buzzer			
Steady Beacon-Buzzer	SLP-SLD	92 / 107	78-82
Flashing Beacon-Buzzer	SBP		78-82
Strobe Beacon-Buzzer	SFP		78-82
LED-Steady Beacon-Buzzer	SCP		78-82
LED-Flashing Beacon-Buzzer	SAP		78-82
LED-Rotating Beacon-Buzzer	SRP		78-82
Strobe Beacon-Signalling Sounder	VS4	100	83
LED Flashing Beacon-Electronic Multitone Siren	CS1	< 111	84-85
M22 Panel Mount Buzzer-LED Steady-/Flashing Beacon			
Ø 65mm, light/tone synchronized	ELG	85 - 103	86-87
Ø 65mm, light/tone separately switchable	EDG		86-87
Ø 45mm, light/tone synchronized	ELM	85 - 98	86-87
Ø 45mm, light/tone separately switchable	EDM		86-87

M22 Panel Mount Buzzer - LED Steady-/Flashing Beacon
Page 86-87

CS1
Page 84-85

Mini Horn – Signal Beacon KLL - KDL
Mini Horn – Strobe Beacon KLF - KDF

auer SIGNALGERÄTE

KLL – KLF

KDL – KDF

push button for easy opening

KLL – KDL

Steady light (GL)

LED-Steady light (LLL)

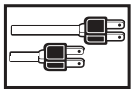
LED-Flashing light (LLB)

KLF – KDF

Strobe light

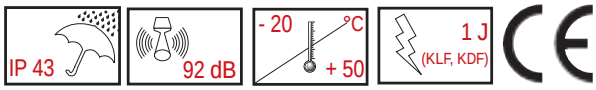
Features

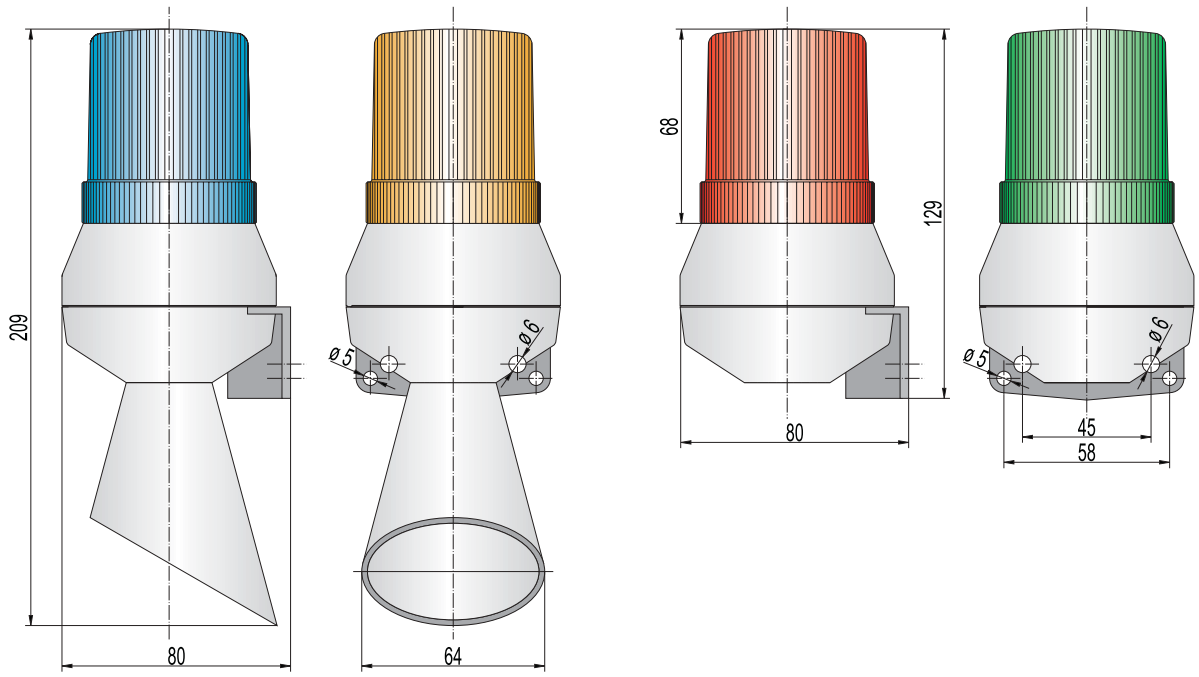
- combination of an electromechanical horn with signal beacon or strobe beacon
- for universal visual-audible applications
- Signal beacon Ø 60mm
- beacon options:
  steady light with bulb or LED-bulb (LLL)
  flashing light with LED-bulb (LLB)
  strobe light
- models with or without cone
- sound and light separately switchable
- attractive price/performance ratio
- 2 mounting widths



Technical data

Type	KLL - KDL	KLF - KDF
Housing, Colour	ABS, grey	
Lens colour	amber, red, clear, blue, green, yellow	
Cable entry	6,5 - 15 mm	
Cable conduit	surface or buried	
Mounting	sound outlet downwards	
Duty cycle factor	100 %	
Protection class	IP 43 NEMA type 2	
Radio noise suppression	acc. to CENELEC EN 55014	
Terminals	up to 2,5 mm²	
Socket	BA 15 d	
Temperature range	-20 °C to +50 °C	
Sound pressure	88 - 92 dB	
Strobe energy		1 J
Flashing frequency		1,4 Hz
Lifetime		min. 10 Mio. flashes
Weight	220 - 200 g	240 - 260 g





Order data

Type	Nominal voltage (V)	Hz		Order No. KLL (with cone)	Order No. KDL (without cone)	Nominal current (A) incl. bulb
Mini horn - Signal beacon AC	12 V AC	50		710 11C 104	710 01C 104	0,75
	24 V AC	50		710 11C 105	710 01C 105	0,4
	42 V AC	50		710 11C 107	710 01C 107	0,25
	48 V AC	50		710 11C 108	710 01C 108	0,2
	60 V AC	50		710 11C 109	710 01C 109	0,15
	110 V AC	50		710 11C 110	710 01C 110	0,08
	230 V AC	50		710 11C 113	710 01C 113	0,04
	120 V AC		60	710 11C 210	710 01C 210	0,07
Mini horn - Signal beacon DC	12 V DC			710 11C 004	710 01C 004	0,7
	24 V DC			710 11C 005	710 01C 005	0,35
	48 V DC			710 11C 008	710 01C 008	0,2
	60 V DC			710 11C 009	710 01C 009	0,15
	110 V DC			710 11C 010	710 01C 010	0,08
	220 V DC			710 11C 013	710 01C 013	0,04
				KLF (with cone)	KDF (without cone)	Nominal current (A)
Mini horn - Strobe beacon	12 V DC			710 12C 004	710 02C 004	0,30
	24 V DC			710 12C 005	710 02C 005	0,17
	120 V AC		60	710 12C 210	710 02C 210	0,04
	230 V AC	50		710 12C 113	710 02C 113	0,025

ORDER DATA ACCESSORIES		
Type	Nominal voltage (V)	Order No.
Bulbs BA15d		
GL01	12 V 5 W	890 010 904
GL02	24 V 7 W	890 010 905
GL03	48 V 7 W	890 010 908
GL04	60 V 7 W	890 010 909
GL05	110/120 V 7 W	890 010 910
GL06	230/240 V 7 W	890 010 913
LED-bulbs BA15d		Steady light
LLL	12 V AC/DC	893 00C 404
	24 V AC/DC	893 00C 405
	48 V AC/DC	893 00C 408
	110/120 V AC	893 00C 310
	230/240 V AC	893 00C 313
		Flashing light
LLB	12 V AC/DC	893 01C 404
	24 V AC/DC	893 01C 405
	48 V AC/DC	893 01C 408
	110/120 V AC	893 01C 310
	230/240 V AC	893 01C 313

Colour code for lens			C
1	amber	5	blue
2	red	6	green
4	clear	7	yellow

NOTE:
Light sources have to be ordered separately (pls. refer to order data accessories).

QUICK MOUNT SYSTEM „FOOT ADAPTER“
(Pat.No. 501053) (Base type BFR)

Features

- modular system with bayonet locking system
- complete range of visual-audible options
- high grade and efficient visual-audible solution for various applications indoor and outdoors
- wide range of mounting options
- can be mounted in any position
- 6 lens colours, 2 housing colours
- PLC fit (leakage/inrush current)

IP 65 | - 25 °C + 70 | < 107 dB | 3 J (SFP)

c UL us CE

the foot adapter quick mount system also includes a **shipping cover**, which protects the lower part of the foot adapter from dust and environmental influences during transport or storage of the machine.

Function

- the signal-beacon-buzzer combination with pole mount base on aluminium tube with foot adapter for quick mounting (BFR) is electrically pre-wired
- the foot adapter lower part is mounted on the machine etc. and electrically connected
- the signal-beacon-buzzer combination with foot adapter upper part is inserted into the lower part and firmly mounted by twisting the fixing ring
- the signal-beacon-buzzer comb. is immediately fully operable

Advantages

- simple and cost saving disassembly of signal-beacon-buzzer combination for transport of machine etc.
- quick cost saving installation of complete signal-beacon-buzzer combination at client
- immediate function, no electrical connection required at client
- safe transport of signal-beacon-buzzer combination (separately packed)
- additional locking option of signal-beacon-buzzer combination with safety screw that cannot be lost
- signal-beacon-buzzer combination fits only in one position onto the foot adapter lower part – no wrong installation of signal-beacon-buzzer combination possible

CONFIGURATION

SIGNAL BEACON-BUZZER-SERIES „S“

SLP, SLD	Steady beacon-Buzzer (SLD: light and tone separately addressable)
SBP	Flashing beacon-Buzzer
SFP	Strobe beacon-Buzzer
SCP	LED Steady beacon-Buzzer
SAP	LED Flashing beacon-Buzzer
SRP	LED Rotating beacon-Buzzer

Sound options	
Tone type	Sound pressure
■ Continuous tone □ Pulsing tone	■ 107 dB □ 92 dB

MODULES

SLP SLD SBP SFP SCP SAP SRP

Light source

GL LLL LLB

LED

BASES

horizontal BMW

vertical BMV

on aluminium tube with plastic foot BMR

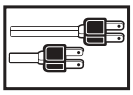
on stainless steel tube with zinc-die cast foot BSR

on aluminium tube for horizontal mounting with screw BWS

set for vertical mounting BSS (for BWS)

BWS + BSS

on aluminium tube with foot adapter for quick mounting BFR

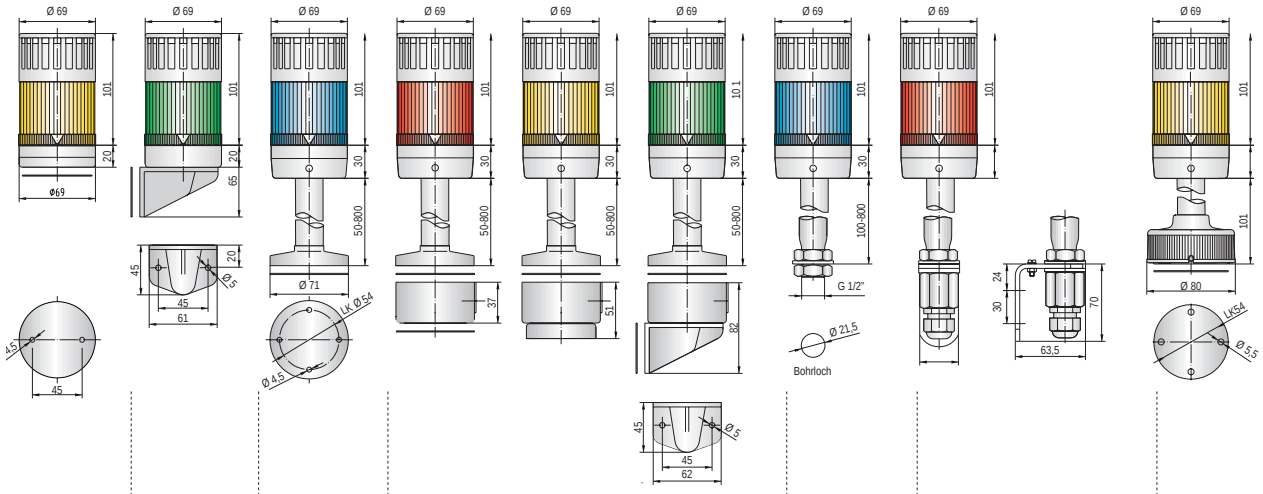


Technical data

for all Light-Buzzer modules/products:

Housing material	polycarbonate, grey or black	Terminals	up to 2,5 mm²
Lens material	polycarbonate	Temperature range	-25 °C to +70 °C
Lens colours	amber, red, clear, blue, green, yellow		

Light-Buzzer-modules		SLP	SLD	SBP	SFP	SCP	SAP	SRP
Bulb		7 W						
Socket (BA 15 d)		X						
Flashing-/Strobe frequency				2 Hz	1,4 Hz			
Strobe energy					3 J			
Light source LED						X		
Light emission		360°						
Light type		steady light		flashing light	strobe light	LED-steady l.	LED-flashing l.	LED-rotating light
Leakage		3 mA						
Nominal current	12 V	5 W, 27 mA			310 mA	150 mA		
	24 V	7 W, 45 mA			220 mA	110 mA		
	110/120 V	7 W, 43 mA			93 mA	64 mA		
	230/240 V	7 W, 40 mA			75 mA	61 mA		
Tone type		continuous- or pulsing tone (selectable by DIP switch)						
Tone frequency		3.300 Hz						
Sound pressure (dB)		92 / 107 dB (selectable by DIP switch)						
Protection class		IP 65, UL type 4, 4X, 13						
Weight		130 g						
Weight (Bases)		pls. refer to general weight list on page 164-167						



Order data

Type	Light-Buzzer-modules	Light source		Tone options		Order No.		Nominal voltage (V)
		Bulb	LED-bulb	Tone type	Sound pressure	Housing grey	Housing black	
SLP	Steady light - Buzzer	GL	LLL, LLB	continuous	~ 107 dB	250 10C 404	250 50C 404	12 V AC/DC
						250 10C 405	250 50C 405	24 V AC/DC
				pulsing	~ 92 dB	250 10C 310	250 50C 310	110/120 V AC
						250 10C 313	250 50C 313	230/240 V AC
SLD	Steady light - Buzzer Light/Tone separately switchable	GL	LLL, LLB	continuous	~ 107 dB	212 10C 404	212 50C 404	12 V AC/DC
						212 10C 405	212 50C 405	24 V AC/DC
				pulsing	~ 92 dB	212 10C 310	212 50C 310	110/120 V AC
						212 10C 313	212 50C 313	230/240 V AC
SBP	Flashing light - Buzzer	GL	LLL	continuous	~ 107 dB	260 10C 404	260 50C 404	12 V AC/DC
						260 10C 405	260 50C 405	24 V AC/DC
				pulsing	~ 92 dB	260 10C 310	260 50C 310	110/120 V AC
						260 10C 313	260 50C 313	230/240 V AC
SFP	Strobe light - Buzzer	xenon tube		continuous	~ 107 dB	270 10C 404	270 50C 404	12 V AC/DC
						270 10C 405	270 50C 405	24 V AC/DC
				pulsing	~ 92 dB	270 10C 310	270 50C 310	110/120 V AC
						270 10C 313	270 50C 313	230/240 V AC
SCP	LED-Steady light - Buzzer	LED		continuous	~ 107 dB	251 10C 404	251 50C 404	12 V AC/DC
						251 10C 405	251 50C 405	24 V AC/DC
				pulsing	~ 92 dB	251 10C 310	251 50C 310	110/120 V AC
						251 10C 313	251 50C 313	230/240 V AC
SAP	LED-Flashing light- Buzzer			continuous	~ 107 dB	261 10C 404	261 50C 404	12 V AC/DC
						261 10C 405	261 50C 405	24 V AC/DC
				pulsing	~ 92 dB	261 10C 310	261 50C 310	110/120 V AC
						261 10C 313	261 50C 313	230/240 V AC
SRP	LED-Rotating light - Buzzer			continuous	~ 107 dB	271 10C 404	271 50C 404	12 V AC/DC
						271 10C 405	271 50C 405	24 V AC/DC
				pulsing	~ 92 dB	271 10C 310	271 50C 310	110/120 V AC
						271 10C 313	271 50C 313	230/240 V AC

ORDER DATA ACCESSORIES		
Type	Nominal voltage (V)	Order No.
GL01	12 V 5 W	890 010 904
GL02	24 V 7 W	890 010 905
GL03	48 V 7 W	890 010 908
GL04	60 V 7 W	890 010 909
GL05	110/120 V 7 W	890 010 910
GL06	230/240 V 7 W	890 010 913
LED-Bulb BA15d		Steady light
LLL	12 V AC/DC	893 00C 404
	24 V AC/DC	893 00C 405
	48 V AC/DC	893 00C 408
	110/120 V AC	893 00C 310
	230/240 V AC	893 00C 313
		Flash. light
LLB	12 V AC/DC	893 01C 404
	24 V AC/DC	893 01C 405
	48 V AC/DC	893 01C 408
	110/120 V AC	893 01C 310
	230/240 V AC	893 01C 313

NOTE:
Light sources have to be ordered separately (pls. refer to order data accessories).

Type	Bases	Order No.	
		Housing grey	Housing black
BMW	Base for horizontal mounting	200 100 900	200 500 900
BMV	Base for vertical mounting	200 200 900	200 600 900
BMR	Pole mount base on aluminium tube with plastic foot	200 30L 900	200 70L 900
BSR	Pole mount base on stainless steel tube with zinc die-cast foot, powder coated	200 31L 900	200 71L 900
BSW	Pole mount base for horizontal mounting with screw	200 33L 900	200 73L 900
BSS	Set for vertical mounting (for BWS)	200 400 900	200 800 900
BFR	Pole mount base on aluminium tube with foot adapter for quick mounting	200 34L 900	200 74L 900
	Cap - is automatically included with each base		

Colour code for lens C

1	orange	5	blue
2	red	6	green
4	clear	7	yellow

Length code for tubes L

1	50 mm (not for BFR)	5	500 mm
2	100 mm	6	600 mm
3	250 mm	7	800 mm
4	400 mm		

AS-INTERFACE

The integration of the modulSIGNAL70 signal tower into AS-Interface field bus systems is easily possible with the new AS-Interface module type BAZ. The new AS-Interface module BAZ is optionally available with standard-slave or the new A/B technique.

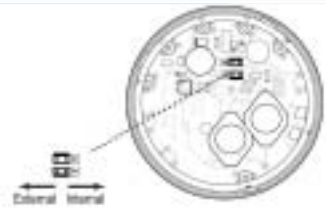
The AS-Interface module with standard slave can address up to 31 modules and maximum 4 modules on the signal tower. The option with A/B technique is able to address up to 62 modules and 3 or 4 modules on the signal tower.

When using internal power supply from the bus system maximum 200 mA are available for the signal tower elements.

Features

- LED-status indicator – check routine
- modules for 31 or 62 addresses
- available with standard or A/B technique
- internal (via bus system) or external power supply selectable
- easy integration of signal tower as actor into the actor-sensor-interface system BAZ-module is mounted as first module directly onto the signal tower base
- significantly reduced wiring work

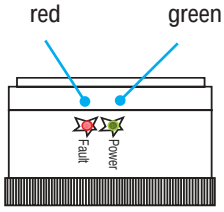
Selection of module powering



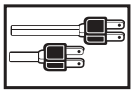
Order Data

Type	Description	Order-Nr.
BAZ	AS-Interface module for 31 slaves	280 500 510
	AS-Interf. module for 62 slaves - up to 3 signal tower modules	280 500 000
	AS-Interf. module for 62 slaves - up to 4 signal tower modules	280 500 100

Status indication



green	red	Status
●	○	Normal operation
●	●	No data exchange
✶	●	No data exchange, Slave-adress = 0
✶	✶	Peripheral fault, overcurrent or low voltage on the output



Technical data

Type	BAZ		
order number	280 500 510	280 500 000	280 500 100
number of slaves	31	62	62
number of modules	4	3	4
IO-Code	8	7	7
ID-Code	F	A	A
ID2-Code		E	7
Datenbits	D0...Modul 0		
	D1...Modul 1		
	D2...Modul 2		
	D3...Modul 3		
current from A S-Interface line	max. 250 mA		
temperature range	-20° bis +50° C		
protection class	IP 65		
AS-Interface voltage range	26,5 - 31,6 V		
module power from the AS-Interface line	max. 200 mA		
external power supply	PELV, 24 V DC +/- 10%, max. 300 mA per Modul		
housing material	polycarbonate, black		

ACCESSORIES POLE CONNECTION BOXES

For additional installation possibilities of pole mount assemblies BMR:

- Surface cable conduits in protection class IP 65 – horizontally or vertically
- Model with magnetic base for mobile mounting, signalling device in protection class IP 65 on metal surfaces

Code for thread		T	
1	M 20	5	PG 16
2	NPT 1/2“		

BDW BDM BDV

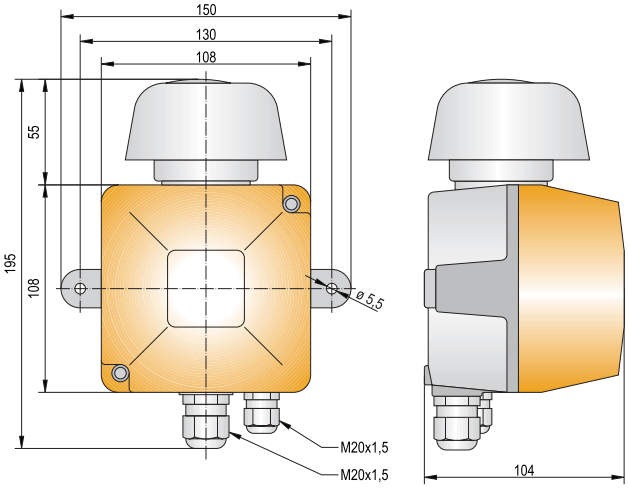


Type	Pole connection box	order-Nr.			Peso (g)
		Housing grey	Housing black	Gehäuse silber	
BDW	for horizontal mounting	841 10T 900	841 50T 900	841 80T 900	90
BDV	for vertical mounting	841 11T 900	841 51T 900	841 81T 900	110
BDM	für Montage mit Magnetfuß	841 12T 900	841 52T 900	841 82T 900	330

Strobe Beacon-Signalling Sounder VS4

auer SIGNALGERÄTE

Tone setting			
Tone Type	DIP-Switch	Tone Frequency	Autorepeat
Two tone		1400-1500 Hz	0,3 sec
Two tone		1500-2200 Hz	0,3 sec
Two tone		1400-1500 Hz	0,5 sec
Three tone		1400-2200-2900 Hz	0,2 sec



Features

- visual audible signalling sounder for weatherproof applications – IP 66
- for universal use in industries, buildings etc.
- powerful strobe beacon
- 2 sound types and 4 settings selectable (DIP switch)

Order data

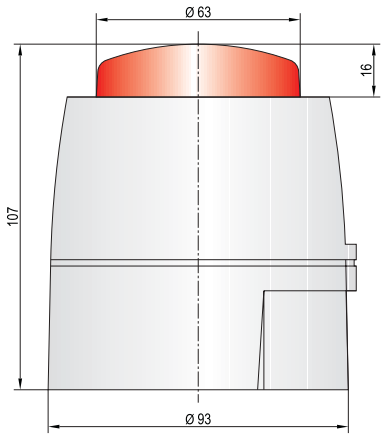
Type	Nominal voltage (V)	Order No.	Weight (g)
VS4	230 V AC	410 40C 005	900

Colour code for lens			C
1	amber	5	blue
2	red	6	green
4	clear		

Technical data

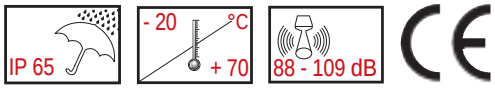
Type	VS4
Housing, Colour	aluminium die cast, black
Lens, Colour	polycarbonate, amber, red, clear, blue, green
Cable entry	2 x M20 x 1,5
Cable diameter	5-9 mm
Mounting	vertical
Duty cycle factor	< 30 Min.
Protection class	IP 66
Insulation	I
Temperature range (Einsatz)	-20 °C to +60 °C
Light source	xenon tube
Strobe energy	~ 3 J
Strobe frequency	~ 3 Hz
Sound pressure	100 dB
Tone types	two/three tone

LED Flashing Beacon-Electronic Multitone Siren CS1



Features

- cost effective LED flashing beacon – electronic multitone siren
- 2-32 tones
- tone type and volume selectable via DIP switch
- low nominal current (14 – 41 mA)
- quick fit installation by bayonet fixing
- lateral cable entry possibile



Technical data

Type	CS1
Housing colour	red, white
Lens colour	amber, red, clear, blue
Duty cycle factor	100 %
Temperature range	-20°C to +70 °C
Light source	LED
Flashing frequency	1 Hz
Lifetime (light source)	~ 50.000 h
Sound pressure	91 - 111 dB
Tone frequency	440 - 2900 Hz

Order data

Type	Nominal voltage (V)	Order No.		Nominal current (mA)	Voltage range (V)	Weight (g)
		Housing red	Housing white			
CS1	24 V DC	C111 62C 005	C111 22C 005	14 - 41	18-35	258

Colour code for lens C

1	amber	5	blue
2	red		
4	clear		

Sound table CS1				
No.	Tone	Description	DIP-Switch	Second St. Alarm (Hz)
1	LF Sweep (Cranford sweep)	800 - 1.000 Hz @ 0.5 Sek.	11111	800 continuous
2	Alternative warble BS standard	800/960 Hz @ 2 Hz	11110	800 continuous
3	Warble Tone BS standard	800/1.000 Hz @ 0.5 Sek.	11101	800 continuous
4	Alternative warble BS standard	500/600 Hz @ 2 Hz	11100	500 continuous
5	HF Back up interrupted tone	2.800 Hz @ 1.0 sec on/off	11011	2800 continuous
6	LF Back up Alarm	800 Hz @ 150 msec on/off	11010	800 continuous
7	HF Back up interrupted tone - fast	2.800 Hz @ 150 msec on/off	11001	800 continuous
8	LF Continuous tone BS5839	800 Hz continuous	11000	Same tone
9	Sweep tone (1Hz)	800/900 Hz @ 1 Hz	10111	800 continuous
10	Australian slow whoop	Intermittent 970 Hz 0.625 ms on/0.625 ms of	10110	500-1.200 3.75 sec on 0.25 sec off
11	Dutch sweep tone	970 Hz continuous	10101	500-1.200 3.5 sec on 0.5 sec off
12	Analogue sweep tone	500/600 Hz @ 2 Hz	10100	500 continuous
13	Sweep tone (3Hz)	800/970 Hz @ 3 Hz	10011	800 continuous
14	Alternate HF slow sweep	2.350/2.900 Hz @ 3 Hz	10010	2.400 continuous
15	Fast HF sweep	2.400-2.800 Hz @ 7 Hz	10001	2.400 continuous
16	US Temporal Pattern LF	950 Hz for 0.5 sec on 0.5 sec offx3 then 1.5 sec then repeat	10000	800 continuous
17	Interrupted tone BS standard	Interrupted tone 800 Hz @ 0.5 sec on/off	01111	800 continuous
18	ISO 8201 LF BS5839 Pt 1 1988	Intermittent 970 Hz 500 ms on/500 ms off	01110	Same tone
19	Interrupted tone medium	1.000 Hz @ 0.25 sec on/off	01101	800 continuous
20	ISO8201 HF	Intermittent 970 Hz 500 ms on /500 ms off	01100	Same tone
21	Continuous tone	1.000 Hz continuous	01011	Same tone
22	LF Buzz	800-950 Hz swept @ 110 Hz	01010	800 continuous
23	HF Continuous	2.800 Hz	01001	2.800 continuous
24	Sweep tone (9Hz)	800-970 Hz @ 9 Hz	01000	800 continuous
25	German DIN tone	Sweep 1200-500 Hz @ 1 Hz	00111	800 continuous
26	Swedish Fire signal	Intermittent 660 Hz 150 ms on / 150 ms off	00110	Same tone
27	French tone AFNOR	554 Hz for 100 ms and 440 Hz for 400 ms	00101	800 continuous
28	Swedish all clear signal	Continuous 660 Hz	00100	Same tone
29	US Temperal Pattern HF	2900 Hz for 0.5 sec on 0.5 offx3 off for 1.5 sec then repeat	00011	2.900 continuous
30	Siren 2 way ramp (short)	500/1.200 Hz rising, then falling 0.25 Sec.	00010	800 continuous
31	FP 1063.1 - Telecom	alternating tone 800/970 Hz @ 2 Hz	00001	800 continuous
32	Siren 2 way ramp (long)	500/1.200 Hz 3 Sec. rising / 3 Sec. falling	00000	800 continuous

M22 Panel Mount Buzzer-LED Steady-/ Flashing Beacon ELG-EDG ELM-EDM

ELG– EDG ELM – EDM

in built-in condition

Features

- universally useable panel mount buzzer with LED control light
- sizes Ø 65 mm – Ø 45 mm
- models:

ELG-ELM panel mount buzzer – LED control light
sound and light synchronized
continuous tone – steady light
pulsing tone – flashing light in pulse frequency
wobble tone – flashing light in pulse frequency

EDG-EDM panel mount buzzer – LED control light
continuous tone and steady light separately switchable

- well distinguishable tone types via terminal selectable (ELG)
- volume also in mounted condition infinitely adjustable
- LED control light – high brightness, maintenance free
- PLC fit (leakage/inrush current)
- for mounting in Ø 22 mm and 30,5 mm bore holes (with adapter)

TONE AND LIGHT SELECTION ON TERMINAL

Panel mount buzzer-LED control light ELG-ELM

Tone and light synchronIzed

La	N	Lb	
X	X		pulsing tone / LED-flashing light
	X	X	wobble tone / LED-strobe light (ELG)
X	X	X	continuous tone / steady light

Panel mount buzzer-LED control light EDG-EDM

Tone and light separately switchable

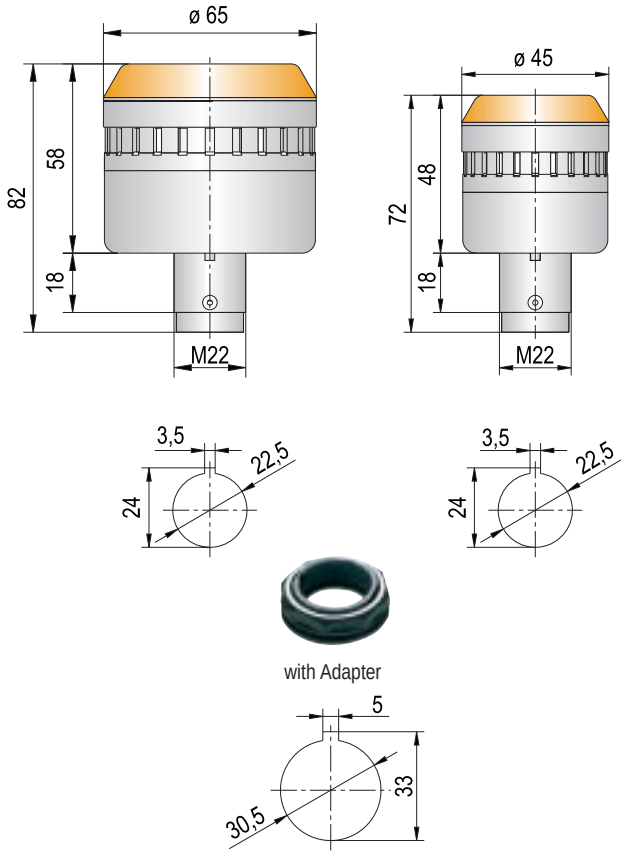
La	N	Lb	
X	X		continuous tone
	X	X	steady light

volume individually adjustable also in built-in condition

IP 65 | - 25 °C + 60 | 85-103 dB ELG-EDG | 85-98 dB ELM-EDM | c UL us | CE

Technical data

Type	ELG	ELM	EDG	EDM
Size Ø mm	65	45	65	45
Housing, Colour	polycarbonate, grey or black			
Lens, colour	polycarbonate, amber, red, clear, blue, green, yellow			
Mounting	M22 - for bore holes 22 mm or 30,5 mm (with adapter)			
Tone type	cont./pulsing/wobble tone	continuous/pulsing tone	continuous tone	
Tone frequency	2.800 Hz	3.500 Hz	2.800 Hz	3.500 Hz
Volume (adjustable)	< 85 - 103 dB	< 85 - 98 dB	< 85 - 103 dB	< 85 - 98 dB
Light type/light source	LED-steady-/flashing light		LED-steady light	
Flashing frequency	2 Hz			
Lifetime (Light source)	~ 100.000 h			
Duty cycle factor	100 %			
Protection class	IP 65, UL type 4, 4X, 13			
Terminals	up to 2,5 mm²			
Temperature range	-25 °C to +60 °C			
Weight (g)	105	65	105	65



Order data

Type	Nominal voltage (V)	Order No. Housing grey	Order No. Housing black	Nominal curr. (mA)
sound type selection via terminal connection				
Panel mount buzzer-LED control light ELG-ELM Tone and light synchronized				
ELG	12 V AC/DC	814 11C 404	814 51C 404	73
	24 V AC/DC	814 11C 405	814 51C 405	47
	110/120 V AC	814 11C 310	814 51C 310	60
	230/240 V AC	814 11C 313	814 51C 313	63
ELM	12 V AC/DC	813 11C 404	813 51C 404	35
	24 V AC/DC	813 11C 405	813 51C 405	58
	110/120 V AC	813 11C 310	813 51C 310	42
	230/240 V AC	813 11C 313	813 51C 313	40
Panel mount buzzer-LED control light EDG-EDM Tone and light separately switchable				
EDG	12 V AC/DC	814 12C 404	814 52C 404	62
	24 V AC/DC	814 12C 405	814 52C 405	95
	110/120 V AC	814 12C 310	814 52C 310	52
	230/240 V AC	814 12C 313	814 52C 313	52
EDM	12 V AC/DC	813 12C 404	813 52C 404	48
	24 V AC/DC	813 12C 405	813 52C 405	73
	110/120 V AC	813 12C 310	813 52C 310	51
	230/240 V AC	813 12C 313	813 52C 313	51
Adapter M30,5		812 500 900		

Voltage range: nominal voltage +/- 10%

Colour code for lens				C
1	amber	5	blue	
2	red	6	green	
4	clear	7	yellow	

KLH - KDH
Page 92-93

HMK
Page 92-93

Surface mount buzzer BU1
Page 111

HPT-HTG
Page 94-95

90 dB

108 dB

95 dB

108 dB

UWS-FWS
Page 96-97

M22 Panel mount buzzer
Page 106-107

105 dB

65-105 dB

ES1-ES2
Page 98-99

111 dB

SE1-SE3
Page 105

EHS-EHF-EHL
Page 100-101

HTV
Page 102-103

113 dB

110-118 dB

AS4
Page 1

90 dB

Overview Audible Signalling Equipment

	Type	Sound pressure dB	Page
Mini Horn	KLH	90	92-93
	KDH		92-93
	HMK	95	92-93
Signal Horn	HPT	108	94-95
	HTG		94-95
Bell	UWS	105	96-97
	FWS		96-97
Electronic Multitone Siren	ES1	111	98-99
	ES2		98-99
Electronic Sounder	EHS, EHF	118	100-101
	EHL	110	100-101
	HTV	113	102-103
Audible Signalling Sounder	AS4	90	104
Motor Siren	SE1	112	105
	SE2	110	105
	SE3		105
M22 Panel Mount Buzzer	ESG	85-105	106-107
	ESM	85-100	106-107
	ESK	65-70	106-107
	ESV	80-85	106-107
M28 Panel Mount Buzzer	ESD, ESP	90	108-109
	ESZ		108-109
	BU2		110
	BU3		110
Surface Mount Buzzer-Electronic Siren	BU1	108	111

M28 Panel mount buzzer BU2, BU3
Page 108-109

04

Audible signalling equipment signals by one or several tones for drawing attention to certain conditions, dangers, emergencies etc. and for guaranteeing safety of employees in industrial plants or in general buildings etc.

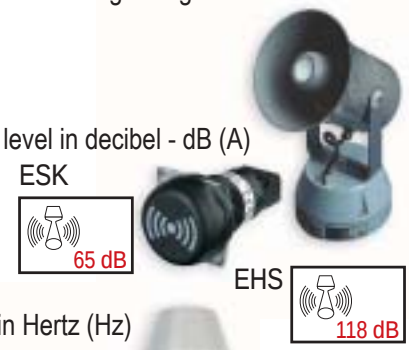
International safety standards regulate installation of appropriate audible signalling products in industrial applications. These standards define among others that the sound pressure level of the audible signalling device has to be min. 15 dB higher than the surrounding sound level. The sound pressure level must be same or higher than 65 dB.

The frequency at which the signal is loudest should as far as possible deviate from the frequency of the surrounding noise, the tone frequency should be in the range of 300 – 3000 Hz.

Audible signals featuring pulsing and alternating tones are in general more effective than signals with linear tones.

The efficiency of an audible signalling device is influenced by following factory:

- sound pressure level in decibel - dB (A)



- tone frequency in Hertz (Hz)

- distance between signalling product and receiver of signal
- influence of other sources of interference resp. surrounding noises

The sound pressure level of signalling products in the catalogue was measured in an echo-free sound room at a distance of 1 m.

The sound pressure of an audible signal is relative (logarithmic) – an increase of 3 dB means a doubling of the sound energy, an increase of 10 dB is recognized by the human ear as double sound pressure.

The sound pressure decreases by 6 dB when doubling the distance; the following distance table is to be seen as Indication, as also factors like tone type, wind speed, wind direction, humidity, weather conditions etc. do influence the sound pressure level.

Distance (m)	Sound pressure dB (A)																				
1	65	70	75	80	85	90	92	94	96	98	100	102	104	106	108	110	112	114	116	118	120
2	59	64	69	74	79	84	86	88	90	92	94	96	98	100	102	104	106	108	110	112	114
3	55	60	65	70	75	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
5	51	56	61	66	71	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106
10	45	50	55	60	65	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100
20	39	44	49	54	59	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94
30	35	40	45	50	55	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90
50		36	41	46	51	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86
100				40	45	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
200					39	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74
500							38	40	42	44	46	48	50	52	54	56	58	60	62	64	66
The sound pressure decreases by 6 dB when doubling the distance																					

TYPES OF AUDIBLE SIGNALLING DEVICES

Electromechanical horns and bells

Function: by magnetic force (coil) a tappet is moved and hits with a frequency of 100 – 150 Hz on a metal membrane. This results in the typical low frequency and well audible horn tone. In a bell the tappet hits a bell dome which produces the typical bell tone.

Motor sirens

The motor siren produces a classic unmistakable siren tone. Due to the high current consumption it can however not be used for continuous operation.
The sound is constantly emitted (symmetrically) which is in comparison with loudspeaker products an advantage for certain applications.

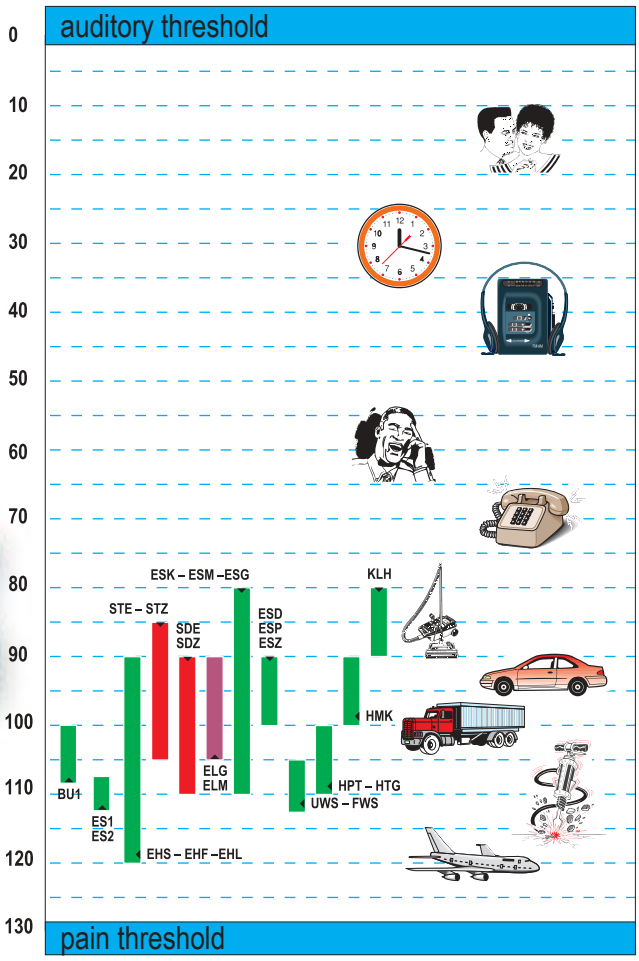
Piezo buzzer

Piezo crystals have the property to change their form when switching voltage. Mounted ob a brass plate this is used to producevibrations on the plate and by doing so produce sound.
With respective constructive measures (resonance principle) one can achieve very high sound pressure levels (approx. 107 dB buzzer module modulSIGNAL70 signal tower).
The nominal current remains low. Frequencies from 2000 – 4000 Hz are achievable.

Electronic sounders

The acustic signal is produced by a microprocessor, electronically amplified and emitted via a loudspeaker. Electronic sounders can produce different type of tones and frequencies.
The sound pattern is (depending on the quality of the loudspeaker) very good, as different tone types are available several well distinguishable signalling tones or also customized special solutions can be made available.

As loudspeaker sound capsules and/or classic loudspeakers are used in smaller devices, for more powerful devices pressure chamber loudspeakers are used.



Mini Horns KLH-KDH, HMK

auer SIGNALGERÄTE

KLH-KDH

HMK

push button for easy opening/locking of horn

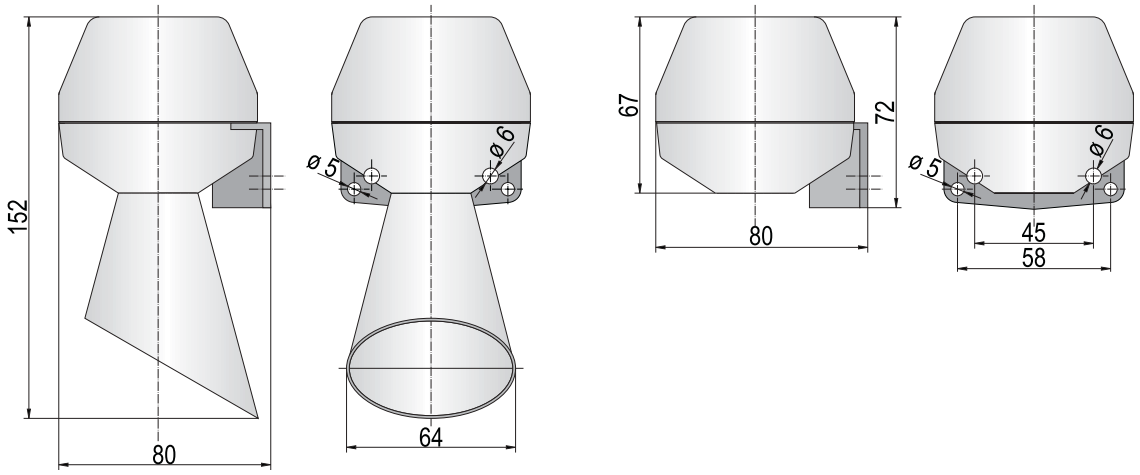
Features

- electro-mechanical horns in smaller design
- for universal audible applications
- models with (KLH) or without cone (KDH, HMK)
- attractive price-performance ratio
- wide offering of standard and special voltages
- special lift-alarm models widths reduced nominal current
- 2 mounting widths

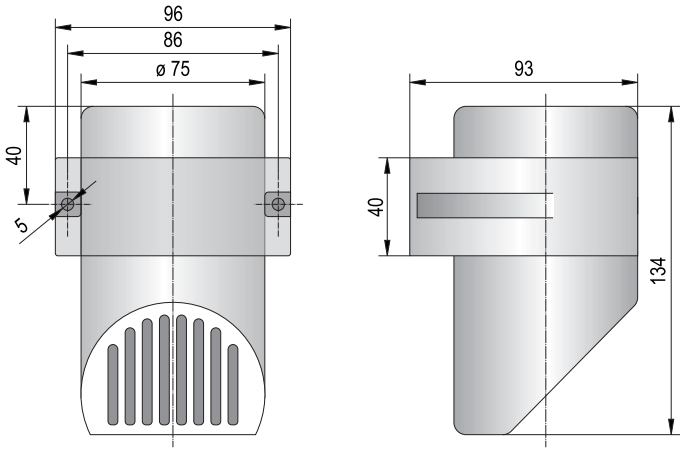
Technical data

Type	KLH	KDH	HMK
Housing, Colour	ABS, grey		
Terminal	up to 2,5 mm²		
Cable entry	6,5 - 15 mm		
Cable conduit	surface or buried		
Mounting	sound outlet downwards		
Duty cycle factor	100 %		
Protection class	IP 43 NEMA type 2		
Radio noise suppression	acc. to CENELEC EN 55014		
Termperature range	-20 °C to +50 °C		
Sound pressure	88 - 92 dB		95 dB
Weight	180 g	150 g	240 g

KLH-KDH



HMK



Order data

Nominal voltage (V)	Hz	Order No.				
		KLH (with cone)	KDH (without cone)	Nominal current (A)	HMK (without cone)	Nominal current (A)
8 V AC	50	710 100 103	710 000 103	0,350	711 000 103	1,230
12 V AC		710 100 104	710 000 104	0,180	711 000 104	0,600
24 V AC		710 100 105	710 000 105	0,080	711 000 105	0,300
42 V AC		710 100 107	710 000 107	0,060	711 000 107	0,180
48 V AC		710 100 108	710 000 108	0,050	711 000 108	0,150
60 V AC		710 100 109	710 000 109	0,040	711 000 109	0,120
110 V AC		710 100 110	710 000 110	0,020	711 000 110	0,070
230 V AC		710 100 113	710 000 113	0,010	711 000 113	0,030
6 V DC		710 100 003	710 000 003	0,280	711 000 003	0,410
12 V DC		710 100 004	710 000 004	0,120	711 000 004	0,200
24 V DC		710 100 005	710 000 005	0,060	711 000 005	0,110
48 V DC		710 100 008	710 000 008	0,030	711 000 008	0,055
60 V DC		710 100 009	710 000 009	0,020	711 000 009	0,044
110 V DC		710 100 010	710 000 010	0,010	711 000 010	0,240
220 V DC		710 100 013	710 000 013	0,007	711 000 013	0,012
			KDH-L (lift alarm)			
6 V DC			710 030 003	0,065		

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HPT

HTG

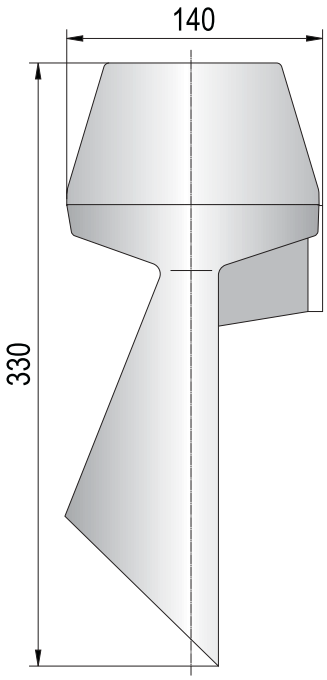
models with telephone call current relay
HPT-R, HTG-R

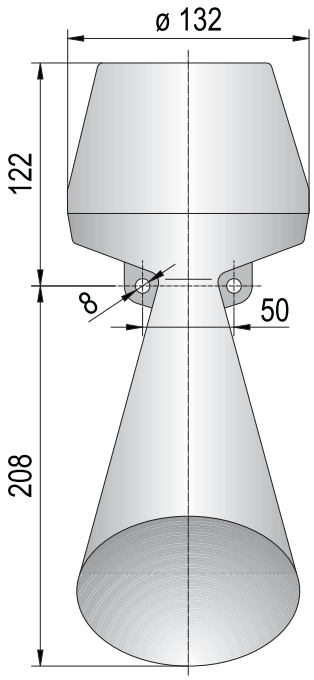
Features

- loud, well designed and robust electro-mechanical signal horns
- housing options:
  impact resistant synthetic housing (HPT)
  aluminium die-cast housing (HTG)
- screw holes steel fortified (HPT)
- special models with telephone call current relay (HPT-R, HTG-R)
- large offering of standard and special voltages
- HTG-L: special model with RILSAN-coating against galvanic corrosion (version for vessels, seawater resistant etc.); models for tropical use upon request

Technical data

Type	HPT	HTG
Housing, Colour	ABS, grey	aluminium-die cast epoxy-powder coated RAL 7000/7015
Terminal	up to 2,5 mm²	
Cable entry	7 - 10 mm	4,5 - 12 mm
Cable conduit	surface or buried	
Mounting	sound outlet downwards	
Duty cycle factor	100 %	
Protection class	IP 55	IP 65
Radio noise suppression	acc. to CENELEC EN 55014	
Temperature range	-20 °C to +50 °C	
Sound pressure	~ 108 dB	
Weight	800 g	1600 g





Order data

Nominal voltage (V)	Hz	Order No.		
		HPT	HTG	Nom. current (A)
6 V AC	50	712 100 103	713 100 103	4,50
12 V AC		712 100 104	713 100 104	2,00
24 V AC		712 100 105	713 100 105	1,20
42 V AC		712 100 107	713 100 107	0,60
48 V AC		712 100 108	713 100 108	0,50
60 V AC		712 100 109	713 100 109	0,40
110 V AC		712 100 110	713 100 110	0,20
230 V AC		712 100 113	713 100 113	0,10
120 V AC	60	712 100 211	713 100 211	0,20
240 V AC		712 100 213	713 100 214	0,11
12 V DC		712 100 004	713 100 004	1,00
24 V DC		712 100 005	713 100 005	0,60
48 V DC		712 100 008	713 100 008	0,50
60 V DC		712 100 009	713 100 009	0,25
110 V DC		712 100 010	713 100 010	0,20
220 V DC		712 100 013	713 100 013	0,1
Models with telephone call current relay				
Nominal voltage (V)	Hz	HPT-R	HTG-R	Nom. current (A)
230 V AC	50	712 102 113	713 102 113	0,10
240 V AC	60	712 102 213		0,11
220 V DC			713 102 013	0,08

Models with RILSAN-coating:
membrane galvanized and epoxy powder coated, screws A4 with isolation and rubber washers for mounting avoiding galvanic corrosion, additional membrane sealing

Nominal voltage (V)	Hz	Order No.	
		HTG-L	Nom. current (A)
110 V AC	50	713 150 110	0,20
120 V AC		713 150 111	0,20
230 V AC		713 150 113	0,10
120 V AC	60	713 150 211	0,20
240 V AC		713 150 214	0,11
24 V DC		713 150 005	0,60

Bells UWS-FWS

UWS

FWS

typical application:
for pause, fire alarm or other signalling in schools, plants, buildings etc.

models with telephone call current relay
UWS-R, FWS-R

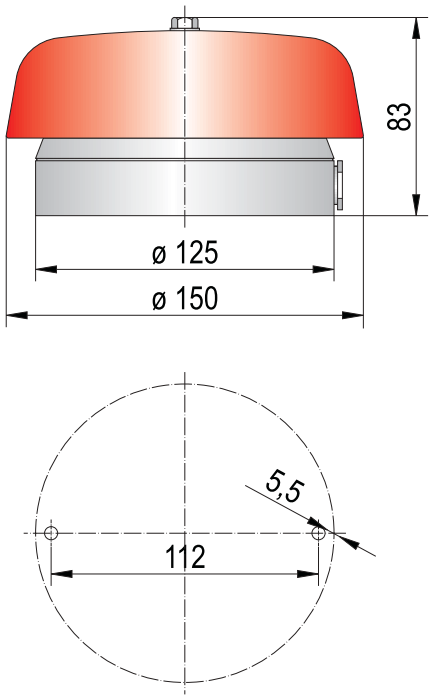
Features:

- loud bells for universal or fire alarm with typical bell tone
- very robust, high quality design
- steel bell dome, epoxy powder coated
- housing aluminium die cast, epoxy powder coated
- special models with telephone call current relay (UWS-R, FWS-R)
- wide offering of standard and special voltages

IP 54 | 105 dB | - 20 °C + 50 | CE

Technical data

Type	UWS	FWS
Housing	aluminium die cast epoxy powder coated	
Bell dome	steel, epoxy powder coated	
Colour	RAL 7000/7015	RAL 3000
Terminal	bis 1,5 mm²	
Cable entry	5 - 12 mm	
Cable conduit	surface or buried	
Mounting	vertical	
Duty cycle factor	100 %	
Protection class	IP 54	
Radio noise suppression	acc. to CENELEC EN 55014	
Temperature range	-20 °C to +50 °C	
Sound pressure	~ 105 dB	
Weight	1.500 g	



Order data

Nominal voltage (V)	Hz	Order No.		Nominal current (A)
		UWS	FWS	
12 V AC	50-60	720 000 304	720 200 304	0,80
24 V AC		720 000 305	720 200 305	0,40
42 V AC		720 000 307	720 200 307	0,22
48 V AC		720 000 308	720 200 308	0,20
60 V AC		720 000 309	720 200 309	0,15
110 V AC		720 000 310	720 200 310	0,10
230 V AC		720 000 313	720 200 313	0,05
12 V DC		720 000 004	720 200 004	0,80
24 V DC		720 000 005	720 200 005	0,40
48 V DC		720 000 008	720 200 008	0,20
60 V DC		720 000 009	720 200 009	0,20
110 V DC		720 000 010	720 200 010	0,10
220 V DC		720 000 013	720 200 013	0,05
Models with telephone call current relay				
		UWS-R	FWS-R	
230 V AC		720 010 313	720 220 313	0,05

Electronic Multitone Siren ES1-ES2

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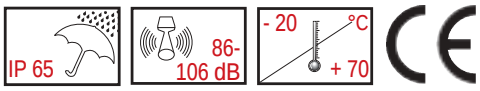
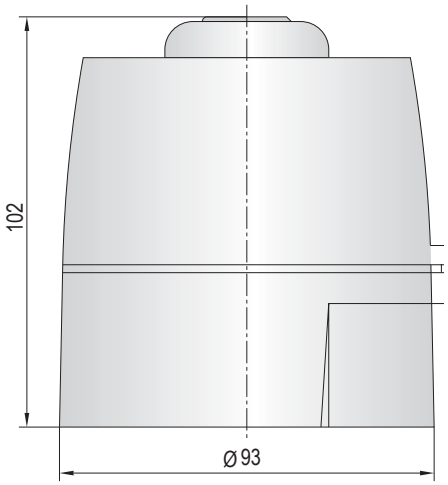
ES1

Features

- cost effective electronic siren with 32 tones
- wide range of internationally used signal tones for diverse applications
- second stage tone, see tone table
- tone type and volume selectable by DIP switch
- low nominal current (9 - 36 mA)
- easy mounting due to bayonet system
- lateral cable entry possible

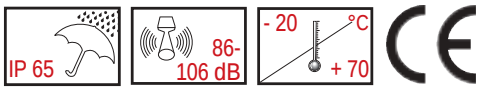


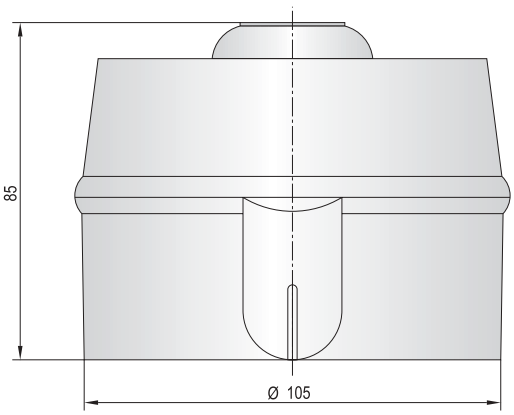


ES2

Features

- cost effective electronic siren with 32 tones
- large selection of internationally used signal tones for diverse applications
- second stage alarm, see tone table
- tone types and volume adjustable by DIP switch
- low nominal current (12 mA)
- easy mounting due to bayonet system
- lateral cable entry possible





Technical data

Type	ES1	ES2
Housing colour	red, white	
Number of tones	32	
Nominal voltage	24 V DC	110 - 230 V AC
Voltage range	18-35 V	

Type	ES1	ES2
Nominal current	≤ 9 - 36 mA	12 mA
Temperature range	-20 °C to +70 °C	
Sound pressure	86-106 dB	86-106 dB
Tone frequency	440 - 2.900 Hz	440 - 2.850 Hz
Weight	250 g	295 g

Order data

Type	Nominal voltage (V)	Order No.		Nominal current (mA)	Voltage range (V)	Weight (g)
		red	white			
ES1	24 V DC	C110 620 005	C110 220 005	≤ 9 - 36	18-35	250
ES2	110 - 230 V AC	C115 620 113	C115 220 113	12	110-230 V +/- 10%	295

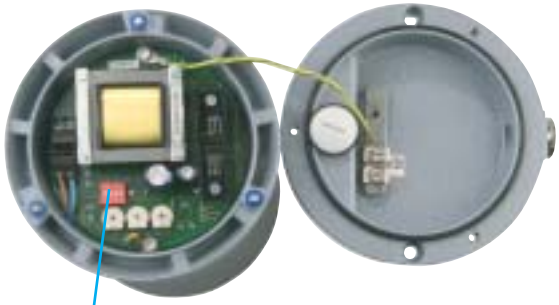
Tone table ES1

No.	Sound	Description	DIP-Switch	2nd stage alarm (Hz)
1	LF Sweep	800 - 1.000 Hz @ 0.5 sec	11111	800 cont
2	Alternative warble BS standard	800/960 Hz @ 2 Hz	11110	800 cont
3	Warble Tone BS standard	800/1.000 Hz @ 0.5 sec	11101	800 cont
4	Alternative warble BS standard	500/600 Hz @ 2 Hz	11100	500 cont
5	HF Back up interrupted tone	2.800 Hz @ 1.0 sec on/off	11011	2.800 cont
6	LF Back up Alarm	800 Hz @ 150 msec on/off	11010	800 cont
7	HF Back up interrupted tone - fast	2.800 Hz @ 150 msec on/off	11001	800 cont
8	LF Continuous tone BS5839	800 Hz cont	11000	Same tone
9	Sweep tone (1 Hz)	800/900 Hz @ 1 Hz	10111	800 cont
10	Australian slow whoop	Interrupted tone 970 Hz 0.625 ms on/0.625 ms off	10110	500-1.200 3.75 Sek. ein 0.25 Sek. Aus
11	Dutch sweep tone	970Hz Dauerton	10101	500-1.200 3.5 Sek. ein 0.5 Sek. Aus
12	Analogue sweep tone	500/600 Hz @ 2 Hz	10100	500 cont
13	Sweep tone (3Hz)	800/970 Hz @ 3 Hz	10011	800 cont
14	Alternate HF slow sweep	2.350/2.900 Hz @ 3 Hz	10010	2.400 cont
15	Fast HF sweep	2.400-2.800 Hz @ 7 Hz	10001	2.400 cont
16	US Temporal Pattern LF	950 Hz for 0.5 sec on 0.5 sec offx3 then 1.5 sec then repeat	10000	800 cont
17	Interrupted tone BS standard	Interrupted tone 800 Hz @ 0.5 sec on/off	01111	800 cont
18	ISO 8201 LF BS5839 Pt 1 1988	Intermittent 970 Hz 500 ms on /500ms off	01110	Same tone
19	Interrupted tone medium	1000 Hz @ 0.25 sec on/off	01101	800 cont
20	ISO8201 HF	970 Hz 500 ms on /500 ms off	01100	Same tone
21	Continuous tone	1000 Hz continuous	01011	Same tone
22	LF Buzz	800-950 Hz swept @ 110 Hz	01010	800 cont
23	HF Continuous	2.800 Hz	01001	2.800 cont
24	Sweep tone (9 Hz)	800-970 Hz @ 9 Hz	01000	800 cont
25	German DIN tone	Sweep 1200-500 Hz @ 1Hz	00111	800 cont
26	Swedish Fire signal	Intermittent 660 Hz 150 ms on / 150 ms	00110	Same tone
27	French tone AFNOR	554 Hz for 100 ms and 440 Hz for 400 ms	00101	800 cont
28	Swedish all clear signal	Continuous 660 Hz	00100	Same tone
29	US Temperal Pattern HF	2900Hz for 0.5 sec on 0.5 offx3, off for 1.5 sec then repeat	00011	2.900 cont
30	Siren 2 way ramp (short)	500/1200 Hz rising then falling 0.25 sec	00010	800 cont
31	FP 1063.1 - Telecom	Alternating tone 800/970 Hz @ 2 Hz	00001	800 cont
32	Siren 2 way ramp (long)	500/1200 Hz 3 sec rising / 3 sec falling	00000	800 cont

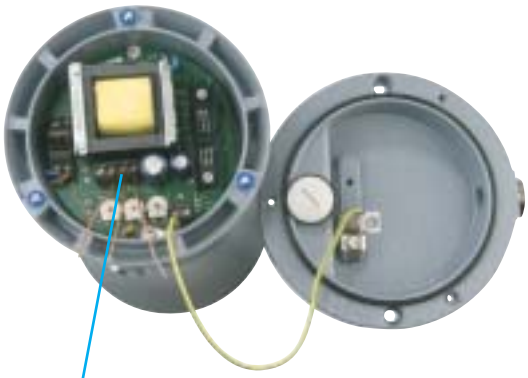
Tone table ES2

No.	Tone	DIP-Switch	2nd stage alarm (Hz)
1	Warble tone 800/1000 Hz @ 0.5 sec..	11111	800
2	Warble tone 800/1000 Hz @ 0.25 sec.	01111	1.000
3	Interrupted tone 800 Hz @ 0.5 Sec on/off	10111	800
4	Interrupted tone 1000 Hz @ 0.25 sec. on/off	00111	1.000
5	Slow whoop, 500-1200 Hz in 3 sec.; 0.5 sec. off	11011	500
6	Slow whoop, 1200-500 Hz in 3 sec.; 0.5 sec. off	01011	1.200
7	Australian Slow Whoop 500-1200 Hz in 3.5 sec.; 0.25 sec.off	10011	500
8	L.F. sweep frequency 800-1000 Hz in 0.5 sec.	00011	800
9	L.F. sweep frequency 800-1000 Hz in 0.25 sec	11101	800
10	L.F. sweep frequency 800-1000 Hz in 1 sec.	01101	800
11	Sweep frequency 1200-500 Hz in 1sec.	10101	1.200
12	Warble tone 554/440 Hz @ 0.5 sec.	00101	554
13	Warble tone 554 Hz für 0.1 sec./ 440Hz für 0.4 sec.	11001	554
14	Interrupted tone 660 Hz for 150 msec. on/off	01001	660
15	Interrupted tone 660 Hz for 1.8 sec. on/off	10001	660
16	Interrupted tone 660 Hz for 570 msec. on/off	00001	660
17	Group of 3 interruped tone 1000 Hz @ 0.5 sec. on/off; 1.5 sec. off	11110	1.000
18	Group of 3 Warble tone 1000/800 Hz @ 0.5 Sek; 1.5 sec. off	01110	1.000
19	Grou of 3 Sweep 500-1200 Hz in 0.5 sec.; 1.5 sec. off	10110	500
20	Group of 3 Sweep 1200-500 Hz in 0.5 sec.; 1.5 sec. off	00110	1.200
21	Linear frequency sweep 2000-2500 Hz in 0.5 sec..	11010	2.000
22	Linear frequency sweep 2000-2500 Hz in 0.25 sec.	01010	2.000
23	H.F. interrupted tone 2000/2500 Hz @ 0.5 sec.	10010	2.000
24	H.F. interrupted tone 2000/2500 Hz @ 0.25 sec.	00010	2.000
25	H.F. interrupted tone 2850 Hz @ 150 msec. on/off	11100	2.000
26	H.F. interrupted tone 800 Hz @ 0.5 sec.on/off	01100	2.850
27	Very Fast H.F. Sweep 2400-2800 Hz in 20 msec. (50 Hz)	10100	2.400
28	Fast H.F. Sweep 2400-2800 Hz in 0.143 Sec (7 Hz)	00100	2.400
29	H.F. Sweep 2400-2800 Hz in 0.5 sec. (2 Hz)	11000	2.400
30	2 way ramp, 500-1200, rising then falling in 0.25 sec.	01000	500
31	Siren 2 way Ramp rising 3 sec., falling 3 sec., 500-1200 Hz	10000	500
32	Ding Dong 2700 Hz- 0 Hz, then 570 Hz- 0 Hz; off for 4 sec.	00000	700

Electronic Sounder EHS-EHF-EHL



Type D
tone selection by DIP switch,
1 of 15 tone types selectable



Type K
tone selection via terminal,
all 15 tone types externally addressable

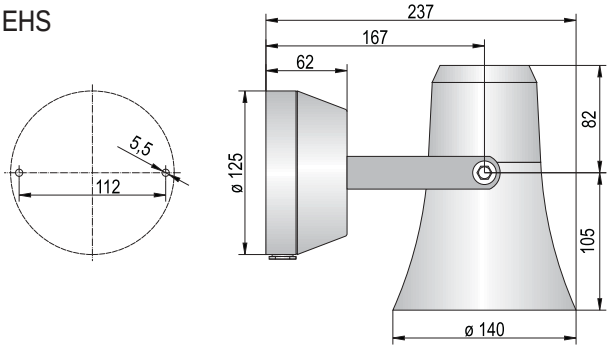
Features

- loud electronic sounders – up to 118 dB
- robust, high-quality design
- housing made of aluminium die cast, epoxy powder coated
- 15 different tone types, additionally lower/upper frequency and speed individually adjustable by potentiometer – for versatile applications
- tone types selection by
  DIP switch (Type D) – 1 of 15 tones type pre-selectable
  Terminal (Type K) – all 15 tone types externally addressable
- models
  EHS – swiveling loudspeaker
  EHF – fixed loudspeaker
  EHL – short loudspeaker
- special models with particular sound tables, volume control, seawater resistant housings, models for low temperature applications etc. upon inquiry

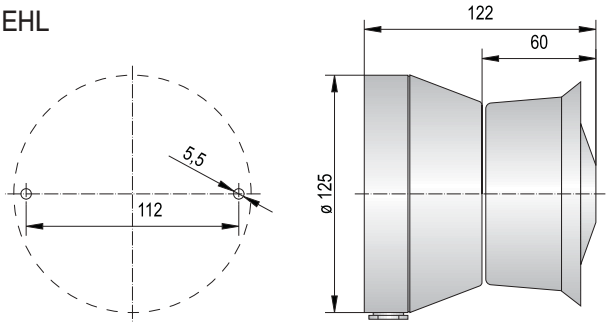
Technical data

Type	EHS	EHF	EHL
Housing, Colour	aluminium die cast epoxy-powder coated, RAL 7000		
Mounting	sound outlet horizontal or down		
Tone frequency	0 - 1.500 Hz		
Duty cycle factor	100 %		
Terminal	up to 2,5 mm² single wire		
Cable entry	5 - 12 mm		
Cable conduit	surface or buried		
Temperature range	-30 °C up to +60 °C		
Sound pressure	up to 118 dB		up to 110 dB
Tone types	see sound table		
Tone type selection	Type D: DIP switch Type K: externally by terminal selection		
Speed	adjustable by potentiometer		
Weight	2 kg		1,5 kg

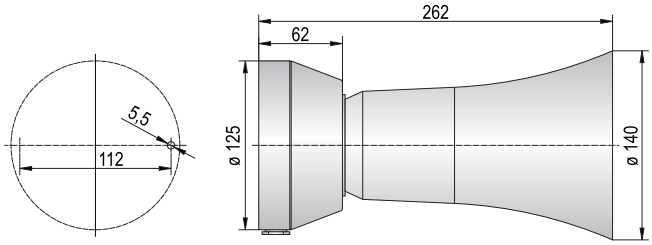
EHS



EHL



EHF

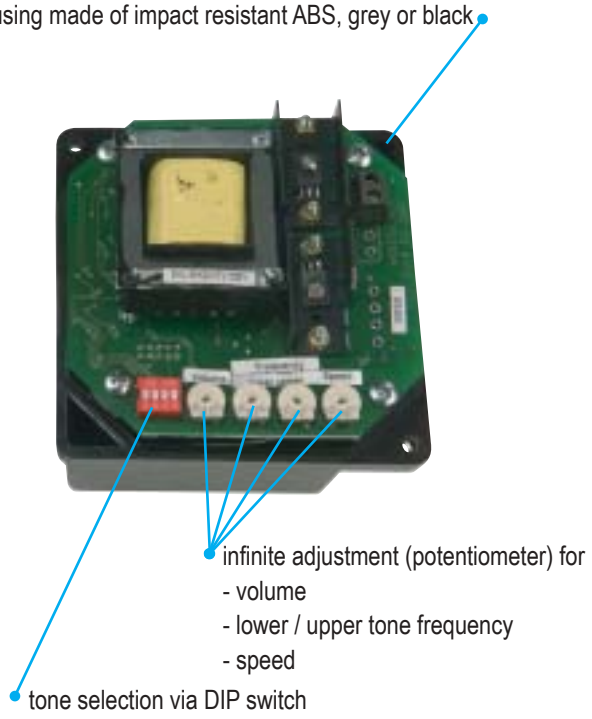


Order data

Nominal voltage (V)	Hz	Order data						Nominal current (mA)
		EHS-D	EHS-K	EHF-D	EHF-K	EHL-D	EHL-K	
12-24 V AC/DC		731 010 405	731 020 405	731 110 405	731 120 405	730 010 405	730 020 405	12 V: <470 24 V: <940
110/120 V AC	40-60	731 010 310	731 020 310	731 110 310	731 120 310	730 010 310	730 020 310	120
230/240 V AC		731 010 313	731 020 313	731 110 313	731 120 313	730 010 313	730 020 313	60

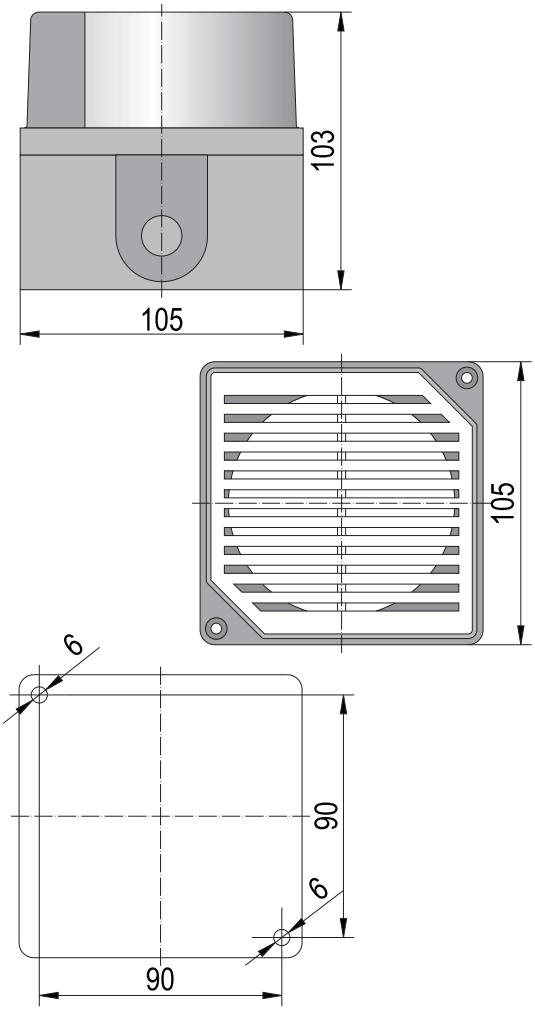
Tone table								
DIP Switch	Terminal	Tone Type		Tone Frequency (Hz)		Speed	Volume dB (depends on frequency)	
				upper	lower	Hz	EHS-EHF	EHL
1	offen	triangle tone		1.500	500	7-22	113	105
2	3-4	continuous tone		500-1.500			118	110
3	3-5	continuous tone			500-1.500		118	110
4	3-5 & 3-4	interrupted tone		500-1.500		0,5-1,5	118	110
5	3-6	interrupted tone			500-1.500	0,5-1,5	118	110
6	3-6 & 3-4	alternating tone		500-1.500	500-1.500	0,5-1,5	118	110
7	3-6 & 3-5	saw tooth tone ascending		500-1.500	500-1.500	0,5-1,5	118	110
8	3-6 & 3-5 & 3-4	saw tooth tone descending		500-1.500	500-1.500	0,5-1,5	118	110
9	3-7	sinus tone		500-1.500	500-1.500	0,5-1,5	112	105
10	3-7 & 3-4	DIN emergency signal	DIN 33404	1.200	500	1	112	105
11	3-7 & 3-5	siren tone		1.500	500	2-4 s	118	110
12	3-7 & 3-5 & 3-4	horn (continuous)			100-350		106	100
13	3-7 & 3-6	three tone gong		660-550-440		2-4 s	96	92
14	3-7 & 3-6 & 3-4	two tone gong		550-440		2-3 s	94	90
15	3-7 & 3-6 & 3-5	Gong			500-1.500	1-3 s	112	104
	customer specific sound types available in request and surcharge							

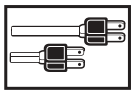
Electronic Sounder HTV



Features

- loud electronic sounder – up to 113 dB
- 15 different signal tone types, tone selection via DIP switch
- lower/upper frequency and speed individually adjustable via potentiometer
- volume infinitely adjustable
- for applications indoor





Technical data

Type	HTV
Housing, Colour	ABS, grey or black
Mounting	sound outlet horizontal or down
Tone frequency	0 - 1.500 Hz
Duty cycle factor	100 %
Terminal	up to 2,5 mm² single wire
Cable entry	7 - 10 mm
Cable conduit	surface or buried
Temperature range	-20 °C to +50 °C
Sound pressure	up to 113 dB
Weight	420-820 g

Order data

Type	Nominal voltage (V)	Order data		Nominal current (mA)
		Housing grey	Housing black	
HTV	12-24 V AC/DC	873 100 405	873 500 405	12 V: <580
				24 V: <970
	110/120 V AC	873 100 310	873 500 310	140
	230/240 V AC	873 100 313	873 500 313	70

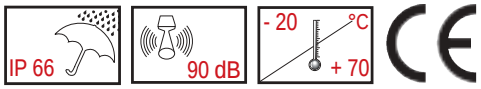
Tone Table							
DIP Switch	Terminal	Tone Type		Tone Frequency (Hz)		Speed	Volume (dB) (depends on frequency)
				upper	lower	Hz	HTV
1	offen	triangle tone		1.500	500	7-22	110
2	3-4	continuous tone		500-1.500			113
3	3-5	continuous tone			500-1.500		113
4	3-5 & 3-4	interrupted tone		500-1.500		0,5-1,5	113
5	3-6	interrupted tone			500-1.500	0,5-1,5	113
6	3-6 & 3-4	alternating tone		500-1.500	500-1.500	0,5-1,5	113
7	3-6 & 3-5	saw tooth tone ascending		500-1.500	500-1.500	0,5-1,5	110-113
8	3-6 & 3-5 & 3-4	saw tooth tone descending		500-1.500	500-1.500	0,5-1,5	110-113
9	3-7	sinus tone		500-1.500	500-1.500	0,5-1,5	112
10	3-7 & 3-4	DIN emergency signal	DIN 33404	1.200	500	1	112
11	3-7 & 3-5	siren tone		1.500	500	2-4 s	113
12	3-7 & 3-5 & 3-4	horn (continuous tone)			100-350		90
13	3-7 & 3-6	three tone gong		660-550-440		2-4 s	105
14	3-7 & 3-6 & 3-4	two tone gong		550-440		2-3 s	103
15	3-7 & 3-6 & 3-5	Gong			500-1.500	1-3 s	103

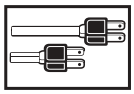
Audible Signalling Sounder AS4

Tone setting			
Tone Type	DIP-Switch	Autorepeat / Tone Frequency	
Single tone		180 ms on	70 ms off
		120 ms on	50 ms off
		60 ms on	25 ms off
		continuous tone	
Two tone		5 Hz	
		10 Hz	
		15 Hz	
		20 Hz	
Three tone		5 Hz	
		10 Hz	
		15 Hz	
		20 Hz	
Wobble tone		1,6 Hz	
		3,6 Hz	
		3,9 Hz	
		7,8 Hz	

Features:

- audible signalling sounder with high protection class (IP 66)
- for universal applications in areas with extreme weather conditions resp. environmental influences
- resistent against rain, humidity, heat, cold, acids, alkalis, greases etc.
- 4 tone types/tone sequences selectable by DIP switch



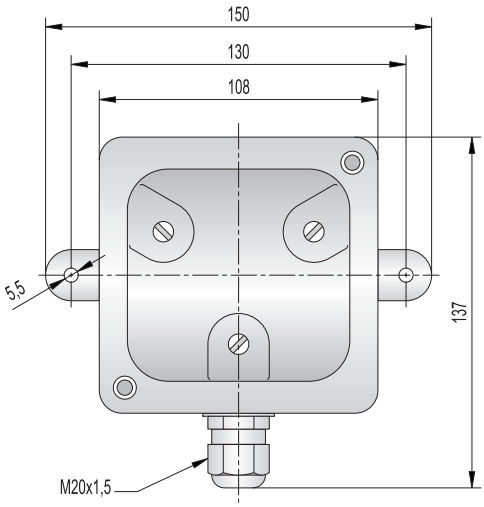


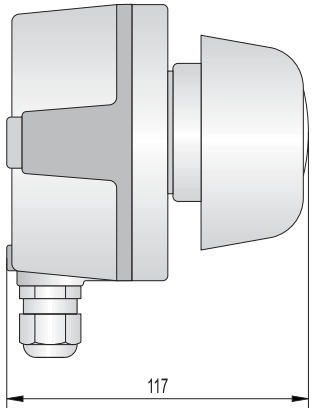
Technical data

Type	AS4
Housing, Colour	aluminium-die cast upper part polycarbonate, black
Tone type	single/two/three and alternating tones
Tone sequence	5 - 20 Hz (DIP switch)
Sound pressure	~ 90 dB
Temperature range	-20 °C to +70 °C
Terminal	1,5 mm² single or fine wire
Cable entry	1 x M20 x 1,5
Mounting	wall or ceiling
Weight	900 g

Order data

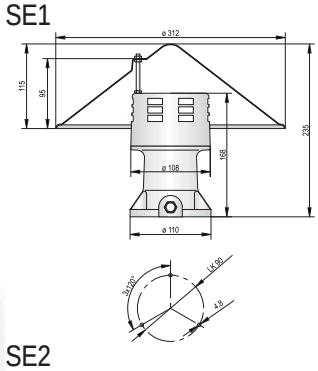
Type	Nominal voltage (V)	Order No.	Voltage range (V)	Nominal current (mA)
AS4	110 - 230 V AC	410 400 004	+10/-15%	16 mA



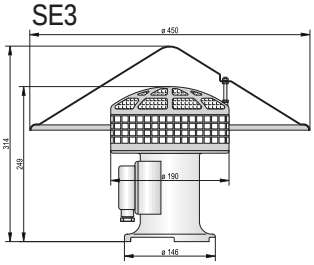


Motor Sirens SE1-SE2-SE3

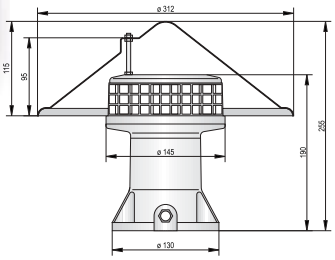
SE1

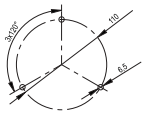


SE3



SE2





Features

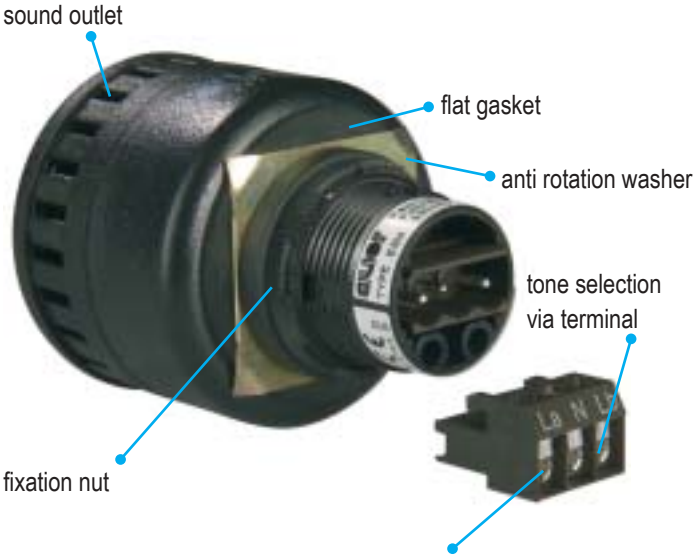
- typical siren tone with high sound pressure
- penetrating signalling effect with 360° audibility
- different sizes for various applications
- optional protection hood for use outdoor
- air inlet and sound outlet protected against accidental touching

Technical data

Type	SE1	SE2	SE3
Housing, Colour	aluminium die cast, grey		
Protection hood	thermoplast		
Duty cycle factor/ operating mode	short time operation S 2 / 15 min.		
Sound pressure	112 dB	110 dB	
Tone frequency	800 Hz	600 Hz	500 Hz
Power output	0,037 kW 0,05 P	0,075 kW 0,1 P	0,125 kW 0,17 P
Audibility with wind Audibility against wind	300 m 150 m	400 m 200 m	700 m 250 m
Protection class	IP 22; IP 44 with protection hood		
Cable entry	M 16		
Mounting	vertical		
Temperature range	-10 °C to +40 °C		
Weight	1,6 kg	2,9 kg	4,1 kg
Weight protection hood	0,21 kg		1,5 kg

Order data

	SE1			SE2			SE3		
Nominal voltage (V)	Order No.	Nominal current (A)	Starting current (A)	Order No.	Nominal current (A)	Starting current (A)	Order No.	Nominal current (A)	Starting current (A)
12 V AC/DC	593 003 404	10,5	42,0	593 005 404	14,4	50,0			
24 V AC/DC	593 003 405	5,2	21,0	593 005 405	7,2	25,0			
230 V AC/DC	593 004 413	0,6	2,4	593 006 413	0,72	2,5	593 009 413	1,43	4,6
Protection hood	594 001 000			594 001 000			594 003 000		



ESG ESM ESK ESV

in built-in condition

Features

- loud universally useable panel mount buzzers.
- sizes Ø 65 – 45 – 30 mm
- 3 well distinguishable tones selectable via terminal (ESG)
- volume infinitely adjustable also in panel mount condition (ESG-ESM)
- wide voltage range
- PLC fit (leakage/inrush current)
- for mounting in Ø 22 mm or Ø 30,5 mm holes (with adapter)

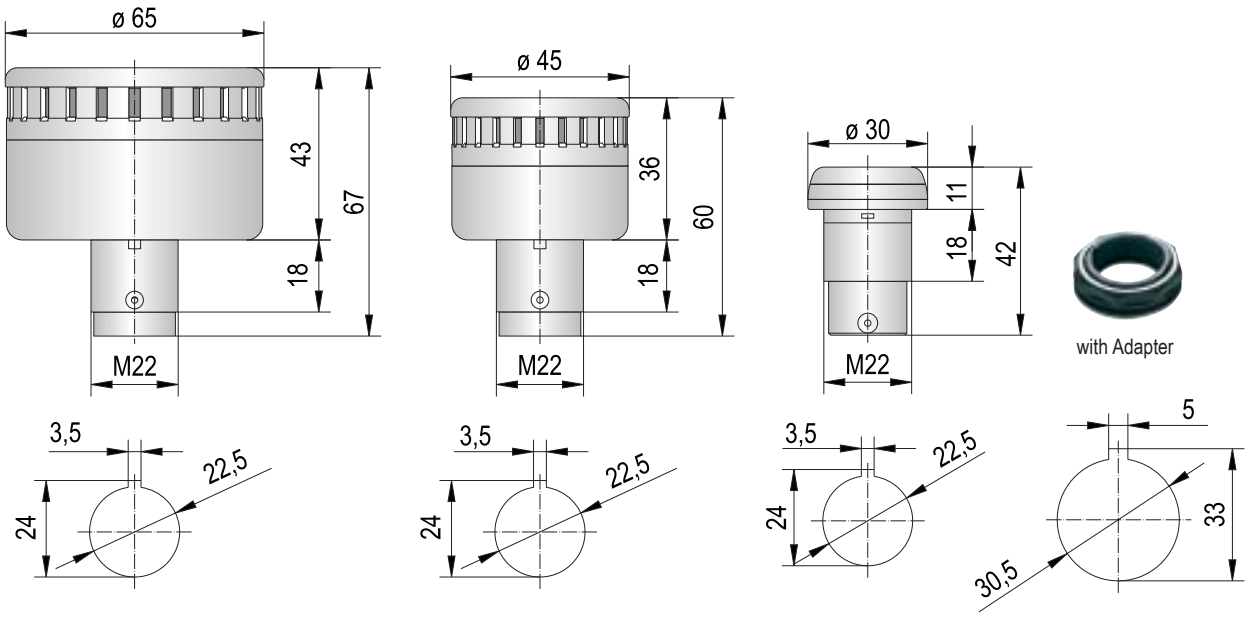
Panel mount buzzer ESG-ESM-ESK-ESV

Tone selection via terminal

La	N	Lb		
X	X		pulsing tone	ESG – ESM – ESK – ESV
	X	X	wobble tone (alternating frequency)	ESG
X	X	X	continuous tone	ESG – ESM – ESK – ESV

Technical data

Type	ESG	ESM	ESK	ESV
Size Ø mm	65	45	30	
Housing, Colour	polycarbonate, grey or black			
Mounting	M22 - for mounting in Ø 22 mm or Ø 30,5 mm holes (with Adapter)			
Tone type	cont.-/pulsing-/wobble tone	continuous-/pulsing tone		
Tone frequency	3.300 Hz		3.500 Hz	
Volume (adjustable)	< 85 - 105 dB	< 85 - 100 dB	~ 65 - 70 dB	~ 80 - 85 dB
Duty cycle factor	100 %			
Protection class	IP 65, UL type 4, 4X, 13			
Terminal	up to 2,5 mm²			
Temperature range	-20 °C to +60 °C			
Weight	65	35	30	



Order data

Type	Nominal voltage (V)	Order No.		Voltage range	Nominal current (mA)
		Housing grey	Housing black		
ESG	12-24 V AC/DC	814 100 405	814 500 405	8-24 V AC/DC	57
	110/120 V AC	814 100 310	814 500 310	50-140 V AC	42
	230/240 V AC	814 100 313	814 500 313	150-260 V AC	44
ESM	12-24 V AC/DC	813 100 405	813 500 405	8-24 V AC/DC	19
	110/120 V AC	813 100 310	813 500 310	50-140 V AC	42
	230/240 V AC	813 100 313	813 500 313	150-260 V AC	40
ESK	12-24 V AC/DC	812 100 405	812 500 405	10-24 V AC/DC	46
	110/120 V AC	812 100 310	812 500 310	50-140 V AC	17
	230/240 V AC	812 100 313	812 500 313	150-260 V AC	20
ESV	12-24 V AC/DC	812 110 405	812 510 405	10-24 V AC/DC	46
	110/120 V AC	812 110 310	812 510 310	50-140 V AC	17
	230/240 V AC	812 110 313	812 510 313	150-260 V AC	20
Adapter M30,5		812 500 900			

M28 Panel Mount Buzzer ESD-ESP-ESZ

in built-in condition

models with terminal

models with spades

ESP 24 V:
reverse gear warner for vehicles
TÜV and ADR approved
(Rn 225016) –

IP 68

Features

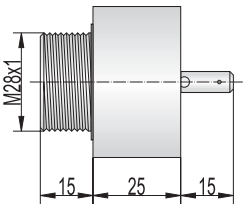
- panel mount buzzers with wide voltage range
- ~ 90 dB sound pressure for universal applications
- tone types:
  continuous (ESD)
  pulsing (ESP)
  continuous/pulsing (ESZ)
- models with spades or terminal
- sealed electronics
- for mounting in M28 bore holes
- low nominal current

(IP 68) IP 30 | 90 dB | - 20 °C + 60 | CE

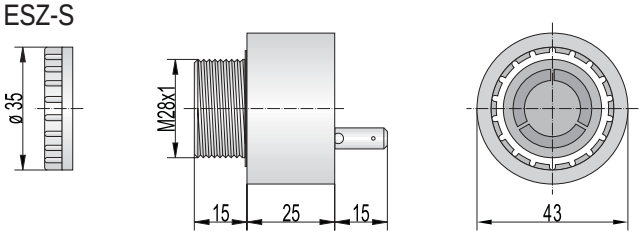
Technical data

Type	ESD	ESP	ESZ
Housing, Colour	ABS, grey or black		
Mounting	M28 - for bore holes 28 mm		
Tone type	cont. tone	pulsing tone	cont. & pulsing tone
Tone frequency	2.400 Hz		
Sound pressure (adjustable)	90 dB		
Duty cycle factor	100 %		
Protection class	IP 30		
Terminal	spades		spades (S) or terminal (K)
Temperature range	-20 °C to +60 °C		
Weight	55 g		

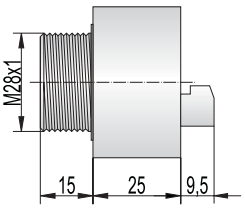
ESD-ESP



ESZ-S



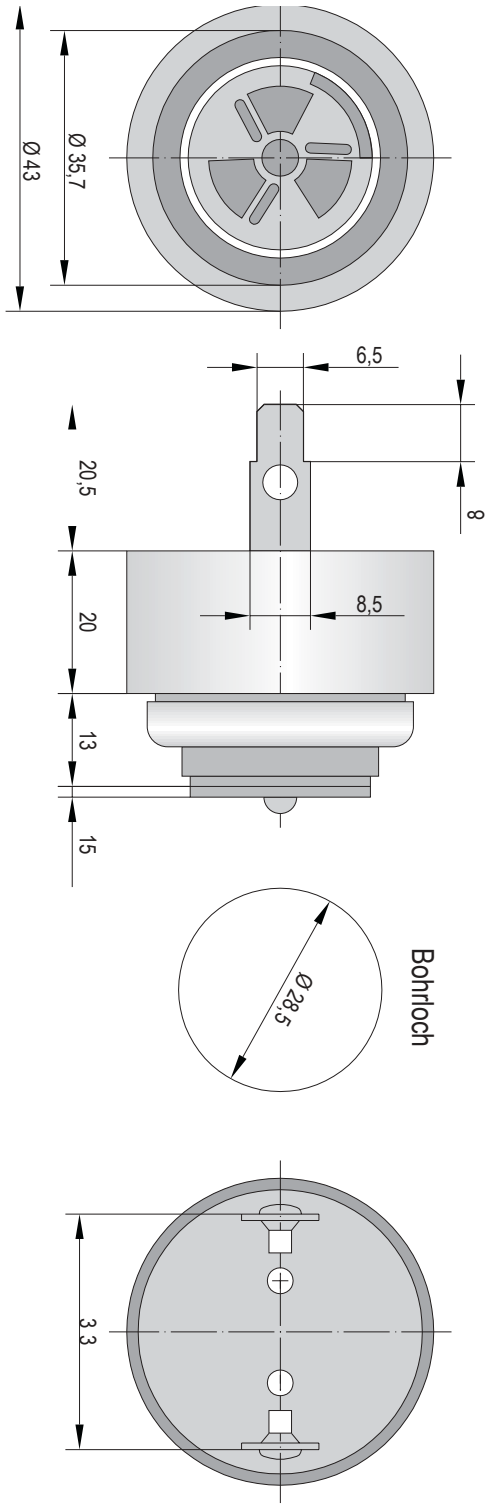
ESZ-K



Order data

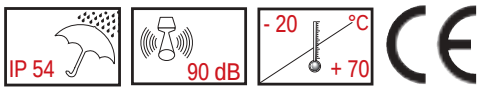
Type	Nominal voltage (V)	Order No.		Voltage range (V)	Nominal current (mA)
		Housing grau	Housing black		
ESD	24 V AC/DC	810 000 405	810 100 405	4 - 40	20
	48 V AC/DC	810 000 408	810 100 408	10 - 48	
	230/240 V AC	810 000 313	810 100 313	30 - 250	
ESP	24 V AC/DC	811 000 405	811 100 405	4 - 40	20
	48 V AC/DC	811 000 408	811 100 408	10 - 48	
	230/240 V AC	811 000 313	811 100 313	30 - 250	
ESZ-S	24 V AC/DC	809 000 405	809 100 405	6 - 28	20
	48 V AC/DC	809 000 408	809 100 408	10 - 48	
	110/120 V AC	809 000 310	809 100 310	20 - 140	
	230/240 V AC	809 000 313	809 100 313	50 - 250	
ESZ-K	24 V AC/DC	809 010 405	809 110 405	6 - 28	20
	48 V AC/DC	809 010 408	809 110 408	10 - 48	
	110/120 V AC	809 010 310	809 110 310	20 - 140	
	230/240 V AC	809 010 313	809 110 313	50 - 250	

M28 Panel Mount Buzzer BU2-BU3



Features

- loud panel mount buzzers
- attractive price-performance ratio
- ~ 90 dB sound pressure for universal applications
- pulsing tone
- sound pressure can be infinitely adjusted by turning window (up to approx. 10 dB)
- models
  BU 2: 24 V AC/DC
  BU 3: 220 V AC



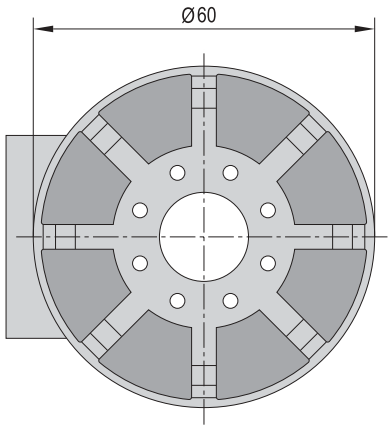
Technical data

Type	BU2	BU3
Housing, Colour	ABS, black	
Nominal voltage	24 V AC/DC	220 V AC
Tone type	pulsing tone	
Tone frequency	3.000 ± 500 Hz	
Sound pressure	90 dB	
Temperature range	-20 °C to +70 °C	
Terminal	spades with screw	
Weight	35 g	

Order data

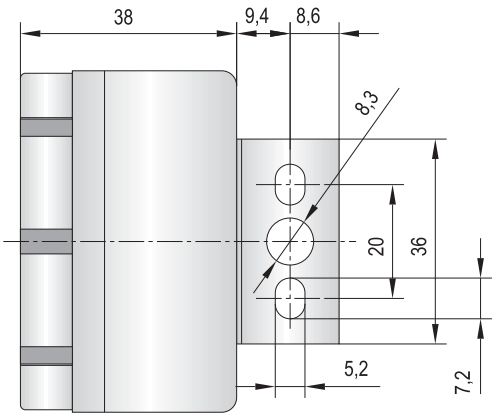
Type	Nominal voltage (V)	Order No.	Voltage range (V)	Nominal current (mA)
BU2	24 V AC/DC	B100 520 405	12 -28	30
BU3	220 V AC	B100 520 313	180 - 240	20

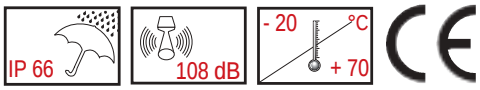
Surface Mount Buzzer-Electronic Siren BU1



Features

- loud surface mount buzzer/electronic siren with high protection class
- attractive price-performance ratio
- ~ 108 dB sound pressure for universal applications
- pulsing tone
- metal mounting bracket
- pre-wired with 2,25 m cable





Technical data

Type	BU1
Housing, Colour	ABS, black
Tone type	pulsing tone
Tone frequency	2.800 ± 400 Hz
Sound pressure	108 dB
Temperature range	-20 °C to +70 °C
Terminal	pre-wired - 2,25 m cable
Weight	110 g

Order data

Type	Nominal voltage (V)	Order No.	Voltage range (V)	Nominal current (mA)
BU1	12 V DC	B100 510 004	6 - 15	300
	24 V DC	B100 510 005	12 - 28	300

dST1
Page 114-115

90 dB

dST2
Page 114-115

90 dB

AS1 – AS2
Page 116 / 124

90 dB

95 dB

wST1
Page 122-123

VS1 – VS2
Page 117 / 125

90 dB

LS1 – LS2
Page 118 / 126

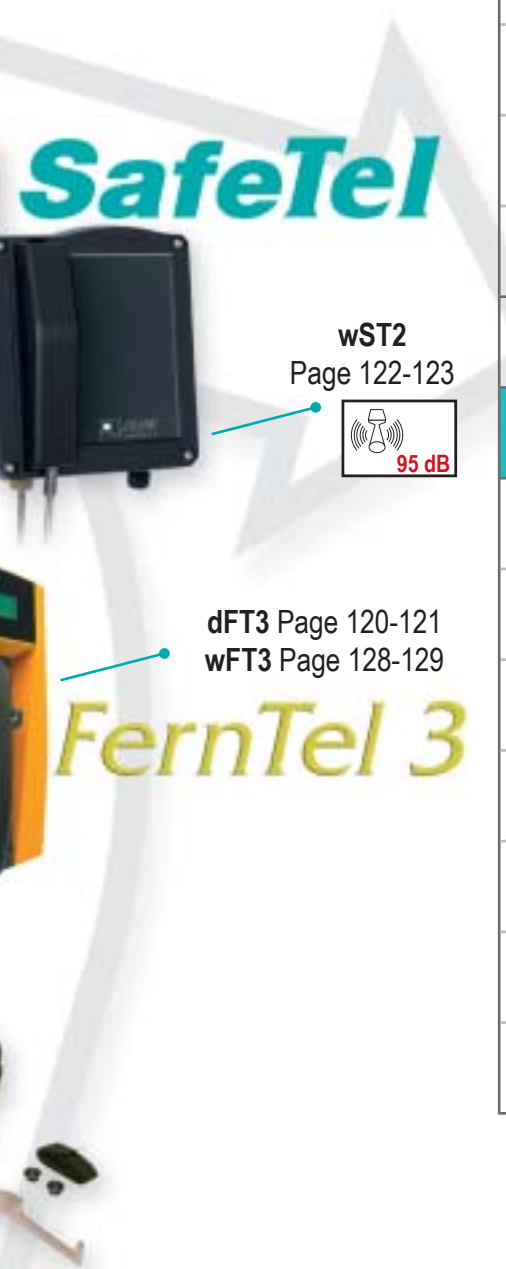
93 dB

EP1 – EP2
Page 119 / 126

HS1 – HS2
Page 119 / 127

Overview Telephones and Accessories

Explosion proof Telephone and Accessories	Type	Protection class	Page
Explosion Proof Telephone	dST1 dST2	II 2 G em [ib] IIC T6 II 2 D Ex tD A21 IP66 T80°C	114-115
Explosion Proof Audible Telephone Call Signalling Sounder	AS1	II 2 G EEx em [ib] IIC T6	116
Explosion Proof Visual-Audible Telephone Call Signalling Sounder	VS1	II 2 G EEx em [ib] IIC T6	117
Explosion Proof Loudspeaker	LS1	II 2 G EEx ib IIC T6 II 2 D Ex ibD 21 T80°C	118
Explosion Proof Additional Earpiece Set	EP1	II 2 G EEx ib IIC T6 II 2 D Ex ibD 21 T80°C	119
Additional Earpiece Set	HS1	II 2 G EEx ib IIC T4	119
Explosion Proof Telephone	dFT3	II 3 G Ex nA L IIC T6 II 3 D Ex tD A22 IP65 80°C	120-121
Weatherproof Telephone and Accessories			
Weatherproof Telephone	wST1 wST2	IP 66	122-123
Weatherproof Audible Telephone Call Signalling Sounder	AS2	IP 66	124
Weatherproof Visual-Audible Telephone Call Signalling Sounder	VS2	IP 66	125
Weatherproof Loudspeaker	LS2	IP 54	126
Weatherproof Additional Earpiece Set	EP2	IP 54	127
Weatherproof Additional Earpiece Set	HS2		127
Weatherproof Telephone	wFT3	IP 65	128-129



wST2
Page 122-123

dFT3 Page 120-121
wFT3 Page 128-129

Explosion Proof Telephone dST

dST1

ExSafeTel

II 2G Ex emb[ib] IIC T6
II 2D Ex tD A21 IP66 T80°C

dST2

emergency telephone – connects directly to main PABX by lifting receiver

Features

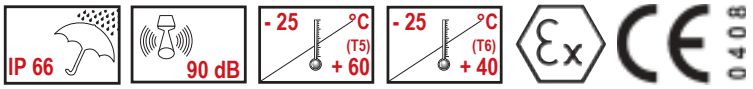
- explosion-proof telephone for universal applications in the industry (onshore) and offshore
- certified for gas and dust explosion endangered areas (G and D)
- resistent against high temperature differences, humidity, seawater, acids, alkalis etc.
- very robust impact protected telephone housing (impact protection IK 09)
- freely programmable, well readable alphanumerical display
- designed for use with gloves, V4A stainless steel keypad – 21 keys
- model without keypad available as emergency telephone

- comfort telephone functions as in office communiction
- handsfree operation
- visual call signalling
- ringing sound pressure level approx. 90 dB (A) in 1 m
- 10 ringing tone melodies selectable
- listening by loudspeaker: max. 68 dB (A) in 1 m
- receiver volume adjustable in 7 steps from 0 dB to +12 dB
- menu in german/english/french/spanish
- telephone directory – max. 50 entries (names and numbers)
- locking option via PIN-code

EX-PROOF ACCESSORIES FOR EXSAFETEL

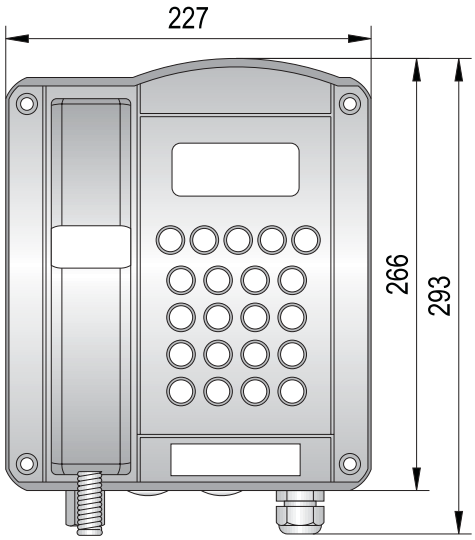
For details pls refer to page 116-119

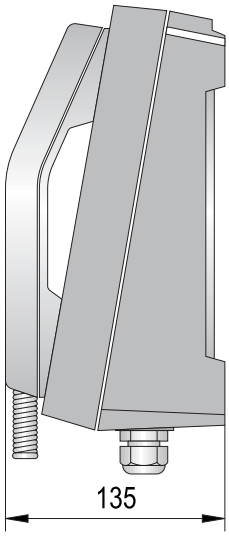
- ex-proof audible telephone call sounder (AS1)
- ex-proof visual-audible telephone call sounder (VS1)
- ex-proof loudspeaker set (LS1)
- ex-proof additional earpiece set (ES1)
- ex-proof headset (HS1)



Technical data

General data	dST1-dST2	
Housing, Colour	glassfibre reinforced polyester, black	
Display	2-line alphanumerical display with pictograms/visible area 78 x 26 mm	
Keypad	metal keypad with ice protection/ 21 keys with ABC lettering for name entries	
Weight	~ 5,5 kg	
Receiver	integrated, adjustable stabilizer bracket	
Handset cord	stainless steel armoured handset courd V4A	
Receiver inset	dynamic receiver with leakage field spool for inductive coupling of hearing aids	
Mouth piece	electret microphone	
Noise suppression mouth	> 3 dB due to integrated mouthpiece horn	
Terminal data		
Types of protection	II 2G Ex emb[ib] IIC T6 II 2D Ex tD A21 IP66 T80°C -25°C<=Ta<=+40°C	II 2G Ex em[ib] IIC T5 II 2D Ex tD A21 IP66 T100°C -25°C<=Ta<=+60°C
Approval	DMT 03 ATEX E 034	
Protection class	IP 66 (EN 60529)	
Impact protection	IK 09 (EN 50102)	
Line voltage	24 V DC - 66 V DC	
Line current	15 mA DC - 100 mA DC	
Ringing alternating current	24 V AC - 90 V AC (at 21 ... 54 Hz ringing frequency) 30 V AC - 90 V AC (at 16,6 ... 54 Hz ringing frequency)	
Ringing impedance	> 6,0 KΩ at 25 Hz and 24 ... 90 V AC > 4,0 KΩ at 50 Hz and 24 ... 90 V AC	
Inquiry key	flash function adjustable from 40 ms - 399 ms	
Dialling procedure	PD-DTMF operation to be set in the menu DTMF operation according to CCITT recommendation Q.23 PD operation – pulse/pause ratio ca be set to 1,5:1 or 2:1 in the menu	
W-conductor	connection for external secondary sounder	
Terminals	up to 4 mm^2 rigid, up to 2,5 mm^2 flexibel	
Cable gland (free)	1 x M20x1,5 2 x blind plug M20x1,5	
Operating temperature	-25 °C to +40 °C (T6)	-25 °C to +60 °C (T5)
Storage temperature	-25 °C to +70 °C	





Order data

Type	Order No.	Description
dST1	410 010 000	ExSafeTel - explosion proof Telephone
dST2	410 020 000	ExSafeTel - explosion proof Emergency Telephone without keypad and display (for central operation)

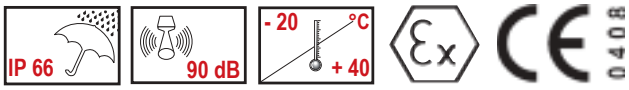
Explosion Proof Audible Telephone Call Signalling Sounder AS1

auer SIGNALGERÄTE

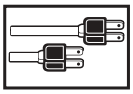
II 2 G EEx em [ib] IIC T6

Features

- explosion proof telephone call sounder for applications in industrial explosion endangered areas
- tone types and tone frequencies selectable via DIP switch
- power supply via telephone call voltage
- works independently also during power failures

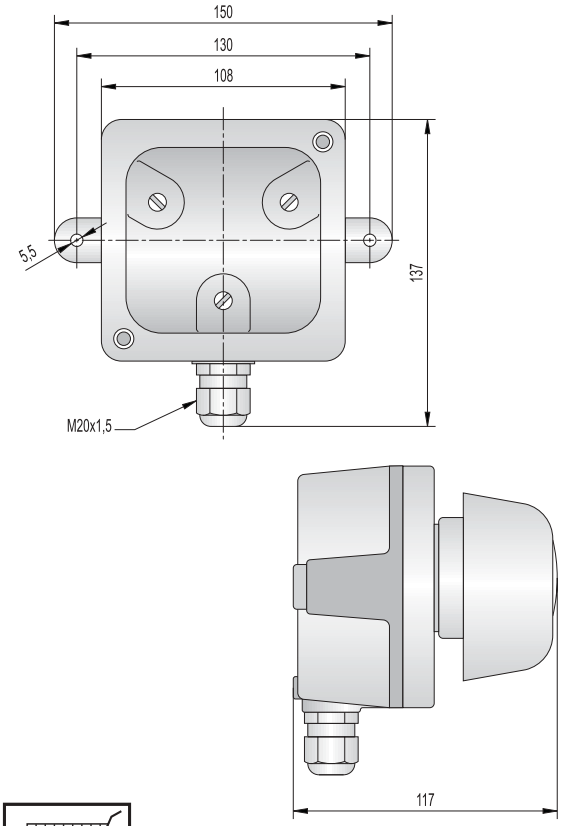


Tone setting			
Tone Type	**DIP-Switch**	**Tone Sequence/Tone Sequence Frequency**	
Single tone		180 ms on	70 ms off
		120 ms on	50 ms off
		60 ms on	25 ms off
		continuous tone	
Two tone 931-1.253 Hz		5 Hz	
		10 Hz	
		15 Hz	
		20 Hz	
Three tone 800-1.067-1.333 Hz		5 Hz	
		10 Hz	
		15 Hz	
		20 Hz	
Wobble tone		1,8 Hz	
		3,6 Hz	
		3,9 Hz	
		7,8 Hz	



Technical data

Type	AS1
Housing, Colour	aluminium die cast, black upper part polycarbonate
Mounting	wall or ceiling
Weight	0,9 kg
Call voltage	32 V AC - 75 V AC
Branch exchange voltage	0 V DC - 63 V DC
Input impedance	at 25 Hz Z ≥ 8 kΩ at 50 Hz Z ≥ 4 kΩ
Accoustic signal device	loudspeaker
Tone types	single-/two-/three or wobble tone selectable via DIP-switch
Tone frequencies	5 to 20 Hz in 4 settings selectable via DIP-switch
Terminal	1,5 mm² single or fine wire
Cable entry	1 x M20x1,5
Insulation class	I
Equipotential bonding	connection inside housing
Current intensity	IK ≤ 3 A
Approval	BVS 03 ATEX E430



Order data

Type	Order No.	Description
AS1	410 100 004	Ex-proof audible telephone call signalling sounder

Explosion Proof Visual-Audible Telephone Call Signalling Sounder VS1

II 2 G EEx em [ib] IIC T6

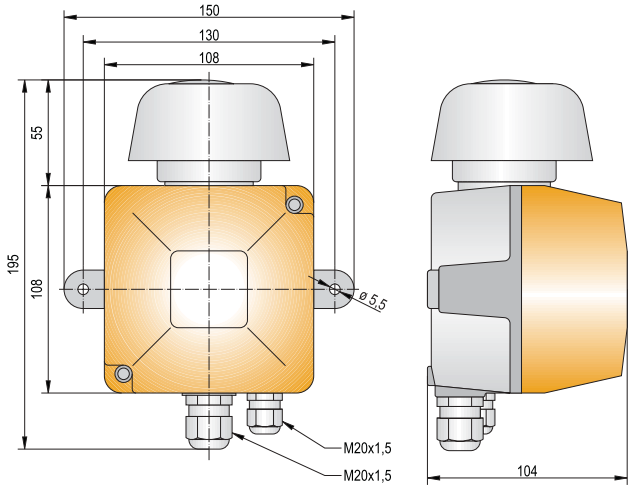
DIP Switch	Mode
	Telephone Call Secondary Sounder
	singalling detector

Tone setting			
Tone Type	DIP Switch	Tone Sequence/Sequence Frequency	
Single tone		continuous tone	
		120 ms on	50 ms off
Two tone		16,6 Hz	
		50 Hz	
Three tone		16,6 Hz	
		50 Hz	
		120 ms on	50 ms off
		60 ms on	25 ms off

Features

- explosion proof visual-audible telephone call sounder for universal applications in industrial explosion endangered areas
- for distinct signalling of incoming telephone calls in loud ambient conditions
- 3 tone types and up to 4 tone frequencies selectable via DIP switch
- 230 V power supply
- strobe beacon with call break bridging, 5 lens colours

IP 66 | 90 dB | - 20 °C + 40 | 2 x 1 J



Technical data

Type	VS1
Housing, Colour	aluminium die cast, black
Lens, Colour	polycarbonate, orange, rot, klar, blau, grün
Mounting	wall or ceiling
Weight	1,5 kg
Audible Signalling	loudspeaker
Tone types	one-/two- or three tone selectable with DIP switch
Visual signalling	2 xenon tubes with ~ 1 J 230 V AC -15 % +10 %, 50 Hz
Strobe frequencies	1 - 2 Hz
Terminal	1,5 mm² single or fine wire
Cable entry	2 x M20x1,5
Cable diameter	6 - 12 mm (230 V mains) 5 - 10 mm (telephone circuit)
Telephone connection	30 V AC - 75 V AC, 23 - 54 Hz 0 V DC - 63 V DC
Approval	PTB 04 ATEX 2012

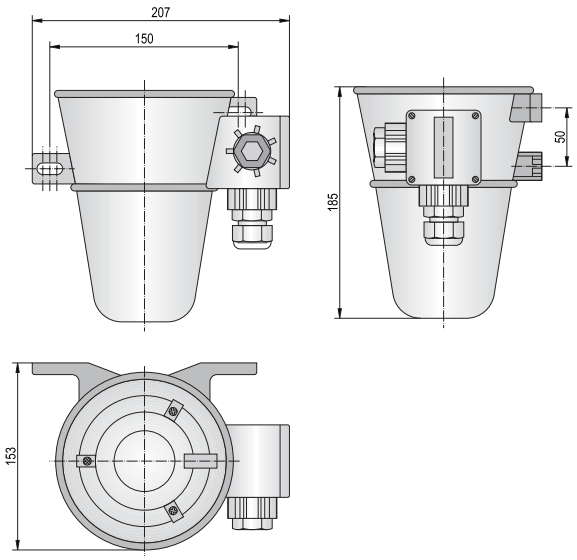
Order data

Type	Order No.	Description
VS1	410 10C 005	Ex-proof visual-audible telephone call signalling sounder

Colour code for lens C

1	amber	5	blue
2	red	6	green
4	clear		

Explosion Proof Loudspeaker Set LS1

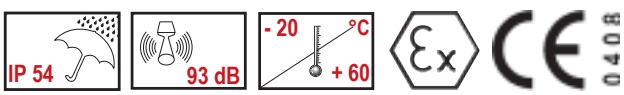


II 2 G EEx ib IIC T6
II 2 D Ex ibD 21 T80°C
-25°C ≤ Ta ≤ +40° C

II 2 G EEx ib IIC T5
II 2 D Ex ibD 21 T100°C
-25°C ≤ Ta ≤ +60° C

Features

- explosion-proof loudspeaker enables loud rendition of ringer sound and of receiving signal in operating modes „open listening“ and „handsfree“
- volume adjustable with +/- keys on the ExSafeTel
- set contents:
  - dynamic loudspeaker in plastic housing with cable gland M20x1,5 (IP 66)
  - cable gland is located in connection chamber for connection of loudspeaker cable to ExSafeTel



Technical data

Type	LS1
Housing, Colour	polyamid 12, black
Mounting	wall or ceiling
Weight	1,1 kg
Rated impedance	45 Ω
Rated power	300 mW
Max. volume	93 dB ringer 81 dB open listening/handsfree
Audible Signalling	loudspeaker
Terminal	up to 2,5 mm²
Cable entry	1 x M20 x 1,5 EEx e II IP 66, Ta 1 x blind plug M20 x 1,5 EEx e II, IP 66, Ta
Insulation class	II
Approval	BVS 03 ATEX E431

Order data

Type	Order No.	Description
LS1	410 100 003	Explosion proof loudspeaker set

Explosion Proof Additional Earpiece Set EP1

II 2 G EEx ia IIC T6
II 2 D IP54 T80°C
-25°C ≤ Ta ≤ +60° C

Features

- intrinsically safe additional earpiece enables a second person to follow a telephone conversation
- can also be used to reduce ambient noise during a telephone conversation
- set contents:
  - ex-proof earpiece with dynamic receiver and coil cord
  - cable gland M20x1,5
  - bracket and screws to hang up earpiece

Technical data

Type	EP1
Housing, Colour	polyurethan-elastomer, blue
Weight	0,2 kg
Connection cord	coil cord, 2 wires
Approval	BVS 03 ATEX E429

Order data

Type	Order No.	Description
EP1	410 100 002	Explosion proof additional earpiece set

IP 54 | - 20 °C + 60 | 0408

Explosion Proof Headset Kit HS1

II 2 G EEx ib IIC T4
Zulassung: Nemko 02ATEX059X

Features

- ex-proof headset eases significantly a telephone conversation in loud ambient conditions
- protects against ambient noise
- allows telephone calls during both hands need to be free
- set contents
  - ex-proof headset with dynamic receiver, noisecompensating electret nearfield response microphone and 1 m smooth cord with connecting plug
  - 14 m long connecting cord, with connecting jack to the headset and wire end sleeves to connect to the telephone
  - cable gland M20x1,5 (IP 66)
  - bracket and screws to hang up the connecting cord and headset

Order data

Type	Order No.	Description
HS1	410 100 001	Explosion proof headset kit

- 10 °C + 40 | 0408

Explosion-Proof Telephone dFT3
FernTel 3 – zone 2

FernTel 3

Telephones in explosion endangered zones 2 or 22

The FernTel 3 - zone 2 is an ideal product for a variety of different production sites in zone 2 and 22.

Features

- well designed, analogue telephone for use in explosion endangered atmospheres of zone 2 and 22
- for use in areas in which explosion endangered atmospheres can develop due to manufacturing reasons (e.g. in chemical and petrochemincal industries due to gases, vapours, sprays etc.)
- housing made of polycarbonate, stainless steel screws
- housing colours yellow, red, grey or black
- can be used as desk or wall telephone
- models with or without display
- option: receiver can be firmly fixed – stabilizer bracket
- call tone approx. 95 dB (A) in 1 m
- ATEX certified

II 3 G Ex nA L IIC T6
II 3 Ex tD A22 IP65 80°C

IP 65 | 95 dB | - 25 °C + 55

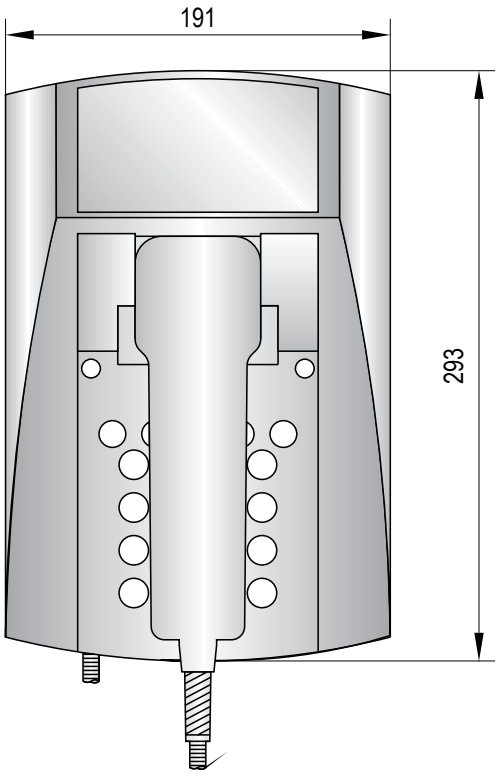
Technical data

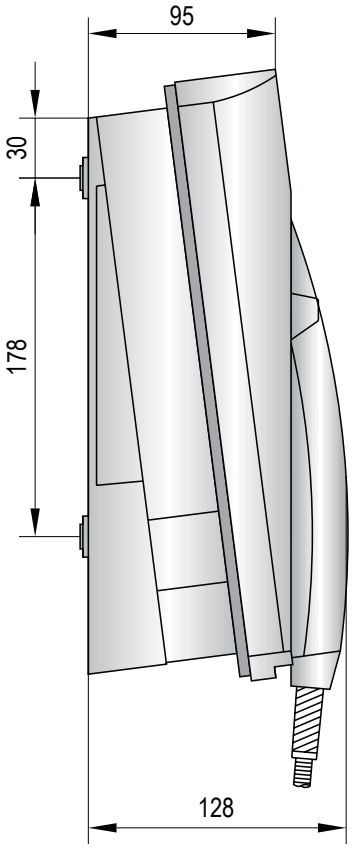
General data	dFT3
Housing	polycarbonate
Operating position	desktop or vertical wall mounting
Weight	~ 2,3 kg
Receiver capsule	dynamic capsule with field
Transmitter capsule	Elektret microphone
Call tone	~ 95 dB (A) in 1 m

Connection data	
Line voltage	24 – 66 V DC
Call frequency	programmable: 16 – 68 Hz
Dialling frequency	10 Hz
Pulse-break ratio	programmable: 1,5 : 1 60/40 ms 2 : 1 66,7/33,3 ms
Dialling procedure	MFV according to CCITTQ 23
Flash time	~ 80 ms preset 1 ms – 999 ms programmable
Terminals	single or fine wire upt to 2,5 mm²
Cable entry	1 x M20x1,5 cable gland 1 x M20x1,5 blind plug 2 x M12x1,5 blind plug
Operating temperature	-20° C to +55° C (Display: -10° C to +55° C) Transportation/Warehouse: -25° C to +70° C
Explosion protection class	II 3 G Ex nA L IIC T6 II 3 D Ex tD A22 IP65 80° C
Protection class	IP 65 (EN 60529)
Electrical safety	EN 60950
Net access, Acoustics	TBR 21, TBR 38
Incoming telephone line	TCP/La, TCP/Lb
Secondary bell	w1, w
Signalling to a branch exchange (earth)	E

Colour code **C**

0	black	2	black/red
1	black/yellow	3	black/grey





Order data

Type	Artikel-Nr.	Beschreibung
dFT3	410 400 C 00	FernTel 3 – zone 2 with display and spiral cord
	410 410 C 00	FernTel 3 – zone 2 without display and armoured cord
	410 400 900	stabilizer bracket

Weatherproof Telephone wST

wST1

integrated adjustable stabilizer bracket

stainless steel armoured handset cord

II 2 G em [ib] IIC T6
II 2 D IP66 T80°C

wST2

emergency telephone – connects directly to main PABX by lifting receiver

Features

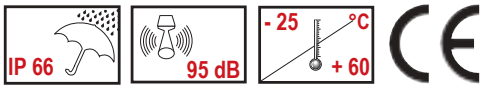
- weatherproof telephone for industrial areas in rugged ambient conditions
- resistant against hight temperature differences, humidity, seawater, acids, alkalis, greases etc.
- very robust, impact protected telephone housing (impact protection IK 09)
- freely programmable, well readable alphanumerical display
- designed for use with gloves, V4A stainless steel keypad – 21 keys
- steel armoured handset cord to withstand high tensile forces
- model without keypad available as emergency telephone

- comfort telephone functions as in office communication
- handsfree operation
- visual call signalling
- ringing sound pressure level approx. 90 dB (A) in 1 m
- 10 ringing tone melodies selectable
- listening by loudspeaker: max. 70 dB (A) in 1 m
- receiver volume adjustable in 7 steps from 0 dB to +12 dB
- menu in german/english/french/spanish
- telephone directory – max. 50 entries (names and numbers)
- locking option via PIN code

ACCESSORIES FOR SAFETEL

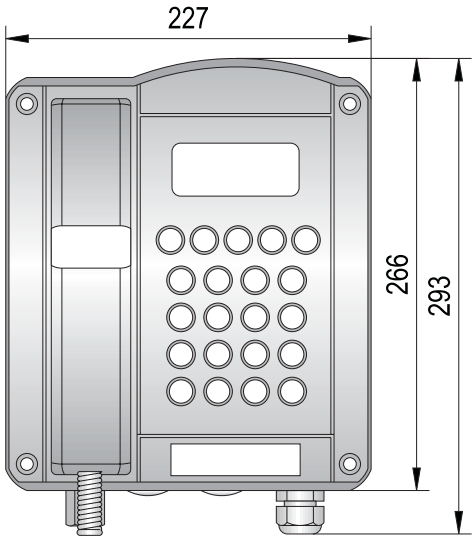
For details pls. refer to page 124-127

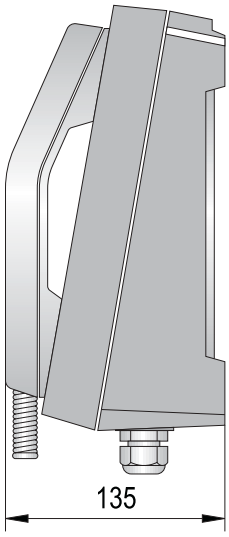
- audible telephone call sounder (AS2)
- visual-audible telephone call sounder (VS2)
- loudspeaker set (LS2)
- additional earpiece set (ES2)
- headset (HS2)



Technical data

General data	wST1-wST2
Housing, Colour	glassfibre reinforced polyester, black
Display	2-line alphanumerical display with pictograms/visible area 78 x 26 mm
Keypad	metal keypad with ice protection/ 21 keys with ABC lettering for name entries
Weight	~ 5,5 kg
Receiver	integrated, adjustable stabilizer bracket
Handset cord	stainless steel armoured handset courd V4A
Receiver inset	dynamic receiver with leakage field spool for inductive coupling of hearing aids
Mouth piece	electret microphone
Noise suppression mouth	> 3 dB due to integrated mouthpiece horn
Terminal data	
Types of protection	IP 66 (EN 60529)
Impact protection	IK 09 (EN 50102)
Line voltage	24 V DC - 66 V DC
Line current	15 mA DC - 100 mA DC
Ringing alternating current	24 V AC - 90 V AC (at 21 ... 54 Hz ringing frequency) 30 V AC - 90 V AC (at 16,6 ... 54 Hz ringing frequency)
Ringing impedance	> 6,0 KΩ at 25 Hz and 24 ... 90 V AC > 4,0 KΩ at 50 Hz and 24 ... 90 V AC
Inquiry key	flash function adjustable from 40 ms - 399 ms
Dialling procedure	PD-DTMF operation to be set in the menu DTMF operation according to CCITT recommendation Q.23 PD operation – pulse/pause ratio ca be set to 1,5:1 or 2:1 in the menu
W-conductor	connection for external secondary sounder
Terminals	up to 4 mm^2 rigid, up to 2,5 mm^2 flexibel
Cable gland (free)	1 x M20x1,5 2 x blind plug M20x1,5
Operating temperature	-25 °C to +60 °C
Storage temperature	-25 °C to +70 °C





Order data

Type	Order No.	Description
wST1	410 110 000	SafeTel - Weatherproof telephone
wST2	410 120 000	SafeTel - Weatherproof emergency telephone without keypad and display (for central operation)

Weatherproof Audible Telephone Call Signalling Sounder AS2

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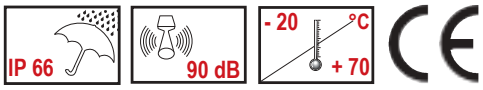
Features

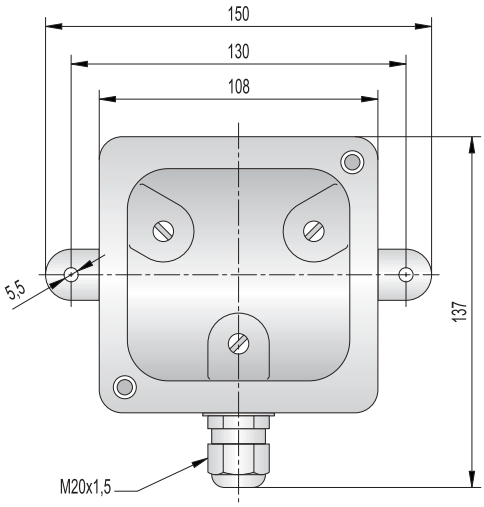
- weatherproof telephone call sounder for universal applications in extreme industrial or other ambient conditions
- resistent against rain, humidity, heat, cold, acids, alkalis, greases etc.
- 4 tone types and tone frequencies selectable via DIP switch
- power supply via telephone call voltage
- works independently also during power failures

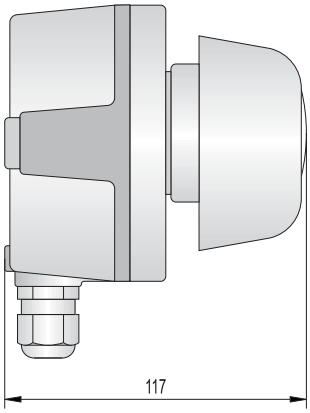
Tone setting			
Tone Type	**DIP Switch**	**Tone Sequence**	
Single tone		180 ms on	70 ms off
		120 ms on	50 ms off
		60 ms on	25 ms off
		continuous tone	
Two tone		5 Hz	
		10 Hz	
		15 Hz	
		20 Hz	
Three tone		5 Hz	
		10 Hz	
		15 Hz	
		20 Hz	
Wobble tone		1,6 Hz	
		3,6 Hz	
		3,9 Hz	
		7,8 Hz	



Technical data

Type	AS2
Housing, Colour	aluminium die cast, black upper part polycarbonate
Mounting	wall or ceiling
Weight	0,5 kg
Call voltage	24 V AC - 75 V AC
Branch exchange voltage	0 V DC - 63 V DC
Input impedance	at 25 Hz Z ≥ 8 kΩ at 50 Hz Z ≥ 4 kΩ
Acoustic signalling	loudspeaker
Tone types	single/two/three- and wobble tone selectable via DIP switch
Tone frequencies	5 to 20 Hz in 4 settings selectable via DIP switch
Terminal	1,5 mm² single or fine wire
Cable entry	1 x M20x1,5
Insulation class	I





Order data

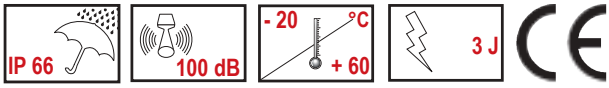
Type	Order No.	Description
AS2	410 200 004	Audible telephone call signalling sounder

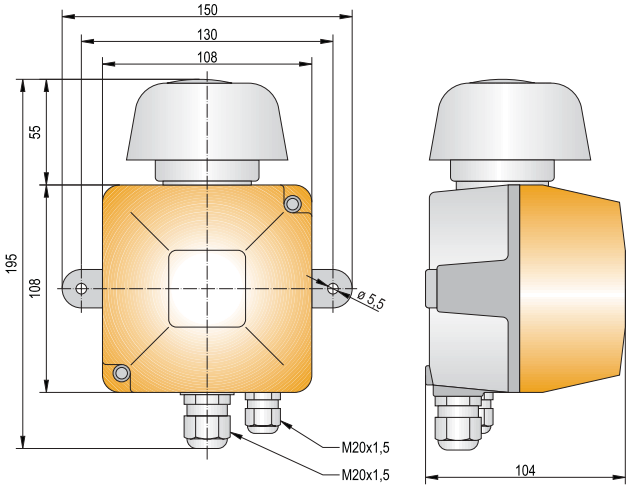
Weatherproof Visual-Audible Telephone Call Signalling Sounder VS2

Tone setting			
Tone Type	DIP Switch	Tone Sequence Frequency	Sequence
Two tone		1.400-1.500 Hz	0,3 sec
Two tone		1.500-2.200 Hz	0,3 sec
Two tone		1.400-1.500 Hz	0,5 sec
Three tone		1.400-2.200-2.900 Hz	0,2 sec

Features

- visual-audible telephone call sounder for universal applications in industrial areas
- for distinct signalling of incoming telephone calls in loud ambient conditions
- 4 tone types selectable via DIP switch
- 230 V power supply
- strobe beacon with call break bridging, 5 lens colours





Technical data

Type	VS2
Housing, Colour	aluminium die cast, black
Lens	polycarbonate
Lens Colours	amber, red, clear blue, green
Mounting	wall mounting
Weight	0,9 kg
Audible Signalling	piezo plate
Tone types	two- or three tone 4 settings (DIP-Switch)
Visual signalling	xenon tube with ~ 3 J 230 V AC +/-10%
Strobe frequencies	2 - 4 Hz
Flash time after end of call (bridging call pause)	~ 4 s
Terminal	1,5 mm² single- or fine wire
Cable entry	2 x M20x1,5
Cable diameter	5 - 9 mm
Ringing alternating current	24 V AC - 85 V AC 24 V AC - 80 V AC
Overlaid supply voltage	0 V DC - 48 V DC 48 V DC - 63 V DC
Ringing frequency	16 - 54 Hz
Input impedance	at 25 Hz Z ≥ 8 kΩ at 50 Hz Z ≥ 4 kΩ
Duty cycle	≤ 30 min.
Rest duration	≥ 30 min.
Insulation class	I

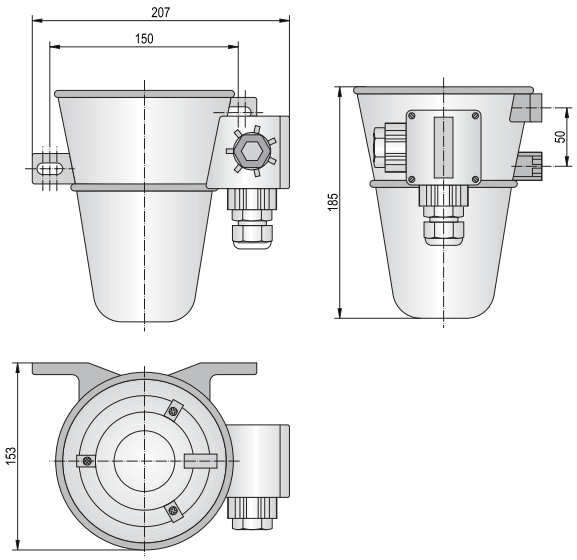
Order data

Type	Order No.	Description
VS2	410 20C 005	Visual-audible telephone call signalling sounder

Colour code for lens C

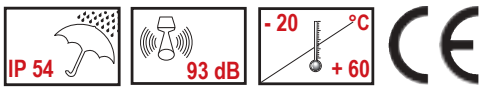
1	amber	5	blue
2	red	6	green
4	clear		

Loudspeaker Set LS2



Features

- loudspeaker enables loud rendition of ringer sound and of receiving signal in operating modes „open listening“ and „handsfree“
- volume adjustable with +/- keys on the SafeTel
- set contents:
  - dynamic loudspeaker in plastic housing with cable gland M20x1,5 (IP 66)
  - cable gland is located in connection chamber for connection of loudspeaker cable to SafeTel



Technical data

Type	LS2
Housing, Colour	polyamid 12, black
Mounting	wall or ceiling
Weight	1,1 kg
Rated impedance	45 Ω
Rated power	300 mW
Max. volume	93 dB ringer 81 dB open listening/handsfree
Terminal	up to 2,5 mm²
Cable entry	1 x M20x1,5
Insulation class	II

Order data

Type	Order No.	Description
LS2	410 200 003	Loudspeaker set

Additional Earpiece Set EP2

Features

- additional earpiece enables a second person to follow a telephone conversation
- can also be used to reduce ambient noise during a telephone conversation
- set contents
  - earpiece with dynamic receiver and coil cord
  - cable gland M20x1,5 (IP 66)
  - bracket and screws to hang up earpiece

Technical data

Type	EP2
Housing, Colour	polyurethane-elastomere, blue
Weight	0,2 kg
Connection cord	coil cord, 2 wires

Order data

Type	Order No.	Description
EP2	410 200 002	Additional earpiece set

IP 54 | - 20 °C + 60 | CE

Headset Kit HS2

Features

- headset makes significantly eases a telephone conversation in loud ambient conditions
- protects against ambient noise
- allows telephone calls during both hands need to be free
- set contents:
  - headset with dynamic receiver, noise-compensating electret nearfield response microphone and 1 m smooth cord with connecting plug
- - 14 m long connecting cord, with connecting jack to the headset and wire end sleeves to connect to the telephone
  - cable gland M20x1,5 (IP 66)
  - bracket and screws to hang up connecting cord and headset

Order data

Type	Order No.	Description
HS2	410 200 001	Headset kit

- 10 °C + 55 | CE

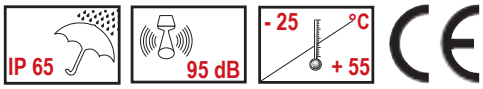
Weatherproof Telephone wFT3
FernTel 3

auer SIGNALGERÄTE

FernTel 3

Features

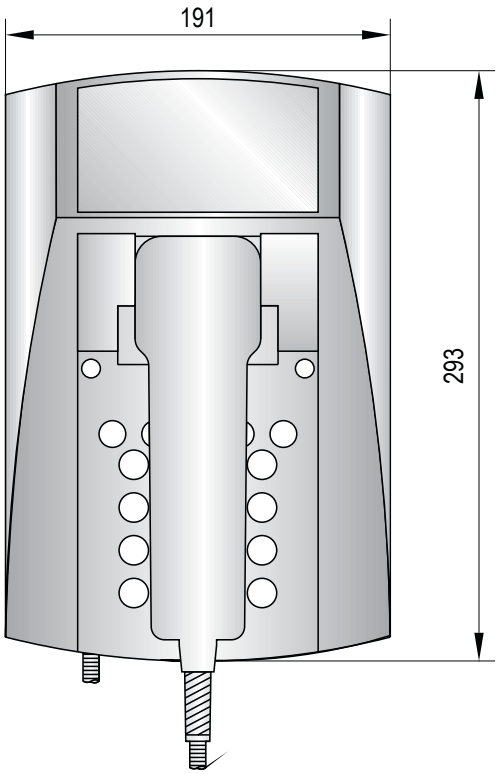
- well designed, analogue weatherproof telephone for use in non ex indoor and outdoor areas
- well suitable for universal applications and areas with high humidity, seawater climates or areas with higher mechanical stress (work areas etc.)
- polycarbonate housing
- housing colours: yellow, red, grey or black
- can be used as desktop or wall mounted telephone
- models with or without display
- models with spiral or armoured cord
- models without keys and display for hotline/emergency use
  - keypad inside housing for storage of dialling numbers
- direct key and telephone book for model with display
- call tone approx. 95 dB (A) in 1 m
- option: receiver can be firmly fixed – stabilizer bracket (e.g. for applications on vessels, moving machines etc.)
- menu german/english/french/spanish
- PIN code
- easy to mount

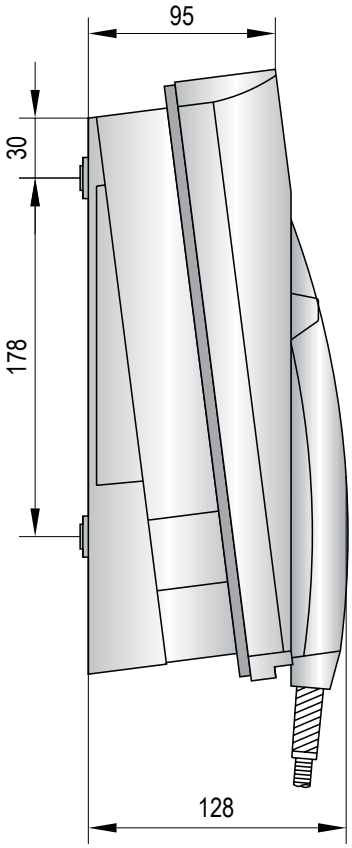


Technical data

General data	wFT3
Housing	polycarbonate
Operating position	desktop or vertical wall mounting
Weight	~ 2,3 kg
receiver inset	dynamic receiver inset with magn. field generator
Transmitter capsule	Elektret microphone
Call voltage	~ 95 dB (A) in 1 m

Connection data	
Supply voltage	24 – 66 V DC
Supply current	19 – 100 mA
Ringing alternating current	30 – 90 V AC
Ringing frequency	programmable: 16 – 68 Hz
Dialling procedure	DTMF according to ITU-T Q.23 Tone duration unlimited or 90 ms PD Pulse/Pause ratio 1,5:1 (60/40 ms) or 2:1 (66,7/33,3 ms)
Terminals	single or fine wire up to 2,5 mm²
Cable entry	1 x M20x1,5 cable gland 1 x M20x1,5 blind plug 2 x M12x1,5 blind plug
Operating temperature	-25° C to +55° C (display: -10° C to +50° C)
Protection class	IP 65 (EN 60529)
Labelling power cable	TCP/La, TCP/Lb
Labelling secondary sounder	w1, w





Colour code C

0	black	2	black/red
1	black/yellow	3	black/grey

Order data

Type	Order No.	Description
wFT3	410 300 C 00	weatherproof telephone FernTel3 with display and spiral cord
	410 310 C 00	weatherproof telephone FernTel3 without display and spiral cord
	410 320 C 00	weatherproof telephone FernTel3 with display and flexible steel armoured cord
	410 330 C 00	weatherproof telephone FernTel3 without display and flexible steel armoured cord
wFT3Z	410 340 C 00	weatherproof telephone FernTel3 without keypad and display (for emergency/hotline), with flexible steel armoured cord
	410 400 900	stabilizer bracket


dHH
Page 136-137
105 dB
dHW
Page 136-137
105 dB
dHS
Page 138-139
119 dB
dHE
Page 140-142
119 dB
AS3
Page 143
90 dB
dSF
Page 144-145
dHF
Page 144-145

Overview Explosion Proof Signalling Equipment

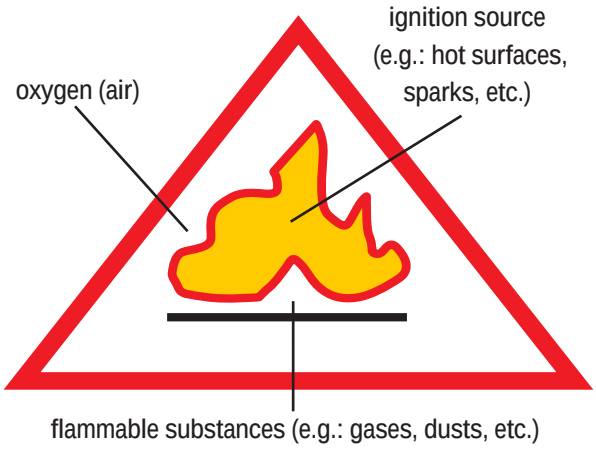
	Type	Protection class	Page
Terminology of Explosion Protection			132
Marking of Electrical Equipment - ATEX			
Explosion Endangered Areas – Dusts , Danger Zone D			133
Explosion Endangered Areas – Gases, Danger Zone G			134-135
Ex-Proof Audible Signalling Equipment			
Ex-Proof Signal Horn	dHH	II 2 G EEx de IIC T6	136-137
Ex-Proof Signal Bell	dHW	II 2 G EEx de IIC T6	136-137
Ex-Proof Loudspeaker	dHS	II 2 G EEx dem IIC T5	138-139
Ex-Proof Sounder	dHE	II 2 G EEx dem IIC T6	140-142
Ex-Proof Audible Signalling Sounder	AS3	II 2 G EEx em [ib] IIC T6	143
Ex-Proof Visual Signalling Equipment			
Ex-Proof Strobe Beacons	dHF	II 2 G EEx de IIC T6	144-145
Ex-Proof Strobe Beacons	dSF	II 2 G EEx de IIC T6	144-145
Ex-Proof Rotating Signal Beacon	dHR	II 2 G EEx de IIC T5	146-147
Ex-Proof Steady Beacon	dHL	II 2 G EEx de IIC T6	146-147
Ex-Proof Visual-Audible Signalling Equipment			
Ex-Proof Visual-Audible Signalling Sounder	VS1	II 2 G EEx em [ib] IIC T6	148

In chemical and petrochemical industries, in the exploration of oil and gas, when storing flammable gases, liquids and dusts and in many other industries gases and dusts are caused during production, processing, transportation or storage.

These flammable gases, vapours, smokes and dusts result in combination with oxygen in an explosive atmosphere. The ignition of these atmospheres result in explosions causing severe damage to human beings and property.

Explosions triangle

3 elements are required for an explosion:



Therefore it is necessary to avoid any possible sources of ignition and to use/install so called explosion-proof signalling products in these industries. For avoiding any danger of explosion respective precautionary measures exist in the form of laws, decrees and standards which shall guarantee a high degree of safety.
Due to increasing international economic integration the standardization of standards was aimed at and achieved within the European Union with Directive 9/94/EG (ATEX 100a).
By the way the name ATEX was derived from the french (ATmosphere EXplosible).

Explosion-proof signalling equipment has to be tested and certified before sale/use by independent authorities/testing and inspection/certification bodies (eg. PTB Braunschweig, DMT Essen etc.).

AUER develops and manufactures since more than 25 years explosion-proof signalling equipment (visual and audible signalling equipment and telephones). The precondition for manufacturing and marketing of ATEX certified equipment is the respective proof by the manufacturing of a successful audit by independent authorities/testing and certification bodies.

See double page before as overview of required marking / descriptions using as example the classification of typical AUER signalling equipment and the respective meanings for better understanding.

CE 0102 Ex II 2D tD T80°C

1 2 3 4 5

1 CE Conformity with EC directives

2 0102 Notified body

Notified body	Country	Code No.
TÜV-A	Austria	0408
PTB	Germany	0102
EXAM	Germany	0158

3 II 2D Conditions in the explosive endangered areas

Flammable material	Temporary behaviour of the flammable material in Ex zones	Classification of the explosive endangered area			Required marking of the suitable electrical equipment per CENELEC	
		CENELEC / IEC	US NEC 505	US NEC 500	Equipment group	Equipment category
Dusts	are continuously present, for long periods or frequently	Zone 20	---	Class II Division 1	II	1D
	are likely to occur	Zone 21	---		II	2D (or 1D)
	are unlikely to occur by whirled dust, if they do though only rarely or only for a short time	Zone 22	---	Class II Division 2	II	3D (or 2D or 1D)
Dust	--- ---	Mining Mining	--- ---	Mining ---	I I	M1 M2 (or M1)

4 tD Protection methods

Protection	Symbol	Marking	Protection concept	Zone	CENELEC IEC FM/UL	Application
General requirements				--- all Class II, Div. 1/2	--- IEC 61241-0 UL 1604	all applications
Protection by enclosure		tD	Ex atmosphere is kept apart from ignition source and temperature limitation	20, 21 or 22 20, 21 or 22 Class II, Div. 1	EN 50281-1-1 IEC 61241-1-1 UL 1203	switching, command- and signalling devices, lights, installation boxes, enclosures
Purged		pD	Ex atmosphere is kept apart from ignition source	21 or 22 21 or 22 Class II, Div. 1/2	EN 50281-4 IEC 61241-2 NFPA 496	switchgear and control cabinets, motors, measuring and analysis devices, calculators
Intrinsic safety		iD	Energy limitation of sparks and temperatures	20, 21 or 22 20, 21 or 22 Class II, Div. 1	EN 50281-5 IEC 61241-11 FM 3610/UL 913	measuring, control technology and engineering, sensors, actuators, instrumentation
Encapsulation		mD	Ex atmosphere is kept apart from ignition source	20, 21 or 22 20, 21 or 22 ---	EN 50281-6 IEC 61241-18 ---	coils of relays and motors, electronics, magnetic valves, connecting systems
Non-incendive		[NI]	Avoidance of sparks and high temperatures	-- -- Class II, Div. 1	-- -- FM 3611/UL 1604	
Dust tight			Transmission of an explosion to the outside is excluded	--- --- Class II, Div. 2	-- -- FM 3611/UL 1604	

5 T80°C Maximum allowed surface temperature

Classes and groups per NEC 500: typical dust, fluffs, fibres

Class II	Class III
Metal dust/group E	fibres/fluffs
Coal dust/group F	
Grain dust/group G	

CE 0102 Ex II2G EEx de IIC T6

1 2 3 4 5 6 7 8

1 CE conformity with EC directives

2 0102 Notified body

Notified body	Country	Code No.
TÜV-A	Austria	0408
PTB	Germany	0102
EXAM	Germany	0158

3 II2G Conditions in explosion endangered areas

Flammable material	Temporary behaviour of the flammable material in Ex zones	Classification of the explosive endangered areas			Required marking of the suitable electrical equipment per CENELEC	
		CENELEC / IEC	US NEC 505	US NEC 500	Equipment group	Equipment category
Gases, vapours	are present permanently, long term or often	Zone 0	Class I Zone 0	Class I Division 1	II	1G
	are likely to occur	Zone 1	Class I Zone 1		II	2G (or 1G)
	are unlikely to occur, if occur though only rarely or for a short time	Zone 2	Class I Zone 2	Class I Division 2	II	3 G (or 2G or 1G)
Methane	--- ---	Mining Mining	--- ---	Mining ---	I I	M1 M2 (or M1)

4 E per directive 94/9/EG (ATEX)

5 Ex explosion protected device

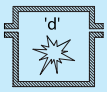
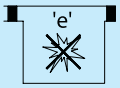
8 T6 Temperature classes and maximum permissive surface temperatures of electrical equipment per CENELEC/IEC/NEC 505 and NEC 500

450°C	T 1					
300°C		T 2				
200°C			T 3			
135°C				T 4		
100°C					T 5	
85°C 0°C						T 6
CENELEC IEC NEC 505	T 1	T 2	T 3	T 4	T 5	T 6

Classes and groups per NEC 500: typical gases

Class I	Mining
Acetylene/group A	Methane
Hydrogene/group B	
Ethylene/group C	
Propane/group D	

6 de Protection methods

Protection method	Symbol	Marking	Protection concept	Zone	CENELEC IEC FM/UL	Application
General requirements				all	EN 60079-0 IEC 60079-0 FM 3600/UL 2279	all applications
Flameproof enclosure		Eex d Ex d AEx d	Transmission of an explosion to the outside is excluded	1 or 2 1 or 2 ---	EN 50018 IEC 60079-1 FM 3615/UL 2279	switchgear, control units, motors command and signaling devices, power electronics
Increased safety		EEx e Ex e AEx e	Avoidance of sparks and temperatures	1 or 2 1 or 2 Class 1, Zone 1	EN 50019 IEC 60079-7 FM 3600/UL 2279	installation boxes, enclosures, motors, lights, terminals
Intrinsic safety		EEx i Ex i [IS]	Energy limitation of sparks and temperatures	0, 1 or 2 0, 1 or 2 Class I, Div. 1	EN 50020, EN 50039 IEC 60079-11 FM 3610/UL 2279	measuring, control technology and engineering, sensors, actuators, instrumentation
Pressurized		EEx p Ex p	Ex atmoshpere is kept apart from ignition source	1 or 2 1 or 2 Class I, Div. 1/2	EN 50016 IEC 60079-2 FM 3620/NFPA 496	switchgear and control cabinets, motors, measuring and analysis devices, calculators
Encapsulation		EEx m Ex m AEx m	Ex atmoshpere is kept apart from ignition source	1 or 2 1 or 2 Class I, Zone 1	EN 50028 IEC 60079-18 FM 3600/UL 2279	coils of relays and motors, electronics, magnetic valves, connecting systems
Oil immersion		EEx o Ex o AEx o	Ex atmoshpere is kept apart from ignition source	1 or 2 1 or 2 Class I, Zone 1	EN 50015 IEC 60079-6 FM 3600/UL 2279	transformers, relays, start-up control units, switchgear
Sand encapsulation		EEx q Ex q AEx q	Transmission of an explosion to the outside is excluded	1 or 2 1 or 2 Class I, Zone 1	EN 50017 IEC 60079-5 FM 3600/UL 2279	transformers, relays, capacitors
Protection method “n”		EEx n Ex n AEx n	miscellaneous protection principles for zone 2	2 2 Class I, Zone 2	EN 50021 IEC 60079-15 FM 3600	only applications zone 2
Non-incendive		[NI]	Avoidance of sparks and temperatures	-- -- Class I, Div. 1	-- -- FM 3611/UL 1604	
Explosion-proof		[XP]	Transmission of an explosion to the outside is excluded	-- -- Class I, Div. 1	-- -- FM 3615/UL 1203	
optical radiation		Eex op Ex op	Limit, avoid etc. transmission of optical radiation	1 or 2 1 or 2	EN 60079-28 IEC 60079-28	optoelectronic devices, e.g. with fibreoptics

7 IIC Classification per CENELEC/IEC/NEC 505, Explosion sub-group gases and vapours

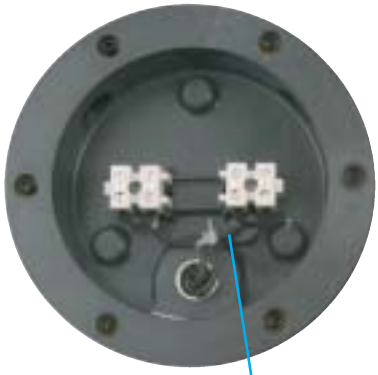
	T1	T2	T3	T4	T5	T6
I	Methane	--	--	--	--	--
IIA	Ammoniac Methane Ethane Propane	Ethyl alcohol Cyclohexane n-Buthane n-Hexane	Fuel in general Aircraft fuel Fuel oil	Acetaldehyde	--	--
IIB	Lighting gas Acrylonitrile	Ethylene Ethylen oxide	Ethylen-glycol Hydrogene sulphide	Ethyl ether	--	--
IIC	Hydrogene	Ethine (Acetylene)	--	--	--	Coal disulphide

Ex-Proof Signal Horn dHH
Ex-Proof Signal Bell dHW

dHH – dHHR

mounting bracket 4VA stainless

dHW – dHWR



terminal connection chamber in protection class increased safety „e“

II 2 G EEx de IIC T6
II 2 D IP66 T80 °C
Zone 1 + 2

Features

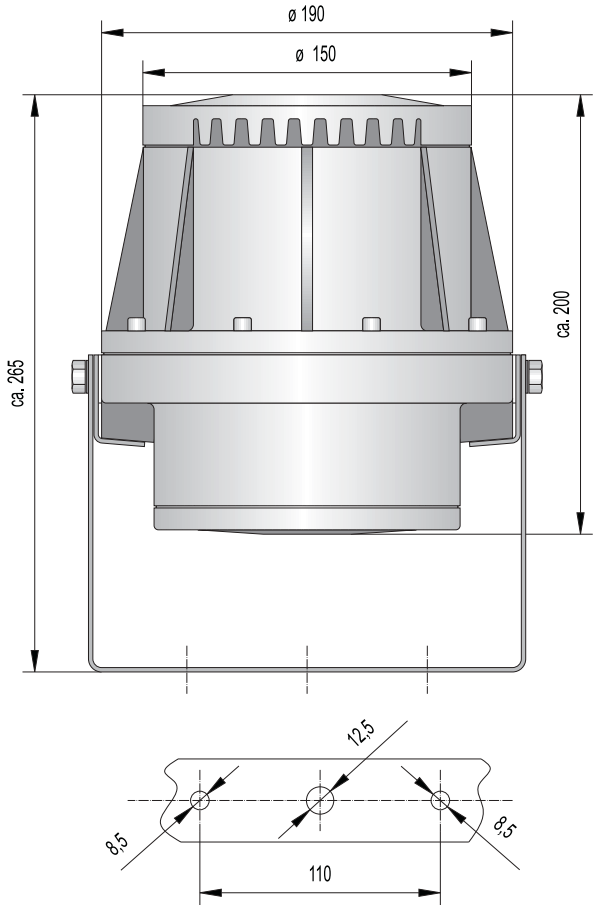
- loud signal horn with typical horn tone (dHH) resp. loud signal bell with typical bell tone (dHW)
- for use in explosion endangered areas of zone 1 and 2
- modular system with synthetic housing made of glassfibre reinforced polyester
- flameproof chamber „d“ – terminal connection chamber in protection class increased safety „e“
- lower weight – robust and corrosion proof design
- insulation class II – no equipotential bonding required
- DC models with electronic contact breaker – significantly higher lifetime
- models dHHR resp. dHWR with integrated telefone call current relay

Technical data

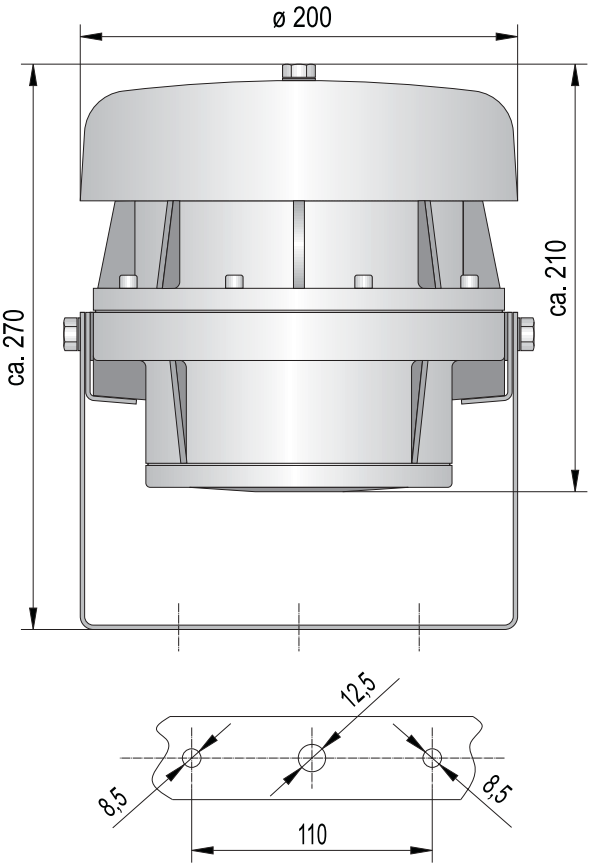
Type	dHH	dHW
Housing, Colour	glassfibre reinforced polyester dark grey RAL 7024	
Terminal	1,5 mm² fine wire 2,5 mm² single wire	
Cable entry	cable gland M20 x 1,5 blind plug M20 x 1,5 dHHR/dHWR: 2 x cable gland M20 x 1,5	
Mounting	as required - swiveling mounting bracket, preferably sound outlet to front or downwards	
Operation	continuous	
Insulation class	II no equipotential bonding required	
Weight	5,5 kg	6,0 kg
Approval	PTB 01 ATEX 1133	PTB 01 ATEX 1134

IP 66 | 105 dB | - 20 °C + 40 | 0408

dHH – dHHR



dHW – dHWR



Order data

Nominal voltage (V)	Hz	Order No.			
		dHH	Nominal current (A)	dHW	Nominal current (A)
6 V AC	50 Hz	300 000 103	2,30		
12 V AC		300 000 104	1,20	320 000 104	0,60
24 V AC		300 000 105	0,65	320 000 105	0,32
42 V AC		300 000 107	0,30	320 000 107	0,30
48 V AC		300 000 108	0,35	320 000 108	0,30
60 V AC		300 000 109	0,25	320 000 109	0,24
110 V AC		300 000 110	0,15	320 000 110	0,14
230 V AC		300 000 113	0,07	320 000 113	0,055
120 V AC	60 Hz	300 000 211	0,15	320 000 211	0,18
240 V AC		300 000 213	0,07	320 000 213	0,065
6 V DC		300 000 003	1,00	320 000 003	1,20
12 V DC		300 000 004	0,60	320 000 004	0,60
24 V DC		300 000 005	0,30	320 000 005	0,35
48 V DC		300 000 008	0,17	320 000 008	0,30
60 V DC		300 000 009	0,15	320 000 009	0,23
110 V DC		300 000 010	0,08	320 000 010	0,13
220 V DC		300 000 013	0,05	320 000 013	0,07
Models with telephone call current relay					
Nominal voltage (V)	Hz	dHHR	Nominal current (A)	dHWR	Nominal current (A)
230 V AC	50 Hz	300 100 013	0,07	320 100 113	0,055

For all models: nominal voltage tolerance: +10%, -15%

Ex-Proof Loudspeaker dHS

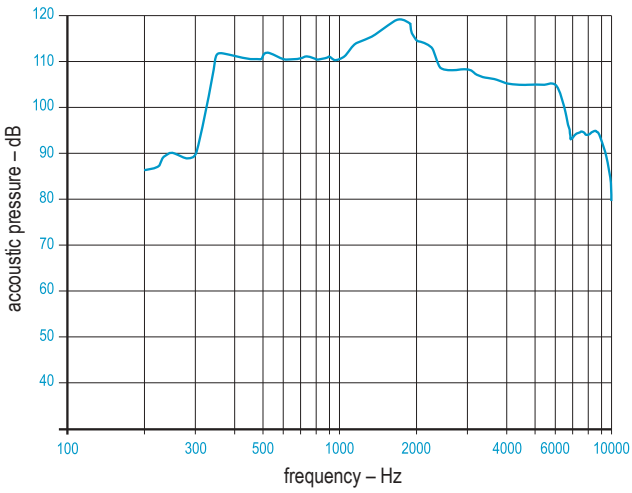
terminal connection chamber inreased safety „e“

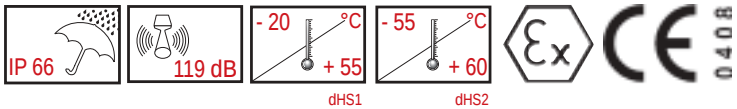
II 2 G EEx dem IIC T5
Zone 1 + 2

Features

- ex-proof loudspeaker for emergency communications and for warning, calling, indicating in explosion endangered areas of zone 1 and 2
- power up to 25 W at sound pressure levels up to 119 dB (A) in 1 m
- built-in 100 V transformer – for connection to 100 V loudspeaker systems
- antistatic, UV-resistant synthetic housing
- low weight, robust and corrosion proof design
- insulation class II – no equipotential bonding required
- excellent acoustic quality
- gas tight encapsulated transformer module
- acoustic pressure chamber is separated from environment via a spezial sinter metal filter

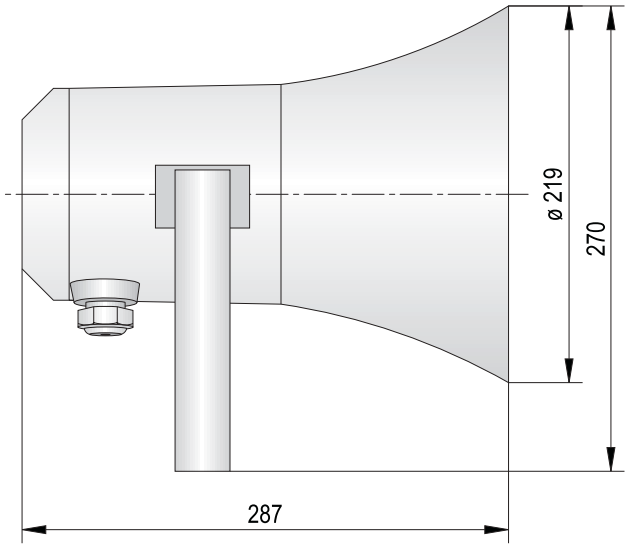
Frequency

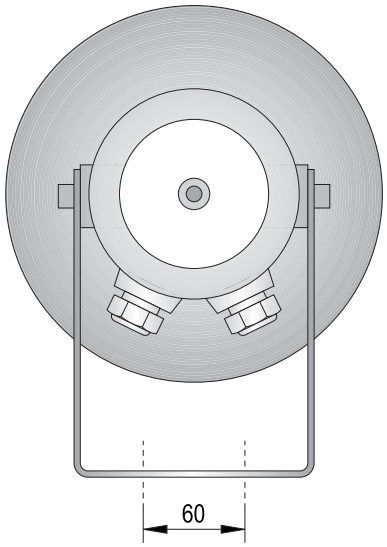


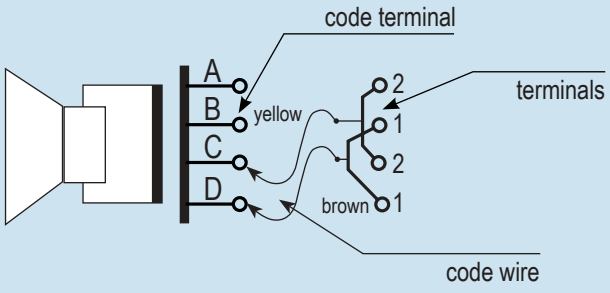


Technical data

Type	dHS
Housing, Colour	antistatic UV-resistant synthetic housing black
Mounting bracket	stainless steel V4A
Terminal	2,5 mm² (AWG) fine wire 4,0 mm² single wire
Connection cable	6 - 13 mm
Cable entry	2 x cable gland M20 x 1,5
Mounting	as required - swiveling mounting bracket
Insulation class	II no equipotential bonding required
Weight	3,5 kg
Input-Output feed through	up to 20 loudspeakers resp. max. 500 W
Supply voltage	100 V
Max. power 70-15000 Hz	25 W
SPL 25 W / 1m	119 dB (A)
SPL 1 W / 1m	107 dB (A)
Transmission range	230 - 10.000 Hz
Transmission range acc.to IEC 60268	330 - 6.200 Hz
Distortion factor 1 W/1 kHz	≤ 4%
Distortion factor 10 W/1 kHz	≤ 5%
Angle of radiation 1 kHz - 6 dB	130°
Angle of radiation 4 kHz - 6 dB	40°
Approval	PTB 03 ATEX 1231







Coding via internal stranded hook-up wires:
polarity (yellow/brown)

Code wire		Power (W)
brown	yellow	
D*	C*	25,0*
C	B	12,5
B	A	8,0
D	B	4,0
C	A	2,0
D	A	1,0

* Factory setting
Leads 1 + 2 / Further loops 1 + 2

Order data

Type	Order No.	Description	Power (W)	Temperature range
dHS1	360 000 000	Ex-proof loudspeaker	25	-20 °C to +55 °C
dHS2	360 000 001	Ex-proof loudspeaker	25	-55 °C to +60 °C

mounting bracket 4VA stainless

II 2 G EEx dem IIC T6
Zone 1 + 2

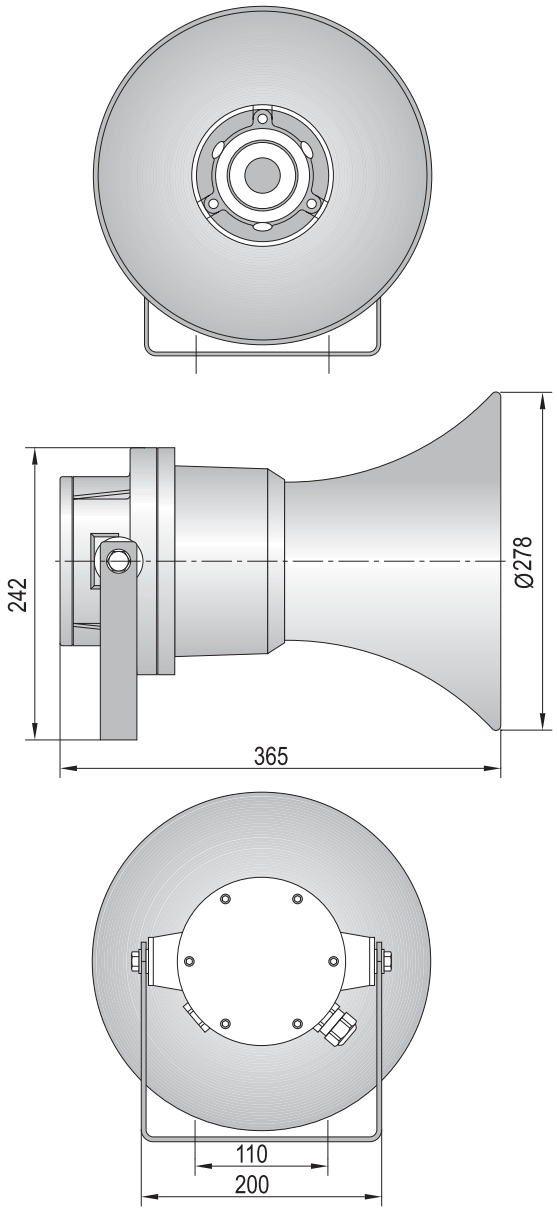
Features

- loud electronic sounder for use in explosion endangered areas of zone 1 and 2
- 31 different signal tones resp. signal tone groups (4 signal tones per signal tone group)
- 1 programmable signal tone group
- 8 volume settings
- synchronisation of tones
- modular system with synthetic housing made of glassfibre reinforced polyester
- flame-proof chamber „d“ – connection chamber in protection class increased safety „e“ – encapsulation „m“
- lower weight – robust and corrosion proof design
- Insulation class II – no equipotential bonding required

Technical data

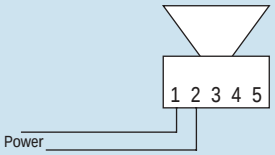
Type	dHE
Housing, Colour	glassfibre reinforced polyester dark grey, cone black
Terminals	≤ 2,5 mm² single-, fine- or multiwire
Cable entry	cable gland M20 x 1,5 blind plug M20 x 1,5
Mounting	as required - swiveling mounting bracket, preferably sound outlet front or downwards
Number of parallel switched sounders	≤ 32
Signal tones	31
Insulation class	II no equipotential bonding required
Weight	5,9 kg
Approval	PTB 01 ATEX 1232

IP 66 | 119 dB | - 20 °C + 40 | 0408



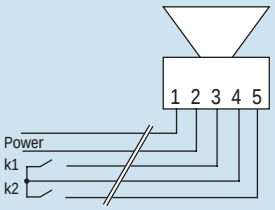
OPERATING OPTIONS

Single sounder with pre-selected signal tone



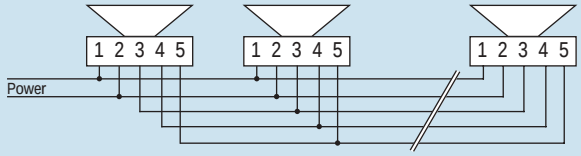
S1 = 7 S2 = 0 X1 = LS		Max. volume group 0 selected
3-4	4-5	Selected stage
open	open	Stage 0 (Mute)
⌊‾⌋	open	Stage 1 (Tone 0)
open	⌊‾⌋	Stage 2 (Tone 1E)
⌊‾⌋	⌊‾⌋	Stage 3 (Tone 9)

Single sounder with selectable/switchable signal tone



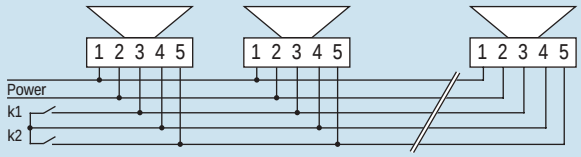
S1 = 7 S2 = 0 X1 = LS		Max. volume group 0 selected
k1	k2	Selected stage
break	break	Stage 0 (Mute)
make	break	Stage 1 (Tone 0)
break	make	Stage 2 (Tone 1E)
make	make	Stage 3 (Tone 9)

Multi sounder with pre-selected signal tone



S1 = 7 / S2 = 0 / X1 = LS		Max. volume / group 0 selected
3-4	4-5	Selected stage
open	open	Stage 0 (Mute)
⌊‾⌋	open	Stage 1 (Tone 0)
open	⌊‾⌋	Stage 2 (Tone 1E)
⌊‾⌋	⌊‾⌋	Stage 3 (Tone 9)

Multi sounder with selectable/switchable signal tone



S1 = 7 / S2 = 0 / X1 = LS		Max. volume/ group 0 selected
k1	k2	Selected stage
break	break	Stage 0 (Mute)
make	break	Stage 1 (Tone 0)
break	make	Stage 2 (Tone 1E)
make	make	Stage 3 (Tone 9)

Order data

Type	Order No.	Description	Nominal/ operating voltage	Max. nominal current
dHE1	370 000 000	Ex-proof sounder	85 - 265 V AC, 50-60 Hz	100 mA (230 VAC) 160 mA (120 V AC) 165 mA (115 V AC)
dHE2	370 000 001	Ex-proof sounder	21,6-75 V DC	520 mA (24 V DC)

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Signal Sound Groups				
	Stage 0 3 4 5	Stage 1 3------4 5	Stage 2 3 4------5	Stage 3 3------4------5
Group 0	Mute	Tone 0	Tone 1E	Tone 9
Group 1	Mute	Tone 1	Tone B	Tone 13
Group 2	Mute	Tone 2	Tone 1	Tone 13
Group 3	Mute	Tone 3	Tone 4	Tone 13
Group 4	Mute	Tone 4	Tone 5	Tone 13
Group 5	Mute	Tone 5	Tone 8	Tone 13
Group 6	Mute	Tone 6	Tone 1	Tone 13
Group 7	Mute	Tone 7	Tone 12	Tone 1
Group 8	Mute	Tone 8	Tone 5	Tone 13
Group 9	Mute	Tone 9	Tone 1E	Tone 0
Group A	Mute	Tone A	Tone 3	Tone 13
Group B	Mute	Tone B	Tone 1	Tone 1A
Group C	Mute	Tone C	Tone 1	Tone 13
Group D	Mute	Tone D	Tone E	Tone 13
Group E	Mute	Tone E	Tone 1	Tone 13
Group F	Mute 2)B1=9	Tone F 2)S1=9	Tone 1 2)B1=A	Tone 13 2)S1=B
Group 10	Mute	Tone 10	Tone 12	Tone 13
Group 11	Mute	Tone 11	Tone 3	Tone 13
Group 12	Mute	Tone 12	Tone 1	Tone 13
Group 13	Mute	Tone 13	Tone 2	Tone 1A
Group 14	Mute	Tone 14	Tone 1	Tone 13
Group 15	Mute	Tone 15	Tone 1	Tone 13
Group 16	Mute	Tone 16	Tone 4	Tone 13
Group 17	Mute	Tone 17	Tone 1C	Tone 13
Group 18	Mute	Tone 18	Tone 1C	Tone 13
Group 19	Mute	Tone 19	Tone 1	Tone 0
Group 1A	Mute	Tone 1A	Tone 19	Tone 13
Group 1B	Mute	Tone 1B	Tone 1	Tone 13
Group 1C	Mute	Tone 1C	Tone 5	Tone 13
Group 1D	Mute	Tone 1D	Tone 1F	Tone 13
Group 1E	Mute	Tone 1E	Tone 9	Tone 0
Group 1F	Mute	Tone 1F	Tone 19	Tone 0

Signal Sound Types					
	Parameter	Type	Standard	Sync	Diagramm
Tone 0	1.000 Hz	Continuous	PFEER Toxic Gas		
Tone 1	800/1.000 Hz @ 0,25 s	Alternating			
Tone 2	500/1.200 Hz @ 0,3 Hz 0,5 s	Slow Whoop		✔	
Tone 3	800/1.000 Hz @ 1 Hz	Sweeping		✔	
Tone 4	2.400/2.900 @ 7 Hz	Sweeping			
Tone 5	2.400/2.900 @ 1 Hz	Sweeping		✔	
Tone 6	500/1.200 Hz @ 0,3 Hz	Sweeping		✔	
Tone 7	1.200/500 Hz @ 1 Hz	Sweeping	DIN/PFEER P.T.A.P.	✔	
Tone 8	2.400/2.900 @ 2 Hz	Alternating		✔	
Tone 9	1.000 Hz @ 1 Hz	Intermittent		✔	
Tone A	800/1.000 Hz @ 0,875 Hz	Alternating		✔	
Tone B	544(100 ms)/440 Hz(400 ms)	Alternating	NF S-32-001	✔	
Tone C	1.400 Hz (1s)/1.600 Hz (0,5 s)	Sweeping	NFC48-265	✔	
Tone D	660 Hz @ 3,33 Hz	Intermittent			
Tone E	660 Hz(1,8 s), 1,8 s off	Intermittent		✔	
Tone F	660 Hz	Continuous			
Tone 10	2.400 Hz @ 1 Hz	Intermittent		✔	
Tone 11	800 Hz(0,25 s), 1 s off	Intermittent		✔	
Tone 12	800 Hz	Continuous			
Tone 13	2400 Hz	Continuous			
Tone 14	554/440 Hz @ 1 Hz	Alternating		✔	
Tone 15	544 Hz @ 0,875 Hz	Intermittent		✔	
Tone 16	800 Hz @ 2 Hz	Intermittent		✔	
Tone 17	800/1.000 Hz @ 50 Hz	Sweeping			
Tone 18	2.400/2.900 @ 50 Hz	Sweeping			
Tone 19	Mute	Continuous			
Tone 1A	554 Hz	Continuous			
Tone 1B	440 Hz	Continuous			
Tone 1C	800/1.000 Hz @ 7 Hz	Sweeping			
Tone 1D	420 Hz 1,6 Hz	Intermittent	Australian Alert	✔	
Tone 1E	1.200/500 Hz @ 1 Hz	Sweeping	DIN/PFEER P.T.A.P.	✔	
Tone 1F	500/1.200 Hz @ 3,75 s 0,25 s	Slow Whoop	Australian Evac.	✔	

Ex-Proof Audible Signalling Sounder AS3

II 2 G EEx em [ib] IIC T6

Features

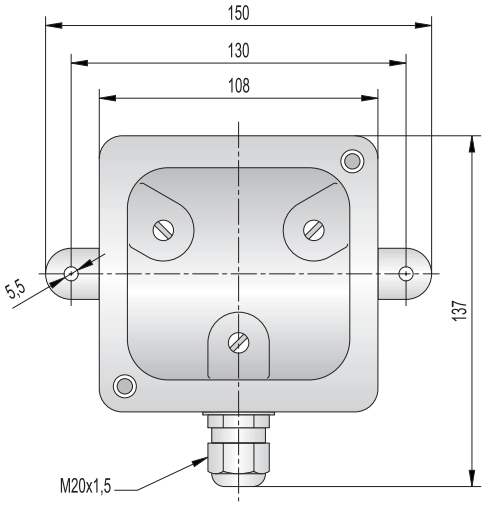
- explosion-proof signalling sounder for universal applications in explosion endangered areas in the industry
- 4 tone types and tone frequencies selectable via DIP switch
- power supply 110 – 230 V AC

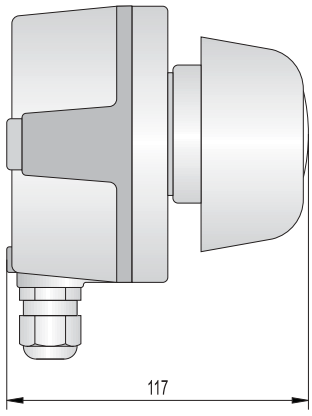
Tone setting			
Tone Type	DIP Switch	Tone Sequence/Tone Sequence Frequency	
Single tone		180 ms on	70 ms off
		120 ms on	50 ms off
		60 ms on	25 ms off
		continuous tone	
Two tone 931-1.253 Hz		5 Hz	
		10 Hz	
		15 Hz	
		20 Hz	
Three tone 800-1.067-1.333 Hz		5 Hz	
		10 Hz	
		15 Hz	
		20 Hz	
Wobble tone		1,6 Hz	
		3,6 Hz	
		3,9 Hz	
		7,8 Hz	

IP 66 | 90 dB | - 20 °C + 40

Technical data

Type	AS3
Housing, Colour	aluminium die cast, black upper part polycarbonate
Mounting	wall or ceiling
Weight	0,9 kg
Power supply	110 - 230 V AC +10 % -15 %
Acoustic signalling	loudspeaker
Tone types	single/two/three or wobble tone selectable via DIP switch
Tone frequencies	5 to 20 Hz in 4 settings adjustable via DIP switch
Terminal	1,5 mm² single or fine wire
Cable entry	1 x M20x1,5
Insulation class	I
Equipotential bonding	connection inside housing
Current intensity	IK ≤ 3 A
Approval	BVS 03 ATEX E430





Order data

Type	Order No.	Description
AS3	410 300 004	Ex-proof audible signalling sounder

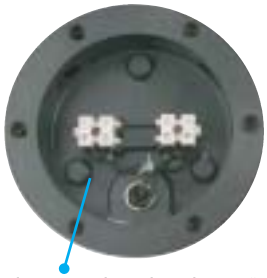
Ex-Proof Strobe Beacon dHF
Ex-Proof Strobe Beacon dSF

auer SIGNALGERÄTE

dHF

II 2 G EEx de IIC T6
Zone 1 + 2

mounting bracket 4VA stainless



terminal connection chamber „e“

Features

- visual signal device with powerful xenon tube for use in explosion endangered areas of zones 1 and 2
- modular system – synthetic housing made of glassfibre reinforced polyester
- low weight – robust and corrosion proof design
- flameproof chamber „d“ – terminal connection chamber in protection class increased safety „e“
- for continuous operation
- models with 5 or 15 J strobe energy
- 4 lens colours
- insulation class II – no equipotential bonding required

IP 66 | 5 / 15 J | - 20 °C + 40

0408

dSF

Features

- visual signal device with powerful xenon tube for use in explosion endangered areas of zones 1 and 2
- typical applications in chemical/petrochemical industries, refineries, vessel/aircraft industries, ammunition depots, fork lifts etc.
- sturdy aluminium housing, coated or powder coated
- compact dimensions – also suitable for building in (only lens visible)
- flameproof chamber „d“ – terminal connection chamber in protection class increased safety „e“
- for continuous operation
- models with 5 J or 15 J strobe energy
- hardened glass lens (borosilicate glass), 15 J model with protecting cage made of stainless steel
- 5 lens colours

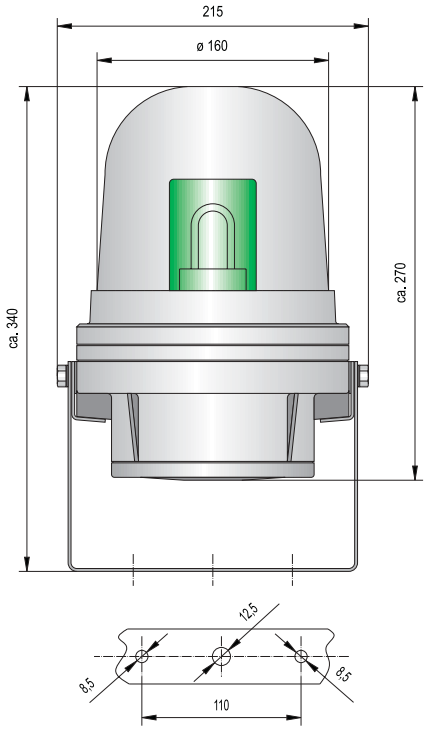
IP 67 | 5 / 15 J | - 20 °C + 40

0408

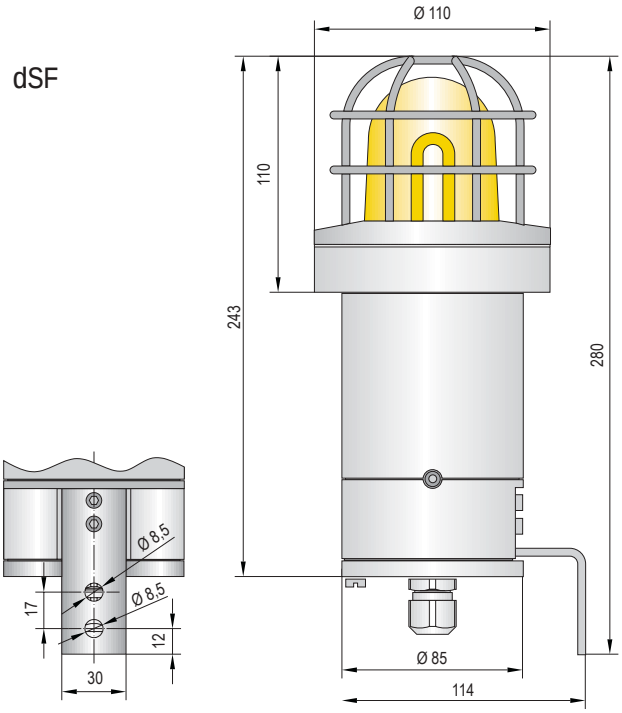
Technical data

Type	dHF
Housing,Colour	glassfibre reinforced polyester dark grey RAL 7024
Lens	polycarbonate (makrolon)
Lens colour	amber, red, blue, green (inner lens)
Terminal	1,5 mm² fine wire 2,5 mm² single wire
Cable entry	cable gland M20 x 1,5 and blind plug M20 x 1,5
Mounting	as required - swiveling mounting bracket
Strobe frequency/lifetime	~ 1 Hz, approx. 5 x 10^6 flashes
Operation	continuous
Insulation class	II no equipotential bonding
Weight	5,9 kg
Approval	PTB 03 ATEX 1098

dHF



dSF



Type	dSF
Housing,Colour	aluminium, surface coated or powder coated (yellow/blue)
Lens	hardened borosilicate glass
Lens colour	amber, red, clear, blue, green
Terminal	1,5 mm² fine wire 2,5 mm² single wire
Cable entry	cable gland M20 x 1,5 and blind plug M20 x 1,5
Mounting	mounting bracket
Strobe frequency/lifetime	~ 1 Hz, approx. 5 x 10^6 flashes
Operation	continuous
Insulation class	I – equipotential bonding: screw connection with wire protection clamp outside (cross section max. 4 mm²)
Weight	2 kg
Approval	PTB 03 ATEX 1230

Colour code for lens			C
1	amber	5	blue
2	red	6	green
4	clear (only dSF)		

Order data

Type	Order No.	Description	Strobe energy (J)	Nominal voltage	Voltage range	Nominal current (A)
dHF1	340 00C 413	Ex-proof strobe beacon	15	230/240 V AC 50-60 Hz	207-253 V AC	0,20
	340 10C 410		5	110/120 V AC 50-60 Hz	103-127 V AC	0,135
	340 10C 413			230/240 V AC 50-60 Hz	207-253 V AC	0,13
dHF2	340 00C 005	Ex-proof strobe beacon	15	24 V DC	21-53 V DC	1,00
	340 00C 009			80 V DC	72-132 V DC	0,25
	340 10C 004		5	12 V DC	10-14 V DC	0,600
	340 10C 005			24 V DC	21-53 V DC	0,280
	340 10C 009			80 V DC	72-132 V DC	0,09
dSF1	335 00C 413	Ex-proof strobe beacon	15	230/240 V AC 50-60 Hz	207-253 V AC	0,20
	335 10C 410		5	110/120 V AC 50-60 Hz	103-127 V AC	0,135
	335 10C 413			230/240 V AC 50-60 Hz	207-253 V AC	0,13
dSF2	335 00C 005	Ex-proof strobe beacon	15	24 V DC	21-53 V DC	1,00
	335 00C 009			80 V DC	72-132 V DC	0,25
	335 10C 005		5	24 V DC	21-53 V DC	0,28
	335 10C 009			80 V DC	72-132 V DC	0,09

Ex-Proof Rotating Signal Beacon dHR
Ex-Proof Steady Beacon dHL

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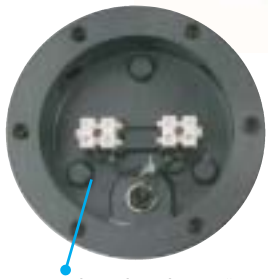
dHR

dHL

II 2 G EEx de IIC T6
Zone 1 + 2

mounting bracket 4VA stainless



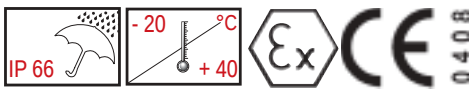
terminal connection chamber „e“

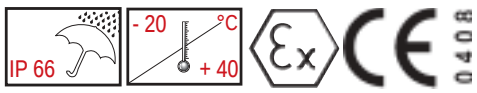
Features

- visual rotating signalling device with powerful halogene bulb and triple lens optical system for use in explosion endangered areas of zone 1 and 2
- wear resistant friction gear
- modular system – synthetic housing made of glassfibre reinforced polyester
- lower weight – robust and corrosion proof design
- flameproof chamber „d“ – terminal connection chamber in protection class increased safety „e“
- for continuous operation
- 4 lens colours
- insulation class II – no equipotential bonding required

Features

- steady beacon with energy saving bulb for use in explosion endangered areas of zone 1 and 2
- modular system –
  synthetic housing made of glassfibre reinforced polyester
- lower weight – robust and corrosion proof design
- flameproof chamber „d“ – terminal connection chamber in protection class increased safety „e“
- for continuous operation
- energy saving bulb available in 5 colours
- insulation class II – no equipotential bonding required

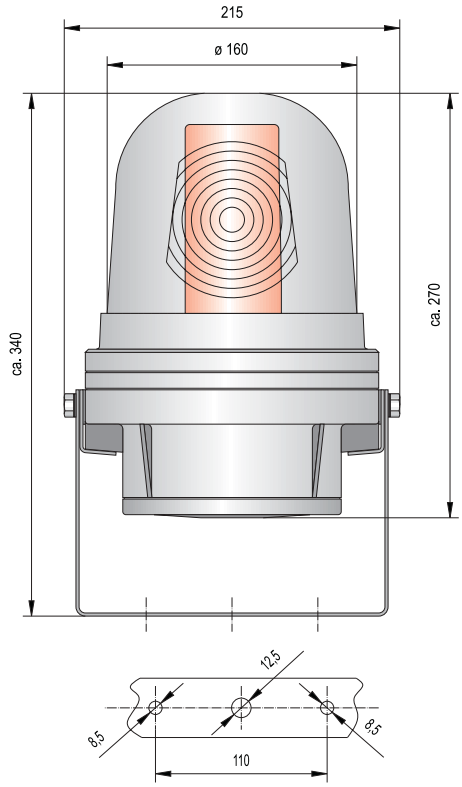




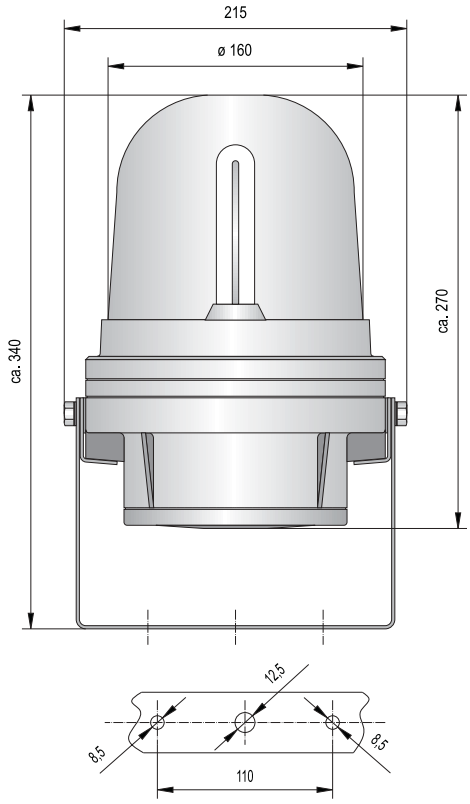
Technical data

Type	dHR	dHL
Housing, Colour	glassfibre reinforced polyester dark grey RAL 7024	
Lens	polycarbonate (makrolon)	hardened borosilicate glass
Colours	amber, red, blue, green (inner lens)	amber, red, white, blue, green (energy saving bulb)
Terminal	1,5 mm² fine wire 2,5 mm² single wire	
Light source	halogene bulb 20 W	energy saving bulb 15 W
Optics	triple lens optical system (fresnel lens)	---
Rotation speed	~ 60 rds/min	---
Cable entry	cable gland M20 x 1,5 and blind plug M20 x 1,5	
Operation	continuous operation	
Insulation class	II no equipotential bonding required	
Weight	5,5 kg	
Approval	PTB 03 ATEX 1098	

dHR



dHL



Order data

Type	Order No.	Description	Nominal voltage	Voltage range	Nominal current (A)
dHR1	350 00C 405	Ex-proof rotating signal beacon	24 V AC/DC	+/- 10%	0,90
	350 00C 410		110/120 V AC 50-60 Hz		0,20
	350 00C 413		230/240 V AC 50-60 Hz		0,10
dHR2	350 00C 004		12 V DC		1,70
dHL1	310 00C 413	Ex-proof steady beacon	230/240 V AC 50-60 Hz		0,15

Colour code for lens		C	
1	amber	5	blue
2	red	6	green
3	white (only dHL)		

Ex-Proof Visual-Audible Signalling Sounder VS1

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II 2 G EEx em [ib] IIC T6

DIP Switch	Mode
	Telephone Call Secondary Sounder
	Signalling Detector

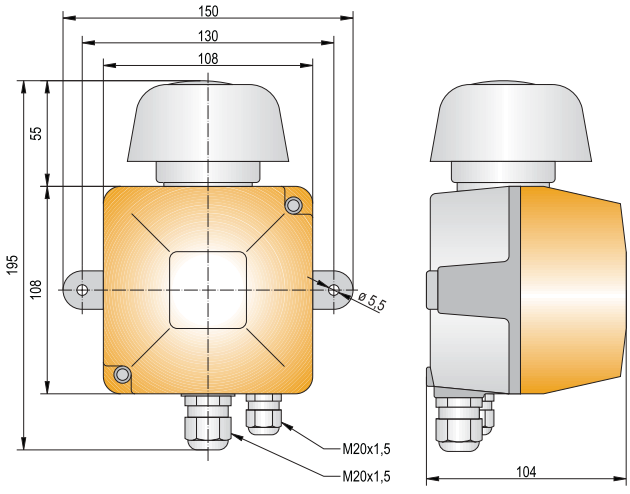
Tone setting			
Tone Type	DIP Switch	Tone Sequence	
Single tone		continuous tone	
		120 ms on	50 ms off
Two tone		16,6 Hz	
		50 Hz	
Three tone		16,6 Hz	
		50 Hz	
		120 ms on	50 ms off
		60 ms on	25 ms off

Features

- explosion proof visual-audible signalling sounder for universal applications in explosion endangered areas
- 3 tone types and up to 4 tone sequencies selectable via DIP switch
- power supply from mains (230 V AC)
- 5 lens colours

IP 66 | 90 dB | - 20 °C + 40 | 2 x 1 J

0408



Technical data

Type	VS1
Housing, Colour	aluminium-die cast, black
Lens	polycarbonate, amber, red, clear, blue, green
Mounting	wall or ceiling
Weight	1,5 kg
Acoustic signalling	loudspeaker
Tone types	single/two tone or three tone selectable with DIP switch
Visual signalling	2 xenon tubes with ~ 1 J 230 V AC -15% +10%, 50 Hz
Strobe frequency	1 - 2 Hz
Terminal	1,5 mm² single or fine wire
Cable entry	2 x M20x1,5
Cable diameter	6 - 12 mm
Approval	PTB 04 ATEX 2012

Order data

Type	Order No.	Description
VS1	410 10C 005	Ex-proof visual-audible signalling sounder

Colour code for lens		C	
1	amber	5	blue
2	red	6	green
4	clear		

Overview Accessories

	Type	Page
LED Bulbs		150
Steady Light	LLL	150
Flashing Light	LLB	150
Bulbs	GL	151
Halogen Bulbs	HL	151
Xenon/Strobe Tubes	XT	151

LED Bulbs – Steady Light LLL
– Flashing Light LLB

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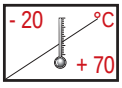
LED-bulb
shown in socket

Features

- complete LED bulb offering
- up to date LED technology
- absolutely shock and vibration proof, maintenance-free
- excellent brightness and light output
- very long lifetime – up to approx. 100.000 h (min. 50 times longer than bulbs)
- models for steady or flashing led light
- PLC fit (leakage/inrush current)
- higher led bulb prices vs. bulbs amortize very quickly due to favourable price-performance ratio



c UL us CE

Technical data

Type	LLL	LLB
Housing	polycarbonat	
LED colours	amber, red, clear, blue, green, yellow	
Socket	BA 15 d	
Duty cycle factor	100 %	
Flashing frequency	---	~ 2 Hz
Lifetime	~ 50.000 h	
Weight	15 g	

Order data

Nominal voltage	Order No. / Type		Nominal current (mA)
	LLL	LLB	
	LED-steady light	LED-flashing light	
12 V AC/DC	893 00C 404	893 01C 404	42
24 V AC/DC	893 00C 405	893 01C 405	30
48 V AC/DC	893 00C 408	893 01C 408	20
110/120 V AC/DC	893 00C 310	893 01C 310	21
230/240 V AC/DC	893 00C 313	893 01C 313	21

Colour code for lens			C
1	amber	5	blue
2	red	6	green
4	clear	7	yellow

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Order data

Bulbs								
Nominal current	Type	Socket	Order No.	Wattage	Type	Socket	Order No.	Wattage
12 V	GL01	BA15d	890 010 904	5 W	GL21	BA15d	890 025 904	25 W
24 V	GL02		890 010 905	7 W	GL22		890 025 905	
48 V	GL03		890 010 908		GL23		890 025 908	
60 V	GL04		890 010 909		GL24		890 025 909	
110/120 V	GL05		890 010 910		GL25		890 025 910	
230/240 V	GL06		890 010 913		GL26		890 025 913	

Xenon tubes		
Type	Order No.	Strobe energy
XT30	890 130 900	30 J
XT15	890 115 900	15 J
XT07	890 107 900	7 J

Halogen bulbs												
Nominal current	Type	Socket	Order No.	Wattage	Type	Socket	Order No.	Wattage	Type	Socket	Order No.	Wattage
12 V	HL51	GY 6.35	890 050 904	50 W	HL31	GY 6.35	890 035 904	35 W	HL21	GY 6.35	890 020 904	20 W
24 V	HL52		890 050 905		HL32		890 035 905		HL22		890 020 905	
110/120 V	HL55	G 6.35	890 050 910		HL33	G 6.35	890 035 910		HL25	G 6.35	890 020 910	
230/240 V	HL56		890 050 913		HL36		890 035 913		HL26		890 020 913	

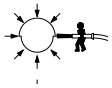
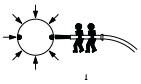
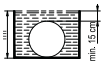
OVERVIEW - Light source options for AUER signalling equipment

Type	Bulbs		LED-Bulbs		Halogen bulbs			Xenon tubes		
	GL 7 W	GL 25 W	LLL	LLB	HL 50 W	HL 35 W	HL 20 W	XT 30	XT 15	XT 07
MLL-MBL-MRL					■					
MLM-MBM-MRM						■				
MLS-MBS-MRS							■			
MFL								■		
MFM									■	
MFS										■
WLK	■		■	■						
WLG-BKG		■								
VLL	■		■	■						
VLB	■		■							
SLL	■		■	■						
SLB	■		■							
SLP-SLD	■		■	■						
SBP	■		■							
KLL-KDL	■		■	■						

PROTECTION CLASSES

Standard EN 60529 deals with the protection of electrical devices against ingress of solid bodies and against ingress of liquids by using bodies, covers etc.

The protection are indicated by the abbreviation IP and two digits composed by the degree of protecion (eg. IP 65).

1st figure	protection against solid bodies	2nd figure	protection against liquids
0	No protection No particular protection of persons against direct contact of active or passive parts; no protection against ingress of solid bodies.	0	No protection
1 	Protection against large solid bodies Protection against solid bodies larger than 50mm – eg. accidental contact with the hand	1 	Protection against vetically falling drops of water Vertically drops of water must not cause any damage
2 	Protection against medium large solid bodies Protected against solid bodies larger than 12 mm - eg. finger of the hand.	2 	Protection against drops of water – diagonal Protection against drops of water falling at up to 15° from the vertical
3 	Protection against small solid bodies Protected against solid bodies larger than 2,5 mm – eg. tools, wires	3 	Protection against drops of water Protection against drops of rain water at up to 60° from the vertical
4 	Protection against solid bodies of grain size Protection against solid bodies larger than 1 mm – eg. fine tools, small wires	4 	Protection against projections of water Protected against projections of water from all directions
5 	Protection against dust Protected against dust – no harmful deposit	5 	Protection against jets of water Protected against jets of water from all directions
6 	Complete Protection against dust Completely protected against dust	6 	Protected against jets of water of similar to heavy seas Water must not enter in harmful quantity into device when exposed to jets of water of similar to heavy seas
		7 	Protection against effects of immersion Water must not enter in harmful quantity into device when immersed into water under defined conditions of pressure and time
		8 	Protection against prolonged effects of immersion under pressure Water must not enter in harmful quantity into device when immersed under pressure

Particularly in the north american market products are classified by locally established NEMA and UL.
UL require enclosed testing by qualified evaluators. They also send site inspectors four times a year (follow up service) to make sure a manufacturer adheres to prescribed manufacturing methods and material specifications.

AUER is member of “Client Test Data Program”.
This program allows the customer to implement relevant UL testing in their own lab.
UL accept those results first, but make their own periodic test to control the correctness afterwards.


CERTIFICATE OF QUALIFICATION

Underwriters Laboratories Inc.

J AUER FABRIK ELEKTRISCHER MASCHINEN GMBH

Advantages:
- fast productlaunching
- better test quality, with annual accredit

NEMA, on the other hand, does not require independent testing and leaves compliance completely up to the manufacturer.

Enclosure Rating	NEMA National Electrical Manufacturers Association	UL Underwriters Laboratories Inc.
Type 1	Enclosures are intended for indoor use primarily to provide a degree of protection against contact with the enclosed equipment or locations where unusual service conditions do not exist.	Indoor use primarily to provide protection against contact with the enclosed equipment and against a limited amount of falling dirt.
Type 2	Enclosures are intended for indoor use primarily to provide a degree of protection against limited amounts of falling water and dirt.	Indoor use to provide a degree of protection against limited amounts of falling water and dirt.
Type 3	Enclosures are intended for outdoor use primarily to provide a degree of protection against windblown dust, rain and sleet; undamaged by the formation of ice on the enclosure.	Outdoor use to provide a degree of protection against windblown dust and windblown rain; undamaged by the formation of ice on the enclosure.
Type 3R	Enclosures are intended for outdoor use primarily to provide a degree of protection against falling rain and sleet; undamaged by the formation of ice on the enclosure.	Outdoor use to provide a degree of protection against falling rain; undamaged by the formation of ice on the enclosure.
Type 4	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose-directed water; undamaged by the formation of ice on the enclosure.	Either indoor or outdoor use to provide a degree of protection against falling rain, splashing water, and hose-directed water; undamaged by the formation of ice on the enclosure.
Type 4X	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, and hose-directed water; undamaged by the formation of ice on the enclosure.	Either indoor or outdoor use to provide a degree of protection against falling rain, splashing water, and hose-directed water; undamaged by the formation of ice on the enclosure; resists corrosion.
Type 6	Enclosures are intended for use indoor or outdoors where occasional submersion is encountered. Limited depth; undamaged by the formation of ice on the enclosure.	Indoor or outdoor use to provide a degree of protection against entry of water during temporary submersion at a limited depth; undamaged by the external formation of ice on the enclosure.
Type 12	Enclosures are intended for indoor use primarily to provide a degree of protection against dust, falling dirt and dripping noncorrosive liquids.	Indoor use to provide a degree of protection against dust, dirt, fiber flyings, dripping water and external condensation of noncorrosive liquids.
Type 13	Enclosures are intended for indoor use primarily to provide a degree of protection against dust, spraying of water, oil and noncorrosive coolant.	Indoor use to provide a degree of protection against lint, dust seepage, external condensation and spraying of water, oil and noncorrosive liquids.

STANDARDS AND PROOF MARKS FOR SIGNALLING PRODUCTS

the manufacturer declares in a declaration of conformity that all applicable european directives and respective basic safety requirements are obeyed.

product is certified for use in explosion endangered areas

products showing a UL sign have been tested by UL or an accredited laboratory. The manufacturer is quarterly inspected (Follow up Service) for guaranteeing a constant product quality during the product life time cycle. In contrary to European standards and guidelines UL concentrates in a much higher degree on safety relevant aspects.
A “C” in front of a UL-sign means that the UL certification was also made according to standards of the CSA (Canadian Standards Association) and that the certificate is also valid for the Canadian markets.

Although a UL-certificate is not a legal requirement in the US and particularly in non-US markets it is however often a market requirement as the user of UL-certified products can be sure that these conform to a very high safety level which is regularly monitored by the Follow-up Service.

product is certified according to ATEX directives for use in explosion endangered areas

product is checked and fit for integration into AS-Interface field bus

ADDITIONAL INFORMATION TO CATALOGUE DATA

The sound pressure level shown in the catalogue were measured in the production plant at a distance of 1m. The data like every measured data are subject to dispersion, which can occur because of fitting position etc..

Piezo buzzer frequencies also vary due to tolerance of single components (up to ~500Hz of the par).
There are no frequencies mentioned for electromechanical horns, because of the wide spectrum and no exact details can be given to the outgoing tone.
The main vibration for horns which will be driven by alternating current is down to 100Hz, direct current averages 200 to 500Hz. In principle horns do have a lower tone than piezo buzzers which show frequencies between 2500 and 3500 Hz.

Technical data underlie changes due to influencing factors, and therefore have to be accepted under reserve.

INFORMATION CONCERNING PRODUCT CODES/ORDER NUMBERS

Product codes

All AUER products feature a product code (which is composed of 3 letters usually). This product code indentifies clearly a product/ product type.

Example:
SLL Warning Light Module
Signal Tower modulSIGNAL70

The type code can also be searched out with the help of the first three numbers of the order number.

Example: 230 102 313

Product index: 230
Strobe light module
Signal Tower modulSIGNAL70

AUER products can easliy be searched and found via product code or product index. At the last pages of the catalogue you find systematic prepared indices for product code and index.

Further codes in AUER order number (for you information):

Products that offer different **lens colours** are provided with the **colour code "C"** . The colour code "C" is consistently defined as follows:

1 = amber
2 = red
3 = white
4 = clear
5 = blue
6 = green
7 = yellow

Example: SLL 210 50C 900
210 502 900 SLL, rot

For products that may feature different **tube length**, the tube length is coded with the **length code "L"**. The length code "L" is consistently defined as follows:

0 = 0 mm
1 = 50 mm
2 = 100 mm
3 = 250 mm
4 = 400 mm
5 = 500 mm
6 = 600 mm
7 = 800 mm

Example: BMR 200 70L 900
200 703 900
Pole mount base on 250 mm
aluminium tube with plastic foot

For products that feature different nominal voltages, the nominal voltage is usually described with the last 3 positions of the 9 digit order number.

1st position – voltage code
determine the voltage txpe

0 = DC
1 = AC 50 Hz
2 = AC 60 Hz
3 = AC 50-60 Hz
4 = AC/DC

2nd and 3rd position- voltage code – determine the nominal current

03 = 6 V	04 = 12 V	05 = 24 V
06 = 36 V	07 = 42 V	08 = 48 V
09 = 60 V	10 = 110 V	11 = 120 V
12 = frei	13 = 230 V	14 = 240 V
15 = 380 V		

Example: KLH 710 100 009 Mini horn
60 V DC
KLH 710 100 105 Mini horn
24 V AC 50 Hz
ESP 811 100 405
Panel mount buzzer, pulsing tone, 24 V AC/DC

Type	Order No.	Product	Product family	Page
AS1	410	ex-proof audible telephone call signalling sounder		116
AS2		weatherproof audible telephone call signalling sounder		124
AS3		ex-proof audible signalling sounder		143
AS4		audible signalling sounder		104
BAZ	280	AS-Interface module	modulSIGNAL70	44-51
BC1	C112	LED-flashing beacon 60mm Ø		32
BDM	841	pole connection box for magnetic mounting	modulSIGNAL	50, 56
BDV		pole connection box for vertical mounting	modulSIGNAL	50, 56
BDW		pole connection box for horizontal mounting	modulSIGNAL	50, 56
BFF	840	pole mount base on aluminium tube with foot adapter for quick mounting	K	34-37
BFR	200	pole mount base on aluminium tube with foot adapter for quick mounting	modulSIGNAL70	44-51
BFW	820	pole mount base on aluminium tube with foot adapter for quick mounting	K	34-37
BHF	840	base for horizontal mounting	K	34-37
BHW	820	base for vertical mounting	K	34-37
BKG	832	flashing beacon 120mm Ø	G	24-25
BLG	807	LED-flashing beacon 120mm Ø	G	24-25
BMR	200	pole mount base on aluminium tube with plastic foot	modulSIGNAL70	44-51
BSR		pole mount base on stainless steel tube with zinc die-cast foot, powder coated	modulSIGNAL70	44-51
BMV		base for vertical mounting	modulSIGNAL70	44-51
BMW		base for horizontal mounting	modulSIGNAL70	44-51
BRF	840	pole mount base on aluminium tube with plastic foot	K	34-37
BRW	820	pole mount base on aluminium tube with plastic foot	K	34-37
BSF	840	pole mount base on stainless steel tube with zinc die-cast foot, powder coated	K	34-37
BSS	200	set for vertical mounting	modulSIGNAL	44-51, 52-57
BSW	820	pole mount base on stainless steel tube with zinc die-cast foot, powder coated	K	34-37
BU1	B100	surface mount buzzer-electronic siren		111
BU2, BU3		M28 panel mount buzzer		110
BVF	840	base for vertical mounting	K	34-37
BVW	820	base for vertical mounting	K	34-37
BWF	840	pole mount base on aluminium tube for horizontal mounting with screw	K	34-37
BWS	200	pole mount base on aluminium tube for horizontal mounting with screw	modulSIGNAL70	44-51
BWW	820	pole mount base on aluminium tube for horizontal mounting with screw	K	34-37
BZG	741	strobe beacon 72mm Ø	Z	30-31
BZL		strobe beacon 72mm Ø	Z	30-31
CDD	703	piezo buzzer module, continuous tone	modulCOMPACT30	64-69
CDP		piezo buzzer module, pulsing tone	modulCOMPACT30	64-69
CDZ		piezo buzzer module, continuous and pulsing tone	modulCOMPACT30	64-69
CFR	700	pole mount base on aluminium tube with foot adapter for quick mounting	modulCOMPACT30	64-69
CLB	702	LED-flashing light module	modulCOMPACT30	64-69
CLL	701	LED-steady light module	modulCOMPACT30	64-69
CMR	700	pole mount base on aluminium tube with plastic foot	modulCOMPACT30	64-69
CSS		set for vertical mounting	modulCOMPACT30	64-69
CSW		pole mount base on aluminium tube for horizontal mounting with screw	modulCOMPACT30	64-69
CS1	C111	LED-flashing beacon-electronic multitone siren		84-85
DDD	707	piezo buzzer module, continuous tone	modulCOMPACT70	58-63
DDP		piezo buzzer module, pulsing tone	modulCOMPACT70	58-63
DDZ		piezo buzzer module, continuous and pulsing tone	modulCOMPACT70	58-63

Type	Order No.	Product	Product family	Page
DFR	708	pole mount base on aluminium tube with foot adapter for quick mounting	modulCOMPACT70	58-63
dFT3	410	ex-proof telephone FernTel3 - zone 2		120-121
dHE	370	ex-proof electronic sounder		140-142
dHF	340	ex-proof strobe beacon		144-145
dHH	300	ex-proof signal horn		136-137
dHL	310	ex-proof steady beacon		146-147
dHR	350	ex-proof rotating signal beacon		146-147
dHS	360	ex-proof loudspeaker		138-139
dHW	320	ex-proof signal bell		136-137
DLB	706	LED-flashing light module	modulCOMPACT70	58-63
DLD	708	piezo buzzer module, continuous tone	modulCOMPACT70	58-63
DLG	827	LED-steady beacon 120mm Ø	G	24-25
DLL	705	LED-steady light module	modulCOMPACT70	58-63
DLP	707	piezo buzzer module, pulsing tone	modulCOMPACT70	58-63
DLZ	707	piezo buzzer module, continuous and pulsing tone	modulCOMPACT70	58-63
DMR	708	pole mount base on aluminium tube with plastic foot	modulCOMPACT70	58-63
DMW	708	base for horizontal mounting	modulCOMPACT70	58-63
DMV	708	base for vertical mounting	modulCOMPACT70	58-63
dSF	335	ex-proof strobe beacon		144-145
dST	410	ex-proof telephone ExSafeTel		114-115
DSW	708	pole mount base on aluminium tube for horizontal mounting with screw	modulCOMPACT70	58-63
EDG	814	M22 panel mount buzzer-LED control light, light/tone separately switchable		86-87
EDM	813	M22 panel mount buzzer-LED control light, light/tone separately switchable		86-87
EHF-D	730	electronic sounder		100-101
EHF-K	730	electronic sounder		100-101
EHL-D	730	electronic sounder		100-101
EHL-K	730	electronic sounder		100-101
EHS-D	730	electronic sounder		100-101
EHS-K	730	electronic sounder		100-101
ELG	814	M22 panel mount buzzer-LED control light, light/tone synchronized		86-87
ELM	813	M22 panel mount buzzer-LED control light, light/tone synchronized		86-87
EP1	410	ex-proof additional earpiece set		119
EP2	410	additional earpiece set		127
ESD	810	M28 panel mount buzzer, continuous tone		108-109
ESG	814	M22 panel mount buzzer, 3 tones		106-107
ESK	812	M22 panel mount buzzer, 2 tones		106-107
ESM	813	M22 panel mount buzzer, 2 tones		106-107
ESP	811	M28 panel mount buzzer, pulsing tone		108-109
ESV	812	M22 panel mount buzzer, 2 tones		106-107
ESZ	809	M28 panel mount buzzer, continuous and pulsing tone		108-109
ES1	C110	electronic multitone sounder		98-99
ES2	C115	electronic multitone sounder		98-99
FLG	842	strobe beacon 120mm Ø	G	24-25
FLK	840	strobe beacon 60mm Ø	K	34-37
FWS	720	bell		96-97
FWS-R	720	bell with telephone call current relay		96-97
GL	890	incandescent bulbs		151

Type	Order No.	Product	Product family	Page
HL	890	halogene bulbs		151
HMK	711	mini horn		92-93
HDL	745	LED-steady light module	halfDOME90	70-73
HDB	745	LED-flashing light module	halfDOME90	70-73
HDZ	745	buzzer module, continuous and pulsing tone	halfDOME90	70-73
HD2-5	745	housing 2-5 beacons	halfDOME90	70-73
HPT	712	signal horn		94-95
HPT-R	712	signal horn with telephone call current relay		94-95
HS1	410	ex-proof headset kit		119
HS2	410	headset kit		127
HTG	713	signal horn		94-95
HTG-R	713	signal horn with telephone call current relay		94-95
HTV	873	electronic sounder		102-103
IBL	802	M22 panel mount beacons, LED-steady-/flashing light 65mm Ø	I	38-41
IBM	801	M22 panel mount beacons, LED-steady-/flashing light 45mm Ø	I	38-41
IBS	800	M22 panel mount beacons, LED-steady-/flashing light 30mm Ø	I	38-41
IDL	802	M22 panel mount beacons, LED-dual colour steady light 65mm Ø	I	38-41
IDM	801	M22 panel mount beacons, LED-dual colour steady light 45mm Ø	I	38-41
IDS	800	M22 panel mount beacons, LED-dual colour steady light 30mm Ø	I	38-41
ILL	805	LED-light bar		26-27
ISL	802	M22 panel mount beacons, strobe light 65mm Ø	I	38-41
ISM	801	M22 panel mount beacons, strobe light 45mm Ø	I	38-41
ISS	800	M22 panel mount beacons, strobe light (LED) 30mm Ø	I	38-41
ITL	802	M22 panel mount beacons, LED-dual colour steady light 65mm Ø	I	38-41
ITM	801	M22 panel mount beacons, LED-dual colour steady light 45mm Ø	I	38-41
ITS	800	M22 panel mount beacons, LED-dual colour steady light 30mm Ø	I	38-41
KDF	710	mini horn-strobe beacon		76-77
KDH	710	mini horn		92-93
KDL	710	mini horn-signal beacon		76-77
KDH-L	710	mini horn-lift alarm		92-93
KLF	710	mini horn-strobe beacon		76-77
KLH	710	mini horn		92-93
KLL	710	mini horn-signal beacon		76-77
LLB	893	LED-bulb BA15d flashing light		150
LLL	893	LED-bulb BA15d steady light		150
LS1	410	ex-proof loudspeaker set		118
LS2	410	loudspeaker set		126
MBL	839	flashing beacon 160mm Ø	M	18-23
MBM	838	flashing beacon 120mm Ø	M	18-23
MBS	837	flashing beacon 90mm Ø	M	18-23
MFL	849	strobe beacon 160mm Ø	M	18-23
MFM	848	strobe beacon 120mm Ø	M	18-23
MFS	847	strobe beacon 90mm Ø	M	18-23
MLL	819	steady beacon 160mm Ø	M	18-23
MLM	818	steady beacon 120mm Ø	M	18-23
MLS	817	steady beacon 90mm Ø	M	18-23
MRL	419	rotating mirror beacon 160mm Ø	M	18-23

Type	Order No.	Product	Product family	Page
MRM	418	rotating mirror beacon 120mm Ø	M	18-23
MRS	417	rotating mirror beacon 90mm Ø	M	18-23
NES	440	LED-steady-/flashing beacon 90mm Ø	N	28-29
NFS	442	LED-strobe beacon 90mm Ø	N	28-29
NMS	441	LED-multi-colour beacon 90mm Ø	N	28-29
SAP	261	LED-flashing light-buzzer module	modulSIGNAL70	44-51
SBP	260	flashing light-buzzer module	modulSIGNAL70	44-51
SCP	251	LED-steady light-buzzer module	modulSIGNAL70	44-51
SDA	221	LED-flashing light module	modulSIGNAL70	44-51
SDC	211	LED-steady light module	modulSIGNAL70	44-51
SDE	247	piezo buzzer module	modulSIGNAL70	44-51
SDR	231	LED-rotating light module	modulSIGNAL70	44-51
SDZ	248	piezo buzzer module	modulSIGNAL70	44-51
SE1-3	593	motor siren		105
SFP	270	strobe light-buzzer module	modulSIGNAL70	44-51
SLB	220	flashing light module	modulSIGNAL70	44-51
SLD	212	steady light-buzzer module, light/tone separately switchable	modulSIGNAL70	44-51
SLF	230	strobe light module	modulSIGNAL70	44-51
SLL	210	steady light module	modulSIGNAL70	44-51
SLP	250	steady light-buzzer module	modulSIGNAL70	44-51
SPE	243	piezo buzzer module	modulSIGNAL70	44-51
SPZ	244	piezo buzzer module	modulSIGNAL70	44-51
SRP	271	LED-rotating light-buzzer module	modulSIGNAL70	44-51
STE	241	electronic sounder module	modulSIGNAL70	44-51
STZ	242	electronic sounder module	modulSIGNAL70	44-51
UWS	720	bell		96-97
UWS-R	720	bell with telephone call current relay		96-97
VAZ	780	AS-Interface module	modulSIGNAL50	52-57
VDE	781	piezo buzzer module	modulSIGNAL50	52-57
VDZ	782	piezo buzzer module	modulSIGNAL50	52-57
VFR	790	pole mount base on aluminium tube with foot adapter for quick mounting	modulSIGNAL50	52-57
VLB	760	flashing light module	modulSIGNAL50	52-57
VLF	770	strobe light module	modulSIGNAL50	52-57
VLL	750	steady light module	modulSIGNAL50	52-57
VMR	790	pole mount base on aluminium tube with plastic foot	modulSIGNAL50	52-57
VMV	790	base for vertical mounting	modulSIGNAL50	52-57
VMW	790	base for horizontal mounting	modulSIGNAL50	52-57
VSR	790	pole mount base on stainless steel tube with zinc die-cast foot, powder coated	modulSIGNAL50	52-57
VSW	790	pole mount base on aluminium tube for horizontal mounting with screw	modulSIGNAL50	52-57
VS1	410	ex-proof visual-audible telephone call/signalling sounder		117, 148
VS2	410	visual-audible signalling sounder		125
VS4	410	strobe beacon-signalling sounder		83
wFT3	410	weatherproof telephone FernTel3		128-129
WLG	822	steady beacon 120mm Ø	G	24-25
WLK	820	steady beacon 60mm Ø	K	34-37
wST	410	weatherproof telephone SafeTel		122-123
XB2	D118	strobe beacon 70mm Ø		33
XT	890	xenon tubes		151

Order No.	Type	Product	Product family	Page
200	BFR	pole mount base on aluminium tube with foot adapter for quick mounting	modulSIGNAL70	44-51
200	BMR	pole mount base on aluminium tube with plastic foot	modulSIGNAL70	44-51
200	BSR	pole mount base on stainless steel tube with zinc die-cast foot, powder coated	modulSIGNAL70	44-51
200	BMV	base for vertical mounting	modulSIGNAL70	44-51
200	BMW	base for horizontal mounting	modulSIGNAL70	44-51
200	BSS	set for vertical mounting	modulSIGNAL	44-51, 52-57
200	BWS	pole mount base on aluminium tube for horizontal mounting with screw	modulSIGNAL70	44-51
210	SLL	steady light module	modulSIGNAL70	44-51
211	SDC	LED-steady light module	modulSIGNAL70	44-51
212	SLD	steady light-buzzer module, light/tone separately switchable	modulSIGNAL70	44-51
220	SLB	flashing light module	modulSIGNAL70	44-51
221	SDA	LED-flashing light module	modulSIGNAL70	44-51
230	SLF	strobe light module	modulSIGNAL70	44-51
231	SDR	LED-rotating light module	modulSIGNAL70	44-51
241	STE	electronic sounder module	modulSIGNAL70	44-51
242	STZ	electronic sounder module	modulSIGNAL70	44-51
243	SPE	piezo buzzer module	modulSIGNAL70	44-51
244	SPZ	piezo buzzer module	modulSIGNAL70	44-51
247	SDE	piezo buzzer module	modulSIGNAL70	44-51
248	SDZ	piezo buzzer module	modulSIGNAL70	44-51
250	SLP	steady light-buzzer module	modulSIGNAL70	44-51
251	SCP	LED-steady light-buzzer module	modulSIGNAL70	44-51
260	SBP	flashing light-buzzer module	modulSIGNAL70	44-51
261	SAP	LED-flashing light-buzzer module	modulSIGNAL70	44-51
270	SFP	strobe light-buzzer module	modulSIGNAL70	44-51
271	SRP	LED-rotating light-buzzer module	modulSIGNAL70	44-51
280	BAZ	AS-Interface module	modulSIGNAL70	44-51
300	dHH	ex-proof signal horn		136-137
310	dHL	ex-proof steady beacon		146-147
320	dHW	ex-proof signal bell		136-137
335	dSF	ex-proof strobe beacon		144-145
340	dHF	ex-proof strobe beacon		144-145
350	dHR	ex-proof rotating signal beacon		146-147
360	dHS	ex-proof loudspeaker		138-139
370	dHE	ex-proof electronic sounder		140-142
410	AS1	ex-proof audible telephone call signalling sounder		116
410	AS2	weatherproof audible telephone call signalling sounder		124
410	AS3	ex-proof audible signalling sounder		143
410	AS4	audible signalling sounder		104
410	dFT3	ex-proof telephone FernTel3 - zone 2		120-121
410	dST	ex-proof telephone ExSafeTel		114-115
410	EP1	ex-proof additional earpiece set		119
410	EP2	additional earpiece set		127
410	HS1	ex-proof headset kit		119
410	HS2	headset kit		127
410	LS1	ex-proof loudspeaker set		118
410	LS2	loudspeaker set		126

Order No.	Type	Product	Product family	Page
410	VS1	ex-proof visual-audible telephone call/signalling sounder		117, 148
410	VS2	visual-audible signalling sounder		125
410	VS4	strobe beacon-signalling sounder		83
410	wFT3	weatherproof telephone FernTel3		128-129
410	wST	weatherproof telephone SafeTel		122-123
417	MRS	rotating mirror beacon 90mm Ø	M	18-23
418	MRM	rotating mirror beacon 120mm Ø	M	18-23
419	MRL	rotating mirror beacon 160mm Ø	M	18-23
440	NES	LED-steady-/flashing beacon 90mm Ø	N	28-29
441	NMS	LED-multi-colour beacon 90mm Ø	N	28-29
442	NFS	LED-strobe beacon 90mm Ø	N	28-29
593	SE1-3	motor siren		105
700	CFR	pole mount base on aluminium tube with foot adapter for quick mounting	modulCOMPACT30	64-69
700	CMR	pole mount base on aluminium tube with plastic foot	modulCOMPACT30	64-69
700	CSS	set for vertical mounting	modulCOMPACT30	64-69
700	CSW	pole mount base on aluminium tube for horizontal mounting with screw	modulCOMPACT30	64-69
701	CLL	LED-steady light module	modulCOMPACT30	64-69
702	CLB	LED-flashing light module	modulCOMPACT30	64-69
703	CDD	piezo buzzer module, continuous tone	modulCOMPACT30	64-69
703	CDP	piezo buzzer module, pulsing tone	modulCOMPACT30	64-69
703	CDZ	piezo buzzer module, continuous and pulsing tone	modulCOMPACT30	64-69
705	DLL	LED-steady light module	modulCOMPACT70	58-63
706	DLB	LED-flashing light module	modulCOMPACT70	58-63
707	DDD	piezo buzzer module, continuous tone	modulCOMPACT70	58-63
707	DDP	piezo buzzer module, pulsing tone	modulCOMPACT70	58-63
707	DDZ	piezo buzzer module, continuous and pulsing tone	modulCOMPACT70	58-63
707	DLP	piezo buzzer module, pulsing tone	modulCOMPACT70	58-63
707	DLZ	piezo buzzer module, continuous and pulsing tone	modulCOMPACT70	58-63
708	DFR	pole mount base on aluminium tube with foot adapter for quick mounting	modulCOMPACT70	58-63
708	DLD	piezo buzzer module, continuous tone	modulCOMPACT70	58-63
708	DMR	pole mount base on aluminium tube with plastic foot	modulCOMPACT70	58-63
708	DMW	base for horizontal mounting	modulCOMPACT70	58-63
708	DMV	base for vertical mounting	modulCOMPACT70	58-63
708	DSW	pole mount base on aluminium tube for horizontal mounting with screw	modulCOMPACT70	58-63
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710	KDH	mini horn		92-93
710	KDL	mini horn-signal beacon		76-77
710	KDH-L	mini horn-lift alarm		92-93
710	KLF	mini horn-strobe beacon		76-77
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712	HPT-R	signal horn with telephone call current relay		92-93
713	HTG	signal horn		94-95
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741	BZL	strobe beacon 72mm Ø	Z	30-31
745	HDL	LED-steady light module	halfDOME90	70-73
745	HDB	LED-flashing light module	halfDOME90	70-73
745	HDZ	buzzer module, continuous and pulsing tone	halfDOME90	70-73
745	HD2-5	housing 2-5 beacons	halfDOME90	70-73
750	VLL	steady light module	modulSIGNAL50	52-57
760	VLB	flashing light module	modulSIGNAL50	52-57
770	VLF	strobe light module	modulSIGNAL50	52-57
780	VAZ	AS-Interface module	modulSIGNAL50	52-57
781	VDE	piezo buzzer module	modulSIGNAL50	52-57
782	VDZ	piezo buzzer module	modulSIGNAL50	52-57
790	VFR	pole mount base on aluminium tube with foot adapter for quick mounting	modulSIGNAL50	52-57
790	VMR	pole mount base on aluminium tube with plastic foot	modulSIGNAL50	52-57
790	VMV	base for vertical mounting	modulSIGNAL50	52-57
790	VMW	base for horizontal mounting	modulSIGNAL50	52-57
790	VSR	pole mount base on stainless steel tube with zinc die-cast foot, powder coated	modulSIGNAL50	52-57
790	VSW	pole mount base on aluminium tube for horizontal mounting with screw	modulSIGNAL50	52-57
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802	IDL	M22 panel mount beacons, LED-dual colour steady light 65mm Ø	I	38-41
802	ISL	M22 panel mount beacons, strobe light 65mm Ø	I	38-41
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818	MLM	steady beacon 120mm Ø	M	18-23
819	MLL	steady beacon 160mm Ø	M	18-23
820	BFW	pole mount base on aluminium tube with foot adapter for quick mounting	K	34-37
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820	BRW	pole mount base on aluminium tube with plastic foot	K	34-37
820	BSW	pole mount base on stainless steel tube with zinc die-cast foot, powder coated	K	34-37
820	BVW	base for vertical mounting	K	34-37
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820	WLK	steady beacon 60mm Ø	K	34-37
822	WLG	steady beacon 120mm Ø	G	24-25
827	DLG	LED-steady beacon 120mm Ø	G	24-25
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837	MBS	flashing beacon 90mm Ø	M	18-23
838	MBM	flashing beacon 120mm Ø	M	18-23
839	MBL	flashing beacon 160mm Ø	M	18-23
840	BFF	pole mount base on aluminium tube with foot adapter for quick mounting	K	34-37
840	BHF	base for horizontal mounting	K	34-37
840	BRF	pole mount base on aluminium tube with plastic foot	K	34-37
840	BSF	pole mount base on stainless steel tube with zinc die-cast foot, powder coated	K	34-37
840	BVF	base for vertical mounting	K	34-37
840	BWF	pole mount base on aluminium tube for horizontal mounting with screw	K	34-37
840	FLK	strobe beacon 60mm Ø	K	34-37
841	BDM	pole connection box for magnetic mounting	modulSIGNAL	50, 56
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Type	Net-Weight (g)	Tube length (mm)							Page
		50	100	250	400	500	600	800	
AS1	900								116
AS2	500								124
AS3	900								143
AS4	500								104
BAZ	130								44-51
BC1	165								30
BDM	330								44-51
BDV	110								44-51
BDW	90								44-51
BFF		160	180	220	265	295	325	385	34-37
BFR		190	205	250	295	325	355	415	44-51
BFW		180	195	240	285	315	345	405	34-37
BHF	50								34-37
BHW	50								34-37
BKG	250								24-25
BLG	270								24-25
BMR		109	125	170	215	245	275	335	44-51
BSR		270	320	460	600	720	790	1.020	44-51
BMV	95								44-51
BMW	95								44-51
BRF		85	100	145	190	220	250	310	34-37
BRW		60	115	160	205	235	265	325	34-37
BSF		245	290	430	575	670	760	960	34-37
BSS	135								34-37
BSW		260	308	448	590	710	780	1.010	34-37
BU1	110								111
BU2, BU3	35								110
BVF	30								34-37
BVW	90								34-37
BWF		120	135	180	225	255	285	345	34-37
BWS		145	160	205	250	280	310	370	44-51
BWW		135	150	195	240	270	300	360	34-37
BZG	600								30-31
BZL	300								30-31
CDD	20								64-69
CDP	20								64-69
CDZ	20								64-69
CFR		180=0mm	200	235	270				64-69
CLB	17								64-69
CLL	15								64-69
CMR		155=0mm	180	210	245				64-69
CSS	235								64-69
CSW		195=0mm	220	255	290				64-69
CS1	258								84-85
DDD	20								58-63
DDP	20								58-63
DDZ	20								58-63
DFR		215	230	280	325	360	390	455	58-63
dFT3	2.300								
dHE	5.900								140-142
dHF	5.900								144-145

Type	Net-Weight (g)	Tube length (mm)							Page
		50	100	250	400	500	600	800	
dHH	5.500								136-137
dHL	5.500								146-147
dHR	5.500								146-147
dHS	3.500								138-139
dHW	6.000								136-137
DLB	17								58-63
DLD	20								58-63
DLG	270								58-63
DLL	15								58-63
DLP	20								58-63
DLZ	20								58-63
DMR		140	155	205	250	285	315	380	58-63
DMW	80								58-63
DMV	110								58-63
dSF	2.000								144-145
dST	5.500								114-115
DSW		175	190	240	285	320	350	415	58-63
EDG	105								86-87
EDM	65								86-87
EHF-D	2000								100-101
EHF-K	2000								100-101
EHL-D	1500								100-101
EHL-K	1500								100-101
EHS-D	2000								100-101
EHS-K	2000								100-101
ELG	105								86-87
ELM	65								86-87
EP1	200								119
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ESG	65								106-107
ESK	30								106-107
ESM	35								106-107
ESP	55								108-109
ESV	30								106-107
ESZ	55								108-109
ES1	250								98-99
ES2	295								98-99
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HDL	28								70-73
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Type	Net-Weight (g)	Tube length (mm)							Page
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HMK	240								92-93
HPT	800								94-95
HPT-R	900								94-95
HS1	410								119
HS2	410								127
HTG	1.600								94-95
HTG-R	1.700								94-95
HTV	420-820								102-103
IBL	75								38-41
IBM	55								38-41
IBS	30								38-41
IDL	75								38-41
IDM	55								38-41
IDS	30								38-41
ILL	400								26-27
ISL	85								38-41
ISM	65								38-41
ISS	30								38-41
ITL	77								38-41
ITM	56								38-41
ITS	31								38-41
KDF	240								76-77
KDH	150								92-93
KDH-L	150								92-93
KDL	200								76-77
KLF	260								76-77
KLH	180								86-87
KLL	220								76-77
LLB	15								146
LLL	15								146
LS1	1.100								118
LS2	1.100								124
MBL	820								18-23
MBM	500								18-23
MBS	270								18-23
MFL	920								18-23
MFM	520								18-23
MFS	310								18-23
MLL	800								18-23
MLM	480								18-23
MLS	260								18-23
MRL	970								18-23
MRM	620								18-23
MRS	380								18-23
NES	250								28-29
NFS	250								28-29
NMS	250								28-29
SAP	130								44-51
SBP	130								44-51
SCP	130								44-51
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Type	Net-Weight (g)	Tube length (mm)							Page
		50	100	250	400	500	600	800	
SDC	100								44-51
SDE	90								44-51
SDR	100								44-51
SDZ	100								44-51
SE1	1.600								105
SE2	2.900								105
SE3	4.100								105
SFP	130								44-51
SLB	100								44-51
SLD	130								44-51
SLF	100								44-51
SLL	100								44-51
SLP	130								44-51
SPE	100								44-51
SPZ	110								44-51
SRP	130								44-51
STE	140								44-51
STZ	140								44-51
UWS	1.500								96-97
UWS-R	1.600								
VAZ	120								
VDE	100								52-57
VDZ	100								52-57
VFR		160	175	220	265	295	325	395	52-57
VLB	60								52-57
VLF	70								52-57
VLL	55								52-57
VMR		85	100	145	190	220	250	310	52-57
VMV	85								52-57
VMW	45								52-57
VSR		245	290	430	575	670	760	955	52-57
VSW		120	135	180	225	255	285	345	52-57
VS1	1.500								117
VS2	900								125
VS4	900								83
wFT3	2.300								
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WLK	40								34-37
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