Overview Optical and Audible Combinations

Double the safety with optical-audible signals

Large systems are often managed by only a few people, especially in automated production facilities and large machine shops. This results in optical signals not always being in the machine operator's immediate field of vision. In such cases, an audible signal may also be used. The use of both optical and audible alarms will help to counter an audible alarm not always being heard above an ambient noise level.

Overview Optical and Audible Combinations							
Product type		**Installation**	**Free-standing**	**Free-standing**	**Free-standing**	**Free-standing**	**Free-standing**
Mounting	**Product range**	**Installation Combinations**	**Evo*SIGNAL* Mini**	**Evo*SIGNAL* Midi**	**Combinations**	**Design Combinations**	**Heavy Duty Combinations**
Dimensions (Ø x Height)*		50 x 22 mm	62 x 85 mm	85 x 130 mm	146 x 171 mm 134 x 235 mm	-	
Dimensions (L x H x W)		-	-	-	134 x 407 x 144 mm	109 x 112,5 x 152 mm	136 x 138 x 119 mm 165 x 169 x 132 mm 168 x 211 x 155 mm
Voltage	12 V		●	●			●
	24 V	●	●	●	●	●	●
	60 V						●
	115 V	●	●	●	●	●	●
	230 V	●	●	●	●	●	●
Protection rating		IP65	IP66	IP66	IP65	IP65	IP66
Signalisation index optical**		**3**	**4-5**	**6-8**	**5-9**	**6-8**	**4**
Signalisation index audible**		**3**	**4-7**	**6-7**	**6-7**	**8**	**6-10**
Page		Page 208	Page 213	Page 217	Page 221	Page 227	Page 231

* Technical diagrams can be found on the product page
** Signalisation index - see page 13 + 21

Variety of signals

WERMA supplies a large number of audible signals which can also be enhanced with the addition of optical light signals.

AUDIBLE SIGNALS: Sirens and Multi-Tone Sounder, Buzzer and Horns

OPTICAL SIGNALS: (LED) Permanent Light, Flashing Light, LED Double Flash Light, LED EVS Signal, LED Permanent/Flash/EVS Light

Size comparison

Series	**Evo*SIGNAL* Mini**	**Evo*SIGNAL* Midi**	**Heavy Duty 441**
Ø	62 mm	85 mm	-
Height	85 mm	130 mm	-
L x H x W			165 x 167 x 132 mm

Installation Combination Beacon with Buzzer

Your benefits

Optical audible Installation Combinations give excellent all-round visibility of the signal and are an industry standard for easy installation in control panels.

- Easy to install
- Tamper-proof when installed
- Minimal protrusion from panel for installations where space is limited
- Acknowledgement function promotes faster response time and fault repair (450 series)

Typical applications

Fault signalling

- in control panels

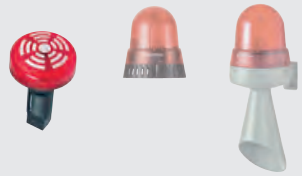
Installation options

- Installation mounting

Features

- High IP65 protection rating for outdoor applications
- Standard M22 for control panel installation
- Proven piezo technology for extended life duration
- Easy to connect using a plug-in connection (150)
- LED permanent light with continuous tone that can be additionally activated (150)

Size comparison Installation / Mini



Siganlisation index	
Continuous Tone	3
LED Permanent Light	3

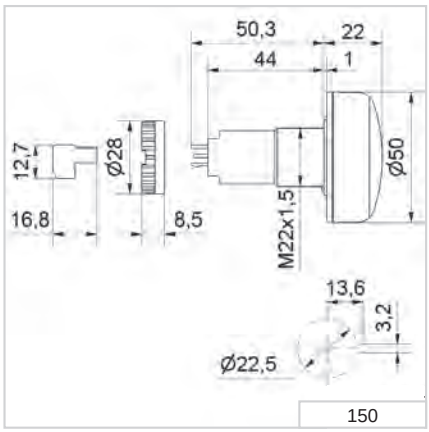
150 LED Permanent Light / Buzzer Combination

LED Permanent light with continuous tone that can be additionally activated

ⓘ TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (Ø x Height):	50 mm x 22 mm (Protrusion from panel)		
Housing:	PC/ABS-Blend		
Lens:	PC, transparent		
Connection:	Connector plug with screw terminal max. 1.5 mm^2		
Tone type:	Continuous		
Tone frequency:	c. 2.8 kHz		
Duty cycle:	100 %		
Life duration:	Up to 50,000 hrs		
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm) with anti-twist device		
Nut and seal included in assembly.			
Voltage:	24 V DC	115 V AC	230 V AC
Current consumption:	< 50 mA	< 20 mA	< 20 mA
red	**150 100 55**	**150 100 67**	**150 100 68**
yellow	**150 300 55**	**150 300 67**	**150 300 68**

↔ TECHNICAL DIAGRAM:



Siganlisation index	
Continuous tone	3
LED Permanent Light	3

450 LED Permanent Light/Buzzer Combination with acknowledgement function

LED Permanent light with continuous tone that can be additionally activated

The audible signal can be turned off in seconds by lightly pressing the front of the product

ⓘ TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

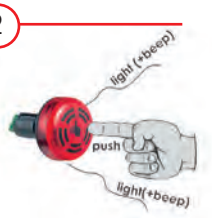
Dimensions (Ø x Height):	50 mm x 22 mm (Protrusion from panel)	
Housing:	PC/ABS-Blend	
Lens:	PC, transparent	
Connection:	Screw terminal 1.5 mm^2	
Signal input:	24 V DC	
Acknowledgement output:	Semiconductor-Relay	U_{max} = 30 V I_{max} = 100 mA $R_{ON\ max}$ = 25 Ohm
Tone type:	Continuous	
Tone frequency:	c. 2.8 kHz	
Duty cycle:	100 %	
Life duration:	Up to 50,000 hrs	
Fixing:	Installation mounting for Ø 22.5 mm (M22 x 1.5 mm)	
Nut and seal included in assembly.		
Voltage:	24 V DC	
Current consumption:	80 mA	
red	**450 100 55**	
yellow	**450 300 55**	

! ADDITIONAL INFORMATION:

1

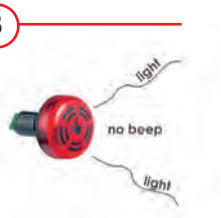
The occurrence of a malfunction or an error is indicated by means of an optical-audible signal.

2



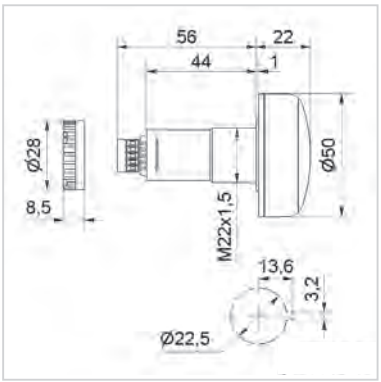
The audible signal can be turned off in seconds by lightly pressing the front of the product.

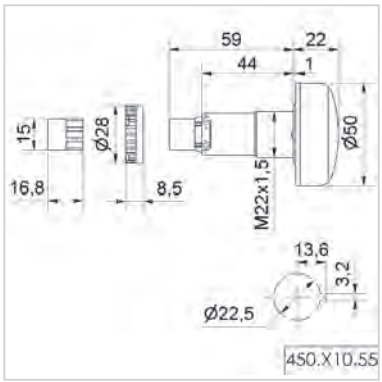
3



The acknowledgement signal is sent to the control unit via an electronic switch and the malfunction is now only indicated by the optical signal.

↔ TECHNICAL DIAGRAM:





Siganlisation index	
Continuous tone	3
LED Permanent Light	3

450.X00.00

450.X10.55

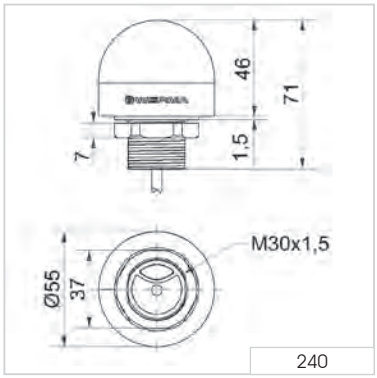
PLC

240 LED Installation Beacon (Multicolour) with buzzer

ⓘ TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (Ø x Height):	55 mm x 46 mm (Protrusion from panel)			
Housing:	PC/ABS-Blend, black			
Lens:	PC, transparent			
Fixing:	Installation mounting M30			
Colour options:	Red, yellow, green, white, blue, violet, turquoise (Multicolour) Red, yellow, green (Tricolour)			
Tone types and frequency:	Pulse tone, 3400 Hz			
Life duration light:	Up to 50,000 hrs			
Life duration buzzer:	Up to 5,000 hrs			
With Buzzer	Voltage	Current consumption	Plug M12	Cable
Tricolour (RGY)	24 V DC	45 mA	**240 240 55**	**240 230 55**
Multicolour (RGB)	10-30 V DC	80 mA	**240 140 50**	**240 130 50**

↔ TECHNICAL DIAGRAM:



240.240.55 240.140.50 240.230.55 240.130.50

Evo*SIGNAL* - Combinations

Your benefits

The type of optical signals used depends on the application and environment. With Evo*SIGNAL*, finding the right signal device has never been so easy: Almost all areas of application are optimally covered by only two sizes (combinations) with specific mounting adapters. The new modular, simple and clear standard solution. Evo*SIGNAL* is one of a kind.

- Simple and easy to use: Number of different articles reduced to 20% whilst retaining a full range
- Twin functions: Twin*LIGHT* and Twin*FLASH* unite two light pattern functions in one element. They can be remote-controlled via connection terminals and also used as escalation levels
- Poka Yoke: Simple and intuitive installation - incorrect installation is impossible
- Mini and Midi also available as Tri*COLOUR* variants
- Maxi Twin*FLASH* can be used as an attention-grabbing alternative to xenon strobes and rotating mirror beacons

Typical applications

Signal faults and statuses on machines and equipment, in building services engineering and in door and gate applications. All products are ideal for demanding indoor and outdoor applications.

- Mini – in installation sites with limited space
- Midi – signalling over medium distances (10–30 m)

Installation options

- Base mounting
- M22/PG 29 single-hole mounting
- Tube mounting
- Bracket mounting

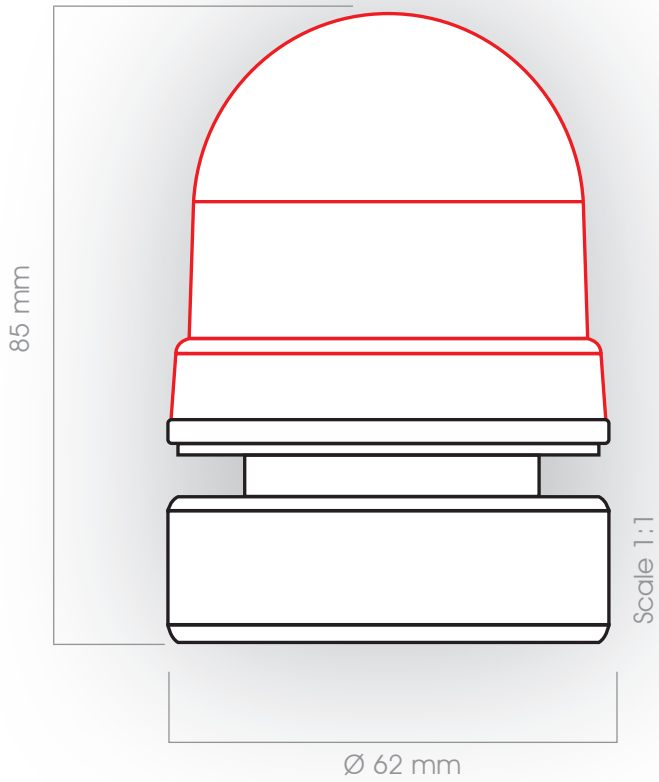
Features

- Push-in connection terminals: Simple and permanently secure connection
- Fully compatible: Easy replacement of previous products
- Best-in-class equipment: Powerful, extremely robust (IP66), tamper-proof

Signalisation index	
Mini	
Twin*LIGHT*	4
Twin*FLASH*	5
Permanent	5
Pulse	6
Midi	
Twin*LIGHT*	6
Twin*FLASH*	8
Rotating	7
Multi-tone	8

Mini Midi

Evo*SIGNAL* **Mini** - Combinations



30
Twin*LIGHT*, Twin*FLASH*

6
Mounting adapter

Evo*SIGNAL* **Mini** - Combinations

OLD

LED Permanent Light/Buzzer	LED Xenon Flash/Buzzer	LED Permanent Light/Horn	LED Xenon Flash/Horn
420/422	421/423	424	425




NEW

Quick-Finder Evo*SIGNAL* **Mini** - Combinations

	12 V AC/DC		24 V AC/DC		115-230 V AC	
	Twin*LIGHT*	**Twin*FLASH***	**Twin*LIGHT***	**Twin*FLASH***	**Twin*LIGHT***	**Twin*FLASH***
	Order No.	Order No.	Order No.	Order No.	Order No.	Order No.
	460 110 74	460 120 74	460 110 75	460 120 75	460 110 60	460 120 60
	460 210 74	460 220 74	460 210 75	460 220 75	460 210 60	460 220 60
	460 310 74	460 320 74	460 310 75	460 320 75	460 310 60	460 320 60
	460 410 74	460 420 74	460 410 75	460 420 75	460 410 60	460 420 60
	460 510 74	460 520 74	460 510 75	460 520 75	460 510 60	460 520 60

+ Mounting adapter (compulsory!)

Base mounting

Order no.
260 700 01

Installation mounting M22

Order no.
260 700 03

Installation mounting PG 29

Order no.
260 700 04

Tube mounting

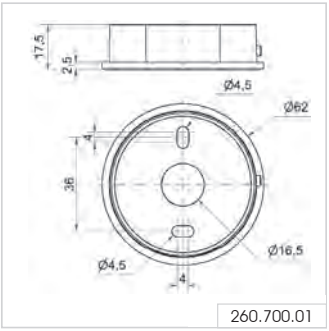
Order no.
260 700 05

Bracket mounting with cable gland

Order no.
260 700 06

Bracket mounting

Order no.
260 700 07



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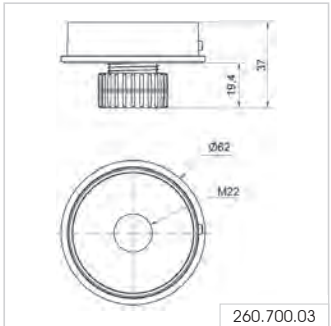
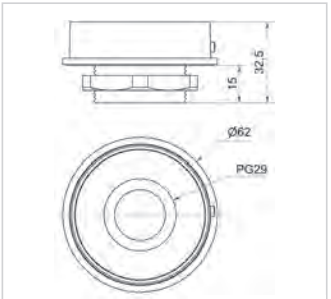
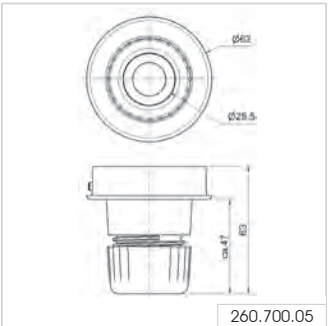


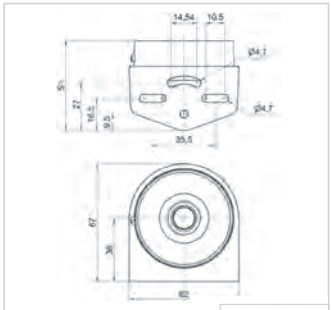
260.700.03



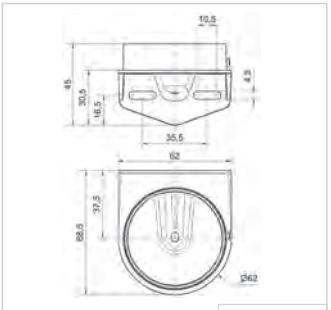
260.700.04



260.700.05



260.700.06



260.700.07

Evo*SIGNAL* **Mini** - Combinations

Installation mounting M 22

Tube mounting

Installation mounting PG 29

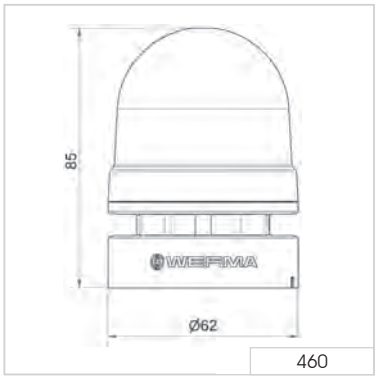
ⓘ TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (Ø x Height):	62 x 85 mm		
Housing:	PC/ABS		
Lens:	PC, transparent		
Connection:	Push-In terminal max. 1.5 mm²		
Cable entry:	Cable diameter 8-12 mm		
Tone type:	Continuous or Pulse tone		
Fixing:	Base/Tube/Wall/ Installation mounting		
Flashing/Blinking frequency:	1Hz		
Twin*LIGHT*			
Voltage:	12 V AC/DC	24 V AC/DC	115-230 V AC
Current consumption:	≤ 120 mA	≤ 115 mA	≤ 75 mA
red	**460 110 74**	**460 110 75**	**460 110 60**
green	**460 210 74**	**460 210 75**	**460 210 60**
yellow	**460 310 74**	**460 310 75**	**460 310 60**
white	**460 410 74**	**460 410 75**	**460 410 60**
blue	**460 510 74**	**460 510 75**	**460 510 60**
Twin*FLASH*			
Voltage:	12 V AC/DC	24 V AC/DC	115-230 V AC
Current consumption:	≤ 100 mA	≤ 115 mA	≤ 75 mA
red	**460 120 74**	**460 120 75**	**460 120 60**
green	**460 220 74**	**460 220 75**	**460 220 60**
yellow	**460 320 74**	**460 320 75**	**460 320 60**
white	**460 420 74**	**460 420 75**	**460 420 60**
blue	**460 520 74**	**460 520 75**	**460 520 60**

🛠 ACCESSORIES:

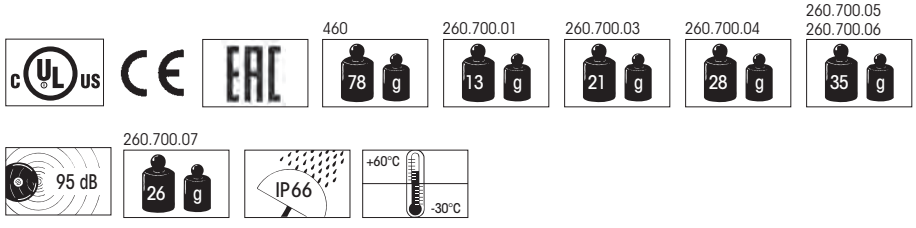
Base mounting	**260 700 01**
Installation mounting M22	**260 700 03**
Installation mounting PG 29	**260 700 04**
Tube mounting	**260 700 05**
Bracket mounting with cable gland	**260 700 06**
Bracket mounting	**260 700 07**

↔ TECHNICAL DIAGRAM:

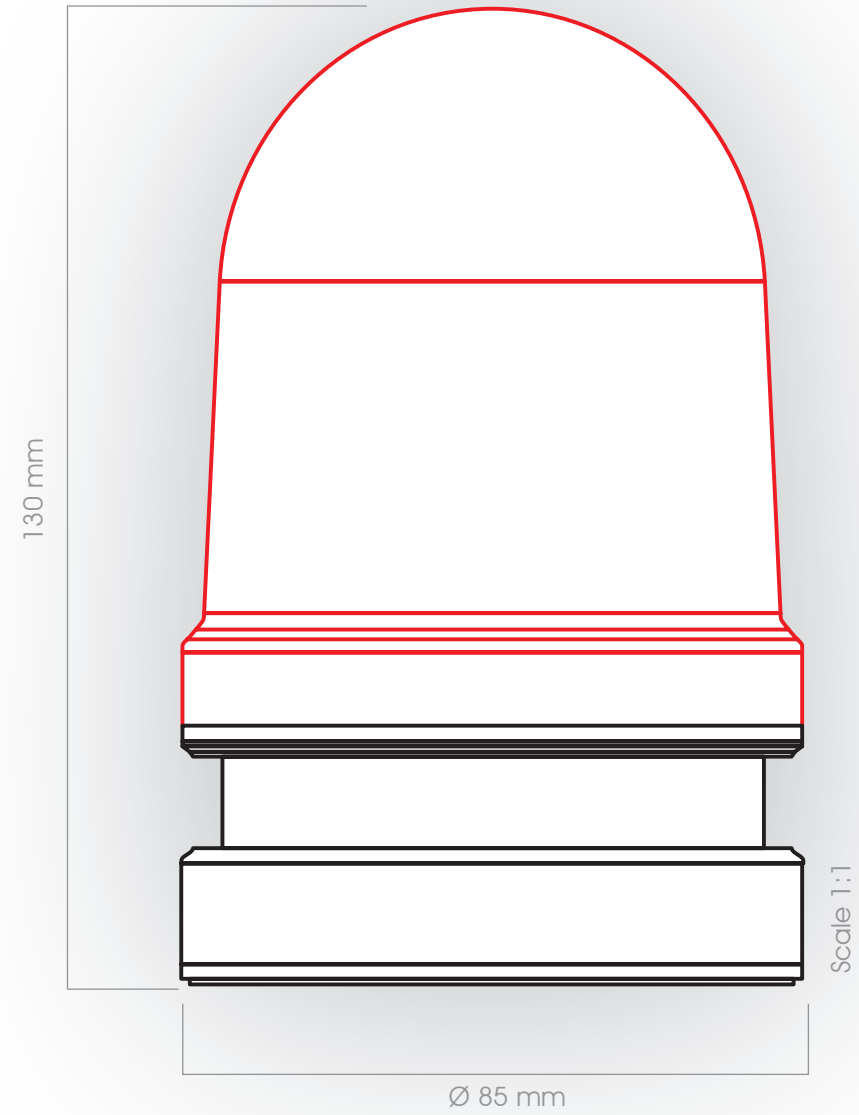


460

Signalisation index	
Twin*LIGHT*	4
Twin*FLASH*	5
Continuous	5
Pulse	6



Evo*SIGNAL* **Midi** - Combinations



20
Twin*LIGHT*, Twin*FLASH*

6
Mounting adapter

Evo*SIGNAL* **Midi** - Combinations

OLD

LED Permanent Light/ Multi-Tone Sounder	LED Xenon Flash/ Multi-Tone Sounder
420/422	421/423

NEW

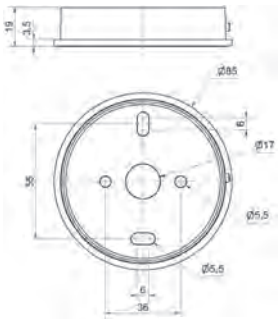
Quick-Finder Evo*SIGNAL* **Midi** - Combinations

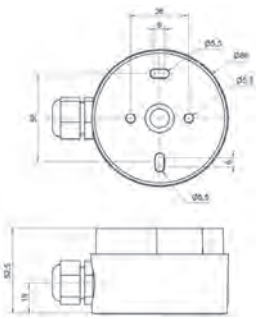
12/24 V AC/DC	
Twin*LIGHT*	Twin*FLASH*
Order No.	Order No.
461 110 70	461 120 70
461 210 70	461 220 70
461 310 70	461 320 70
461 410 70	461 420 70
461 510 70	461 520 70

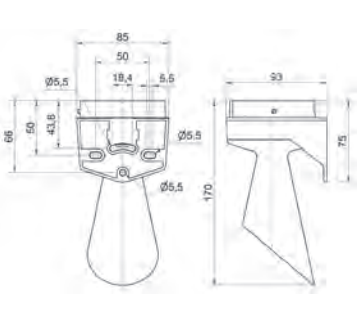
115-230 V AC	
Twin*LIGHT*	Twin*FLASH*
Order No.	Order No.
461 110 60	461 120 60
461 210 60	461 220 60
461 310 60	461 320 60
461 410 60	461 420 60
461 510 60	461 520 60

+ Mounting adapter (compulsory!)

Base mounting	Base mounting with cable gland	Tube mounting	Bracket mounting with cable gland	Bracket mounting	Horn
					
Order no. 261 700 01	Order no. 261 700 02	Order no. 261 700 05	Order no. 261 700 06	Order no. 261 700 07	Order no. 261 700 03


261.700.01


261.700.02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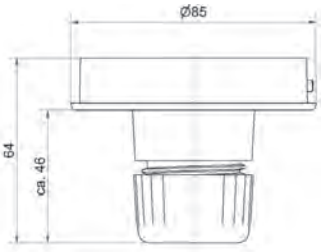
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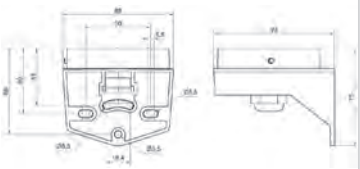
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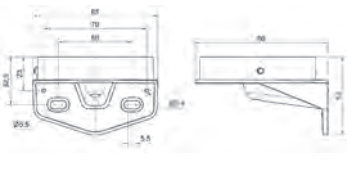

261.700.07

Evo*SIGNAL* **Midi** - Combinations

Horn

Bracket mounting with cable gland

Tube mounting

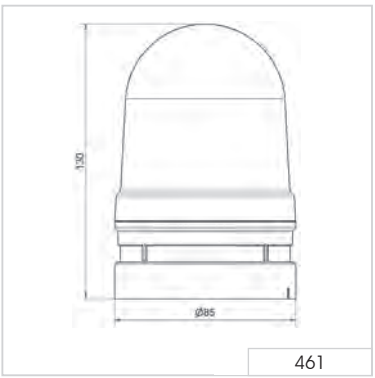
ⓘ TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (Ø x Height):	85 mm x 130 mm	
Housing:	PC/ABS	
Lens:	PC, transparent	
Fixing:	Base/Tube/Wall mounting	
Cable entry:	Cable diameter 8-12 mm	
Connection:	Push-In terminal max. 1.5 mm²	
Tone type:	Multi-tone, 10 tones	
Flashing/Blinking frequency:	1Hz	
Twin*LIGHT*		
Voltage:	12/24 V AC/DC	115-230 V AC
Current consumption:	≤ 345 mA	≤ 170 mA
red	**461 110 70**	**461 110 60**
green	**461 210 70**	**461 210 60**
yellow	**461 310 70**	**461 310 60**
white	**461 410 70**	**461 410 60**
blue	**461 510 70**	**461 510 60**
Twin*FLASH*		
Voltage:	12/24 V AC/DC	115-230 V AC
Current consumption:	≤ 110 mA	≤ 215 mA
red	**461 120 70**	**461 120 60**
green	**461 220 70**	**461 220 60**
yellow	**461 320 70**	**461 320 60**
white	**461 420 70**	**461 420 60**
blue	**461 520 70**	**461 520 60**

🛠 ACCESSORIES:

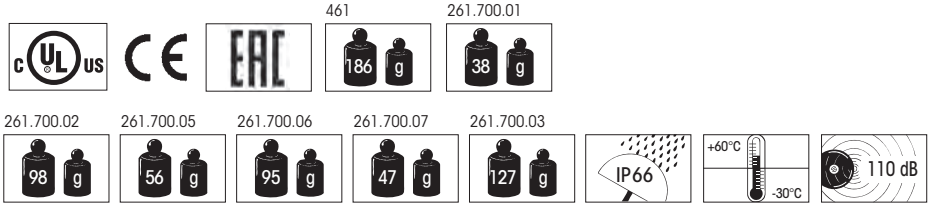
Base mounting	**261 700 01**
Base mounting with cable gland	**261 700 02**
Tube mounting	**261 700 05**
Bracket mounting with cable gland	**261 700 07**
Bracket mounting	**261 700 06**
Horn	**261 700 08**

↔ TECHNICAL DIAGRAM:



461

Signalisation index	
Twin*LIGHT*	6
Twin*FLASH*	8
Continuous	7
Pulse	8



Combination LED Beacon with Multi-Tone Sounder/Horn

Your benefits

The WERMA Midi Beacon with a siren or horn provides safety and security by delivering reliable fault alarms over medium distances. The IP65 protection rating is suitable for outdoor applications.

- Multiple light configurations for different purposes and distances (some with partial external triggering)
- Simple installation
- Tamper-proof when installed
- Multiple visual and audible escalation levels possible
- Clear all-round visibility thanks to the OmniVIEW lens; no blind spots
- Multi-tone siren with up to 32 tones available for maximum flexibility

Typical applications

Fault signalling

- In areas with high ambient noise levels
- On machinery and equipment
- In building service systems (e.g. gas alarm)
- In the event of e.g. overload on mobile cranes and similar

Installation options

- Base mounting
- Wall mounting
- Tube mounting

Features

- Long life and energy-saving LEDs

Size comparison Midi / Design

Siganlisation index				
	430/432	431/433	434	435
Horn			7	7
Multi-Tone Sounder	7	7		
LED Permanent Light	5	5	5	5
LED Flashing Light		7		7
LED EVS Light		9		9

430/432 LED Permanent Light/ Multi-Tone Sounder Combination

LED Permanent Light in combination with Multi-Tone Sounder

Quick and simple wall mounting without additional accessories thanks to integrated mounting bracket (432)

Mounting holes integrated into the product rim allow easy mounting without having to remove the lens (430)

ⓘ TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

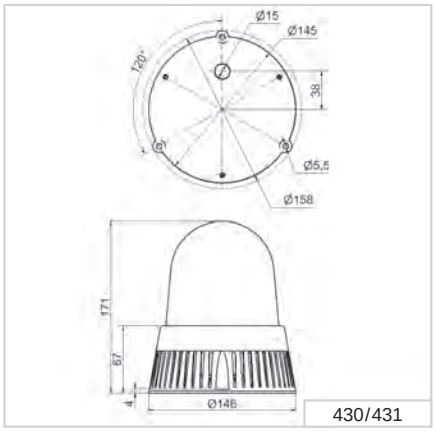
	Base mounting (430)	Wall mounting (432)
Dimensions (Ø x Height):	146 mm x 171 mm	134 mm x 235 mm
Housing:	PC/ABS-Blend, black	PC/ABS-Blend, grey
Lens:	PC, transparent	
Connection:	Screw terminal 0.5-1.5 mm²	
Cable entry:	Cable diameter max. 13 mm	
Tone type and frequency:	32 tones adjustable, see table on page 224	
Life duration:	Up to 50,000 hrs (LED), up to 5,000 hrs (Multi-tone Sounder)	
Installation position:	Sound outlet facing downwards	
Fixing:	Base mounting (430), Wall mounting (432) Tube mounting (accessory, only for 430)	
Voltage:	24 V AC/DC	115-230 V AC*
Current consumption MTS:	190 mA	55 mA
Current consumption LED:	350 mA 230 mA (red)	100 mA 80 mA (red)
Base mounting		
red	**430 100 75**	**430 100 60**
yellow	**430 300 75**	**430 300 60**
Wall mounting		
red	**432 100 75**	**432 100 60**
yellow	**432 300 75**	**432 300 60**

*Current consumption at 115 V

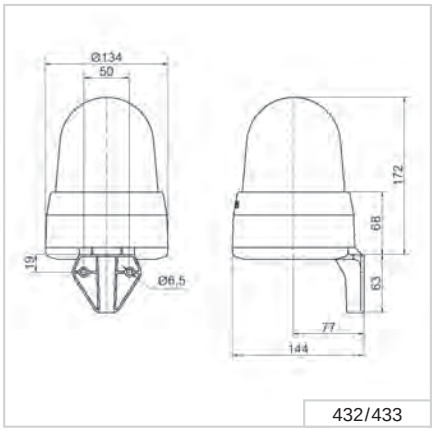
🛠 ACCESSORIES:

Adaptor for tube mounting, plastic, for tube Ø 25 mm	**975 430 01**

↔ TECHNICAL DIAGRAMS:



430/431



432/433

Siganlisation index	
Multi-Tone Sounder	7
LED Permanent Light	5

431/433 LED Permanent/Flashing/EVS/ Multi-Tone Sounder Combination

Multi-functional LED beacon: 3 light effects can be externally triggered

The adaptor enables mounting on a tube (431)

ⓘ TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

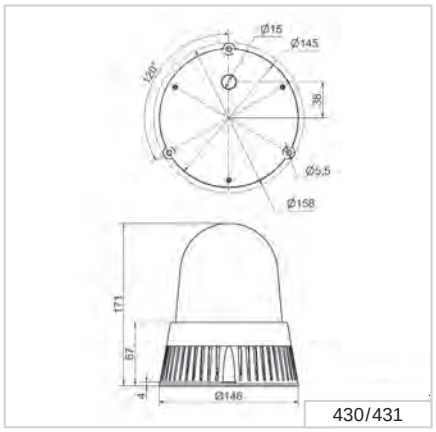
	Base mounting (431)	Wall mounting (433)
Dimensions (Ø x Height):	146 mm x 171 mm	134 mm x 235 mm
Housing:	PCABS-Blend, black	PC/ABS-Blend, grey
Lens:	PC, transparent	
Connection:	Screw terminal 0.5-1.5 mm²	
Cable entry:	Cable diameter max. 13 mm	
Tone type and frequency:	32 tones adjustable, see table on page 224	
Installation position:	Sound outlet facing downwards	
Life duration:	Up to 50,000 hrs (LED), up to 5,000 hrs (Multi-tone Sounder)	
Fixing:	Base mounting (431), Wall mounting (433) Tube mounting (accessory, only for 431)	
Voltage:	24 V AC/DC	115-230 V AC*
Current consumption MTS:	190 mA	55 mA
Current consumption LED:	350 mA 230 mA (red)	100 mA 80 mA (red)
Base mounting		
red	**431 100 75**	**431 100 60**
yellow	**431 300 75**	**431 300 60**
Wall mounting		
red	**433 100 75**	**433 100 60**
yellow	**433 300 75**	**433 300 60**

*Current consumption at 115 V

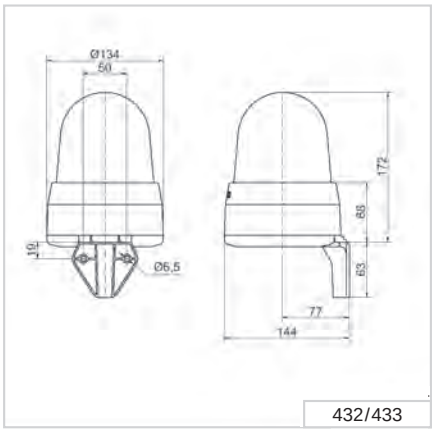
🛠 ACCESSORIES:

Adaptor for tube mounting, plastic, for tube Ø 25 mm	**975 430 01**

↔ TECHNICAL DIAGRAMS:



430/431



432/433

Siganlisation index	
Multi-Tone Sounder	7
LED Permanent Light	5
LED Flashing Light	7
LED EVS Light	9

c UL us CE 525 g IP65 +50°C -30°C 108 dB 32

43 x Tone table for Multi-Tone Sounder

The Multi-Tone Sounder Combinations 43x offer a large choice of internationally recognised signal tones for the widest range of applications. The tone types and frequencies can be found in the table below:

♫ TONE TYPES AND FREQUENCIES:

Tone 1	Tone type	Frequency (Hz)	Description	Use	Tone 2	Sound output (dbA)
1	continuous	200		BS 5839-1:2002	440 Hz cont.	97
2	rising	800 & 970	7 Hz		14	102
3	rising	800 & 970	1 Hz		14	103
4	continuous	2850			14	104
5	rising	2400 - 2850	7 Hz		4	109
6	rising	2400 - 2850	1 Hz		4	110
7	rising	500 - 1200	3 s, then 0.5 s OFF (then repeat)		14	106
8	falling	1200 - 500	1 Hz	DIN 33404-3	14	104
9	alternating	2400 & 2850	2 Hz		4	111
10	pulse	970	0.5 Hz (1 s On/1 s Off)	BS 5839 Part 1 1988	14	101
11	alternating	800 & 970	1 Hz	BS 5839 Part 1 1988	14	105
12	pulse	2850	0.5 Hz		4	104
13	pulse	970		0,25 s On/1 s Off	14	98
14	continuous	970		BS 5839-1:2002 PFEER - Toxic gas	10	102
15	alternating	554 & 440		France NFS	14	101
16	pulse	660	150 ms On/150 ms Off	Swedish	16	96
17	pulse	660	1.8 s On/1.8 s Off	Swedish	17	98
18	pulse	660	6.5 s On/13 s Off	Swedish	18	98
19	continuous	660		Swedish	19	98
20	alternating	554 & 440	0.5 Hz		20	102
21	pulse	660	1 Hz	Swedish	21	97
22	pulse	2850	150 ms On/100 ms Off	GB	14	104
23	rising	800 - 970	50 Hz (low)	BS 5839 Part 1 1988	14	102
24	rising	2400 - 2850	50 Hz (high)		4	109
25	pulse	970	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (low)	ISO 8201 US Temporal	26	101
26	pulse	2850	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (high)	ISO 8201 US Temporal	25	104
27	continuous	4000			27	92
28	rising	2000 - 2850	7 Hz		2000 Hz cont.	111
29	alternating	988 & 645	2 Hz		988 Hz cont.	102
30	alternating	510 & 610	2 Hz		510 Hz cont.	102
31	alternating	800 & 970	2 Hz	5839-1:2002	800 Hz cont.	105
32	alternating	800 & 1200	1 Hz		800 Hz cont.	105

434 LED Permanent Light / Horn Combination

Award winning design Winner of the iF product design award 2012

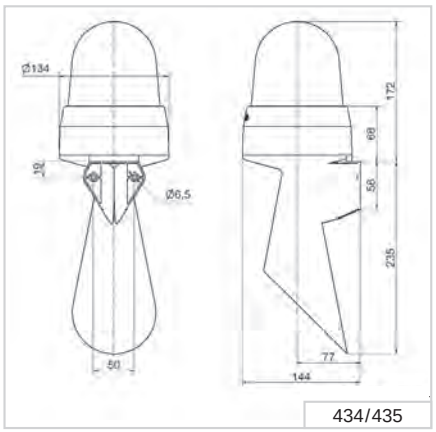
Quick and simple wall mounting without additional accessories thanks to integrated mounting bracket

ⓘ TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	134 mm x 407 mm x 144 mm	
Housing:	PC/ABS-Blend, grey	
Lens:	PC, transparent	
Connection:	Screw terminal 0.5-1.5 mm²	
Cable entry:	Cable diameter max. 13 mm	
Tone frequency:	c. 110 Hz	
Life duration:	Up to 50,000 hrs (LED), up to 5,000 hrs (Horn)	
Fixing:	Wall mounting, integrated mounting bracket	
Installation position:	Sound outlet facing downwards	
Voltage:	24 V AC/DC	115-230 V AC*
Current consumption MTS:	55 mA	30 mA
Current consumption LED:	350 mA 230 mA (red)	100 mA 80 mA (red)
red	**434 100 75**	**434 100 60**
yellow	**434 300 75**	**434 300 60**

*Current consumption at 115 V

↔ TECHNICAL DIAGRAMS:



434/435

Siganlisation index	
Horn	7
LED Permanent Light	5

435 LED Permanent/Flashing/EVS/Horn Combination

Multi-functional LED beacon:
3 light effects can be triggered externally

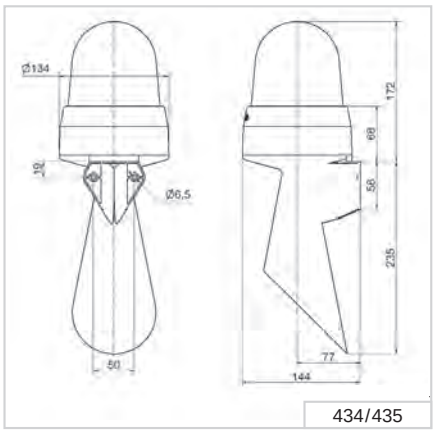
The "EVS" light effect ensures a maximum attention-grabbing effect

TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	134 mm x 407 mm x 144 mm	
Housing:	PC/ABS-Blend, grey	
Lens:	PC, transparent	
Connection:	Screw terminal 0.5-1.5 mm^2	
Cable entry:	Cable diameter max. 13 mm	
Tone frequency:	c. 110 Hz	
Life duration:	Up to 50,000 hrs (LED), up to 5,000 hrs (Horn)	
Fixing:	Wall mounting, integrated mounting bracket	
Installation position:	Sound outlet facing downwards	
Voltage:	24 V AC/DC	115-230 V AC*
Current consumption MTS:	55 mA	30 mA
Current consumption LED:	350 mA 220 mA (red)	100 mA 80 mA (red)
red	**435 100 75**	**435 100 60**
yellow	**435 300 75**	**435 300 60**

*Current consumption at 115 V

TECHNICAL DIAGRAMS:



434/435

Siganlisation index	
Horn	7
LED Permanent Light	5
LED Flashing Light	7
LED EVS	9

Design Combination LED Multi-Tone Sirens

Your benefits

The Design Combination LED Multi-Tone Sirens provide safety and security in environments with heightened aesthetic design requirements. The innovative housing design makes for simple mounting in many diverse applications.

- Ideal signalling effect over great distances
- Multiple visual and audible escalation levels possible
- Many application options with up to 32 tones available
- Up to 3 tones controlled remotely for the escalation of signals
- Includes standardised tones (including those used in fire alarms)

Typical applications

Fault signalling

- In building service systems
- On machinery and equipment

Installation options

- Wall mounting
- Base mounting
- Ceiling mounting

Features

- Multi-voltage versions allow multiple applications with a single device
- Long life and energy-saving LEDs, either as a flashing light or EVS

Size comparison Design / Heavy Duty

Siganlisation index	
Multi-Tone Sounder	8
LED Flashing Light	6
LED EVS	8

444 LED Double Flash/Multi-Tone Sounder Combination

Base mounting

Wall mounting

TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	109 mm x 112 mm x 150 mm		
Housing:	PC/ABS-Blend		
Lens:	PC, transparent		
Connection:	24 V: Screw terminal 0.5-1.5 mm² 115/230 V: CAGE CLAMP®		
Cable entry:	Membrane for cable diameter max. 13 mm		
Life duration:	Up to 50,000 hrs (LED Double Flash)		
Flash frequency:	c. 1 Hz		
Fixing:	Wall, base and ceiling mounting		
Voltage:	24 V AC/DC	115 V AC	230 V AC
Current consumption Optical:	60 mA	30 mA	30 mA
Current consumption Audible:	200 mA	55 mA	30 mA
red	**444 100 75**	**444 100 67**	**444 100 68**
yellow	**444 300 75**	**444 300 67**	**444 300 68**

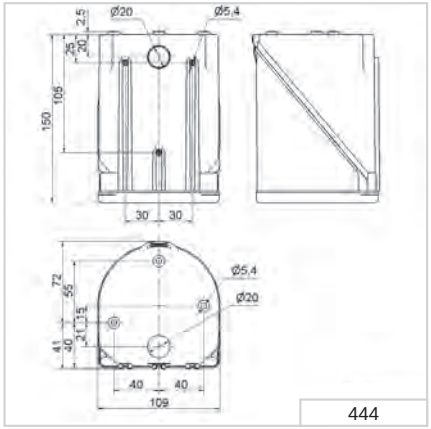
ACCESSORIES:

Cable gland M20 x 1.5 mm (for cable strain relief) Protection rating IP 65 is guaranteed even without cable gland	**975 444 01**

TONE TYPES AND FREQUENCIES:

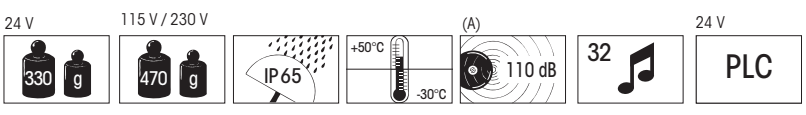
Selectable via DIP switch, see tone table on page 230, 3 tones can be externally triggered

TECHNICAL DIAGRAMS:



444

Siganlisation index	
Multi-Tone Sounder	8
LED Flashing Light	6



444 LED EVS/Multi-Tone Sounder Combination

Base mounting

The „EVS" light effect ensures a maximum attention-grabbing effect

TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	109 mm x 112 mm x 150 mm		
Housing:	PC/ABS-Blend		
Lens:	PC, transparent		
Connection:	24 V: Screw terminal 0.5-1.5 mm² 115/230 V: CAGE CLAMP®		
Cable entry:	Membrane for cable diamter max. 13 mm		
Fixing:	Wall, base and ceiling mounting		
Life duration:	Up to 50,000 hrs (LED EVS)		
Voltage:	24 V AC/DC	115 V AC	230 V AC
Current consumption Optical:	60 mA	30 mA	30 mA
Current consumption Audible:	220 mA	55 mA	30 mA
red	**444 110 75**	**444 110 67**	**444 110 68**
yellow	**444 310 75**	**444 310 67**	**444 310 68**

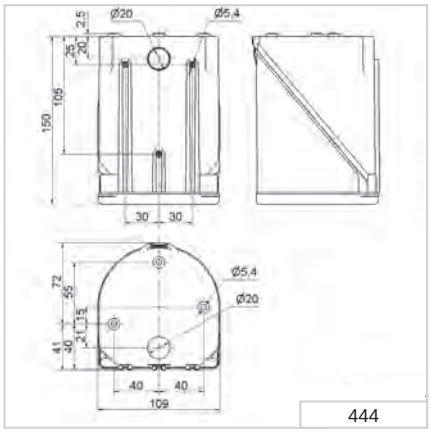
ACCESSORIES:

Cable gland M20 x 1.5 mm (for cable strain relief) Protection rating IP 65 is guaranteed even without cable gland	**975 444 01**

TONE TYPES AND FREQUENCIES:

Selectable via DIP switch, see tone table on page 230, 3 tones can be externally triggered

TECHNICAL DIAGRAMS:



444

24 V

115 V / 230 V

Siganlisation index	
Multi-Tone Sounder	8
LED EVS Light	8

330 g | 470 g | IP65 | +50°C -30°C | 110 dB | 32 | 24 V PLC

444 Combination

The 444 Combinations offer a large choice of internationally recognised signal tones for the widest spectrum of applications. 3 tones can be triggered externally.

TONE TYPES AND FREQUENCIES:

Tone 1	Tone type	Frequency (Hz)	Description	Use	Tone 2	Sound output (dbA)
1	continuous	200		BS 5839-1:2002	440 Hz cont.	97
2	rising	800 & 970	7 Hz		14	102
3	rising	800 & 970	1 Hz		14	103
4	continuous	2850			14	104
5	rising	2400 - 2850	7 Hz		4	109
6	rising	2400 - 2850	1 Hz		4	110
7	rising	500 - 1200	3 s, then 0.5 s OFF (then repeat)		14	106
8	falling	1200 - 500	1 Hz	DIN 33404-3	14	104
9	alternating	2400 & 2850	2 Hz		4	111
10	pulse	970	0.5 Hz (1 s On/1 s Off)	BS 5839 Part 1 1988	14	101
11	alternating	800 & 970	1 Hz	BS 5839 Part 1 1988	14	105
12	pulse	2850	0.5 Hz		4	104
13	pulse	970		0,25 s On/1 s Off	14	98
14	continuous	970		BS 5839-1:2002 PFEER - Toxic gas	10	102
15	alternating	554 & 440		France NFS	14	101
16	pulse	660	150 ms On/150 ms Off	Swedish	16	96
17	pulse	660	1.8 s On/1.8 s Off	Swedish	17	98
18	pulse	660	6.5 s On/13 s Off	Swedish	18	98
19	continuous	660		Swedish	19	98
20	alternating	554 & 440	0.5 Hz		20	102
21	pulse	660	1 Hz	Swedish	21	97
22	pulse	2850	150 ms On/100 ms Off	GB	14	104
23	rising	800 - 970	50 Hz (low)	BS 5839 Part 1 1988	14	102
24	rising	2400 - 2850	50 Hz (high)		4	109
25	pulse	970	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (low)	ISO 8201 US Temporal	26	101
26	pulse	2850	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (high)	ISO 8201 US Temporal	25	104
27	continuous	4000			27	92
28	rising	2000 - 2850	7 Hz		2000 Hz cont.	111
29	alternating	988 & 645	2 Hz		988 Hz cont.	102
30	alternating	510 & 610	2 Hz		510 Hz cont.	102
31	alternating	800 & 970	2 Hz	5839-1:2002	800 cont.	105
32	alternating	800 & 1200	1 Hz		800 cont.	105

Heavy Duty Combination – Multi-Tone Siren with Xenon Flash

Your benefits

The WERMA Heavy Duty Combination - Multi-Tone Siren with Xenon Flash features a very robust housing. The combination device provides safety and security through reliable, loud signalling in particularly harsh environments. Up to 120 dB for use in extremely noisy environments and signalling over long distances.

- Multiple visual and audible escalation levels possible
- Includes standardised tones (including those used in fire alarms)
- Up to 42 tones for signalling various statuses

Typical applications

Signalling of faults or alarms

- Outdoors in extreme conditions
- In larger industrial plants
- As an evacuation alarm

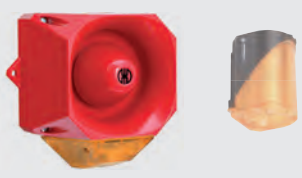
Installation options

- Wall mounting

Features

- High protection rating IP66
- Multi-voltage versions available

Size comparison Heavy Duty / Design



Siganlisation index			
	439	441	442
Multi-Tone Sounder	6	8	10
Xenon Flash	4	5	5-6

439 Xenon Flash/Multi-Tone Sounder Combination (105 dB)

TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	136 mm x 138 mm x 119 mm	
Housing:	ABS	
Connection:	Screw terminal 0.28-2.5 mm²	
Cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)	
Flash frequency:	1 Hz	
Flash energy	1.6 Ws	
Tone type and frequency:	Selectable via DIP switch, 2 tones can be externally triggered	
Voltage:	9-60 V DC	110-230 V AC
Current consumption: Housing/Flash	230 mA (24 V)	30 mA (230 V)
red / red	**439 010 55**	**439 010 68**
red / yellow	**439 030 55**	**439 030 68**
grey / red	**439 110 55**	**439 110 68**
grey / yellow	**439 130 55**	**439 130 68**

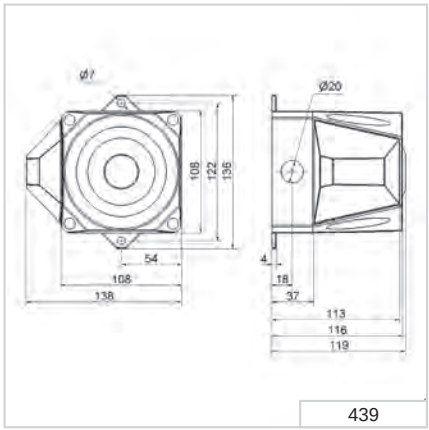
ACCESSORIES:

Cable gland M20 x 1.5 mm (for cable strain relief) Protection rating IP 65 is guaranteed even without cable gland	**975 444 01**

TONE TYPES AND FREQUENCIES:

For further details see www.werma.com.

TECHNICAL DIAGRAMS:



439

Siganlisation index	
Multi-Tone Sounder	6
Xenon Flash	4

441 Xenon Flash/Multi-Tone Sounder Combination (110 dB)

TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	165 mm x 169 mm x 132 mm	
Housing:	PC/ABS-Blend	
Connection:	Screw terminal 0.28-2.5 mm²	
Cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)	
Flash frequency:	1 Hz	
Flash energy	2.5 Ws	
Tone type and frequency:	Selectable via DIP switch, 2 tones can be externally triggered	
Voltage:	9-60 V DC	230 V AC
Current consumption: Housing/Flash	230 mA	35 mA
red / red	**441 010 55**	**441 010 68**
red / yellow	**441 030 55**	**441 030 68**
grey / red	**441 110 55**	**441 110 68**
grey / yellow	**441 130 55**	**441 130 68**

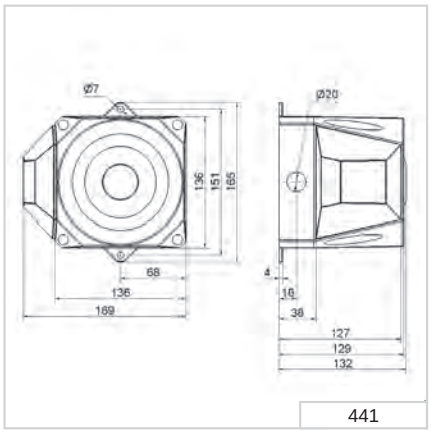
ACCESSORIES:

Cable gland M20 x 1.5 mm (for cable strain relief) Protection rating IP 65 is guaranteed even without cable gland	**975 444 01**

TONE TYPES AND FREQUENCIES:

For further details see www.werma.com.

TECHNICAL DIAGRAMS:



441

Siganlisation index

Multi-Tone Sounder	8
Xenon Flash	5

442 Xenon Flash/Multi-Tone Sounder Combination (120 dB)

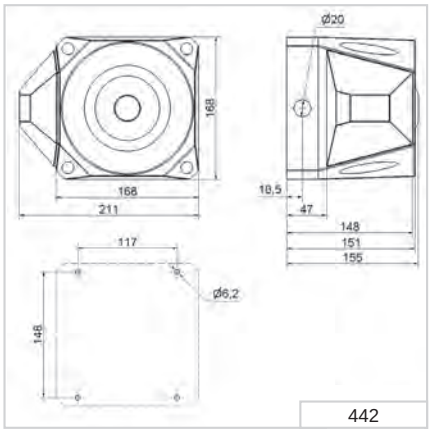
TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	168 mm x 211 mm x 155 mm		
Housing:	PC/ABS-Blend		
Connection:	Screw terminal 0.28-2.5 mm²		
Cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)		
Tone type and frequency:	Selectable via DIP switch, 3 tones externally triggered see table on page 235		
Voltage:	18-30 V DC		115/230 V AC
Current cons. Multi Tone Sounder:	450 mA		130/65 mA
Current consumption Flash:	127-389 mA (dependent on voltage and flash frequency)		– /15 mA (dependent on voltage and flash frequency)
Flash frequency	0.75 Hz/1 Hz	1.25 Hz/2 Hz	1 Hz (Flash can only be operated with 230 V)
Flash energy Housing/Flash	3.5 Ws	2 Ws	2 Ws
red / red	**442 010 55**		**442 010 68**
red / yellow	**442 030 55**		**442 030 68**
grey / red	**442 110 55**		**442 110 68**
grey / yellow	**442 130 55**		**442 130 68**

ACCESSORIES:

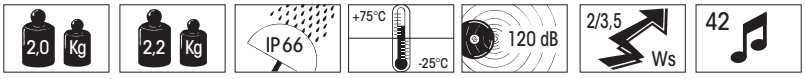
Cable gland M20 x 1.5 mm (for cable strain relief) Protection rating IP 65 is guaranteed even without cable gland	**975 444 01**

TECHNICAL DIAGRAMS:



Siganlisation index	
Multi-Tone Sounder	10
Xenon Flash	5-6

442 XX0 55 | 442 XX0 68



442 Combination

The Flash/Multi-Tone Sounder Combination 442 offers a large choice of internationally recognised signal tones for the widest spectrum of applications. 3 tones can be triggered externally. The first two tones can be freely chosen. The third tone is paired with the second tone.

♫ TONE TYPES AND FREQUENCIES:

Tone 1+2 No	Tone type	Use	Output (dbA)	Tone 3
1	alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)		120	14
2	rising 800/970 Hz in 7 Hz stroke (7/s)		120	14
3	rising 800/970 Hz in 1 Hz stroke (1/s)		120	14
4	continuous 2,850 Hz		111	9
5	rising 2,400-2,850 Hz in 7 Hz stroke		109	4
6	rising 2,400-2,850 Hz in 1 Hz stroke		110	4
7	500-1,200 Hz rising in 3 sec., 0.5 sec. OFF	Slow Whoop Holland	119	14
8	falling 1,200-500 Hz in 1 Hz stroke	DIN/PFEER (PAPA), DIN 33404-3, VDS tested	119	14
9	alternating 2,400/2,850 Hz in 2 Hz stroke (250 ms-250 ms)		113	4
10	pulse 970 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)	PFEER Alarm	117	14
11	alternating 800/970 Hz in 1 Hz stroke (500 ms-500 ms)		118	14
12	pulse 2,850 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)		112	4
13	970 Hz pulse: 0.25 sec. ON / 1 sec. OFF		117	14
14	continuous 970 Hz	PFEER - Toxic gas	118	8
15	554 Hz/100 ms alternating 440 Hz/400 ms	French alarm signal AFNOR NFS 32S 32-001	115	14
16	660 Hz pulse: 150 ms ON, 150 ms. OFF	Swedish alarm signal	114	14
17	660 Hz pulse: 1.8 sec. ON, 1.8 sec. OFF	Swedish alarm signal	115	14
18	660 Hz pulse: 6.5 sec. ON, 13 sec. OFF	Swedish alarm signal	115	14
19	continuous 660 Hz	Swedish alarm signal	116	1
20	alternating 554/440 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)	Swedish alarm signal	115	19
21	pulse 660 Hz in 1 Hz stroke (500 ms-500 ms)	Swedish alarm signal	115	4
22	pulse 2,850 Hz in 4 Hz stroke (150 ms ON / 100 ms OFF)	Swedish alarm signal	110	4
23	rising 800-970 Hz in 50 Hz stroke	Swedish alarm signal	117	14
24	rising 2,400-2,850 Hz in 50 Hz stroke	Swedish alarm signal	110	4
25	970 Hz pulse.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.	ISO 8201 / US Temporal	118	14
26	2,850 Hz pulse.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.	ISO 8201 / US Temporal	112	4
27	continuous 4,000 Hz		105	6
28	alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)		118	14
29	alternating 990/650 Hz in 2 Hz stroke (250 ms-250 ms)		117	14
30	alternating 510/610 Hz in 2 Hz stroke (250 ms-250 ms		116	14
31	rising 300-1,200 Hz in 1 Hz stroke		118	14
32	continuous Bell		117	3
33	continuous Bell: 3x500 ms. Pulse, 1.5 sec. Silence, then repeat	Bell / US Temporal	117	14
34	alternating 1,000/2,000 Hz in 1 Hz stroke (500 ms-500 ms)	Singapore	115	4
35	pulse 420 Hz (0,625 sec.)	Australian alarm signal	118	14
36	500-1,200 Hz rising in 3.75 sec., then 0.25 sec. OFF	Australian alarm signal (Evacuation)	117	14
37	rising 1,400-1,600 Hz in 1 sec., falling in 0.5 sec.	NF C 48-265	116	14
38	500-1,200 Hz rising and falling in 3 sec.	Siren	117	14
39	pulse 720 Hz: 0.7 sec. ON, 0.3 sec. OFF	German industrial alarm	118	14
40	rising 422-775 Hz in 0.85 sec., 1 sec. silence, then repeat	NFPA Whoop	118	14
41	continuous 470 Hz	Horn (USA)	114	3
42	continuous 370 Hz	Air Horn (USA)	113	3