Optical-Audible Signal Devices
Overview Optical-Audible Signal Devices

LED/BUZZER COMBINATION

150 Installation model 450 Installation model 450 Installation model for AS-Interface 420 Base mounting 422 Wall mounting
80 dB 80 dB 80 dB 92 dB 109 dB
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LED/MULTI-TONE SOUNDER COMBINATION

420 Base mounting 422 Wall mounting 420 Base mounting 422 Wall mounting
105 dB 109 dB 105 dB 109 dB
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LIGHT/BUZZER COMBINATION LIGHT/HORN COMBINATION LED/HORN COMBINATION FLASH/HORN COMBINATION

90 dB 92 dB 96 dB 96 dB 92 dB 92 dB 92 dB
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FLASH/MULTI-TONE SOUNDER COMBINATION

105 dB 109 dB 105 dB 110 dB 120 dB 114 dB 114 dB
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LED TRAFFIC LIGHT/SIREN COMBINATION (LED) TRAFFIC LIGHT/MULTI-TONE SOUNDER COMBINATION SIGNAL TOWERS WITH AUDIBLE ELEMENT SURFACE HOUSING FOR COMBINATIONS

494 Wall Mounting 2 and 3 tier 494 Wall Mounting 1, 2 and 3 tier Permanent Beacon 890 with Multi-Tone Sounder 190 LED Permanent Beacon 890 with Multi-Tone Sounder 190 Kombi/SIG 50, 70, 71 with audible element 975 Surface Housings for 1, 2 or 3 products
90 dB 90 dB 110 dB 110 dB 80-105 dB 80-105 dB

SOUNDS

The sounds of these products can be played from our website www.werma.com under the heading “Optical-Audible Signal Devices”.

FURTHER INFORMATION

Further information about the “Audible” theme can be found in the chapter “Tech-Talk” beginning on page 332.
Optical-Audible Signal Devices

Double safety with optical-audible signals

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

Variety of signals

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

**AUDIBLE SIGNALS**
- Sirens and Multi-Tone Sounders
- (Installation) Buzzers
- Horns

**OPTICAL SIGNALS**
- LED Permanent Light
- (LED) Flashing Light and
- LED Double Flash Light
- LED EVS Signal

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 application. If you require additional support in selecting a suitable signal device, simply give us a call!
Comparison of sound output

Sound output in db (measured at 1 m distance)

120 dB
- 442 Flash/Multi-Tone Sounder Combination Page 188

114 dB
- NEW 444 LED EVS/Multi-Tone Sounder Combination Page 191
- 444 LED Double Flash/Multi-Tone Sounder Combination Page 190

110 dB
- NEW 441 Flash/Multi-Tone Sounder Combination Page 187
- 190/890 (LED) Beacon/Multi-Tone Sounder Combination Page 195

109 dB
- 422 LED/Multi-Tone Sounder Combination Page 179
- 423 Flash/Multi-Tone Sounder Combination Page 181

105 dB
- 420 LED/Multi-Tone Sounder Combination Page 175
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100 dB
- 424 LED/Horn Combination Page 182
- 425 Flash/Horn Combination Page 183

98 dB
- 494 LED Traffic Light/Siren Combination Page 193
- 494 LED Beacon/Siren Combination Page 194

96 dB

92 dB
- 420 LED/Buzzer Combination Page 174
- 421 Flash/Buzzer Combination Page 176
- 422 LED/Buzzer Combination Page 178
- 423 Flash/Buzzer Combination Page 180
- 580 Light/Horn Combination Page 185
- 581 Flash/Horn Combination Page 185

90 dB
- 480 Light/Buzzer Combination Page 184

80 dB
- 150 LED/Buzzer Combination Page 196
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- 450 LED/Buzzer Combination for AS-Interface Page 198

www.werma.com
420 LED/Buzzer Combination

- Buzzer in combination with LED Permanent Beacon
- Long life duration up to 50,000 hrs
- Adaptor for tube mounting (accessory)
- Optical and audible signals can be triggered separately
- Continuous or pulse tone selectable
- Easy to mount

**TECHNICAL SPECIFICATIONS:**

Dimensions (Ø x Height): 89 mm x 100.5 mm  
Housing: PC, black  
Lens: PC, transparent  
Connection: Screw terminal with wire protection max. 1.5 mm²  
Cable entry: Cable diameter max. 9 mm  
Tone type: Continuous tone or pulse tone, adjustable  
12 V: only continuous tone  
Tone frequency: 2.3 kHz  
Fixing: Base mounting, tube mounting (accessory)  
Life duration: Up to 50,000 hrs (LED)

**ORDER SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>12 V</th>
<th>24 V</th>
<th>115 V</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consump. LED</td>
<td>80 mA</td>
<td>45 mA</td>
<td>25 mA</td>
<td>25 mA</td>
</tr>
<tr>
<td>Current consump. Buzzer red</td>
<td>40 mA</td>
<td>15 mA</td>
<td>15 mA</td>
<td>25 mA</td>
</tr>
<tr>
<td>yellow</td>
<td>420 110 54</td>
<td>420 110 75</td>
<td>420 110 67</td>
<td>420 110 68</td>
</tr>
<tr>
<td></td>
<td>420 310 54</td>
<td>420 310 75</td>
<td>420 310 67</td>
<td>420 310 68</td>
</tr>
</tbody>
</table>

**ACCESSORIES:**

- Adaptor for tube mounting, plastic, for tube Ø 25 mm 975 420 01
- Base for tube Ø 25 mm, plastic, incl. rubber seal 975 840 90
- Base for tube Ø 25 mm, metal, incl. rubber seal 975 840 91
- Tube Ø 26 mm, all anodized aluminium 100 mm 975 845 10
- 250 mm 975 840 25

**TECHNICAL DIAGRAMS:**

see page 271
The new adaptor (accessory) allows quick and simple mounting on a tube.

**LED/Multi-Tone Sounder Combination**

- 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
- Adjustable sound output
- Adaptor for tube mounting (accessory)

### TECHNICAL SPECIFICATIONS:

- **Dimensions (Ø x Height):** 89 mm x 100.5 mm
- **Housing:** PC black
- **Lens:** PC, transparent
- **Connection:** Screw terminal with wire protection max. 1.5 mm²
- **Cable entry:** Cable diameter max. 9 mm
- **Fixing:** Base mounting, tube mounting (accessory)
- **Life duration:** Up to 50,000 hrs (LED)
- **Tone type:** Selectable, see table below
- **Tone frequency:** See table below

### TONE TYPES AND FREQUENCIES:

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

### ORDER SPECIFICATIONS:

- **Voltage:** 24 V ±
- **Current consumption LED:** 45 mA
- **Current consumption MTS:** 80 mA
- **red:** 420 120 75
- **yellow:** 420 320 75

### ACCESSORIES:

Accessories see page 174.

### TECHNICAL DIAGRAMS:

see page 271
421 Flash/Buzzer Combination

- Buzzer in combination with Xenon Flash
- Optical and audible signal can be triggered separately
- Continuous or pulse tone selectable
- Easy to mount
- Adaptor for tube mounting (accessory)

**TECHNICAL SPECIFICATIONS:**

- Dimensions (Ø x Height): 89 mm x 100.5 mm
- Housing: PC, black
- Lens: PC, transparent
- Connection: Screwable protection with wire protection max. 1.5 mm²
- Cable entry: Cable diameter max. 9 mm
- Tone type: Continuous or pulse tone, selectable
- Tone frequency: 2.3 kHz
- Flash energy: 1 Ws
- Flash frequency: 1 Hz
- Fixing: Base mounting, tube mounting (accessory)
- Life duration: 4 x 10⁶ flashes

**ORDER SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>24 V =</th>
<th>115 V ~</th>
<th>230 V ~</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption Flash</td>
<td>120 mA</td>
<td>25 mA</td>
<td>35 mA</td>
</tr>
<tr>
<td>Current consumption Buzzer</td>
<td>15 mA</td>
<td>15 mA</td>
<td>25 mA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Red</th>
<th>Yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>421 110 75</td>
<td>421 110 67</td>
</tr>
<tr>
<td>Code</td>
<td>421 310 75</td>
<td>421 310 67</td>
</tr>
</tbody>
</table>

**ACCESSORIES:**

- Adaptor for tube mounting, plastic, for tube Ø 25 mm | 975 420 01
- Base for tube Ø 25 mm, plastic, incl. rubber seal | 975 840 90
- Base for tube Ø 25 mm, metal, incl. rubber seal | 975 840 91
- Tube Ø 25 mm, all anodized aluminium
  - 100 mm | 975 845 10
  - 250 mm | 975 840 25

**TECHNICAL DIAGRAMS:**

see page 271

A piece of the rim can be broken out to allow for cable entry from the side
**TECHNICAL SPECIFICATIONS:**

- **Dimensions (Ø x Height):** 89 mm x 100.5 mm
- **Housing:** PC black
- **Lens:** PC, transparent
- **Connection:** Screw terminal with wire protection max. 1.5 mm²
- **Cable entry:** Cable diameter max. 9 mm
- **Flash energy:** 1 Ws
- **Flash frequency:** 1 Hz
- **Fixing:** Base mounting, tube mounting (accessory)
- **Life duration:** 4 x 10⁶ flashes
- **Tone type:** Selectable, see table below
- **Tone frequency:** See table below

**TONE TYPES AND FREQUENCIES:**

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

**ORDER SPECIFICATIONS:**

- **Voltage:** 24 V ac
- **Current consumption Flash:** 120 mA
- **Current consumption MTS:** 80 mA
- **Red:** 421 120 75
- **Yellow:** 421 320 75

**ACCESSORIES:**

- Accessories see page 176.

**TECHNICAL DIAGRAMS:**

- See page 271
**LED/Buzzer Combination**

- 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

### TECHNICAL SPECIFICATIONS:

- **Dimensions** (L x H x W): 83 mm x 120.5 mm x 91 mm
- **Housing**: PC/ABS-Blend; PC grey
- **Lens**: PC, transparent
- **Connection**: Screw terminal with wire protection max. 1.5 mm²
- **Cable entry**: Cable diameter max. 9 mm
- **Tone type**: Continuous or pulse tone, selectable
  - 12 V: only continuous tone
- **Tone frequency**: 2.3 kHz
- **Fixing**: Wall mounting, sound outlet facing downwards
- **Life duration**: Up to 50,000 hrs (LED)

### ORDER SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>12 V ~</th>
<th>24 V ~</th>
<th>115 V ~</th>
<th>230 V ~</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED</td>
<td>80 mA</td>
<td>45 mA</td>
<td>25 mA</td>
<td>25 mA</td>
</tr>
<tr>
<td>Buzzer</td>
<td>40 mA</td>
<td>15 mA</td>
<td>15 mA</td>
<td>25 mA</td>
</tr>
<tr>
<td>red</td>
<td>422 110 54</td>
<td>422 110 75</td>
<td>422 110 67</td>
<td>422 110 68</td>
</tr>
<tr>
<td>yellow</td>
<td>422 310 75</td>
<td>422 310 67</td>
<td>422 310 67</td>
<td>422 310 68</td>
</tr>
</tbody>
</table>

### TECHNICAL DIAGRAMS:

see page 272
LED/Multi-Tone Sounder Combination

- 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
- Adjustable sound output

TECHNICAL SPECIFICATIONS:

- Dimensions (L x H x W): 83 mm x 120.5 mm x 91 mm
- Housing: PC/ABS-Blend; PC grey
- Lens: PC, transparent
- Connection: Screw terminal with wire protection max. 1.5 mm²
- Cable entry: Cable diameter max. 9 mm
- Fixing: Wall mounting, sound outlet facing downwards
- Life duration: Up to 50,000 hrs (LED)
- Tone type: Selectable, see table below
- Tone frequency: See table below

TONE TYPES AND FREQUENCIES:

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

ORDER SPECIFICATIONS:

- Voltage: 24 V
- Current consumption LED: 45 mA
- Current consumption MTS red: 80 mA
- Current consumption MTS yellow: 422 120 75
- Current consumption MTS yellow: 422 320 75

TECHNICAL DIAGRAMS:

see page 272
### Flash/Buzzer Combination

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

#### TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Dimension (L x H x W):</th>
<th>83 mm x 120.5 mm x 91 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing:</td>
<td>PC/ABS-Blend; PC grey</td>
</tr>
<tr>
<td>Lens:</td>
<td>PC, transparent</td>
</tr>
<tr>
<td>Connection:</td>
<td>Screw terminal with wire protection max. 1.5 mm²</td>
</tr>
<tr>
<td>Cable entry:</td>
<td>Cable diameter max. 9 mm</td>
</tr>
<tr>
<td>Tone type:</td>
<td>Continuous or pulse tone, selectable</td>
</tr>
<tr>
<td>Tone frequency:</td>
<td>2.3 kHz</td>
</tr>
<tr>
<td>Flash energy:</td>
<td>1 Ws</td>
</tr>
<tr>
<td>Flash frequency:</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Fixing:</td>
<td>Wall mounting, sound outlet facing downwards</td>
</tr>
<tr>
<td>Life duration:</td>
<td>4 x 10⁶ flashes</td>
</tr>
</tbody>
</table>

#### ORDER SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>24 V ~</th>
<th>115 V ~</th>
<th>230 V ~</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption Flash</td>
<td>120 mA</td>
<td>25 mA</td>
<td>35 mA</td>
</tr>
<tr>
<td>Current consumption Buzzer red</td>
<td>15 mA</td>
<td>15 mA</td>
<td>25 mA</td>
</tr>
<tr>
<td>Current consumption Buzzer yellow</td>
<td>423 110 75</td>
<td>423 110 67</td>
<td>423 110 68</td>
</tr>
<tr>
<td>Current consumption Buzzer yellow</td>
<td>423 310 75</td>
<td>423 310 67</td>
<td>423 310 68</td>
</tr>
</tbody>
</table>

#### TECHNICAL DIAGRAMS:

see page 272
Flash/Multi-Tone Sounder Combination

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

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Dimension (L x H x W):</th>
<th>83 mm x 120.5 mm x 91 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing:</td>
<td>PC/ABS-Blend; PC grey</td>
</tr>
<tr>
<td>Lens:</td>
<td>PC, transparent</td>
</tr>
<tr>
<td>Connection:</td>
<td>Screw terminal with wire protection max. 1.5 mm²</td>
</tr>
<tr>
<td>Cable entry:</td>
<td>Cable diameter max. 9 mm</td>
</tr>
<tr>
<td>Flash energy:</td>
<td>1 Ws</td>
</tr>
<tr>
<td>Flash frequency:</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Fixing:</td>
<td>Wall mounting, sound outlet facing downwards</td>
</tr>
<tr>
<td>Life duration:</td>
<td>4 x 10⁶ flashes</td>
</tr>
<tr>
<td>Tone type:</td>
<td>Selectable, see table below</td>
</tr>
<tr>
<td>Tone frequency:</td>
<td>See table below</td>
</tr>
</tbody>
</table>

**TONE TYPES AND FREQUENCIES:**

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

**ORDER SPECIFICATIONS:**

- Voltage: 24 V ~
- Current consumption Flash: 120 mA
- Current consumption MTS red: 80 mA
- Current consumption MTS yellow: 423 120 75
- Current consumption MTS yellow: 423 320 75

**TECHNICAL DIAGRAMS:**

see page 272
LED/Horn Combination

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

**TECHNICAL SPECIFICATIONS:**

- **Dimensions (L x H x W):** 83 mm x 234.5 mm x 91 mm
- **Housing:** PC/ABS-Blend; PC grey
- **Lens:** PC, transparent
- **Connection:** Screw terminal with wire protection max. 1.5 mm²
- **Cable entry:** Cable diameter max. 9 mm
- **Fixing:** Wall mounting, sound outlet facing downwards
- **Life duration:**
  - 50,000 hrs (LED Permanent light)
  - 5,000 hrs (Horn)
- **Tone frequency:** 110 Hz

**ORDER SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>24 V =</th>
<th>115 V ~</th>
<th>230 V ~</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption LED</td>
<td>45 mA</td>
<td>25 mA</td>
<td>25 mA</td>
</tr>
<tr>
<td>Current consumption Horn</td>
<td>80 mA</td>
<td>70 mA</td>
<td>70 mA</td>
</tr>
<tr>
<td>Red</td>
<td>424 120 75</td>
<td>424 120 67</td>
<td>424 120 68</td>
</tr>
<tr>
<td>Yellow</td>
<td>424 320 75</td>
<td>424 320 67</td>
<td>424 320 68</td>
</tr>
</tbody>
</table>

**TECHNICAL DIAGRAMS:**

see page 272
Flash/Horn Combination

- 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)

**TECHNICAL SPECIFICATIONS:**

- **Dimensions** (L x H x W): 83 mm x 234.5 mm x 91 mm
- **Housing:** PC/ABS-Blend; PC grey
- **Lens:** PC, transparent
- **Connection:** Screw terminal with wire protection max. 1.5 mm²
- **Cable entry:** Cable diameter max. 9 mm
- **Flash energy:** 1 Ws
- **Flash frequency:** 1 Hz
- **Fixing:** Wall mounting, sound outlet facing downwards
- **Life duration:** 4 x 10⁶ flashes (Xenon Flash)
  - 5,000 hrs (Horn)
- **Tone frequency:** 110 Hz

**ORDER SPECIFICATIONS:**

- **Voltage**
  - 24 V =
  - 115 V ~
  - 230 V ~
- **Current consumption Flash**
  - 120 mA
  - 30 mA
  - 30 mA
- **Current consumption Horn**
  - 80 mA
  - 70 mA
  - 70 mA
- **red**
  - 425 120 75
  - 425 120 67
  - 425 120 68
- **yellow**
  - 425 320 75
  - 425 320 67
  - 425 320 68

**ADDITIONAL INFORMATION:**

424 and 425 Combinations 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 products that have attained a leading position due to their exceptional design qualities.

Whilst taking the usual design criteria into consideration, 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 272
Light/Buzzer Combination

- Light and sound can be triggered separately
- Integrated mounting bracket

### TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Dimension (L x H x W):</th>
<th>70 mm x 158.5 mm x 77 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing:</td>
<td>ABS</td>
</tr>
<tr>
<td>Lens:</td>
<td>PC, transparent</td>
</tr>
<tr>
<td>Socket:</td>
<td>B15d, max. 7 Watt</td>
</tr>
<tr>
<td>Connection:</td>
<td>Screw terminal max. 2.5 mm²</td>
</tr>
<tr>
<td>Cable entry:</td>
<td>Cable diameter max. 9 mm</td>
</tr>
<tr>
<td>Tone frequency:</td>
<td>c. 2400 Hz</td>
</tr>
<tr>
<td>Duty cycle:</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Bulb included in assembly. Bulb Overview see pages 168 and 169.

### ORDER SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>24 V = 230 V ~</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption</td>
<td>320 mA 50 mA</td>
</tr>
<tr>
<td>red</td>
<td>480 152 55</td>
</tr>
<tr>
<td>yellow</td>
<td>480 352 55</td>
</tr>
</tbody>
</table>

Further colours and voltages on request.

### ADDITIONAL INFORMATION:

Please also see LED/Buzzer Combination 422 with additional advantages (page 178)

- 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 274
580 Light/Horn Combination

- Light and sound can be triggered separately
- Integrated mounting bracket

**TECHNICAL SPECIFICATIONS:**

- **Dimensions** (L x H x W): 70 mm x 251 mm x 77 mm
- **Housing:** ABS
- **Lens:** PC, transparent
- **Socket:** B15d, max. 7 Watt
- **Connection:** Screw terminal max. 2.5 mm²
- **Cable entry:** Cable diameter max. 9 mm
- **Duty cycle:** 100%

Bulb included in assembly. Bulb Overview see pages 168 and 169.

**ORDER SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>24 V~</th>
<th>42 V~</th>
<th>230 V~</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption</td>
<td>360 mA</td>
<td>250 mA</td>
<td>50 mA</td>
</tr>
<tr>
<td>red</td>
<td>580 152 55</td>
<td>580 152 66</td>
<td>580 152 68</td>
</tr>
<tr>
<td>yellow</td>
<td>580 352 55</td>
<td>580 352 55</td>
<td>580 352 68</td>
</tr>
</tbody>
</table>

Further colours and voltages on request.

**TECHNICAL DIAGRAMS:** see page 275

---

581 Flash/Horn Combination

- Light and sound can be triggered separately
- Integrated mounting bracket

**TECHNICAL SPECIFICATIONS:**

- **Dimensions** (L x H x W): 70 mm x 292 mm x 77 mm
- **Housing:** ABS
- **Lens:** PC, transparent
- **Socket:** B15d, max. 7 Watt
- **Connection:** Screw terminal max. 2.5 mm²
- **Duty cycle:** 100%

Bulb included in assembly. Bulb Overview see pages 168 and 169.

**ORDER SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>24 V~</th>
<th>42 V~</th>
<th>230 V~</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption</td>
<td>300 mA</td>
<td>200 mA</td>
<td>40 mA</td>
</tr>
<tr>
<td>red</td>
<td>581 152 55</td>
<td>581 152 55</td>
<td>581 152 68</td>
</tr>
<tr>
<td>yellow</td>
<td>581 352 54</td>
<td>581 352 55</td>
<td>581 352 68</td>
</tr>
</tbody>
</table>

Further colours and voltages on request.

**TECHNICAL DIAGRAMS:** see page 276
Flash/Multi-Tone Sounder Combination

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

**TECHNICAL SPECIFICATIONS:**

- **Dimensions (L x H x W):** 136 mm x 138 mm x 119 mm
- **Housing:** ABS
- **Connection:** Screw terminal max. 2.5 mm²
- **Cable entry:** Cable gland M 20 x 1.5 mm (not included in assembly)
- **Flash frequency:** 1 Hz
- **Flash energy:** 1.6 Ws
- **Tone types and frequencies:** Selectable via DIP switch, see table on page 189

**ORDER SPECIFICATIONS:**

- **Voltage** 9-60 V = 110-230 V ~
- **Current consumption** 230 mA (24 V) 30 mA (230 V)
- **Housing / Flash**
  - 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 M 20 x 1.5 mm** 975 444 01

**TONE TYPES AND FREQUENCIES:**

Tone table see page 221.
Variances possible. For further details see www.werma.com.

**TECHNICAL DIAGRAMS:**

see page 273

Multi-Tone Sounder in combination with a powerful Xenon Flash
**Flash/Multi-Tone Sounder Combination**

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

### TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (L x H x W):</td>
<td>165 mm x 169 mm x 132 mm</td>
</tr>
<tr>
<td>Housing:</td>
<td>PC/ABS-Blend</td>
</tr>
<tr>
<td>Connection:</td>
<td>Screw terminal max. 2.5 mm²</td>
</tr>
<tr>
<td>Cable entry:</td>
<td>Cable gland M 20 x 1.5 mm (not included in assembly)</td>
</tr>
<tr>
<td>Flash frequency:</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Flash energy:</td>
<td>2.5 Ws</td>
</tr>
<tr>
<td>Tone types and frequencies:</td>
<td>Selectable via DIP switch, see table on page 189</td>
</tr>
</tbody>
</table>

### ORDER SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>9-60 V~ 230 V~</td>
</tr>
<tr>
<td>Current consumption</td>
<td>230 mA 35 mA</td>
</tr>
<tr>
<td>Housing / Flash</td>
<td></td>
</tr>
<tr>
<td>red / red</td>
<td>441 010 55 441 010 68</td>
</tr>
<tr>
<td>red / yellow</td>
<td>441 030 55 441 030 68</td>
</tr>
<tr>
<td>grey / red</td>
<td>441 110 55 441 110 68</td>
</tr>
<tr>
<td>grey / yellow</td>
<td>441 130 55 441 130 68</td>
</tr>
</tbody>
</table>

- Cable gland M 20 x 1.5 mm 975 444 01

### TONE TYPES AND FREQUENCIES:

Tone table see page 221.
Variances possible. For further details see www.werma.com.

### TECHNICAL DIAGRAMS:

see page 273
Flash/Multi-Tone Sounder Combination

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

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Dimensions (L x H x W):</th>
<th>168 mm x 211 mm x 155 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing:</td>
<td>PC/ABS-Blend</td>
</tr>
<tr>
<td>Connection:</td>
<td>Screw terminal max. 2.5 mm²</td>
</tr>
<tr>
<td>Cable entry:</td>
<td>Cable gland M 20 x 1.5 mm</td>
</tr>
<tr>
<td></td>
<td>(not included in assembly)</td>
</tr>
<tr>
<td>Tone types and frequencies:</td>
<td>Selectable via DIP switch, see table on the right</td>
</tr>
</tbody>
</table>

**ORDER SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>18-30 V = 115/230 V ~</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current cons. Multi Tone Sounder</td>
<td>450 mA 130 / 65 mA</td>
</tr>
<tr>
<td>Current consumption Flash</td>
<td>127 - 389 mA – / 15 mA</td>
</tr>
<tr>
<td></td>
<td>(dependent on voltage and flash frequency)</td>
</tr>
<tr>
<td>Flash frequency</td>
<td>0,75 Hz/1 Hz 1,25 Hz/2 Hz 1 Hz (Flash can only be operated with 230 V)</td>
</tr>
<tr>
<td>Flash energy</td>
<td>3,5 Ws 2 Ws 2 Ws</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Housing/Flash</th>
<th>442 010 55 442 010 68</th>
</tr>
</thead>
<tbody>
<tr>
<td>red/red</td>
<td>442 030 55 442 030 68</td>
</tr>
<tr>
<td>red/yellow</td>
<td>442 110 55 442 110 68</td>
</tr>
<tr>
<td>grey/red</td>
<td>442 130 55 442 130 68</td>
</tr>
<tr>
<td>grey/yellow</td>
<td></td>
</tr>
</tbody>
</table>

**ACCESSORIES:**

| Cable gland M 20 x 1.5 mm | 975 444 01 |

**TECHNICAL DIAGRAMS:**

see page 273
The Flash/Multi-Tone Sounder Combination 442 offers a large choice of international signal tones for the widest spectrum of applications. 3 tones can be triggered externally. The first two tones can be freely chosen. The third tone is paired with the second tone. See tone table.

<table>
<thead>
<tr>
<th>Tone No</th>
<th>Tone 1+2 Type</th>
<th>Use</th>
<th>Output (dBA)</th>
<th>Tone 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)</td>
<td></td>
<td>120</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>rising 800/970 Hz in 7 Hz stroke (7/s)</td>
<td></td>
<td>120</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>rising 800/970 Hz in 1 Hz stroke (1/s)</td>
<td></td>
<td>120</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>continuous 2,850 Hz</td>
<td></td>
<td>111</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>rising 2,400-2,850 Hz in 7 Hz stroke</td>
<td></td>
<td>109</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>rising 2,400-2,850 Hz in 1 Hz stroke</td>
<td></td>
<td>110</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>500-1,200 Hz rising in 3 sec., 0.5 sec. OFF</td>
<td>Slow Whoop Holland</td>
<td>119</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>falling 1,200-500 Hz in 1 Hz stroke</td>
<td>DIN/PFEER (PAPA), DIN 33404-3, VDS tested</td>
<td>119</td>
<td>14</td>
</tr>
<tr>
<td>9</td>
<td>alternating 2,400/2,850 Hz in 2 Hz stroke (250 ms-250 ms)</td>
<td></td>
<td>113</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>pulse 970 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)</td>
<td>PFEER Alarm</td>
<td>117</td>
<td>14</td>
</tr>
<tr>
<td>11</td>
<td>alternating 800/970 Hz in 1 Hz stroke (500 ms-500 ms)</td>
<td></td>
<td>118</td>
<td>14</td>
</tr>
<tr>
<td>12</td>
<td>pulse 2,850 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)</td>
<td></td>
<td>112</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>970 Hz pulse: 0.25 sec. ON / 1 sec. OFF</td>
<td></td>
<td>117</td>
<td>14</td>
</tr>
<tr>
<td>14</td>
<td>continuous 970 Hz</td>
<td>PFEER - Toxic gas</td>
<td>118</td>
<td>8</td>
</tr>
<tr>
<td>15</td>
<td>554 Hz/100 ms alternating 440 Hz/400 ms</td>
<td>French alarm signal AFNOR NFS 32S 32-001</td>
<td>115</td>
<td>14</td>
</tr>
<tr>
<td>16</td>
<td>660 Hz pulse: 150 ms ON, 150 ms. OFF</td>
<td>Swedish alarm signal</td>
<td>114</td>
<td>14</td>
</tr>
<tr>
<td>17</td>
<td>660 Hz pulse: 1.8 sec. ON, 1.8 sec. OFF</td>
<td>Swedish alarm signal</td>
<td>115</td>
<td>14</td>
</tr>
<tr>
<td>18</td>
<td>660 Hz pulse: 6.5 sec. ON, 13 sec. OFF</td>
<td>Swedish alarm signal</td>
<td>115</td>
<td>14</td>
</tr>
<tr>
<td>19</td>
<td>continuous 660 Hz</td>
<td>Swedish alarm signal</td>
<td>116</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>alternating 554/440 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)</td>
<td>Swedish alarm signal</td>
<td>115</td>
<td>19</td>
</tr>
<tr>
<td>21</td>
<td>pulse 660 Hz in 1 Hz stroke (500 ms-500 ms)</td>
<td>Swedish alarm signal</td>
<td>115</td>
<td>4</td>
</tr>
<tr>
<td>22</td>
<td>pulse 2,850 Hz in 4 Hz stroke (150 ms ON / 100 ms OFF)</td>
<td></td>
<td>110</td>
<td>4</td>
</tr>
<tr>
<td>23</td>
<td>rising 800-970 Hz in 50 Hz stroke</td>
<td></td>
<td>117</td>
<td>14</td>
</tr>
<tr>
<td>24</td>
<td>rising 2,400-2,850 Hz in 50 Hz stroke</td>
<td></td>
<td>110</td>
<td>4</td>
</tr>
<tr>
<td>25</td>
<td>970 Hz puls.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.</td>
<td>ISO 8201 / US Temporal</td>
<td>118</td>
<td>14</td>
</tr>
<tr>
<td>26</td>
<td>2,850 Hz puls.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.</td>
<td>ISO 8201 / US Temporal</td>
<td>112</td>
<td>4</td>
</tr>
<tr>
<td>27</td>
<td>continuous 4,000 Hz</td>
<td></td>
<td>105</td>
<td>6</td>
</tr>
<tr>
<td>28</td>
<td>alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)</td>
<td></td>
<td>118</td>
<td>14</td>
</tr>
<tr>
<td>29</td>
<td>alternating 990/650 Hz in 2 Hz stroke (250 ms-250 ms)</td>
<td></td>
<td>117</td>
<td>14</td>
</tr>
<tr>
<td>30</td>
<td>alternating 510/610 Hz in 2 Hz stroke (250 ms-250 ms)</td>
<td></td>
<td>116</td>
<td>14</td>
</tr>
<tr>
<td>31</td>
<td>rising 300-1,200 Hz in 1 Hz stroke</td>
<td></td>
<td>118</td>
<td>14</td>
</tr>
<tr>
<td>32</td>
<td>continuous Bell</td>
<td></td>
<td>117</td>
<td>3</td>
</tr>
<tr>
<td>33</td>
<td>continuous Bell: 3x500 ms. Pulse, 1.5 sec. Silence, then repeat</td>
<td>Bell / US Temporal</td>
<td>117</td>
<td>14</td>
</tr>
<tr>
<td>34</td>
<td>alternating 1,000/2,000 Hz in 1 Hz stroke (500 ms-500 ms)</td>
<td>Singapore</td>
<td>115</td>
<td>4</td>
</tr>
<tr>
<td>35</td>
<td>pulse 420 Hz (0,625 sec.)</td>
<td>Australian alarm signal</td>
<td>118</td>
<td>14</td>
</tr>
<tr>
<td>36</td>
<td>500-1,200 Hz rising in 3.75 sec., then 0.25 sec. OFF</td>
<td>Australian alarm signal (Evacuation)</td>
<td>117</td>
<td>14</td>
</tr>
<tr>
<td>37</td>
<td>rising 1,400-1,600 Hz in 1 sec., falling in 0.5 sec.</td>
<td>NF C 48-265</td>
<td>116</td>
<td>14</td>
</tr>
<tr>
<td>38</td>
<td>500-1,200 Hz rising and falling in 3 sec.</td>
<td>Siren</td>
<td>117</td>
<td>14</td>
</tr>
<tr>
<td>39</td>
<td>pulse 720 Hz: 0.7 sec. ON, 0.3 sec. OFF</td>
<td>German industrial alarm</td>
<td>118</td>
<td>14</td>
</tr>
<tr>
<td>40</td>
<td>rising 422-775 Hz in 0.85 sec., 1 sec. silence, then repeat</td>
<td>NFPA Whoop</td>
<td>118</td>
<td>14</td>
</tr>
<tr>
<td>41</td>
<td>continuous 470 Hz</td>
<td>Horn (USA)</td>
<td>114</td>
<td>3</td>
</tr>
<tr>
<td>42</td>
<td>continuous 370 Hz</td>
<td>Air Horn (USA)</td>
<td>113</td>
<td>3</td>
</tr>
</tbody>
</table>
**444**

**LED Double Flash/ Multi-Tone Sounder Combination**

- Multi-Tone Sounder in combination with LED Double Flash
- Sound output adjustable up to 114 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:

- **Dimensions (L x H x W):** 109 mm x 113 mm x 152 mm
- **Housing:** PC/ABS-Blend
- **Lens:** PC, transparent
- **Connection:** Screw terminal with wire protection max. 1.5 mm²
- **Cable entry:** Membrane for cable diameter max. 13 mm
- **Fixing:** Wall, base and ceiling mounting
- **Life duration:** Up to 50,000 hrs (LED Double Flash)
- **Flash frequency:** c. 1 Hz
- **Tone types and frequencies:** Selectable via DIP switch, see table on page 192

### ORDER SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Optical</th>
<th>Audible</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 V</td>
<td>60 mA</td>
<td>200 mA</td>
</tr>
<tr>
<td>115 V</td>
<td>30 mA</td>
<td>55 mA</td>
</tr>
<tr>
<td>230 V</td>
<td>30 mA</td>
<td>30 mA</td>
</tr>
</tbody>
</table>

### ACCESSORIES:

- Cable gland M 20 x 1.5 mm (for cable strain relief)
- Protection rating IP 65 is provided even without cable gland

### TONE TYPES AND FREQUENCIES:

Selectable via DIP switch, see tone table on page 192.

### QUICK AND SIMPLE MOUNTING

1. Place the lower part of the 444 Combination in the desired position.
2. Insert the connection cable and screw into terminal.
3. Secure the two parts with the screws supplied.
4. Secure the two parts with the screws supplied.

### TECHNICAL DIAGRAMS: see page 273

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**www.werma.com**
LED EVS/Multi-Tone Sounder Combination

- Multi-Tone Sounder in combination with LED EVS* signal
- Random sequence of light signals prevents acclimatisation effect
- 32 tones for a diverse range of applications
- Sound output adjustable up to 114 dB
- 3 tones can be triggered externally
- Optical and audible signal can be triggered separately

**TECHNICAL SPECIFICATIONS:**

Dimensions (L x H x W): 109 mm x 113 mm x 152 mm
Housing: PC/ABS-Blend
Lens: PC, transparent
Connection: Screw terminal with wire protection max. 2.5 mm²
Cable entry: Membrane for cable diameter max. 13 mm
Fixing: Wall, base and ceiling mounting
Life duration: Up to 50,000 hrs (LED EVS)
Tone types and frequencies: Selectable via DIP switch, see table on page 192

**ORDER SPECIFICATIONS:**

Voltage
- 24 V
- 115 V ~
- 230 V ~
Current consumption
- Optical: 60 mA, 30 mA, 30 mA
- Audible: 200 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 M 20 x 1.5 mm (for cable strain relief): 975 444 01
Protection rating IP 65 is provided even without cable gland

**TONES TYPES AND FREQUENCIES:**

Selectable via DIP switch, see tone table on page 192.

**ADDITIONAL INFORMATION:**

- EVS = Enhanced Visibility System or Enhanced Visibility System.
- Further information can be found in the chapter “Tech-Talk” beginning on page 326.

**TECHNICAL DIAGRAMS:**

see page 273
The 444 Combinations (Page 190 + 191) offer a large choice of international signal tones for the widest spectrum of applications. 3 tones can be triggered externally.

### Tone Types and Frequencies:

<table>
<thead>
<tr>
<th>Tone 1</th>
<th>Tone type</th>
<th>Frequency</th>
<th>Description</th>
<th>Use</th>
<th>Tone 2</th>
<th>Tone 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>continuous</td>
<td>200</td>
<td></td>
<td>BS 5839-1:2002, VDS</td>
<td>440 Hz cont.</td>
<td>554 Hz cont.</td>
</tr>
<tr>
<td>2</td>
<td>rising</td>
<td>800 &amp; 970</td>
<td>7 Hz</td>
<td>BS 5839 Part 1 1988</td>
<td>14</td>
<td>800 Hz cont.</td>
</tr>
<tr>
<td>3</td>
<td>rising</td>
<td>800 &amp; 970</td>
<td>1 Hz</td>
<td>BS 5839 Part 1 1988</td>
<td>14</td>
<td>800 Hz cont.</td>
</tr>
<tr>
<td>4</td>
<td>continuous</td>
<td>2850</td>
<td></td>
<td>BS 5839-1:2002</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>rising</td>
<td>2400 to 2850</td>
<td>7 Hz</td>
<td>VDS</td>
<td>4</td>
<td>2400 Hz cont.</td>
</tr>
<tr>
<td>6</td>
<td>rising</td>
<td>2400 to 2850</td>
<td>1 Hz</td>
<td>BS 5839 Part 1 1988</td>
<td>4</td>
<td>2400 Hz cont.</td>
</tr>
<tr>
<td>7</td>
<td>rising</td>
<td>500 to 1200</td>
<td>3 s, then 0.5s OFF (then repeat)</td>
<td>BS 5839 Part 1 1988</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>falling</td>
<td>1200 to 500</td>
<td>1 Hz</td>
<td>VDS</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>alternating</td>
<td>2400 &amp; 2850</td>
<td>2 Hz</td>
<td>BS 5839 Part 1 1988</td>
<td>14</td>
<td>800 Hz cont.</td>
</tr>
<tr>
<td>10</td>
<td>pulse</td>
<td>970</td>
<td>0.5 Hz (1s On/1s Off)</td>
<td>BS 5839 Part 1 1988</td>
<td>14</td>
<td>800 Hz cont.</td>
</tr>
<tr>
<td>11</td>
<td>alternating</td>
<td>800 &amp; 970</td>
<td>1 Hz</td>
<td>BS 5839 Part 1 1988</td>
<td>14</td>
<td>800 Hz cont.</td>
</tr>
<tr>
<td>12</td>
<td>pulse</td>
<td>2850</td>
<td>0 Hz</td>
<td>GB</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>13</td>
<td>pulse</td>
<td>970</td>
<td>0.25s On/1s Off</td>
<td>BS 5839-1:2002</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>continuous</td>
<td>970</td>
<td>PFEER - Toxic gas</td>
<td>BS 5839-1:2002</td>
<td>14</td>
<td>800 Hz cont.</td>
</tr>
<tr>
<td>15</td>
<td>alternating</td>
<td>554 &amp; 440</td>
<td>150 ms On / 150 ms Off</td>
<td>France NFS</td>
<td>14</td>
<td>800 Hz cont.</td>
</tr>
<tr>
<td>16</td>
<td>pulse</td>
<td>660</td>
<td>1.8s On / 1.8s Off</td>
<td>Swedish</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>17</td>
<td>pulse</td>
<td>660</td>
<td>6.5s On / 13s Off</td>
<td>Swedish</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>18</td>
<td>pulse</td>
<td>660</td>
<td>150 ms On / 150 ms Off</td>
<td>Swedish</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>19</td>
<td>continuous</td>
<td>660</td>
<td></td>
<td>Swedish</td>
<td>19</td>
<td>31</td>
</tr>
<tr>
<td>20</td>
<td>alternating</td>
<td>554 &amp; 440</td>
<td>0.5 Hz</td>
<td>Swedish</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>21</td>
<td>pulse</td>
<td>660</td>
<td>1 Hz</td>
<td>GB</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>22</td>
<td>pulse</td>
<td>2850</td>
<td>150 ms On / 100 ms Off</td>
<td>GB</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>23</td>
<td>rising</td>
<td>800 to 970</td>
<td>50 Hz (high)</td>
<td>BS 5839 Part 1 1988</td>
<td>14</td>
<td>800 Hz cont.</td>
</tr>
<tr>
<td>24</td>
<td>rising</td>
<td>2400 to 2850</td>
<td>50 Hz (high)</td>
<td>ISO 8201</td>
<td>4</td>
<td>2400 Hz cont.</td>
</tr>
<tr>
<td>25</td>
<td>pulse</td>
<td>970</td>
<td>3 x 500 ms ON / 500ms OFF / 1.5s silence, then repeat (low)</td>
<td>ISO 8201</td>
<td>26</td>
<td>14</td>
</tr>
<tr>
<td>26</td>
<td>pulse</td>
<td>2850</td>
<td>3 x 500 ms ON / 500 ms OFF / 1.5s silence, then repeat (high)</td>
<td>ISO 8201</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>27</td>
<td>continuous</td>
<td>4000</td>
<td></td>
<td>ISO 8201</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>28</td>
<td>rising</td>
<td>2000 to 2850</td>
<td>7 Hz</td>
<td>ISO 8201</td>
<td>2000 Hz cont.</td>
<td>4</td>
</tr>
<tr>
<td>29</td>
<td>alternating</td>
<td>988 &amp; 645</td>
<td>2 Hz</td>
<td>ISO 8201</td>
<td>988 Hz cont.</td>
<td>645 Hz cont.</td>
</tr>
<tr>
<td>30</td>
<td>alternating</td>
<td>510 &amp; 610</td>
<td>2 Hz</td>
<td>ISO 8201</td>
<td>510 Hz cont.</td>
<td>610 Hz cont.</td>
</tr>
<tr>
<td>31</td>
<td>alternating</td>
<td>800 &amp; 970</td>
<td>2 Hz</td>
<td>ISO 8201</td>
<td>800 cont.</td>
<td>14</td>
</tr>
<tr>
<td>32</td>
<td>alternating</td>
<td>800 &amp; 1200</td>
<td>1 Hz</td>
<td>ISO 8201</td>
<td>800 cont.</td>
<td>1200 Hz cont.</td>
</tr>
</tbody>
</table>
LED Traffic Light / Siren Combination

- High visibility LED Traffic Light with independently triggerable integrated siren
- Award-winning design
- Unmistakable signalling even in direct sunlight thanks to clear lenses
- Sound output of 90 dB
- Simple mounting due to integrated mounting bracket
- The optical signal also offers very good sideway visibility
- Protection rating IP 65/IP 69k

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Dimensions (L x H x W):</th>
<th>2 tier: 85 mm x 309 mm x 136 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 tier: 85 mm x 394 mm x 136 mm</td>
</tr>
<tr>
<td>Housing:</td>
<td>PC/ABS, grey</td>
</tr>
<tr>
<td>Lens:</td>
<td>PC, transparent</td>
</tr>
<tr>
<td>Fixing:</td>
<td>Wall mounting, tube mounting (accessory)</td>
</tr>
<tr>
<td>Installation position:</td>
<td>Vertical/hanging</td>
</tr>
<tr>
<td>Connection:</td>
<td>Screw terminal with wire protection</td>
</tr>
<tr>
<td></td>
<td>max. 1.5 mm²</td>
</tr>
<tr>
<td>Cable entry:</td>
<td>Cable diameter max. 13 mm</td>
</tr>
<tr>
<td>Duty cycle:</td>
<td>100 %</td>
</tr>
<tr>
<td>Tone type:</td>
<td>Continuous tone</td>
</tr>
</tbody>
</table>

**ORDER SPECIFICATIONS:**

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

**ACCESSORIES:**

- Adaptor for tube mounting 975 894 02
  (suitable for Ø 75 mm tubes, see page 194)

**ADDITIONAL INFORMATION:**

“Small Traffic Light Series” wins “if product design award 2009”
WERMA has won the prestigious “if product design award” for the design and production of its “small traffic light series”. Since its introduction in 1953, this design prize has been an enduring, renowned hallmark for “excellent” design.

**TECHNICAL DIAGRAMS:**
see page 274

www.werma.com
LED Beacon / Siren Combination

- High visibility LED Traffic Light with independently triggerable integrated siren
- Colour intensive light effect thanks to LEDs in the same colour as the lenses
- Sound output of 90 dB
- Simple mounting due to integrated mounting bracket
- The optical signal also offers very good sideway visibility
- Protection rating IP 65/IP 69k

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Dimensions (L x H x W):</th>
<th>1 tier: 85 mm x 224 mm x 136 mm</th>
<th>2 tier: 85 mm x 309 mm x 136 mm</th>
<th>3 tier: 85 mm x 394 mm x 136 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing:</td>
<td>PC/ABS, grey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lens:</td>
<td>PC, transparent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixing:</td>
<td>Wall mounting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation position:</td>
<td>Vertical/hanging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection:</td>
<td>Screw terminal with wire protection</td>
<td>max. 1.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Cable entry:</td>
<td>Cable diameter max. 13 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duty cycle:</td>
<td>100 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tone type:</td>
<td>Continuous tone</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ORDER SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>24 V</th>
<th>115 to 230 V AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Consumption</td>
<td>LED</td>
<td>60 mA (red/yellow)</td>
</tr>
<tr>
<td></td>
<td>120 mA (green)</td>
<td>30 mA at 230 V/50 Hz</td>
</tr>
<tr>
<td></td>
<td>Siren</td>
<td>20 mA</td>
</tr>
<tr>
<td>red</td>
<td>494 010 55</td>
<td>494 010 68</td>
</tr>
<tr>
<td>green</td>
<td>494 020 55</td>
<td>494 020 68</td>
</tr>
<tr>
<td>yellow</td>
<td>494 030 55</td>
<td>494 030 68</td>
</tr>
<tr>
<td>red / green</td>
<td>494 060 55</td>
<td>494 060 68</td>
</tr>
<tr>
<td>red / yellow / green</td>
<td>494 080 55</td>
<td>494 080 68</td>
</tr>
</tbody>
</table>

**ACCESSORIES:**

- Adaptor for tube mounting (suitable for Ø 75 mm tubes) 975 894 02

**ADDITIONAL INFORMATION:**

Maximum flexibility

Thanks to the innovative bracket, the direction of the signal can be individually adjusted. After the bracket has been mounted, the customer can adjust the direction to suit his requirements.

The LED traffic light can be turned through 360 degrees guaranteeing optimum visibility from all angles.

**TECHNICAL DIAGRAMS:**

see page 274

The direction of the optical signal can be individually adjusted
890/190

(LE) Beacon 890/Multi-Tone Sounder 190 Combination

- 32 tones for a diverse range of applications
- Sound output adjustable up to 110 dB
- 3 tones can be triggered externally
- Fixing bracket for easy combination with (LE) Permanent Beacon/Traffic Light 890

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height): 150 mm x 154 mm (890)
150 mm x 127 mm (190)
Housing: PC/ABS-Blend, grey
Lens: PC, transparent
Fixing: Base mounting, fixing bracket (accessory)
Connection: Screw terminal
Cable entry: From top or bottom with cable gland
M 20 x 1.5 mm or from the back with rubber grommet Ø 6-12 mm, included in assembly

Tone types and frequencies: Selectable via DIP switch, see table on page 229

ORDER SPECIFICATIONS:

Multi-Tone Sounder 190
Voltage 10-30 V = 115 V ~ 230 V ~
Current consumption < 180 mA < 55 mA < 30 mA
grey 190 000 55 190 000 67 190 000 68

LED Beacon 890
Voltage 12-24 V = 115 V ~ 230 V ~
Current consumption < 200 mA < 35 mA < 35 mA
red 890 120 55 890 120 67 890 120 68
green 890 220 55 890 220 67 890 220 68
yellow 890 320 55 890 320 67 890 220 68

Permanent Beacon 890
Voltage 12-240 V =
red 890 100 00
green 890 200 00
yellow 890 300 00
clear 890 400 00
blue 890 500 00

ACCESSORIES:
Fixing bracket, tube adaptor and connecting grommet see page 161.

TONES TYPES AND FREQUENCIES:

Selectable via DIP switch, see tone table on page 229.

TECHNICAL DIAGRAMS:

see page 269 + 291
**LED/Buzzer Combination**

- LED Permanent light
- Continuous tone can be additionally activated
- Simple connection by means of connector plug
- Life duration up to 50,000 hrs

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Dimensions (Ø x Height):</th>
<th>50 mm x 22 mm (Protrusion from panel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing:</td>
<td>PC/ABS-Blend</td>
</tr>
<tr>
<td>Lens:</td>
<td>PC, transparent</td>
</tr>
<tr>
<td>Connection:</td>
<td>Connector plug with screw terminal max. 1.5 mm²</td>
</tr>
<tr>
<td>Tone type:</td>
<td>Continuous</td>
</tr>
<tr>
<td>Tone frequency:</td>
<td>c. 2.8 kHz</td>
</tr>
<tr>
<td>Duty cycle:</td>
<td>100 %</td>
</tr>
<tr>
<td>Life duration:</td>
<td>Up to 50,000 hrs (LED)</td>
</tr>
<tr>
<td>Fixing:</td>
<td>Installation mounting for Ø 22.5 mm (M 22 x 1.5 mm) with anti-twist device</td>
</tr>
</tbody>
</table>

Nut and seal included in assembly.

**ORDER SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>24 V~</th>
<th>115 V~</th>
<th>230 V~</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption</td>
<td>&lt; 50 mA</td>
<td>&lt; 20 mA</td>
<td>&lt; 20 mA</td>
</tr>
<tr>
<td>red</td>
<td>150 100 55</td>
<td>150 100 67</td>
<td>150 100 68</td>
</tr>
<tr>
<td>yellow</td>
<td>150 300 55</td>
<td>150 300 67</td>
<td>150 300 68</td>
</tr>
</tbody>
</table>

**TECHNICAL DIAGRAMS:**

see page 268
The audible signal can be turned off in seconds by lightly pressing the front of the product.

**TECHNICAL SPECIFICATIONS:**

- **Dimensions (Diameter x Height):** 50 mm x 22 mm (Protrusion from panel)
- **Housing:** PC/ABS-Blend
- **Lens:** PC, transparent
- **Connection:** Screw terminal max. 0.5 mm²
- **Signal input:** 24 V~
- **Acknowledgement output:** Semiconductor-Relay
  - $U_{\text{max}} = 30 \text{ V}$
  - $I_{\text{max}} = 100 \text{ mA}$
  - $R_{\text{ON max}} = 25 \text{ Ohm}$
- **Tone type:** Continuous
- **Tone frequency:** c. 2.8 kHz
- **Duty cycle:** 100 %
- **Life duration:** Up to 50,000 hrs (LED)
- **Fixing:** Installation mounting for Ø 22.5 mm (M 22 x 1.5 mm) with anti-twist device

Nutm and seal included in assembly.

**ORDER SPECIFICATIONS:**

- **Voltage:** 24 V~
- **Current consumption:**
  - 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 DIAGRAMS:**

see page 273
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:**

- **Dimensions (Ø x Height):** 50 mm x 22 mm (Protrusion from panel)
- **Housing:** PC, black
- **Lens:** PC, transparent
- **Connection:** Screw terminal with wire protection max. 1.5 mm²
- **Power supply AS-Interface:** Via bus conduction
- **Operating voltage:** 25 V ... 31.6 V according to the AS-Interface specification
- **ID-Code:** A<sub>hex</sub>
- **ID2-Code:** E<sub>hex</sub>
- **Tone type:** Continuous
- **Tone frequency:** c. 2.8 kHz
- **Duty cycle:** 100 %
- **Fixing:** Installation mounting for Ø 22.5 mm (M 22 x 1.5 mm) with anti-twist device

Nut and seal included in assembly.

**ORDER SPECIFICATIONS:**

- **Voltage:** via AS-Interface
- **Current consumption:** ≤ 80 mA
  - red: 450 110 55
  - yellow: 450 310 55

**ADDITIONAL INFORMATION:**

Unique acknowledgement function with feedback signal via AS-Interface Bus

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

This product also features a unique acknowledgement function: by gently pressing the front surface of the product the audible signal can be turned off in a matter of seconds (see page 197). This acknowledgement signal is fed back to the master via the AS-Interface Bus and the malfunction is only indicated by means of the optical signal.

Expanded addressing and a sound output of 80 dB

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

**TECHNICAL DIAGRAMS:**

see page 273
Surface Housing for Combinations

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

**TECHNICAL SPECIFICATIONS:**

- **Dimensions (W x H x D):**
  - Single: 80.5 mm x 55 mm x 82 mm
  - Double: 160 mm x 55 mm x 78 mm
  - Triple: 240 mm x 60 mm x 80 mm
- **Housing:** Polyamide, high-impact, black
- **Lens:** Polycarbonate transparent
- **Fixing:** Base mounting, bracket mounting, tube mounting
- **Socket:** Bayonet, B15d for bulb max. 7 Watt
- **Connection:** Screw terminal M3
- **Seal:** Pre-mounted with each element
- **Number of modules possible:**
  - KombiSIGN 70 and 71: max. 5
  - With 2-sided bracket: max. 10
  - KombiSIGN 50: max. 4

Assembly comprises of only the surface housing. Beacons 800-802, 815-817 (p. 92/94) and audible elements 109 and 110 (pages 205/206) have to be ordered additionally.

**ORDER SPECIFICATIONS:**

- Single surface housing: 975 109 02
- Double surface housing:
  - 1 beacon and 1 audible element: 975 109 03
  - 2 beacons and 1 audible element: 975 109 04

**TECHNICAL DIAGRAMS:** see page 295

---

Signal Tower with Audible Element

- Signal Tower KombiSIGN with audible signal device
- Sound output up to 105 dB
- Can be combined with all optical elements
- Can be triggered separately

**TECHNICAL SPECIFICATIONS:**

- **Dimensions (Ø x Height):** See KombiSIGN 50, 70 and 71
- **Housing:** Polyamide, high-impact, black
- **Lens:** Polycarbonate transparent
- **Fixing:** Base mounting, bracket mounting, tube mounting
- **Socket:** Bayonet, B15d for bulb max. 7 Watt
- **Connection:** Screw terminal M3
- **Seal:** Pre-mounted with each element
- **Number of modules possible:**
  - KombiSIGN 70 and 71: max. 5
  - With 2-sided bracket: max. 10
  - KombiSIGN 50: max. 4
  - The audible element is to be mounted at the top of the signal tower.

**ORDER SPECIFICATIONS:** see KombiSIGN 50, 70 and 71 (P. 54 + 36 + 16 onwards)

**TECHNICAL DIAGRAMS:** see Pages 286 + 285 + 277