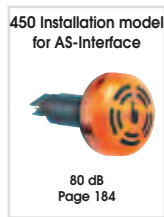
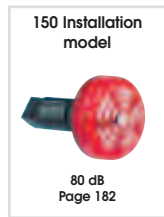


# Overview Optical-Audible Signal Devices

## LED/Buzzer Combination



## Light/Buzzer Combination

## LED Traffic Light/Siren Combination



## LED/Multi-Tone Sounder Combination



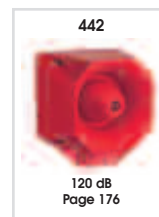
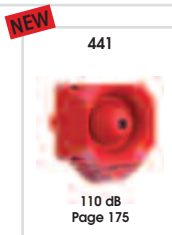
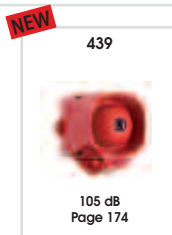
## LED/Horn Combination



## Light/Horn Combination



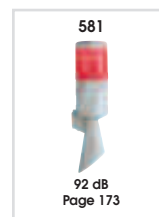
## Flash/Multi-Tone Sounder Combination



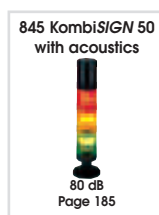
## Flash/Buzzer Combination



## Flash/Horn Combination



## Signal Towers with Audible Element



## Surface Housing for Optical and Audible Combinations



The sounds of the Optical-Audible Signal Devices can be played from our website [www.werma.com](http://www.werma.com) under the heading Optical-Audible Signal Devices.

Further information about the „Audible theme“ can be found in the chapter ‚Tech-Talk‘ beginning on Page 18.



# Optical-Audible Signal Devices

## Double safety with optical-audible signals

Under certain conditions operational sites with a high or changing noise level require a coloured, optical stimulus in addition to the audible signal. The combination of optical and audible signals leads to greater effectivity as both the eyes and ears are addressed by the sensory stimuli. The combination of an optical and an audible signal rules out the possibility of mistakes or the audible signal being overheard.

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 Sounders
- (Installation) Buzzers
- Horns

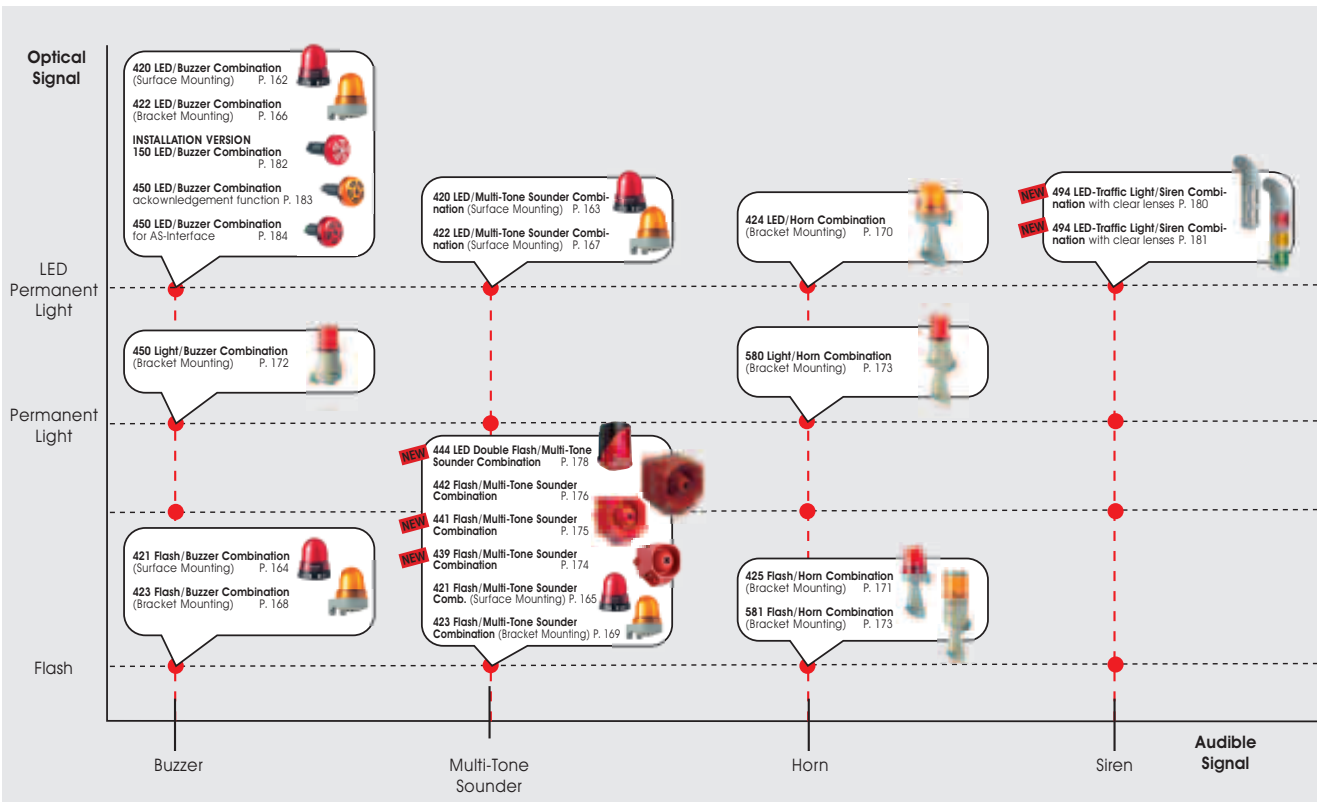
### OPTICAL SIGNALS

- LED Permanent Beacons
- Permanent Beacons
- (LED) Flashing Beacons and
- LED Double Flash Beacons

## QUICK-FINDER FOR OPTICAL-AUDIBLE SIGNAL DEVICES















WERMA provides its customers with a comprehensive selection of optical-audible signal devices. A range of different light effects and signal tones are available.

With our Quick-Finder you can quickly and easily locate the correct signal device for your field of application. If you require additional support in selecting a suitable signal device, simply give us a call!



# a WERMA key competency

120 dB
110 dB
109 dB
105 dB
100 dB
98 dB
96 dB
92 dB
90 dB
80 dB
Sound output in db

	442	Flash/Multi-Tone Sounder Combination	Page 176	
	444	LED Double Flash/Multi-Tone Sounder Combination	Page 178	
	441	Flash/Multi-Tone Sounder Combination	Page 175	
	422	LED/ Multi-Tone Sounder Combination	Page 167	
	423	Flash/ Multi-Tone Sounder Combination	Page 169	
	420	LED/Multi-Tone Sounder Combination	Page 163	
	421	Flash/Multi-Tone Sounder Combination	Page 165	
	439	Flash/Multi-Tone Sounder Combination	Page 174	
	424	LED/Horn Combination	Page 170	
	425	Flash/Horn Combination	Page 171	
	494	LED Traffic Light/Siren Combination	Page 180	
	494	LED Beacon/Siren Combination	Page 181	
	420	LED/Buzzer Combination	Page 162	
	421	Flash/Buzzer Combination	Page 164	
	422	LED/Buzzer Combination	Page 166	
	423	Flash/Buzzer Combination	Page 168	
	580	Light/Horn Combination	Page 173	
	581	Flash/Horn Combination	Page 173	
	480	Light/Buzzer Combination	Page 172	
	150	LED/Buzzer Combination	Page 182	
	450	LED/Buzzer Combination with acknowledgement function	Page 183	
	450	LED/Buzzer Combination for AS-Interface	Page 184	

Optical-Audible  
Signal Devices





- Buzzer in combination with LED Permanent Beacon
- Long life duration up to 50,000 hrs
- Optical and audible signals can be triggered separately
- Continuous or pulse tone selectable
- Easy to mount
- High protection rating IP 65

**i TECHNICAL SPECIFICATIONS:**



<b>Dimensions</b> (Diameter x Height):	89 mm x 101 mm
<b>Housing:</b>	PC, black
<b>Dome:</b>	PC, transparent
<b>Connection:</b>	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 9 mm
<b>Starting current:</b>	< 0.5 A at 24 V
<b>Tone type:</b>	Continuous or pulse tone, selectable
<b>Tone frequency:</b>	2.3 kHz
<b>Fixing:</b>	Surface mounting
<b>Life duration:</b>	50,000 hrs

**Life duration up to 50,000 hrs**

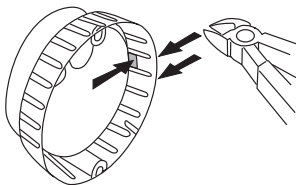
**ORDER SPECIFICATIONS:**

Voltage	12 V <sup>==</sup>	24 V <sup>≈</sup>	115 V <sup>~</sup>	230 V <sup>~</sup>
Current consumption LED	80 mA	45 mA	25 mA	25 mA
Current consumption Buzzer	40 mA	15 mA	15 mA	25 mA
red	<b>420 110 54</b>	<b>420 110 75</b>	<b>420 110 67</b>	<b>420 110 68</b>
yellow	<b>420 310 54</b>	<b>420 310 75</b>	<b>420 310 67</b>	<b>420 310 68</b>

**TECHNICAL DIAGRAMS:**

see page 260

Optical-Audible Signal Devices



Piece of rim can be broken out to allow for cable entry from the side.

In preparation  
420 X10 54  
420 X10 75





- Multi-Tone Sounder in combination with LED Permanent Beacon
- High life duration of up to 50,000 hrs
- Optical and audible signals can be triggered separately
- Choice of 8 different tones
- Easy to mount
- High protection rating IP 65
- Adjustable sound output

**i TECHNICAL SPECIFICATIONS:**



Dimensions (Diameter x Height):	89 mm x 101 mm
Housing:	PC black
Dome:	PC, transparent
Connection:	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Fixing:	Surface mounting
Life duration:	up to 50,000 hrs
Tone type:	selectable, see table below
Tone frequency:	see table below

**Life duration up to 50,000 hrs**

**🎵 TONE TYPES AND FREQUENCIES:**

Tone No.	Tone type
1	Horn tone (c. 110 Hz)
2	Continuous tone (c. 3.0 KHz)
3	1 Hz tone (c. 3.0 KHz)
4	20 Hz whistle tone (c. 3.0 KHz)
5	800-970 Hz rising @ 1 Hz
6	2400-2850 Hz rising @ 7 Hz
7	1200-500 Hz falling @ 1 Hz
8	Alternating tone 800 Hz / 1200 Hz @ 1Hz



Mounting holes integrated into the product rim allow easy mounting without having to remove the dome.

**🛒 ORDER SPECIFICATIONS:**

Voltage	24 V ≈
Current consumption Xenon Flash	120 mA
Current consumption MTS	80 mA
red	<b>421 120 75</b>
yellow	<b>421 320 75</b>

**📏 TECHNICAL DIAGRAMS:**

see page 260

In preparation







- Buzzer in combination with Xenon Flash
- Optical and audible signal can be triggered separately
- Continuous or pulse tone selectable
- Easy to mount
- High protection rating IP 65

**i TECHNICAL SPECIFICATIONS:**



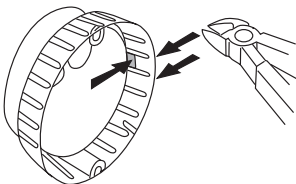
<b>Dimensions (Diameter x Height):</b>	89 mm x 101 mm
<b>Housing:</b>	PC, black
<b>Dome:</b>	PC, transparent
<b>Connection:</b>	Screwable protection with wire protection max. 1.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 9 mm
<b>Tone type:</b>	Continuous or pulse tone, selectable
<b>Tone frequency:</b>	2.3 kHz
<b>Flash energy:</b>	1 Ws
<b>Flash frequency:</b>	1 Hz
<b>Fixing:</b>	Surface mounting
<b>Life duration:</b>	4 x 10 <sup>6</sup> flashes

**🛒 ORDER SPECIFICATIONS:**

Voltage	24 V <sup>≈</sup>	115 V <sup>~</sup>	230 V <sup>~</sup>
Current consumption Xenon Flash	120 mA	25 mA	35 mA
Current consumption Buzzer	15 mA	15 mA	25 mA
red	<b>421 110 75</b>	<b>421 110 67</b>	<b>421 110 68</b>
yellow	<b>421 310 75</b>	<b>421 310 67</b>	<b>421 310 68</b>

**📏 TECHNICAL DIAGRAMS:**

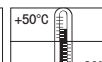
see page 261



Piece of rim can be broken out to allow for cable entry from the side.

In preparation

In preparation  
421 X10 75





Mounting holes integrated into the product rim allow easy mounting without having to remove the dome.

- Multi-Tone Sounder in combination with Xenon Flash
- Optical and audible signal can be triggered separately
- Choice of 8 different tones
- High protection rating IP 65
- Adjustable sound output
- Easy to mount



### TECHNICAL SPECIFICATIONS:



<b>Dimensions</b> (Diameter x Height):	89 mm x 101 mm
<b>Housing:</b>	PC black
<b>Dome:</b>	PC, transparent
<b>Connection:</b>	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 9 mm
<b>Flash energy:</b>	1 Ws
<b>Flash frequency:</b>	1 Hz
<b>Fixing:</b>	Surface mounting
<b>Life duration:</b>	4 x 10 <sup>6</sup> flashes
<b>Tone type:</b>	selectable, see table below
<b>Tone frequency:</b>	see table below



### TONE TYPES AND FREQUENCIES:

Tone No.	Tone type
1	Horn tone (c. 110 Hz)
2	Continuous tone (c. 3.0 KHz)
3	1 Hz tone (c. 3.0 KHz)
4	20 Hz whistle tone (c. 3.0 KHz)
5	800-970 Hz rising @ 1 Hz
6	2400-2850 Hz rising @ 7 Hz
7	1200-500 Hz falling @ 1 Hz
8	Alternating tone 800 Hz / 1200 Hz @ 1Hz



### ORDER SPECIFICATIONS:

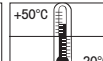
Voltage	24 V ≈
Current consumption Xenon Flash	120 mA
Current consumption MTS	80 mA
red	<b>421 120 75</b>
yellow	<b>421 320 75</b>



### TECHNICAL DIAGRAMS:

see pag 261

In preparation







- Buzzer in combination with LED Permanent Beacon
- Long life duration up to 50,000 hrs
- Integrated mounting bracket
- Optical and audible signal can be triggered separately
- Continuous or pulse tone selectable
- High protection rating IP 65

**i TECHNICAL SPECIFICATIONS:**



<b>Dimensions (D x W x H):</b>	91.5 mm x 82.5 mm x 120 mm
<b>Housing:</b>	PC/ABS-Blend; PC grey
<b>Dome:</b>	PC, transparent
<b>Connection:</b>	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 9 mm
<b>Starting current:</b>	< 0.5 A at 24 V
<b>Tone type:</b>	Continuous or pulse tone, selectable
<b>Tone frequency:</b>	2.3 kHz
<b>Fixing:</b>	Bracket mounting, sound outlet facing downwards
<b>Life duration:</b>	50,000 hrs

**Life duration up to 50,000 hrs**

**🛒 ORDER SPECIFICATIONS:**

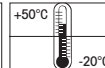
Voltage	12 V ≈	24 V ≈	115 V ~	230 V ~
Current consumption LED	80 mA	45 mA	25 mA	25 mA
Current consumption Buzzer	40 mA	15 mA	15 mA	25 mA
red	<b>422 110 54</b>	<b>422 110 75</b>	<b>422 110 67</b>	<b>422 110 68</b>
yellow		<b>422 310 75</b>	<b>422 310 67</b>	<b>422 310 68</b>

**📏 TECHNICAL DIAGRAMS:**

see page 261



In preparation  
420 X10 54  
420 X10 75





- Multi-Tone Sounder in combination with LED Permanent Beacon
- Long life duration of up to 50,000 hrs
- Optical and audible signals can be triggered separately
- Integrated mounting bracket
- Choice of 8 different tones
- Easy to mount
- High protection rating IP 65
- Adjustable sound output

**i TECHNICAL SPECIFICATIONS:**



Dimensions (D x W x H):	91.5 mm x 82.5 mm x 120 mm
Housing:	PC/ABS-Blend; PC grey
Dome:	PC, transparent
Connection:	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Fixing:	Bracket mounting, sound outlet facing downwards
Life duration:	50,000 hrs
Tone type:	selectable, see table below
Tone frequency:	see table below

Life duration up to 50,000 hrs

**🎵 TONE TYPES AND FREQUENCIES:**

Tone No.	Tone type
1	Horn tone (c. 110 Hz)
2	Continuous tone (c. 3.0 KHz)
3	1 Hz tone (c. 3.0 KHz)
4	20 Hz whistle tone (c. 3.0 KHz)
5	800-970 Hz rising @ 1 Hz
6	2400-2850 Hz rising @ 7 Hz
7	1200-500 Hz falling @ 1 Hz
8	Alternating tone 800 Hz / 1200 Hz @ 1Hz

**🛒 ORDER SPECIFICATIONS:**

Voltage	24 V ≈
Current consumption LED	45 mA
Current consumption MTS	80 mA
red	<b>422 120 75</b>
yellow	<b>422 320 75</b>

**📐 TECHNICAL DIAGRAMS:**

see page 261



In preparation





- Buzzer in combination with Xenon flash
- Optical and audible signal can be triggered separately
- Integrated mounting bracket
- Continuous or pulse tone selectable
- High protection rating IP 65

#### TECHNICAL SPECIFICATIONS:



<b>Dimensions (D x W x H):</b>	91.5 mm x 82.5 mm x 120 mm
<b>Housing:</b>	PC/ABS-Blend; PC grey
<b>Dome:</b>	PC, transparent
<b>Connection:</b>	Screwable conn. with wire protection max. 1.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 9 mm
<b>Tone type:</b>	continuous or pulse tone, selectable
<b>Tone frequency:</b>	2.3 kHz
<b>Flash energy:</b>	1 Ws
<b>Flash frequency:</b>	1 Hz
<b>Fixing:</b>	Bracket mounting, sound outlet facing downwards
<b>Life duration:</b>	4 x 10 <sup>6</sup> flashes

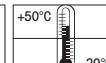
#### ORDER SPECIFICATIONS:

Voltage	24 V $\approx$	115 V $\sim$	230 V $\sim$
Current consumption Xenon Flash	120 mA	25 mA	35 mA
Current consumption Buzzer	15 mA	15 mA	25 mA
red	<b>423 110 75</b>	<b>423 110 67</b>	<b>423 110 68</b>
yellow	<b>423 310 75</b>	<b>423 310 67</b>	<b>423 310 68</b>

#### TECHNICAL DIAGRAMS:

see page 261

In preparation In preparation





- Multi-Tone Sounder in combination with Xenon Flash
- Optical and audible signal can be triggered separately
- Choice of 8 different tones
- Integrated mounting bracket
- High protection rating IP 65
- Adjustable sound output

### TECHNICAL SPECIFICATIONS:



Dimensions (D x W x H):	91.5 mm x 82.5 mm x 120 mm
Housing:	PC/ABS-Blend; PC grey
Dome:	PC, transparent
Connection:	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Flash energy:	1 Ws
Flash frequency:	1 Hz
Fixing:	Bracket mounting, sound outlet facing downwards
Life duration:	4 x 10 <sup>6</sup> flashes
Tone type:	selectable, see table below
Tone frequency:	see table below

### TONE TYPES AND FREQUENCIES:

Tone No.	Tone type
1	Horn tone (c. 110 Hz)
2	Continuous tone (c. 3.0 KHz)
3	1 Hz tone (c. 3.0 KHz)
4	20 Hz whistle tone (c. 3.0 KHz)
5	800-970 Hz rising @ 1 Hz
6	2400-2850 Hz rising @ 7 Hz
7	1200-500 Hz falling @ 1 Hz
8	Alternating tone 800 Hz / 1200 Hz @ 1Hz

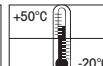
### ORDER SPECIFICATIONS:

Voltage	24 V ≈
Current consumption Xenon Flash	120 mA
Current consumption MTS	80 mA
red	<b>423 120 75</b>
yellow	<b>423 320 75</b>

### TECHNICAL DIAGRAMS:

see page 261

In preparation



Award-winning design



- Electronic Horn in combination with LED Permanent Beacon
- Horn with long life duration up to 5,000 hrs
- Optical and audible signal can be triggered separately
- Adjustable sound output (24 V version)

**i TECHNICAL SPECIFICATIONS:**



Dimensions (D x W x H):	91.4 mm x 82.75 mm x 234.5 mm
Housing:	PC/ABS-Blend; PC grey
Dome:	PC, transparent
Conenction:	Screwable conn. with wire protection max. 1.5 mm <sup>2</sup>
Cable entry:	Cable diameter max. 9 mm
Fixing:	Bracket mounting, sound outlet facing downwards
Life duration:	50,000 hrs (LED Permanent light) 5,000 hrs (Horn)
Tone frequency:	110 Hz

**ORDER SPECIFICATIONS:**

Voltage	24 V ≈	115 V ~	230 V ~
Current consumption LED	45 mA	25 mA	25 mA
Current consumption Horn	80 mA	70 mA	70 mA
red	<b>424 120 75</b>	<b>424 120 67</b>	<b>424 120 68</b>
yellow	<b>424 320 75</b>	<b>424 320 67</b>	<b>424 320 68</b>

**TECHNICAL DIAGRAMS:**

see page 262



In preparation



Award-winning design



- Electronic Horn in combination with Xenon Flash
- Horn with long life duration of up to 5,000 hrs
- Optical and audible signal can be triggered separately
- Adjustable sound output (24 V version)

**i TECHNICAL SPECIFICATIONS:**



<b>Dimensions (D x W x H):</b>	91.4 mm x 82.75 mm x 234.5 mm
<b>Housing:</b>	PC/ABS-Blend; PC grey
<b>Dome:</b>	PC, transparent
<b>Connection:</b>	Screwable conn. with wire protection max. 1.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 9 mm
<b>Flash energy:</b>	1 Ws
<b>Flash frequency:</b>	1 Hz
<b>Fixing:</b>	Bracket mounting, sound outlet facing downwards
<b>Life duration:</b>	4 x 10 <sup>6</sup> flashes (Xenon Flash) 5,000 hrs (Horn)
<b>Tone frequency:</b>	110 Hz

**ORDER SPECIFICATIONS:**

Voltage	24 V $\approx$	115 V $\sim$	230 V $\sim$
Current consumption Xenon Flash	120 mA	30 mA	30 mA
Current consumption Horn	80 mA	70 mA	70 mA
red	<b>425 120 75</b>	<b>425 120 67</b>	<b>425 120 68</b>
yellow	<b>425 320 75</b>	<b>425 320 67</b>	<b>425 320 68</b>

**! ADDITIONAL INFORMATION:**

**Combinations 424 and 425 win the Design prize „Focus Safety Silver 2007“**

In October 2007 the Optical-Audible Combinations 424 and 425 won the design prize "Focus Safety in Silver". Awarded for excellent design, the prize distinguishes all those products that have gained a leading position due to their exceptional design qualities.

Whilst taking into consideration the usual design criteria, the jury judging the "Focus Safety in Silver 2007" placed special emphasis on the aspects of product safety and functionality.

Awards were given to products where safety plays a central role in design considerations and where the product functionality succeeded in communicating and delivering safety.



**TECHNICAL DIAGRAMS:**

see page 262

In preparation







- Light and sound can be triggered separately

#### TECHNICAL SPECIFICATIONS:



<b>Dimensions</b> (Diameter x Height):	70 mm x 164 mm
<b>Housing:</b>	ABS
<b>Dome:</b>	PC, transparent
<b>Socket:</b>	B 15 d, max. 7 Watt
<b>Connection:</b>	Screwable connection max. 2.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 9 mm
<b>Tone frequency:</b>	c. 2400 Hz
<b>Duty cycle:</b>	100 %

Bulb included in assembly. Bulb Overview see pages 156 + 157.

#### ORDER SPECIFICATIONS:

Voltage	24 V ≈	230 V ~
Current consumption	320 mA	50 mA
red	<b>480 152 55</b>	<b>480 152 68</b>
yellow	<b>480 352 55</b>	<b>480 352 68</b>

Further colours and voltages on request.

#### ADDITIONAL INFORMATION:

Please also see LED/Buzzer Combination 422 with add. advantages (page 166)

- High protection rating IP 65
- Buzzer in combination with LED
- Long life duration of up to 50,000 hrs
- Continuous and pulse tone selectable

#### TECHNICAL DIAGRAMS:

see page 264



# 580

## Light/Horn Combination



- Light and sound can be triggered separately

### TECHNICAL SPECIFICATIONS:



<b>Dimensions</b> (Diameter x Height):	70 mm x 256 mm		
<b>Housing:</b>	ABS		
<b>Dome:</b>	PC, transparent		
<b>Socket:</b>	B 15 d, max. 7 Watt		
<b>Connection:</b>	Screwable connection max. 2.5 mm <sup>2</sup>		
<b>Cable entry:</b>	Cable diameter max. 9 mm		
<b>Duty cycle:</b>	100 %		
Bulb included in assembly. Bulb Overview see pages 150 + 151.			

### ORDER SPECIFICATIONS:

Voltage	24 V =	42 V ~	230 V ~
Current consumption	320 mA	250 mA	50 mA
red	<b>580 152 55</b>	<b>580 152 66</b>	<b>580 152 68</b>
yellow	<b>580 352 55</b>		<b>580 352 68</b>

Further colours and voltages on request.

### TECHNICAL DIAGRAMS:

see page 266



### ADDITIONAL INFORMATION:

Please also see LED/Horn Combination 424 with add. advantages (page 170)

- High protection rating IP 65
- Horn in combination with LED
- Horn with a life duration of up to 5,000 hrs
- LED Permanent light with a life duration of up to 50,000 hrs

# 581

## Flash/Horn Combination



- Light and sound can be triggered separately

### TECHNICAL SPECIFICATIONS:



<b>Dimensions</b> (Diameter x Height):	70 mm x 275 mm		
<b>Housing:</b>	ABS		
<b>Dome:</b>	PC, transparent		
<b>Connection:</b>	Screwable connection max. 2.5 mm <sup>2</sup>		
<b>Cable entry:</b>	Cable diameter max. 9 mm		
<b>Flash frequency:</b>	c. 1 Hz		
<b>Flash energy:</b>	2 Ws		
<b>Life duration:</b>	4 x 10 <sup>6</sup> flashes		

### ORDER SPECIFICATIONS:

Voltage	12 V =	24 V =	230 V ~
Current consumption	300 mA	200 mA	40 mA
red		<b>581 152 55</b>	<b>581 152 68</b>
yellow	<b>581 352 54</b>	<b>581 352 55</b>	<b>581 352 68</b>

Further colours and voltages on request.

### TECHNICAL DIAGRAMS:

see page 266



### ADDITIONAL INFORMATION:

Please also see Flash/Horn Combination 425 with add. advantages (page 171)

- High protection rating IP 65
- Horn in combination with Xenon Flash
- Horn with a life duration of up to 5,000 hrs
- Adjustable sound output



**NEW**



- Multi-Tone Sounder in combination with Xenon Flash
- 32 tones for a diverse range of applications
- Volume adjustable up to 105 dB
- 2 tones can be triggered externally
- Optical and audible signal can be triggered separately

**TECHNICAL SPECIFICATIONS:**



<b>Dimensions (D x W x H):</b>	119 mm x 136 mm x 137 mm	
<b>Housing:</b>	ABS	
<b>Connection:</b>	Screwable connection max. 2.5 mm <sup>2</sup>	
<b>Cable entry:</b>	Cable gland M 20 x 1.5 mm (not included in assembly)	
<b>Flash frequency:</b>	1 Hz	
<b>Flash energy:</b>	1.6 Ws	
<b>Tone types and frequencies:</b>	selectable via DIP switch, see table on page 205	

**ORDER SPECIFICATIONS:**

Voltage	9 - 60 V <sup>==</sup>	110 - 230 V <sup>~</sup>
Current consumption	230 mA (24 V)	30 mA (230 V)
Housing / Flash		
red / red	<b>439 010 55</b>	<b>439 010 68</b>
red / yellow	<b>439 030 55</b>	<b>439 030 68</b>
grey / red	<b>439 110 55</b>	<b>439 110 68</b>
grey / yellow	<b>439 130 55</b>	<b>439 130 68</b>

**ACCESSORIES:**

Cable gland M 20 x 1.5 mm	<b>975 444 01</b>
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**TONE TYPES AND FREQUENCIES:**

Tone table see page 205  
 Variances possible. For further details see [www.werma.com](http://www.werma.com).

**TECHNICAL DIAGRAMS:**

see page 262

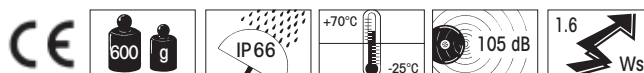


Loud Multi-Tone Sounder in combination with a powerful Xenon Flash

**COMPARISON OF SIZE**



439      441      442



**NEW**

- Multi-Tone Sounder in Combination with Xenon Flash
- 32 tones for a diverse range of applications
- Volume adjustable up to 110 dB
- 2 tones can be triggered externally
- Optical and audible signal can be triggered separately



**i TECHNICAL SPECIFICATIONS:**



Dimensions (D x W x H):	132 mm x 165 mm x 173 mm	
Housing:	PC/ABS-Blend	
Connection:	Screwable connection max. 2.5 mm <sup>2</sup>	
Cable entry:	Cable gland M 20 x 1.5 mm (not included in assembly)	
Flash frequency:	1 Hz	
Flash energy:	2.5 Ws	
Tone types and frequencies:	selectable via DIP switch, see table on page 205	

**ORDER SPECIFICATIONS:**

Voltage	9 - 60 V <sup>==</sup>	230 V <sup>~</sup>
Current consumption	230 mA	35 mA
Housing / Flash		
red / red	<b>441 010 55</b>	<b>441 010 68</b>
red / yellow	<b>441 030 55</b>	<b>441 030 68</b>
grey / red	<b>441 110 55</b>	<b>441 110 68</b>
grey / yellow	<b>441 130 55</b>	<b>441 130 68</b>

**ACCESSORIES:**

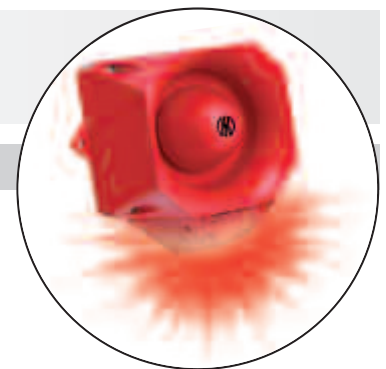
Cable gland M 20 x 1.5 mm	<b>975 444 01</b>
---------------------------	-------------------

**NOTE TONE TYPES AND FREQUENCIES:**

Tone table see page 205  
 Variances possible. For further details see [www.werma.com](http://www.werma.com).

**TECHNICAL DIAGRAMS:**

see page 262



Loud Multi-Tone Sounder in combination with a powerful Xenon Flash

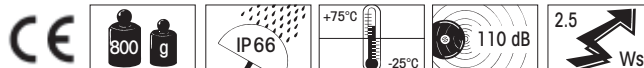
**COMPARISON OF SIZE**



439

441

442



- Multi-Tone Sounder in combination with Xenon Flash
- 4 different flash frequencies (24 V Version)
- 42 tones for a diverse range of applications
- Sound output adjustable up to 120 dB
- 3 tones can be triggered externally
- Duration of signal phase selectable
- Optical and audible signal can be triggered separately



**i TECHNICAL SPECIFICATIONS:**



Dimensions (D x W x H):	155 mm x 168 mm x 212 mm		
Housing:	PC/ABS-Blend		
Connection:	Screwable connection max. 2.5 mm <sup>2</sup>		
Cable entry:	Cable gland M 20 x 1.5 mm (not included in assembly)		
Tone types and frequencies:	selectable via DIP switch, see table on opposite page		

**ORDER SPECIFICATIONS:**

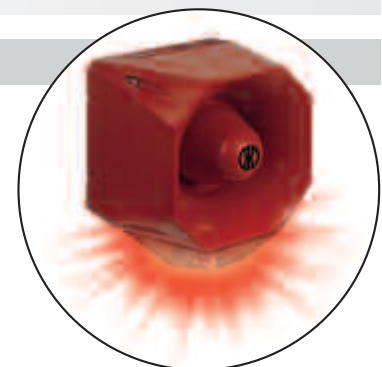
Voltage	18-30 V =	115/230 V ~
Current cons. Multi Tone Sounder	450 mA	130 / 65 mA
Current consumption Flash	127 - 389 mA (dependent on voltage and flash frequency)	- / 15 mA (dependent on voltage and flash frequency)
Flash frequency	0,75 Hz/1 Hz    1,25 Hz/2 Hz	1 Hz (Flash can only be operated with 230 V)
Flash energy	3,5 Ws    2 Ws	2 Ws
Housing/Flash		
red/red	<b>442 010 55</b>	<b>442 010 68</b>
red/yellow	<b>442 030 55</b>	<b>442 030 68</b>
grey/red	<b>442 110 55</b>	<b>442 110 68</b>
grey/yellow	<b>442 130 55</b>	<b>442 130 68</b>

**ACCESSORIES:**

Cable gland M 20 x 1.5 mm	<b>975 444 01</b>
---------------------------	-------------------

**TECHNICAL DIAGRAMS:**

see page 263



Loud Multi-Tone Sounder in combination with a powerful Xenon Flash.

**COMPARISON OF SIZE**



439                      441                      442



The Flash/Multi-Tone Sounder Combination 442 offers a large choice of international signal tones for the widest spectrum of applications.



### STONE TYPES AND FREQUENCIES:



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





# 444 LED Double Flash/Multi-Tone Sounder Combination

**NEW**



Base Mounting



Wall mounting

- Multi-Tone Sounder in combination with LED Double Flash
- Sound output adjustable up to 110 dB
- 32 tones for a diverse range of applications
- 3 Tones can be triggered externally
- Optical and audible signal can be triggered separately

## TECHNICAL SPECIFICATIONS:

<b>Dimensions (D x W x Ht):</b>	152 mm x 109 mm x 112.5 mm
<b>Housing:</b>	PC/ABS-Blend
<b>Dome:</b>	PC, transparent
<b>Connection:</b>	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>
<b>Starting consumption:</b>	< 500 mA at 24 V
<b>Cable entry:</b>	Membrane for cable diameter max. 13 mm
<b>Fixing:</b>	Wall, base and ceiling mounting
<b>Life duration:</b>	Up to 50,000 hrs (LED Double Flash)
<b>Flash frequency:</b>	c. 1 Hz
<b>Tone types and frequencies:</b>	selectable via DIP switch, see table on opposite page



Life duration up to 50,000 hrs

## ORDER SPECIFICATIONS:

	24 V =	115 V ~	230 V ~
Current consumption Optical	100 mA	55 mA	30 mA
Audible	60 mA	30 mA	30 mA
red	<b>444 100 75</b>	<b>444 100 67</b>	<b>444 100 68</b>
yellow	<b>444 300 75</b>	<b>444 300 67</b>	<b>444 300 68</b>

Available from 1<sup>st</sup> Quarter 2009

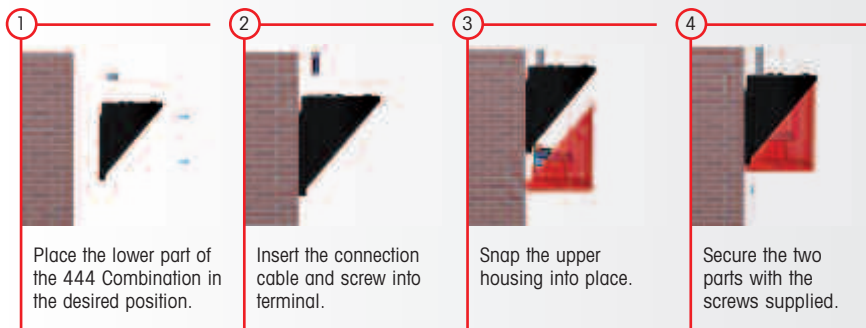
## ACCESSORIES:

Cable gland M 20 x 1.5 mm **975 444 01**  
(for cable pull relief)

## ADDITIONAL INFORMATION:

The various options for mounting (wall, base or ceiling) ensure the best possible visibility of the LED double flash and an optimal sound output.

## QUICK AND SIMPLE MOUNTING



## TECHNICAL DIAGRAMS:

see page 263



# 444 LED Double Flash/Multi-Tone Sounder Combination

The LED Double Flash/Multi-Tone Sounder 444 offers a large choice of international signal tones for the widest spectrum of applications.



## 🎵 TONE TYPES AND FREQUENCIES:

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



**NEW**



LED Traffic Light with integrated siren (2 tier)



Integrated siren with high sound output

- High visibility LED Traffic Light with integrated siren
- Unmistakable signalling even in direct sunlight thanks to clear lenses
- Sound output of 90 dB
- Simple mounting thanks to integrated mounting bracket
- The optical signal also offers very good sideways visibility



Life duration up to 50.000 hrs

**i TECHNICAL SPECIFICATIONS:**

<b>Dimensions (D x W x H):</b>	2 tier: 136 mm x 85 mm x 311 mm
	3 tier: 136 mm x 85 mm x 396 mm
<b>Housing:</b>	PC/ABS, grey
<b>Lens:</b>	PC, transparent
<b>Fixing:</b>	Wall mounting
<b>Installation position:</b>	Vertical/hanging
<b>Connection:</b>	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>
<b>Cable entry:</b>	Cable diameter max. 13 mm
<b>Duty cycle:</b>	100 % ED
<b>Tone type:</b>	Continuous tone

**🛒 ORDER SPECIFICATIONS:**

Voltage	24 V=	115 to 230 V~
Current Consumption LED	60 mA (red/yellow) 120 mA (green)	30 mA per tier at 230 V/50 Hz
Siren	20 mA	30 mA at 230 V/50 Hz
red / green	<b>494 160 55</b>	<b>494 160 68</b>
red / yellow / green	<b>494 180 55</b>	<b>494 180 68</b>

**📏 TECHNICAL DIAGRAMS:**

see page 265



Clear lenses ensure signalling effect even in direct sunlight

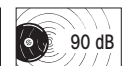
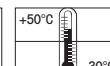
In preparation



2 tier



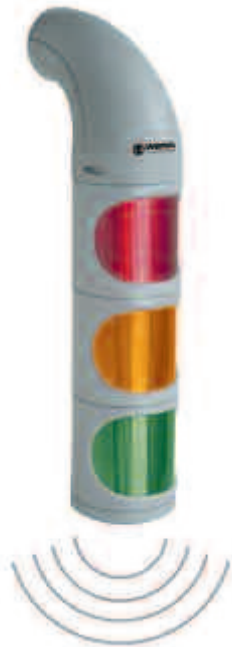
3 tier



**NEW**



LED Beacon with integrated siren (1 tier)



Integrated siren with high sound output

- High visibility LED Beacon with integrated siren
- Colour intensive light effect thanks to LEDs in the same colour as the lenses
- Sound output of 90 dB
- Simple mounting thanks to integrated mounting bracket
- The optical signal also offers very good sideways visibility

**i TECHNICAL SPECIFICATIONS:**



<b>Dimensions</b> (D x W x H):	1 tier:	136 mm x 85 mm x 226 mm
	2 tier:	136 mm x 85 mm x 311 mm
	3 tier:	136 mm x 85 mm x 396 mm
<b>Housing:</b>	PC/ABS, grey	
<b>Lens:</b>	PC, transparent	
<b>Fixing:</b>	Wall mounting	
<b>Installation position:</b>	Vertical/hanging	
<b>Connection:</b>	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>	
<b>Cable entry:</b>	Cable diameter max. 13 mm	
<b>Duty cycle:</b>	100 % ED	
<b>Tone type:</b>	Continuous tone	

**Life duration up to 50,000 hrs**

**🛒 ORDER SPECIFICATIONS:**

Voltage	24 V=	115 to 230 V~
Current Consumption	LED	60 mA (red/yellow) 30 mA per tier at 230 V/50 Hz 120 mA (green)
	Siren	20 mA 30 mA at 230 V/50 Hz
red	<b>494 010 55</b>	<b>494 010 68</b>
green	<b>494 020 55</b>	<b>494 020 68</b>
yellow	<b>494 030 55</b>	<b>494 030 68</b>
red / green	<b>494 060 55</b>	<b>494 060 68</b>
red / yellow / green	<b>494 080 55</b>	<b>494 080 68</b>

**📏 TECHNICAL DIAGRAMS:**

see page 265



The direction of the optical signal can be individually adjusted



1 tier 2 tier 3 tier



- LED Permanent light
- Continuous tone can be additionally activated
- Simple connection by means of connector plug
- Life duration up to 50,000 hrs
- Low current consumption
- High protection rating IP 65



### TECHNICAL SPECIFICATIONS:

Dimensions (Diameter x Height):	49.5 mm x 74 mm
Housing:	PC/ABS-Blend
Dome:	PC, transparent
Connection:	Connector plug with screwable connection max. 1.5 mm <sup>2</sup>
Starting current:	< 0.5 A
Current consumption:	< 50 mA at 24 V; < 20 mA at 115 and 230 V
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 (M 22 x 1.5 mm) with anti-twist device

**Life duration up to 50,000 hrs**

Nut and seal included in assembly.

### ORDER SPECIFICATIONS:

Voltage	24 V <sup>—</sup>	115 V <sup>≈</sup>	230 V <sup>≈</sup>
red	<b>150 100 55</b>	<b>150 100 67</b>	<b>150 100 68</b>
yellow	<b>150 300 55</b>	<b>150 300 67</b>	<b>150 300 68</b>

### TECHNICAL DIAGRAMS:

see page 254



450

# LED/Buzzer Combination with acknowledgement function

Patent approved



- LED permanent light with additional continuous tone
- Silence the audible signal by lightly pressing the frontal area
- Life duration up to 50,000 hrs
- Potential-free output for transmission of the acknowledgement signal to the control unit
- Positive and negative logic

## TECHNICAL SPECIFICATIONS:



<b>Dimensions</b> (Diameter x Height):	49.5 mm x 75 mm
<b>Housing:</b>	PC/ABS-Blend
<b>Dome:</b>	PC, transparent
<b>Connection:</b>	Screwable connection max. 0.5 mm <sup>2</sup>
<b>Starting current:</b>	< 0.5 A
<b>Current consumption:</b>	40 to 80 mA at 24 V
<b>Signal input:</b>	24 V <sub>DC</sub>
<b>Acknowledgement output:</b>	Semiconductor-Relay $U_{max} = 30 V$ $I_{max} = 100 mA$ $R_{ON max} = 25 Ohm$
<b>Tone type:</b>	Continuous
<b>Tone frequency:</b>	c. 2.8 kHz
<b>Duty cycle:</b>	100 %
<b>Life duration:</b>	up to 50,000 hrs
<b>Fixing:</b>	Installation mounting for $\varnothing 22,5 mm$ (M 22 x 1.5 mm) with anti-twist device

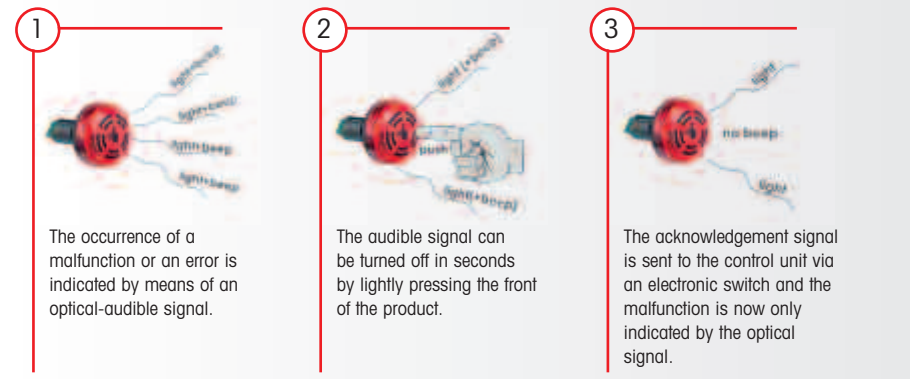
Life duration up to 50,000 hrs

Nut and seal included in assembly.

## ORDER SPECIFICATIONS:

Voltage	24 V <sub>DC</sub>
red	450 100 55
yellow	450 300 55

## ADDITIONAL INFORMATION:



## TECHNICAL DIAGRAMS:

see page 264

In preparation





# LED/Buzzer Combination with acknowledgement function for AS-Interface

- LED Permanent light with additional continuous tone
- Silence the audible signal by lightly pressing the frontal area
- Acknowledgement signal fed back to the Master via AS-Interface Bus
- Life duration up to 50,000 hrs



## TECHNICAL SPECIFICATIONS:

<b>Dimensions</b> (Diameter x Height):	49.5 x 78 mm
<b>Housing:</b>	PC, black
<b>Dome:</b>	PC, transparent
<b>Connection:</b>	Screwable connection with wire protection max. 1.5 mm <sup>2</sup>
<b>Power supply AS-Interface:</b>	via bus conduction
<b>Operating voltage:</b>	25 V ... 31.6 V according to the AS Interface specification
<b>Starting current:</b>	< 0,5 A
<b>Current Consumption:</b>	≤ 80 mA
<b>IO-Code:</b>	B <sub>hex</sub>
<b>ID-Code:</b>	A <sub>hex</sub>
<b>ID2-Code:</b>	E <sub>hex</sub>
<b>Tone type:</b>	Continuous
<b>Tone frequency:</b>	c. 2.8 kHz
<b>Duty cycle:</b>	100 % ED
<b>Fixing:</b>	Installation mounting for Ø 22.5 mm (M 22 x 1.5 mm) with anti-twist device

Nut and seal included in assembly.

## ORDER SPECIFICATIONS:

Voltage	via AS-Interface
red	<b>450 110 55</b>
yellow	<b>450 310 55</b>

## ADDITIONAL INFORMATION:



### Unique acknowledgement function with feedback signal via AS-Interface Bus

The addition of the LED/Buzzer Combination 450 with acknowledgement function expands WERMA's range of products with integrated AS-Interface®. The combination unites a very bright light signal with the powerful sound of a buzzer.

This product also features a unique acknowledgement function: by gently pressing the front surface of the product the audible signal can be turned off in a matter of seconds. This acknowledgement signal is fed back to the master via the AS-Interface Bus and the malfunction is only indicated by means of the optical signal.

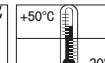
### Expanded addressing and a sound output of 80 dB

The Combination 450 for AS-Interface enables an expanded addressing (A/B technology) of up to 62 modules. The power required is drawn from the Bus voltage.

## TECHNICAL DIAGRAMS:

see page 264

Class 2



# Surface Housing for Combinations

- Various combinations possible
- High protection rating IP 65
- Versatile range of applications thanks to cable exit at side



## TECHNICAL SPECIFICATIONS:

<b>Dimensions (W x H x D):</b>	single:	80,5 mm x 55 mm x 82 mm
	double:	160 mm x 55 mm x 78 mm
	triple:	240 mm x 60 mm x 80 mm
<b>Housing:</b>	ABS and PC/ABS-Blend	
<b>Cable entry:</b>	Cable gland M 16 x 1.5 mm for circular cable Ø 5 - 10 mm	

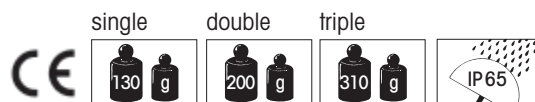


## ORDER SPECIFICATIONS:

Single surface housing	<b>975 109 02</b>
Double surface housing for 1 beacon und 1 audible element	<b>975 109 03</b>
Triple surface housing for 2 beacons und 1 audible element	<b>975 109 04</b>

Assembly comprises of only the surface housing. Beacons 800-802, 815-817 (p. 100/102) and audible elements 109 and 110 (pages 193/194) have to be ordered additionally.

## TECHNICAL DIAGRAMS: See page 304



# Signal Tower with Audible Element



- Signal Tower KombiSIGN 50, 70 and 71 with audible signal device
- Sound output up to 105 dB
- Can be combined with all optical elements (see pages 44 + 58 + 69)
- Can be triggered separately

## TECHNICAL SPECIFICATIONS:

<b>Dimensions (Diameter x Height):</b>	See KombiSIGN 50, 70 and 71
<b>Housing:</b>	Polyamid, high-impact, black
<b>Dome:</b>	Polycarbonate transparent
<b>Fixing:</b>	Base mounting Bracket mounting Tube mounting
<b>Socket:</b>	Bayonet, B 15 d for bulb max. 7 Watt
<b>Connection:</b>	Screwable connection M3
<b>Seal:</b>	Pre-mounted with each element
<b>Protection rating:</b>	IP 54 (KombiSIGN 70, 50) IP 65 (KombiSIGN 71) IP 40 (Order no. 844 123 55)



<b>Number of modules possible:</b>	KombiSIGN 70 and 71:	max. 5
	with 2-sided bracket:	max. 10
	KombiSIGN 50:	max. 4

The audible element is to be mounted at the top of the signal tower.

## ORDER SPECIFICATIONS: see KombiSIGN 50, 70 and 71

## TECHNICAL DIAGRAMS: see pages 292 + 288 + 267

