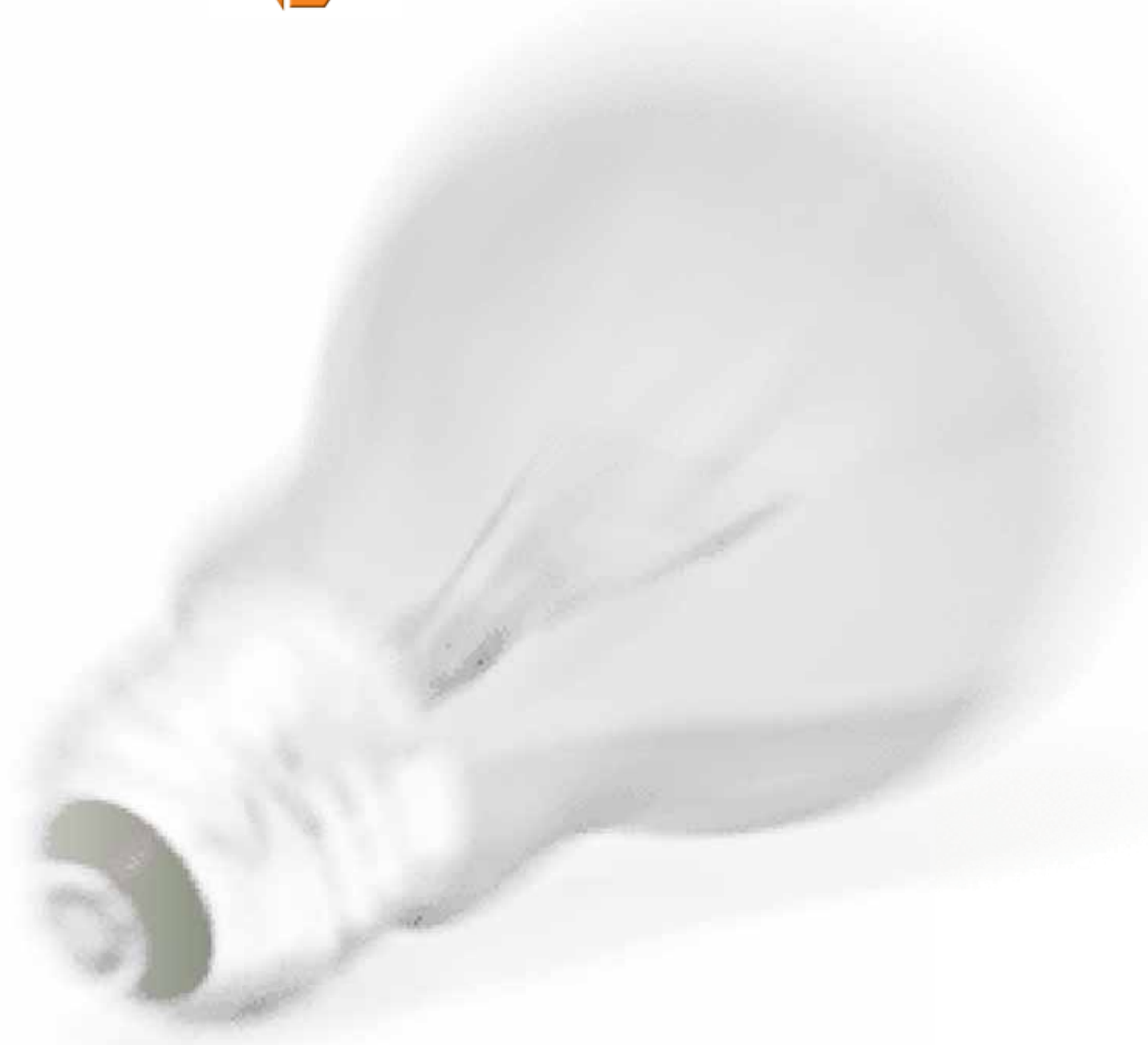




**VISUAL AND AUDIO INDICATORS**



## **VISUAL AND AUDIO INDICATORS**

# new products



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AND AUDIO INDICATORS**  
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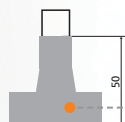
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# MULTICOLOR SERIES



**Three colors, one unit, one single lamp to indicate the different conditions of a machine.**

**Low current consumption and long duration are some of the main features of this visual indicator.**

It combines technology and design and is a concrete answer to the most complex needs of the industrial world. It can be used as a single multicolor lamp or as an alternative to the traditional three color units with no changes in the electric installation required.



The illumination is obtained by means of ultra bright LEDs.



**MULTICOLOR AND AUDIO INDICATORS**  
TYPE 94T7B

## TECHNICAL FEATURES

### Compliance

EEC regulation 2006/95 Low Voltage  
EEC regulation 89/336 Electromagnetic compatibility

### Conformity standards

EN 60947.5.1 - EN 60073 - EN 60529 - EN 60068.2.6 - EN 457  
EN 981 - IEC 536

### Material

Polycarbonate

### Voltage

24V DC (+/-10%)

### Current consumption

90 mA

### Protection degree

IP 64 (if correctly assembled with cap and gasket)  
according to EN 60529

### Protection against electric shock

Class II, safety insulation  
According to IEC 536

### Resistance to vibrations

2 g min. (10 - 150 Hz) according to EN 60068-2-6

### Operating Temperature

-20°C +50°C

### Connections:

Screw clamps with binding post gauge max. 1,5 mm<sup>2</sup>  
inside the wiring unit

### Sound

Intermittent or continuous

### Sound frequency

2900 Hz / 3700 Hz

### Weighed sound level "A" at one meter

85 dB

The only multicolor lamp which can be used to integrate information with an audio or visual signal device.



TYPE 94T5B

| TYPE                                  | CODE FOR ORDERING | NOTATION                                      |
|---------------------------------------|-------------------|---|
| Three color-lamp<br>green, amber, red | 94T1B 532         | <b>Above</b> it is possible to add light unit |
| Three color-lamp<br>blue, amber, red  | 94T1B 632         | <b>Above</b> it is possible to add light unit |
| Three color-lamp<br>white, amber, red | 94T1B 932         | <b>Above</b> it is possible to add light unit |
| Three color-lamp<br>blue, white, red  | 94T1B 692         | <b>Above</b> it is possible to add light unit |
| Three color-lamp<br>green, amber, red | 94T5B 532         | <b>Under</b> it is possible to add light unit |
| Three color-lamp<br>blue, amber, red  | 94T5B 632         | <b>Under</b> it is possible to add light unit |
| Three color-lamp<br>white, amber, red | 94T5B 932         | <b>Under</b> it is possible to add light unit |
| Three color-lamp<br>blue, white, red  | 94T5B 692         | <b>Under</b> it is possible to add light unit |
| Three color-lamp<br>green, amber, red | 94T7B 532         | With audio indicators                         |
| Three color-lamp<br>blue, amber, red  | 94T7B 632         | With audio indicators                         |
| Three color-lamp<br>white, amber, red | 94T7B 932         | With audio indicators                         |
| Three color-lamp<br>blue, white, red  | 94T7B 692         | With audio indicators                         |

# 370 SERIES

Modular visual and audio indicators



By means of a simple manual operation, the bayonet fixing system makes it possible to combine up to seven signal units and simultaneously to connect them electrically



A wide range of audio indicators further extends the signalling possibilities



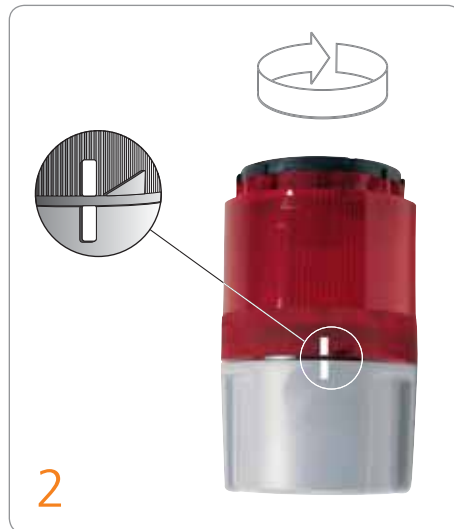
A particularly elegant design



Visual and audio indicators

## THE MODULAR SYSTEM

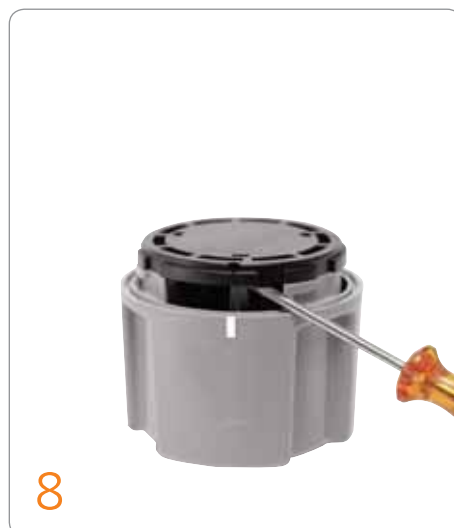
Place the signalling unit onto terminal unit (fig.1), align the reference marks first and then twist clockwise until they click locked (fig. 2-3).



Follow the same steps as above to add more signalling units (fig. 4-5-6). On the last unit mount the cap (fig. 6). Since the audio indicator is already equipped with a cap, it can be mounted only as a final unit.



In order to fix the extension tube (a base is always included with it), insert it into the relevant hole and tighten the screw on the side (fig. 7). In order to make the connections, reach the terminal board by prising the black disc (fig. 8). Connect to terminals (coloured units are numbered from base to top). Place the terminal board back into position by aligning the reference marks (fig. 9) and pressing inwards.





## TECHNICAL FEATURES

### Compliance

EEC regulation 2006/95 Low Voltage  
EEC regulation 89/336 Electromagnetic Compatibility

### Conformity to standards

EN 60947.5.1 - EN 60073 - EN 60529 - EN 60068-2-6 - EN 457 - EN 981 - IEC 536

### Homologations



### Material

Visual and audio module, cable unit, cap and base: polycarbonate  
Tube: anodised aluminium or polycarbonate

### Voltage

250 V max.

### Protection degree

IP 64 (if correctly assembled with cap and gasket) according to EN 60529

### Protection against electric shock

Class II, in case of double insulation and polycarbonate support tubes  
Class I, in case of metallic support tubes  
According to IEC 536

### Operating Temperature

-20°C +50°C (12 V 40°C)

### Resistance to vibrations

2 g min. (10 - 150 Hz), according to EN 60068-2-6

### Unit colors

Amber - blue - yellow - neutral- green, according to EN 60073

### Bulb

Bayonet connection type: BA 15d - 5W max.  
With flash circuits: Xenon bulbs.

### Number of combinable units

For all the indicators: each cable unit can be combined with up to seven modular units (except for the single beacon type, which can be combined with maximum two units).

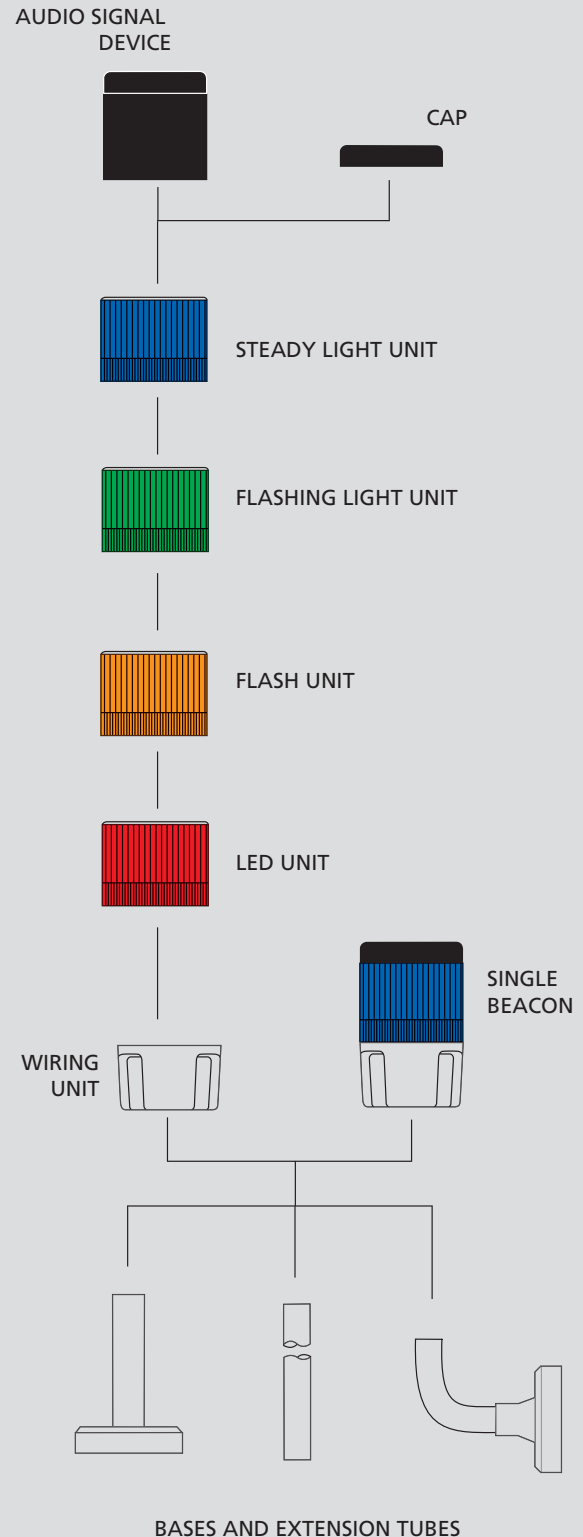
### Connections

Screw clamps with binding post max. gauge 1,5 mm<sup>2</sup>

### Connection Id. Code

C - common to all signal units.  
Numbers from 1 to 7 refer to each single module from the base to the top (for the single beacon type the reference is from 1 to 2)

## STRUCTURE



## WIRING UNIT

Connections by means of clamps;  
on demand also with faston type 250 or pre-wired.

### Clamps

screw clamps with binding post

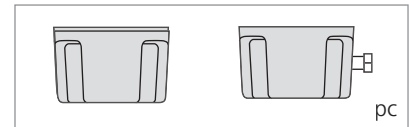
### Maximum gauge

1.5 mm<sup>2</sup>

### Connection id. code

C - common to all units.

Numbers from 1 to 5 refer to the colours, from the base to the top



| ORDER CODES AND DATA |       |  |
|----------------------|-------|--|
| 90-01                | GREY  |  |
| 90-02                | BLACK |  |
| 90M01                | GREY  |  |
| 90M02                | BLACK |  |

| ORDER CODES AND DATA |       |  |
|----------------------|-------|--|
| 90-01PC              | GREY  |  |
| 90-02PC              | BLACK |  |
| 90M01PC              | GREY  |  |
| 90M02PC              | BLACK |  |

With cable gland

## STEADY LIGHT UNIT

### Illumination

LED or filament bulb

### Bulb type

with bayonet connection BA 15d - max 5 W

### Voltage

from 12 V up to 240 V DC/AC

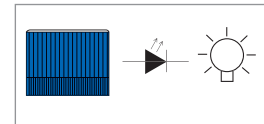
### Current consumption

with 5 W filament bulbs

24 V, 210 mA - 115 V, 43 mA - 240 V, 22 mA

with LED bulbs

24 V, < 50 mA - 115 V, < 18 mA - 240 V, < 17 mA



| COLOR | ORDER CODES AND DATA |  |
|-------|----------------------|--|
|       | 12-240V AC-DC        |  |
|       | 12-00                |  |
|       | 13-00                |  |
|       | 14-00                |  |
|       | 15-00                |  |
|       | 16-00                |  |
|       | 19-00                |  |

Bulbs not included

| COLOR | ORDER CODES AND DATA |         |         |
|-------|----------------------|---------|---------|
|       | 24V DC-AC            | 115V AC | 240V AC |
|       | 12-4B                | 12-4F   | 12-4G   |
|       | 13-4B                | 13-4F   | 13-4G   |
|       | 14-4B                | 14-4F   | 14-4G   |
|       | 15-4B                | 15-4F   | 15-4G   |
|       | 16-4B                | 16-4F   | 16-4G   |
|       | 19-4B                | 19-4F   | 19-4G   |

LED bulbs included

Technical diagrams → see page 40

## FLASHING LIGHT UNIT

**Illumination**

LED or filament bulb

**Bulb type**

bayonet connection BA 15d - max 5 W

**Voltage**

24 V - 115 V - 240 V DC/AC

**Current consumption**

with 5 W filament bulbs

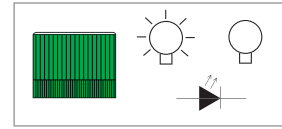
24 V DC - 130 mA / 24 V AC - 145 mA / 115 V AC/DC - 25 mA / 240 V AC/DC - 15 mA

with LED bulbs

24 V, < 50 mA - 115 V, < 18 mA - 240 V, < 17 mA

**Flash frequency**

1.4 Hz approx. (84 flashes per min.) according to EN 60073



| with filament bulbs |                      |         |         | with LED bulbs |                      |         |         |
|---------------------|----------------------|---------|---------|----------------|----------------------|---------|---------|
| COLOR               | ORDER CODES AND DATA |         |         | COLOR          | ORDER CODES AND DATA |         |         |
|                     | 24V DC-AC            | 115V AC | 240V AC |                | 24V DC-AC            | 115V AC | 240V AC |
| ●                   | 22-24                | 22-15   | 22-30   | ●              | 22-4B                | 22-4F   | 22-4G   |
| ●                   | 23-24                | 23-15   | 23-30   | ●              | 23-4B                | 23-4F   | 23-4G   |
| ●                   | 24-24                | 24-15   | 24-30   | ●              | 24-4B                | 24-4F   | 24-4G   |
| ●                   | 25-24                | 25-15   | 25-30   | ●              | 25-4B                | 25-4F   | 25-4G   |
| ●                   | 26-24                | 26-15   | 26-30   | ●              | 26-4B                | 26-4F   | 26-4G   |
| ●                   | 29-24                | 29-15   | 29-30   | ●              | 29-4B                | 29-4F   | 29-4G   |

Bulbs not included

LED bulbs included

## FLASH UNIT

**Illumination**

4-Joule xenon bulb

**Voltage**

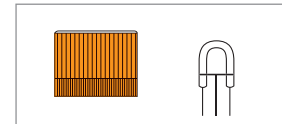
24 V DC/AC - 115 V AC - 240 V AC

**Current consumption**

24 V DC, 75 mA - 24V AC, 135 mA - 115 V, 20 mA - 240 V, 15 mA

**Flash frequency**

1.4 Hz approx. (84 flashes per min.) according to EN 60073



| COLOR | ORDER CODES AND DATA |         |         |
|-------|----------------------|---------|---------|
|       | 24V DC-AC            | 115V AC | 240V AC |
| ●     | 32-24                | 32-15   | 32-30   |
| ●     | 33-24                | 33-15   | 33-30   |
| ●     | 34-24                | 34-15   | 34-30   |
| ●     | 35-24                | 35-15   | 35-30   |
| ●     | 36-24                | 36-15   | 36-30   |
| ●     | 39-24                | 39-15   | 39-30   |

Xenon bulbs included

Technical diagrams → see page 40

## MULTIFUNCTION LED LIGHT UNIT

**Illumination**

24 ultra bright integrated LEDs

**Duration**

more than 50000 working hours

**Operating modes**

Steady light, flashing or rotating light (to change the function just remove or shift the CN1 jumper)

**Voltage**

24 V DC/AC

**Current consumption**

24 V DC, 55 mA - 24 V AC, 85 mA

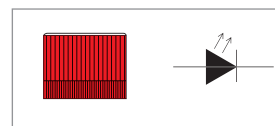
(the same for all the illumination functions)

**Flash frequency**

1.4 Hz approx. (84 flashes per min.) according to EN 60073

**Rotation frequency**

1 revolution per second approx.



| COLOUR | ORDER CODES AND DATA |       |
|--------|----------------------|-------|
|        | 24V DC-AC            |       |
| ●      | 42-24                | 42-24 |
| ●      | 43-24                | 43-24 |
| ●      | 44-24                | 44-24 |
| ●      | 45-H4                | 45-H4 |
| ●      | 46-H4                | 46-H4 |
| ●      | 49-H4                | 49-H4 |

## STEADY OR FLASHING LIGHT UNIT

**Illumination**

6 ultra bright integrated LEDs

**Duration**

more than 50000 working hours

**Operating modes**

Steady or flashing light (to change the function just remove or shift the CN1 jumper)

**Voltage**

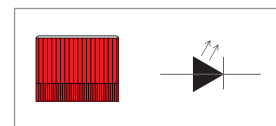
24 V DC/AC

**Current consumption**

30 mA (the same for all illumination modes)

**Flash frequency**

1.4 Hz approx. (84 flashes per min.) according to EN 60073



| COLOR | ORDER CODES AND DATA |       |
|-------|----------------------|-------|
|       | 24V DC-AC            |       |
| ●     | 42-KB                | 42-KB |
| ●     | 43-KB                | 43-KB |
| ●     | 44-KB                | 44-KB |
| ●     | 45-KB                | 45-KB |
| ●     | 46-KB                | 46-KB |
| ●     | 49-KB                | 49-KB |

Technical diagrams → see page 40

**VISUAL AND AUDIO INDICATORS UNIT (steady)**

Combined beacon (steady) and sounder with intermittent or continuous audio signal.  
The sounder can be fixed only as last sector.

**Voltage**

24 V dc (ac)

**Current consumption**

with 5 W filaments bulbs

24 V dc – 150 mA

**Illumination**

LED or filament bulb

**Bulb type**

with bayonet connection BA 15d - max 7 W

**Sound**

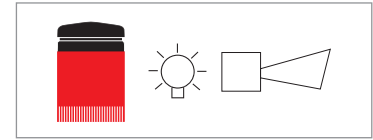
intermittent or continuous

**Sound frequency**

3700 Hz

**Weighted sound level A at 1 m**

85 dB



| COLOR | ORDER CODES    |              |
|-------|----------------|--------------|
|       | Separate power | Common power |
| ●     | 127CB          | 12B73        |
| ●     | 137CB          | 13B73        |
| ●     | 147CB          | 14B73        |
| ●     | 157CB          | 15B73        |
| ●     | 167CB          | 16B73        |
| ●     | 197CB          | 19B73        |

Intermittent or continuous                      Continuous



**VISUAL AND AUDIO INDICATORS UNIT (steady)**

Combined beacon (flashing) and beacon with intermittent audio signal, **common power**.  
Combined beacon (flashing) and beacon with intermittent or continuous audio signal, **separate power**.  
The sounder can be fixed only as last sector.

**Voltage**

24 V dc (ac)

**Current consumption**

with 5 W filaments bulbs

24 V dc - 150 mA / 24 V sc - 155 mA / 115 V dc/ac - 35 mA / 230 V dc/ac - 25 mA

**Illumination**

LED or filament bulb

**Bulb type**

with bayonet connection BA 15d - max 5 W

**Flash frequency**

1.4 Hz approx. (84 flashes per min.) according to EN 60073

**Sound**

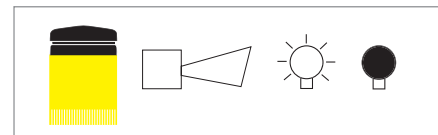
intermittent

**Sound frequency**

2900/3700 Hz Hz

**Weighted sound level A at 1 m**

85 dB



| COLOR | ORDER CODES AND DATA |              |              |              |
|-------|----------------------|--------------|--------------|--------------|
|       | separate power       | common power | common power | common power |
|       | 24 V DC              | 24 V DC/AC   | 115 V AC     | 230 V AC     |
| ●     | 227CB                | 22B73        | 22F73        | 22G73        |
| ●     | 237CB                | 23B73        | 23F73        | 23G73        |
| ●     | 247CB                | 24B73        | 24F73        | 24G73        |
| ●     | 257CB                | 25B73        | 25F73        | 25G73        |
| ●     | 267CB                | 26B73        | 26F73        | 26G73        |
| ●     | 297CB                | 29B73        | 29F73        | 29G73        |



## AUDIO SIGNAL DEVICE TYPE 77 IP64

Already equipped with a cap, the audio indicator can be mounted as final top unit only.

### Sound

intermittent or continuous (to change it, just remove or insert the relevant jumper in the printed circuit)

### Sound frequency

2600 Hz according to EN457

### Signal repetition rate

1 Hz according to EN457

### Weighted sound level A at 1 m

Type 77-24: Intermittent signal 84.5 dB - Continuous signal 82.6 dB

Type 77-15: Intermittent signal 78 dB - Continuous signal 75 dB

Type 77-30: Intermittent signal 78 dB - Continuous signal 75 dB

### Voltage

Type 77-24: 24 V DC/AC

Type 77-15: 115 V AC

Type 77-30: 240 V AC

### Current consumption

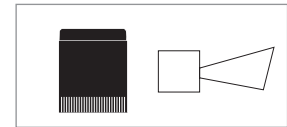
Type 77-24: DC/AC, 200mA

Type 77-15: AC, 40mA

Type 77-30: AC, 30mA

### Protection degree

IP64



| ORDER CODES AND DATA |           |         |         |
|----------------------|-----------|---------|---------|
| 24V DC/AC            | 24V DC/AC | 115V AC | 240V AC |
| 77-MB                | 77-24     | 77-15   | 77-30   |

## AUDIO SIGNAL DEVICE TYPE 71 AND 72

Already equipped with a cap, the audio indicator can only be mounted as a final top unit.

### Sound frequency

3300 Hz

### Signal repetition rate

0.8 Hz

### Voltage

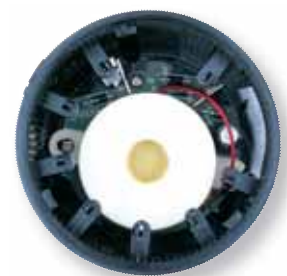
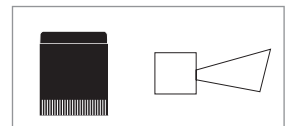
24 V DC/AC

### Current consumption

24 V DC, 32 mA - 24 V AC, 100 mA

### Protection degree

type71: IP30 – type 72:IP64



| ORDER CODES AND DATA |              |                            |       |                |
|----------------------|--------------|----------------------------|-------|----------------|
| TYPE                 | POWER        | SOUND                      | LEVEL | NOTE           |
| 71-24                | 24 V AC/DC   | intermittent               | 80 dB | common power   |
| 71-5B                | 24 V DC (ac) | intermittent or continuous | 85 dB | separate power |
| 72-24                | 24 V AC/DC   | intermittent               | 75 dB | common power   |
| 72-6B                | 24 V DC (ac) | intermittent or continuous | 75 dB | separate power |

**AUDIO SIGNAL DEVICE TYPE 75 IP54**

Already equipped with a cap, the audio indicator can be mounted as final top unit only.

**Sound**

Type 75-MB, 16 sounds selectable by means of a dip switch.  
 Type 75-24 / 75-15 / 75-30 intermittent or continuous tone  
 (to change the function just remove or insert the jumper in the printed circuit)

**Sound frequency**

2500 - 2900 Hz according to EN457

**Weighted sound level A at 1 m**

Type 75-MB: 16 sounds, max 90 dB,  
 Type 75-24: Intermittent signal 100 dB - Continuous signal 98 dB  
 Type 75-15: Intermittent signal 95 dB - Continuous signal 93 dB  
 Type 75-30: Intermittent signal 95 dB - Continuous signal 93 dB

**Voltage**

Type 75-MB or 75-24: 24 V DC/AC  
 Type 75-15: 115 V AC  
 Type 75-30: 240 V AC

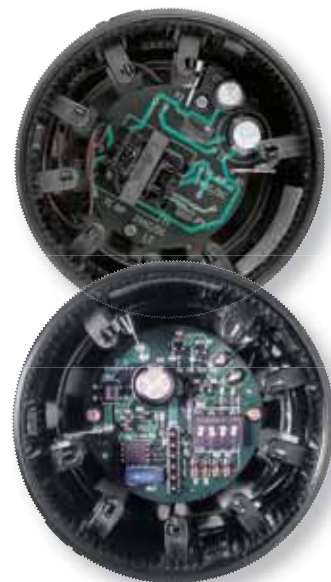
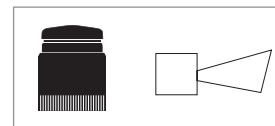
**Current consumption**

Type 75-MB: DC/AC, 40 mA  
 Type 75-24: DC/AC, 200 mA  
 Type 75-15: AC, 40 mA  
 Type 75-30: AC, 30 mA

**Protection degree**

IP54

| ORDER CODES AND DATA |           |           |         |         |
|----------------------|-----------|-----------|---------|---------|
|                      | 24V DC/AC | 24V DC/AC | 115V AC | 240V AC |
| BLACK                | 75-MB     | 75-24     | 75-15   | 75-30   |
| BICOLOR              | 75TMB     | 75T24     | 75T15   | 75T30   |



**AUDIO SIGNAL DEVICE TYPE 73 IP54**

Already equipped with a cap, the audio indicator can be mounted as a final top unit only.

**Sound frequency**

2900 Hz

**Signal repetition rate**

0.5 Hz

**Weighted sound level A at 1 m**

90 dB

**Voltage**

24 V DC/AC

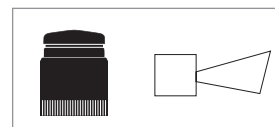
**Current consumption**

20 mA

**Protection degree**

IP54

| ORDER CODES AND DATA |       |              |                            |                |
|----------------------|-------|--------------|----------------------------|----------------|
|                      | TYPE  | POWER        | SOUND                      | NOTE           |
| BLACK                | 73-24 | 24 V AC/DC   | intermittent               | common power   |
| BLACK                | 73-5B | 24 V DC (ac) | intermittent or continuous | separate power |
| BICOLOR              | 73T24 | 24 V AC/DC   | intermittent               | common power   |
| BICOLOR              | 73T5B | 24 V DC (ac) | intermittent or continuous | separate power |



LED AND FILAMENT BULBS

LED BULBS

**Bulb** BA 15d  
**Duration** more than 25000 working hours  
 No maintenance or service costs  
 Perfect functioning also in case of strong vibrations or hits.

**Low current consumption**  
 24 V DC/AC, < 50 mA - 115 V AC, < 18 mA - 240 V, <17 mA.  
 To be used together with alarm devices whose domes are of the same colour as the LEDs

| COLOR | ORDER CODES |         |         |           |         |         |
|-------|-------------|---------|---------|-----------|---------|---------|
|       | 24V DC-AC   | 115V AC | 240V AC | 24V DC-AC | 115V AC | 240V AC |
| ●     | 11EB2       | 11EF2   | 11EG2   | 11NB2     | 11NF2   | 11NG2   |
| ●     |             |         |         | 11NB3     | 11NF3   | 11NG3   |
| ●     | 11EB4       | 11EF4   | 11EG4   | 11NB4     | 11NF4   | 11NG4   |
| ●     | 11EB5       | 11EF5   | 11EG5   | 11NB5     | 11NF5   | 11NG5   |
| ●     | 11EB6       | 11EF6   | 11EG6   | 11NB6     | 11NF6   | 11NG6   |
| ●     | 11EB9       | 11EF9   | 11EG9   | 11NB9     | 11NF9   | 11NG9   |



FILAMENT BULBS

**Bulb** BA 15d  
**Filament** Shockproof  
**Duration** 2.000 working hours

| ORDER CODES |        |        |         |         |
|-------------|--------|--------|---------|---------|
| 12V/5W      | 24V/5W | 30V/5W | 130V/5W | 260V/5W |
| 11-12       | 11S24  | 1130V  | 11E15   | 11E30   |



FITTINGS

**BASES WITH POLYCARBONATE EXTENSION TUBES**

|            | h 100 mm | h 200 mm | h 300 mm | h 400 mm | h 500 mm |
|------------|----------|----------|----------|----------|----------|
| grey Ø 80  | 80-01    | 80-02    | 80-03    | 80-04    | 80-05    |
| grey Ø 70  | 54-01    | 54-02    | 54-03    | 54-04    | 54-05    |
| black Ø 80 | 80-10    | 80-20    | 80-30    | 80-40    | 80-50    |
| black Ø 70 | 54-10    | 54-20    | 54-30    | 54-40    | 54-50    |

**POLYCARBONATE EXTENSION TUBES**

| h 100 mm |       |
|----------|-------|
| grey     | 88-01 |
| black    | 88-10 |

**BASES WITH POLYCARBONATE TUBES FOR 90° FIXING**

|            |       |
|------------|-------|
| grey Ø 80  | 80-09 |
| grey Ø 70  | 54-09 |
| black Ø 80 | 80-90 |
| black Ø 70 | 54-90 |

**POLYCARBONATE ADAPTERS FOR 90° FIXING**

|                       | GREY  | BLACK |
|-----------------------|-------|-------|
| individual fixing Ø70 | 54T19 | 54T91 |
| double fixing Ø70     | 54T29 | 54T92 |

**METAL AND POLYCARBONATE ADAPTERS FOR 90° FIXING**

|                   | METAL BASE Ø70 AND BLACK CONNECTION |
|-------------------|-------------------------------------|
| individual fixing | 54TC1                               |
| double fixing     | 54TC2                               |

Technical diagrams → see page 41



ADAPTERS FOR 22-ØØ HOLE



88A22



possible use

BASES WITH ALUMINIUM EXTENSION TUBES



54M0X

|            | h 50 mm | h 100 mm | h 200 mm | h 300 mm | h 400 mm | h 500 mm |
|------------|---------|----------|----------|----------|----------|----------|
| grey Ø 80  |         | 80M01    | 80M02    | 80M03    | 80M04    | 80M05    |
| grey Ø 70  | 54M0X   | 54M01    | 54M02    | 54M03    | 54M04    | 54M05    |
| black Ø 80 |         | 80M10    | 80M20    | 80M30    | 80M40    | 80M50    |
| black Ø 70 |         | 54M10    | 54M20    | 54M30    | 54M40    | 54M50    |

BASES WITH METAL EXTENSION TUBES FOR 90° FIXING



|            |       |
|------------|-------|
| grey Ø 80  | 80M09 |
| grey Ø 70  | 54M09 |
| black Ø 80 | 80M90 |
| black Ø 70 | 54M90 |

METAL BASES Ø70 WITH TUBES FOR 90° FIXING



| TUBE    |       |
|---------|-------|
| plastic | 54MP9 |
| metal   | 54MM9 |

BASES WITH METAL EXTENSION TUBES FOR 45° FIXING



|           |       |
|-----------|-------|
| GREY Ø70  | 54M59 |
| BLACK Ø70 | 54M95 |

ALUMINIUM TUBES



| h 100 mm | h 200 mm | h 300 mm | h 400 mm | h 500 mm | h 1000 mm |
|----------|----------|----------|----------|----------|-----------|
| 88M10    | 88M20    | 88M30    | 88M40    | 88M50    | 88M80     |

BLACK METAL BASE



|         |       |
|---------|-------|
| Ø 70    |       |
| h 20 mm | 54M65 |

EXTENSION TUBES



|                          |
|--------------------------|
| EXTENSION TUBES h 250 mm |
| 88N25                    |

ADAPTERS



|                          |
|--------------------------|
| ADAPTERS FOR 30 mm TUBES |
| 88A30                    |

EXTENSION TUBES



|                                  |       |
|----------------------------------|-------|
| EXTENSION TUBES FOR Ø 22 mm HOLE |       |
| H 100 mm                         | 88F10 |
| H 300 mm                         | 88F30 |

Technical diagrams → see page 41



# 450 SERIES

Modular visual and audio indicators



A small-sized lamp which exalts the design features of our vertical modular indicators.

The reliability of sounders is a guarantee of maximum safety for the operators and machines.  
The low absorptions simply and prolong the life of circuits.  
No maintenance/service cost.

## TECHNICAL FEATURES

### Compliance

EEC regulation 2006/95 Low Voltage  
EEC regulation 89/336 Electromagnetic Compatibility

### Conformity to standards

EN 60947.5.1 - EN 60073 - EN 60529 - EN 60068-2-6 - EN 457 - EN 981 - IEC 536

### Material

Polycarbonate

### Protection degree

IP 64 (if correctly assembled with cap and gasket); IP 54 (if with an audio unit type FA 74-B1 or -2) - according to EN 60529

### Protection against electric shock

Class II, safety insulation. According to IEC 536

### Resistance to vibrations

2 g min. (10 - 150 Hz) according to EN 60068-2-6

### Operating Temperature

-20°C +50°C

### Number of combinable units

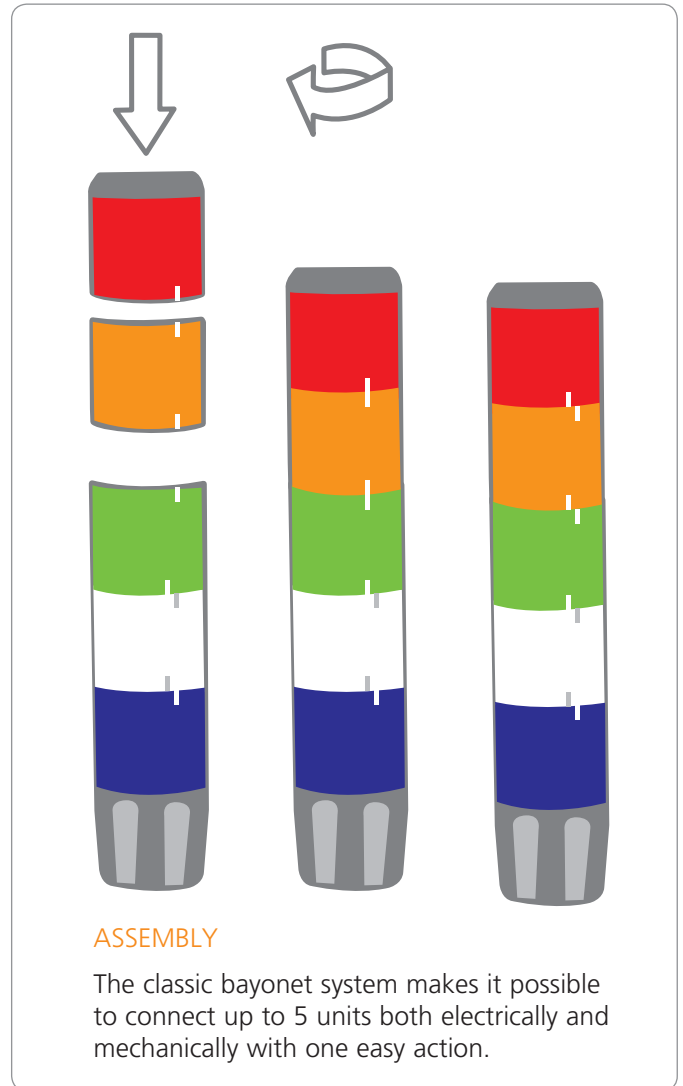
Max 5

### Color of the modules

Amber – blue – yellow – neutral – red – green  
According to EN60073

### Connections

Screw clamps with binding post max. gauge max. 1,5 mm  
inside the wiring unit



Ultra bright LEDs and an accurate illumination system for each unit guarantee large visibility; the audio signal devices increase the signalling possibilities.

## WIRING UNIT

Clamp connections  
With pre-cabled wire on request

### Clamps

Screw clamps with binding post

### Max gauge

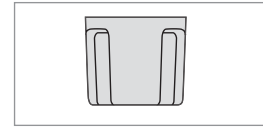
1.5 mm<sup>2</sup>

### Connection id. code

C = for all the units

Numbers from 1 to 5 refer to the colours,  
from the base to the top

|       | with cap             | without cap |
|-------|----------------------|-------------|
|       | ORDER CODES AND DATA |             |
| GREY  | FA94-01              | FA94-07     |
| BLACK | FA94-02              | FA94-08     |



## LUMINOUS UNIT

### Illumination

Steady light by means of 6 ultra bright LEDs

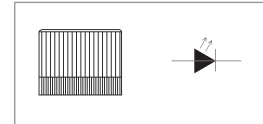
### Voltage

24V DC/AC (+/-%)

### Current consumption

24V DC – 35 mA / 24 V AC – 55 mA

| COLOR | ORDER CODES AND DATA |                  |
|-------|----------------------|------------------|
|       | 24V                  | 24V dome neutral |
| ●     | FA42-BF              | FA642-BF         |
| ●     | FA43-BF              | FA643-BF         |
| ●     | FA44-BF              | FA644-BF         |
| ●     | FA45-BF              | FA645-BF         |
| ●     | FA46-BF              | FA646-BF         |
| ●     | FA49-BF              | FA649-BF         |



## AUDIO SIGNAL DEVICE

The audio signal device already has a cap and can be used as the final module only

### Sound

Intermittent or continuous

### Sound frequency

3.700 Hz

### Signal repetition frequency

1 Hz, according to EN 457

### Weighed sound level "A" at one meter

Type FA74-B2 intermittent signal 84 dB

Type FA74-B6 intermittent signal 75 dB

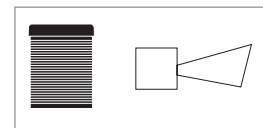
### Voltage

24 V DC/AC (+/-10%)

### Current consumption

24V DC – 35 mA / 24 V AC – 40 mA

|      | intermittent sound   |
|------|----------------------|
|      | ORDER CODES AND DATA |
| IP54 | FA74-B2              |
| IP65 | FA74-B6              |



FITTINGS



|       |         |
|-------|---------|
| black | FA60-98 |
|-------|---------|

Polycarbonate cap



|       |       |
|-------|-------|
| black | 50-20 |
|-------|-------|

Polycarbonate



|       |       |
|-------|-------|
| grey  | 54-01 |
| black | 54-10 |

Bases with polycarbonate extension tubes



|       |       |
|-------|-------|
| grey  | 54-09 |
| black | 54-90 |

Bases with polycarbonate tubes for 90° fixing



|       |       |
|-------|-------|
| black | 54MP9 |
|-------|-------|

Metal bases with polycarbonate tubes for 90° fixing



|       |       |
|-------|-------|
| grey  | 88-01 |
| black | 88-10 |

Polycarbonate extension tubes



|       |       |
|-------|-------|
| black | 88A22 |
|-------|-------|

Adapter for 22 mm-hole

Technical diagrams → see page 41

# 300 SERIES

Visual and audio indicator

Reduced dimensions, great brightness, facility of wiring and flexibility of assemblage are some characteristics that distinguish this series.

Are available modules in the traditional 5 colors that are furnished already assembled, a lot of possible combinations.



## TECHNICAL FEATURES

### Compliance

EEC regulation 2006/95 Low Voltage.

EEC regulation 89/336 Electromagnetic Compatibility.

### Conformity to standards

EN 60947.5.1 - EN 60073 - EN 60529 - EN 60068-2-6 - EN 457 - EN 981 - IEC 536

### Material

polycarbonate

### Voltage

24V DC (+/-10%)

### Current consumption

90mA

### Protection degree

IP 54 (if correctly assembled with cap and gasket) - according to EN 60529

### Protection against electric shock

Class II, safety insulation. According to IEC 536

### Resistance to vibrations

2 g min. (10 - 150 Hz) according to EN 60068-2-6

### Operating Temperature

-20°C +50°C

### Number of combinable units

Max 5

### Color of the modules

Amber – blue – yellow – neutral – red – green According to EN60073

### Sound

Continuous

### Sound frequency

+/- 4.000 Hz

### Weighed sound level "A" at one meter

75dB

### Connections

Screw cable Screw clamps with binding post max. gauge max. 1,5 mm<sup>2</sup> inside the wiring unit



| TYPE            | ORDER CODE AND DATA                         |
|-----------------|---|
| TWR30 L1Y2B     | 1 color, tier red                           |
| TWR30 L1Y3B     | 1 color, tier amber                         |
| TWR30 L1Y4B     | 1 color, tier yellow                        |
| TWR30 L1Y5B     | 1 color, tier green                         |
| TWR30 L1Y6B     | 1 color, tier blue                          |
| TWR30 L1Y9B     | 1 color, tier neutral                       |
| TWR30 L2Y52B    | 2 color, tier, green-red                    |
| TWR30 L3Y532B   | 3 color, tier, green-amber-red              |
| TWR30 L3A532B   | 3 color, tier, green-amber-red-sount        |
| TWR30 L4Y5632B  | 4 color, tier, green-blue-amber-red         |
| TWR30 L4A5632B  | 4 color, tier, green-blue-amber-red-sount   |
| TWR30 L5Y95632B | 5 color, tier, neutral-green-blue-amber-red |
| TWR30 LMY532B   | Multicolor, green-amber-red                 |
| TWR30 LMY632B   | Multicolor, blue-amber-red                  |
| TWR30 LMY932B   | Multicolor, neutral-amber-red               |
| TWR30 LMY692B   | Multicolor, blue-neutral-red                |

## FITTINGS



black 50-20

Polycarbonate bases Ø 45mm



black 88-25

Polycarbonate extension tubes h 90mm



black 54-10

Bases with polycarbonate extension tubes



nero 88-10

polycarbonate extension tubes



nero 54-90

Base with polycarbonate tubes for 90° fixing



nero 54MP9

Metal bases with polycarbonate tubes for 90° fixing



# 180 SERIES

Modular visual and audio indicators



A simple bayonet system simplifies the mounting and maintenance, which can be performed in complete safety



The wiring unit can be easily reached and extracted, thus simplifying the wiring operation

The modular structure makes it possible to build at least 5 configurations for each visual unit



8 different ways of fixing

4 kinds of illumination

2 types of domes



## TECHNICAL FEATURES

### Compliance

EEC Low Voltage directive nr. 2006/95  
EEC Electromagnetic Compatibility directive nr. 89/336

### Conformity to standards

EN 60947.5.1. - EN 60073 - EN 60529 - EN 60068.2.6 - EN 457 - EN 981 - IEC 536

### Material

Polycarbonate

### Voltage

250 V

### Protection degree

IP 54 - clamps IP 20 - According to EN 60529

### Protection against electrical shock

Class II, double insulation. According to IEC 536

### Operating temperature

-20°C +40°C

### Resistance to vibrations

2 g min. (10 - 150 Hz) according to EN 60068.2.6

### Colors of domes

amber - blue - yellow - neutral - red - green according to EN 60073

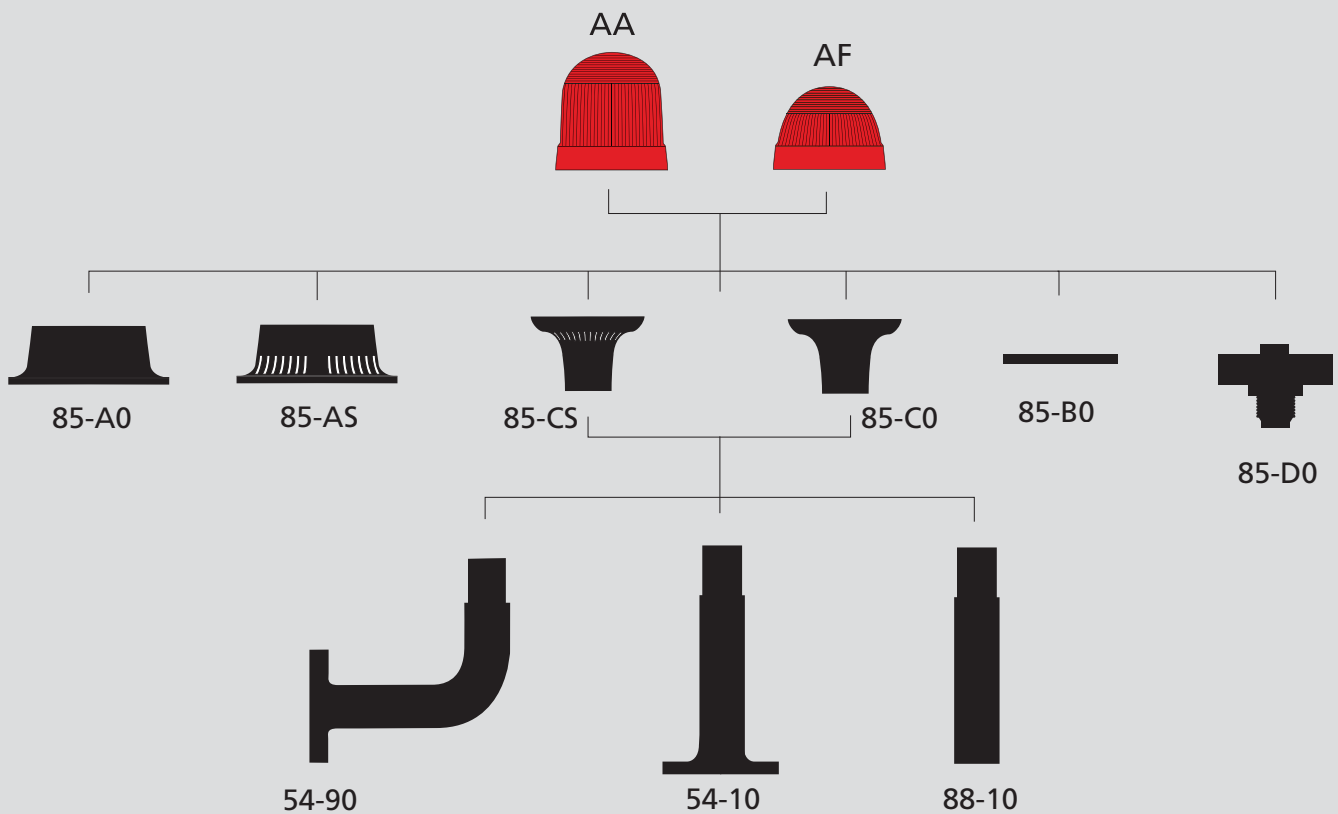
### Bulb

Bayonet mounting, type BA 15d - 5 W max.  
with flash circuit: Xenon lamp

### Connections

By means of screw clamps with binding post  
(gauge: max 1,5 mm<sup>2</sup>)  
The wiring unit is under the light element

## STRUCTURE



**LED LAMPS - STEADY LIGHT**

**Illumination**

by means of 6 ultra bright LEDs

**Duration**

> 50.000 working hours

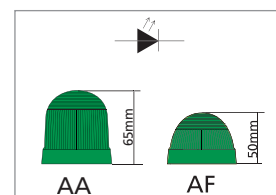
**Voltage**

24 V AC/DC - 115 V - 240 V AC

**Current consumption**

4 V AC/DC - 40 mA / 115 V - 25 mA

240 V - 18 mA



| AA    | ORDER CODE AND DATA |              | AF    | ORDER CODE AND DATA |              |
|-------|---------------------|--------------|-------|---------------------|--------------|
|       | Color dome          | Neutral dome |       | Color dome          | Neutral dome |
| color | 24 V DC-AC          | 24 V DC-AC   | color | 24 V DC-AC          | 24 V DC-AC   |
| ●     | AA42-BF             | AA642-BF     | ●     | AF42-BF             | AF642-BF     |
| ●     | AA43-BF             | AA643-BF     | ●     | AF43-BF             | AF643-BF     |
| ●     | AA44-BF             | AA644-BF     | ●     | AF44-BF             | AF644-BF     |
| ●     | AA45-BF             | AA645-BF     | ●     | AF45-BF             | AF645-BF     |
| ●     | AA46-BF             | AA646-BF     | ●     | AF46-BF             | AF646-BF     |
| ●     | AA49-BF             | AA649-BF     | ●     | AF49-BF             | AF649-BF     |



Complete the lamp by using one or more fittings from page 28  
To receive a complete lamp, please write first the cap code and then the base code

**LED LAMPS - FLASHING OR STEADY LIGHT**

To change the function, just move the jumper which is inside

**Illumination**

by means of 6 ultra bright LEDs

**Duration**

> 50.000 working hours

**Voltage**

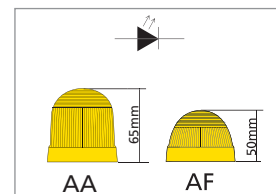
24 V AC/DC

**Current consumption**

24 V AC/DC - 40 mA

**Flash frequency**

approx. 1,4 Hz (84 flashes per minute) according to EN 60073



| AA    | ORDER CODE AND DATA |              | AF    | ORDER CODE AND DATA |              |
|-------|---------------------|--------------|-------|---------------------|--------------|
|       | Color dome          | Neutral dome |       | Color dome          | Neutral dome |
| color | 24 V DC-AC          | 24 V DC-AC   | color | 24 V DC-AC          | 24 V DC-AC   |
| ●     | AA42-BL             | AA642-BL     | ●     | AF42-BL             | AF642-BL     |
| ●     | AA43-BL             | AA643-BL     | ●     | AF43-BL             | AF643-BL     |
| ●     | AA44-BL             | AA644-BL     | ●     | AF44-BL             | AF644-BL     |
| ●     | AA45-BL             | AA645-BL     | ●     | AF45-BL             | AF645-BL     |
| ●     | AA46-BL             | AA646-BL     | ●     | AF46-BL             | AF646-BL     |
| ●     | AA49-BL             | AA649-BL     | ●     | AF49-BL             | AF649-BL     |



Complete the lamp by using one or more fittings from page 28  
To receive a complete lamp, please write first the cap code and then the base code

**VISUAL AND AUDIO INDICATORS (steady light)**

Combined sounder and beacon (flashing) with intermittent audio signal, **common power**.

**Voltage**

24 V dc (ac)

**Current consumption**

with incandescent 5 W bulbs: 24 V - 210 mA

**Bulb**

with bayonet connection type BA 15d, 7W max

**Sound**

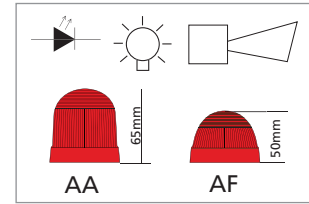
Continuous

**Sound frequency**

+/- 4000 Hz

**Weighed sound level A at one meter**

80 dB



| AA    | ORDER CODE AND DATA |         | AF    | ORDER CODE AND DATA |         |
|-------|---------------------|---------|-------|---------------------|---------|
| color | 24 V DC (ac)        |         | color | 24 V DC (ac)        |         |
|       | Filament            | LED     |       | Filament            | LED     |
| ●     | AA12-B7             | AA124B7 | ●     | A12-B7              | AF124B7 |
| ●     | AA13-B7             | AA134B7 | ●     | A13-B7              | AF134B7 |
| ●     | AA14-B7             | AA144B7 | ●     | A14-B7              | AF144B7 |
| ●     | AA15-B7             | AA154B7 | ●     | A15-B7              | AF154B7 |
| ●     | AA16-B7             | AA164B7 | ●     | A16-B7              | AF164B7 |
| ●     | AA19-B7             | AA194B7 | ●     | A19-B7              | AF194B7 |



AA



AF

Complete the lamp by using one or more fittings from page 28.

To receive a complete lamp, please write first the cap code and then the base code

**VISUAL AND AUDIO INDICATORS (flashing)**

Combined sounder and beacon (steady) with continuous audio signal, **common power**.

**Voltage**

24 V dc (ac)

**Current consumption**

with incandescent 5 W bulbs: 24 V - 220 mA

**Bulb**

with bayonet connection type BA 15d, 7W max

**Flash frequency**

approx. 1,4 Hz (84 flashes per minute) according to EN 60073

**Sound**

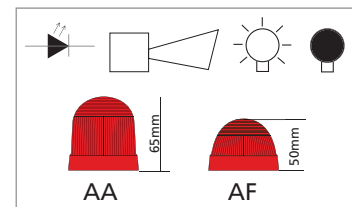
Intermittent

**Sound frequency**

+/- 4000 Hz

**Weighed sound level A at one meter**

80 dB



| AA    | ORDER CODE AND DATA |         | AF    | ORDER CODE AND DATA |         |
|-------|---------------------|---------|-------|---------------------|---------|
| color | 24 V DC (ac)        |         | color | 24 V DC (ac)        |         |
|       | Filament            | LED     |       | Filament            | LED     |
| ●     | AA22-B7             | AA224B7 | ●     | AF22-B7             | AF224B7 |
| ●     | AA23-B7             | AA234B7 | ●     | AF23-B7             | AF234B7 |
| ●     | AA24-B7             | AA244B7 | ●     | AF24-B7             | AF244B7 |
| ●     | AA25-B7             | AA254B7 | ●     | AF25-B7             | AF254B7 |
| ●     | AA26-B7             | AA264B7 | ●     | AF26-B7             | AF264B7 |
| ●     | AA29-B7             | AA294B7 | ●     | AF29-B7             | AF294B7 |



AA



AF

Complete the lamp by using one or more fittings from page 28.

To receive a complete lamp, please write first the cap code and then the base code

LED LAMPS WITH AUDIO SIGNAL DEVICE

Flashing light-intermittent sound; steady light-continuous sound  
To change the function just shift the jumper which is inside

**Illumination**

by means of 6 ultra bright LEDs  
**Duration** > 50.000 working hours  
**Voltage** 24 V AC/DC

**Current consumption**

24 V AC/DC, 55 mA both with steady light - continuous sound and with flashing light - intermittent sound

**Flash frequency**

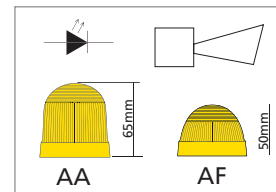
approx. 1,4 Hz (84 flashes per minute) according to EN 60073

**Sound frequency**

3500 Hz

**Weighed sound level A at one meter**

intermittent signal 75 dB - continual signal 72 dB



| AA<br>COLOR | ORDER CODE AND DATA                  |                                  |
|-------------|--------------------------------------|----------------------------------|
|             | flashing light<br>intermittent sound | steady light<br>continuous sound |
| ●           | AA42ABL                              | AA42ABF                          |
| ●           | AA43ABL                              | AA43ABF                          |
| ●           | AA44ABL                              | AA44ABF                          |
| ●           | AA45ABL                              | AA45ABF                          |
| ●           | AA46ABL                              | AA46ABF                          |
| ●           | AA49ABL                              | AA49ABF                          |

| AA<br>COLOR | ORDER CODE AND DATA                  |                                  |
|-------------|--------------------------------------|----------------------------------|
|             | flashing light<br>intermittent sound | steady light<br>continuous sound |
| ●           | AF42ABL                              | AF42ABF                          |
| ●           | AF43ABL                              | AF43ABF                          |
| ●           | AF44ABL                              | AF44ABF                          |
| ●           | AF45ABL                              | AF45ABF                          |
| ●           | AF46ABL                              | AF46ABF                          |
| ●           | AF49ABL                              | AF49ABF                          |



AA

AF

Complete the lamp by using one or more fittings from page 28.  
To receive a complete lamp, please write first the cap code and then the base code

STEADY LIGHT LAMPS

Bulb with bayonet connection type BA 15d 5W max

**Voltage**

24 V - 115 V- 240 V AC/DC

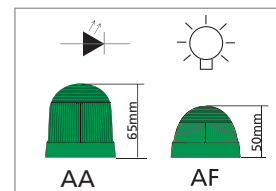
**Current consumption**

with incandescent 5 W bulbs

24 v, 210 mA - 115 V, 43 mA - 240 V, 22 mA

With LED bulbs

24 V, > 50 mA - 115 V, > 18 mA - 240 V, > 17 mA



| AA<br>COLOR | ORDER CODE AND DATA |                     |         |         |                |         |         |
|-------------|---------------------|---------------------|---------|---------|----------------|---------|---------|
|             | without<br>bulb     | 24V DC-AC           | 115V AC | 240V AC | 24V DC-AC      | 115V AC | 240V AC |
|             |                     | with filament bulbs |         |         | with LED bulbs |         |         |
| ●           | AA12-00             | AA12-24             | AA12-15 | AA12-30 | AA12424        | AA12415 | AA12430 |
| ●           | AA13-00             | AA13-24             | AA13-15 | AA13-30 | AA13424        | AA13415 | AA13430 |
| ●           | AA14-00             | AA14-24             | AA14-15 | AA14-30 | AA14424        | AA14415 | AA14430 |
| ●           | AA15-00             | AA15-24             | AA15-15 | AA15-30 | AA15424        | AA15415 | AA15430 |
| ●           | AA16-00             | AA16-24             | AA16-15 | AA16-30 | AA16424        | AA16415 | AA16430 |
| ●           | AA19-00             | AA19-24             | AA19-15 | AA19-30 | AA19424        | AA19415 | AA19430 |

| AF<br>COLOR | ORDER CODE AND DATA |                     |         |         |                |         |         |
|-------------|---------------------|---------------------|---------|---------|----------------|---------|---------|
|             | without<br>bulb     | 24V DC-AC           | 115V AC | 240V AC | 24V DC-AC      | 115V AC | 240V AC |
|             |                     | with filament bulbs |         |         | with LED bulbs |         |         |
| ●           | AF12-00             | AF12-24             | AF12-15 | AF12-30 | AF12424        | AF12415 | AF12430 |
| ●           | AF13-00             | AF13-24             | AF13-15 | AF13-30 | AF13424        | AF13415 | AF13430 |
| ●           | AF14-00             | AF14-24             | AF14-15 | AF14-30 | AF14424        | AF14415 | AF14430 |
| ●           | AF15-00             | AF15-24             | AF15-15 | AF15-30 | AF15424        | AF15415 | AF15430 |
| ●           | AF16-00             | AF16-24             | AF16-15 | AF16-30 | AF16424        | AF16415 | AF16430 |
| ●           | AF19-00             | AF19-24             | AF19-15 | AF19-30 | AF19424        | AF19415 | AF19430 |



AA

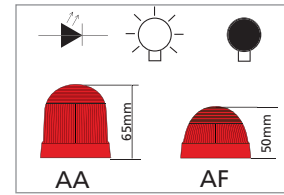
AF

Complete the lamp by using one or more fittings from page 28.  
To receive a complete lamp, please write first the cap code and then the base code

STEADY OR FLASHING LIGHT LAMPS

To change the function just move the jumper which is inside.  
Bulb with bayonet connection type BA 15d - 5W max.

- Voltage** 24 V - 115 V - 240 V AC/ DC
- Current consumption Flashing light** with incandescent 5W bulbs  
24 V, 145 mA - 115 V, 25 mA - 230 V, 15 mA  
With LED bulbs  
24 V, <a 50 mA - 115 V, <a 18 mA - 230 V, <a 17 mA
- Steady light** with incandescent 5W bulbs  
24 V, 210 mA - 115 V, 43 mA - 240 V, 22 mA  
With LED bulbs  
24 V, <a 50 mA - 115 V, <a 18 mA - 240 V, <a 17 mA
- Flash frequency**  
approx. 1,4 Hz (84 flashes per minute) according to EN 60073



| AA | ORDER CODE AND DATA        |                          |   |         |         |  |         |         |
|----|----------------------------|--------------------------|---|---------|---------|--|---------|---------|
|    | 12-48 V AC/DC without bulb | 24-230 V AC without bulb | 24V DC-AC 115V AC 240V AC with filament bulbs |         |         | 24V DC-AC 115V AC 240V AC with LED bulbs |         |         |
| ●  | AA22-K0                    | AA22-W0                  | AA22-24                                       | AA22-15 | AA22-30 | AA22424                                  | AA22415 | AA22430 |
| ●  | AA23-K0                    | AA23-W0                  | AA23-24                                       | AA23-15 | AA23-30 | AA23424                                  | AA23415 | AA23430 |
| ●  | AA24-K0                    | AA24-W0                  | AA24-24                                       | AA24-15 | AA24-30 | AA24424                                  | AA24415 | AA24430 |
| ●  | AA25-K0                    | AA25-W0                  | AA25-24                                       | AA25-15 | AA25-30 | AA25424                                  | AA25415 | AA25430 |
| ●  | AA26-K0                    | AA26-W0                  | AA26-24                                       | AA26-15 | AA26-30 | AA26424                                  | AA26415 | AA26430 |
| ●  | AA29-K0                    | AA29-W0                  | AA29-24                                       | AA29-15 | AA29-30 | AA29424                                  | AA29415 | AA29430 |

| AF | ORDER CODE AND DATA        |                          |   |         |         |  |         |         |
|----|----------------------------|--------------------------|---|---------|---------|--|---------|---------|
|    | 12-48 V AC/DC without bulb | 24-230 V AC without bulb | 24V DC-AC 115V AC 240V AC with filament bulbs |         |         | 24V DC-AC 115V AC 240V AC with LED bulbs |         |         |
| ●  | AF22-K0                    | AF22-W0                  | AF22-24                                       | AF22-15 | AF22-30 | AF22424                                  | AF22415 | AF22430 |
| ●  | AF23-K0                    | AF23-W0                  | AF23-24                                       | AF23-15 | AF23-30 | AF23424                                  | AF23415 | AF23430 |
| ●  | AF24-K0                    | AF24-W0                  | AF24-24                                       | AF24-15 | AF24-30 | AF24424                                  | AF24415 | AF24430 |
| ●  | AF25-K0                    | AF25-W0                  | AF25-24                                       | AF25-15 | AF25-30 | AF25424                                  | AF25415 | AF25430 |
| ●  | AF26-K0                    | AF26-W0                  | AF26-24                                       | AF26-15 | AF26-30 | AF26424                                  | AF26415 | AF26430 |
| ●  | AF29-K0                    | AF29-W0                  | AF29-24                                       | AF29-15 | AF29-30 | AF29424                                  | AF29415 | AF29430 |



Complete the lamp by using one or more fittings from page 28.  
To receive a complete lamp, please write first the cap code and then the base code

LED AND FILAMENT BULBS

LED Bulbs

- Bulb BA 15d**
- Duration > than 25.000 working hours
- No maintenance or service costs
- Perfect operation even in case of strong vibrations and hits
- Low current consumption 24 V DC/AC, < 50 mA - 115 V AC, < 18 mA - 240 V, <17 mA

To be used with alarm devices whose domes have the same colors as the LEDs

| COLOR | ORDER CODE AND DATA |         |         | ORDER CODE AND DATA |         |         |
|-------|---------------------|---------|---------|---------------------|---------|---------|
|       | 24V DC-AC           | 115V AC | 240V AC | 24V DC-AC           | 115V AC | 240V AC |
| ●     | 11TB2               | 11TF2   | 11TG2   | 11VB2               | 11VF2   | 11VG2   |
| ●     |                     |         |         | 11VB3               | 11VF3   | 11VG3   |
| ●     | 11TB4               | 11TF4   | 11TG4   | 11VB4               | 11VF4   | 11VG4   |
| ●     | 11TB5               | 11TF5   | 11TG5   | 11VB5               | 11VF5   | 11VG5   |
| ●     | 11TB6               | 11TF6   | 11TG6   | 11VB6               | 11VF6   | 11VG6   |
| ●     | 11TB9               | 11TF9   | 11TG9   | 11VB9               | 11VF9   | 11VG9   |



FILAMENT LAMPS

- Bulb BA 15d**
- Filament shock-proof
- Duration 2000 hours

| ORDER CODE AND DATA |        |        |         |         |
|---------------------|--------|--------|---------|---------|
| 12V/5W              | 24V/5W | 30V/5W | 130V/5W | 260V/5W |
| 11-12               | 11S24  | 1130V  | 11E15   | 11E30   |

Technical diagrams → see page 40

FITTINGS



**85-A0**  
base: diameter 85 mm



**85-AS**  
base: diameter 85 mm for audio applications



**85-B0**  
thin base: diameter 60 mm



**85-D0**  
base: diameter 60 mm, for 22-mm diameter holes



**85-DS**  
base: diameter 60 mm, for 22-mm diameter holes, for audio applications



**85-C0**  
adapter element



**54-10**  
base: diameter 70 and with integrated tube H 100 mm



**88-10**  
extension tube: height 100 mm



**85-CS**  
adapter element for audio applications



**54-90**  
polycarbonate base: diameter 70mm and with extension tube for 90° fixing



**54MP9**  
metal base with polycarbonate tube for 90° fixing



**54MM9**  
metal base and tube for 90° fixing

# PRESET HOUSINGS

With audio and visual indicators

This system makes it possible to create the most varied applications and configurations



Preset for mounting bases type 85-D0 and 85-D5



The housings are already perforated and complete with a cable gland

## TECHNICAL FEATURES

### Dimensions

For indicator 70X70X51  
For two indicators 70X140X51

### Protection degree

IP65

### Material

ABS (RAL 7035)

### Operating temperature

-25°/+70° C

Include the base 85-DO or 85DS and cable gland not fixed.

| ORDER CODE AND DATA      |         |
|--------------------------|---------|
| Housing for 1 indicator  | CS 1001 |
| Housing for 2 indicators | CS 1002 |
| Non-preset housing       | CS 1101 |
| Non-preset housing       | CS 1102 |



Technical diagrams → see page 43



# VISUAL INDICATORS FOR PANEL APPLICATIONS



→ 180  
→ see page 22



→ 220  
→ see page 31



→ ECX20  
→ see pages 34/35

# 220 SERIES

Monobloc pilot lamps

Ultra brightness emphasized by a particularly elegant design.  
High resistance to mechanical stress and to all weather conditions



Two possible ways of wiring:  
By means of screws or faston type 2,8 mm.  
They can be wired perpendicularly and this enables to create particularly compact installations

Easy and rapid assembly, no tools required  
They can be fixed on panels with 15 mm max thickness



## TECHNICAL FEATURES

### Conformity

EEC Low Voltage directive nr. 2006/95  
EEC Electromagnetic Compatibility directive nr. 89/336

### Compliance with rules

EN 60947.5.1. - EN 50007 - EN 60529 - EN 60073 - IEC 536

### Material

Polycarbonate (gem); Later 4 G30/VO (body)

### Voltage

240 V max

### Protection against electrical shock

Class II, double insulation. According to IEC 536

### Operating temperature

-20°C +40°C

### Protection degree

IP 20 (if installed, IP 65)

### Bulb

With connection BA 9s, 3W max

### Connections

By means of screw clamps with auto-raising binding posts, or of Faston type 2,8 mm

### Colors of gems

Neutral, red, amber, yellow, green, blue, white

## TYPE 220

| COLOR | ORDER CODE AND DATA |                 |          |
|-------|---------------------|-----------------|----------|
|       | without bulb        | LED - 24V DC-AC |          |
| ●     | CD10-00             | CD S124B        | CD S224B |
| ●     | CD12-00             | CD S134B        | CD S234B |
| ●     | CD14-00             | CD S144B        | CD S244B |
| ●     | CD15-00             | CD S154B        | CD S254B |
| ●     | CD16-00             | CD S164B        | CD S264B |
| ●     | CD19-00             | CD S194B        | CD S294B |



### FITTINGS

#### LED BULBS

Bulb BA 9s  
Duration: more than 50.000 working hours

| COLOR | ORDER CODE AND DATA |           |           |         |         |
|-------|---------------------|-----------|-----------|---------|---------|
|       | 12V DC-AC           | 24V DC-AC | 48V DC-AC | 115V AC | 230V AC |
| ●     | 1YMA2               | 1YMB2     | 1YMD2     | 1YMF2   | 1YMG2   |
| ●     | 1YMA4               | 1YMB4     | 1YMD4     | 1YMF4   | 1YMG4   |
| ●     | 1YMA5               | 1YMB5     | 1YMD5     | 1YMF5   | 1YMG5   |
| ●     | 1YMA6               | 1YMB6     | 1YMD6     | 1YMF6   | 1YMG6   |
| ●     | 1YMA9               | 1YMB9     | 1YMD9     | 1YMF9   | 1YMG9   |

#### FILAMENT BULBS

Bulb BA 9s  
Duration: 2.000 hours

| ORDER CODE AND DATA |       |
|---------------------|-------|
| 24V                 | 130V  |
| 1Y-24               | 1Y-15 |





# VISUAL AND AUDIO SIGNAL DEVICES



→ 370  
→ see page 4



→ 180  
→ see page 22



→ 370  
→ see page 4



→ 450  
→ see page 16

## TECHNICAL FEATURES ECX20 SERIES

Audio signal device for panel mounting (Ø 22 mm)  
Intermittent audio and visual signal

**Sound frequency** +/- 3.500 Hz

**Signal repetition frequency** +/- 1Hz

**Weighed sound level "A" at one meter** 78 dB

**Protection degree** IP20

**Voltage** 24V DC/AC or 115 V AC (+/-10%)

**Current consumption** 24V / 25mA – 115 v /15 mA

**Operating temperature** -20/+50°C

**Duration** 5.000 hours

**Connections** screw clamps with binding post

**Max gauge of the wire** 1,5 mm

**Case** ABS



### ORDER CODE AND DATA

|                |              |
|----------------|--------------|
| 24V DC-AC IP20 | 115V AC IP20 |
| ECX2071-24R    | ECX2071-127R |

**Technical diagrams** → see page 42

# AUDIO SIGNAL DEVICES



→ 450 IP54  
→ See page 16

| AUDIO SIGNAL DEVICE | ORDER CODES AND DATA |              |
|---------------------|----------------------|--------------|
|                     | continuous           | intermittent |
| GREY                | FA 074B1             | FA 074B5     |
|                     | FA 074B2             | FA 074B6     |
| BLACK               | FA 974B1             | FA 974B5     |
|                     | FA 974B2             | FA 974B6     |



→ 370 IP 54  
→ See page 4

|      | GREY                 |         |         |
|------|----------------------|---------|---------|
|      | ORDER CODES AND DATA |         |         |
|      | 24V DC-AC            | 115V AC | 240V AC |
| IP54 | 07324                |         |         |
| IP64 | 07224                |         |         |
| IP54 | 075MB                |         |         |
| IP54 | 07524                | 07515   | 07530   |
| IP64 | 07724                | 07715   | 07730   |

Technical features → See pageS11/12

|      | BLACK                |         |         |
|------|----------------------|---------|---------|
|      | ORDER CODES AND DATA |         |         |
|      | 24V DC-AC            | 115V AC | 240V AC |
| IP54 | 97324                |         |         |
| IP64 | 97224                |         |         |
| IP54 | 975MB                |         |         |
| IP54 | 97524                | 97515   | 97530   |
| IP64 | 97724                | 97715   | 97730   |

Technical features → See pageS11/12

## TECHNICAL FEATURES ECX20 SERIES

Audio signal device for panel mounting (Ø 22 mm)

Intermittent audio signal

**Sound frequency** +/- 3.500 Hz

**Signal repetition frequency** +/- 1Hz

**Weighed sound level "A" at one meter** 78 dB

**Protection degree** IP20

**Voltage** 24V DC/AC or 115 V AC (+/-10%)

**Current consumption** 24V / 25mA – 115 v /15 mA

**Operating temperature** -20/+50°C

**Duration** 5.000 hours

**Connections** screw clamps with binding post

**Max gauge of the wire** 1,5 MM

| ORDER CODES AND DATA |             |
|----------------------|-------------|
| 48V DC-AC IP20       | 115V AC     |
| ECX2070-24           | ECX2070-127 |

## TECHNICAL FEATURES ECX28 SERIES

Audio signal device for panel mounting (Ø 28 mm)

Intermittent or continuous audio signal

**Sound frequency** +/- 2.900 Hz

**Signal repetition frequency** +/- 1Hz

**Weighed sound level "A" at one meter** 95 dB

**Voltage** 24V DC (+/-10%)

**Current consumption** 24V / 20mA

**Operating temperature** -20/+50°C

**Duration** 5.000 hours

**Connections** screw clamps with binding post

**Max gauge of the wire** 1,5 mm or with Faston type 6,3x0,8 mm

**Case** ABS

| ORDER CODES AND DATA |  |
|----------------------|--|
| 24V DC-AC            |  |
| ECX28100B            |  |



Technical diagrams → see page 42

# LED BULBS

## Duration

more than 25.000 working hours

## No maintenance/service costs

**More safety** for machines and their operators thanks to the great reliability of the indications

**Low current consumption** simple and lasting control units

**Perfect operation** even in case of strong vibrations or hits

Use always LED bulbs with the same color as the alarm domes

Filament bulbs have a light emission with continuous spectrum, i.e. the kind of light which includes the whole range of visible wavelengths. In this case, it is the dome of the indicators which has the function of filtering and let only those emissions pass whose wavelength corresponds to the color chosen.

LED bulbs use a monochromatic light source, i.e. that kind of light consisting of electromagnetic waves which all have the same wavelength (with the exception of white LEDs, usually dichromatic). Together with these bulbs, the domes lose their function of filtering and they are used only to intensify luminosity.

If you use LED bulbs with white light together with domes of other colors, it means that the domes play again their filtering function, and it results that their luminosity is diminished.

## Voltage

12 - 24 - 48 - 115 - 230 V (other kinds on demand)

## Max current consumption

24 V DC/AC, < 50 mA - 115 V AC, < 18 mA - 230 V AC, < 17 mA

## KEY

Codice: 11**N**B2 TIPO

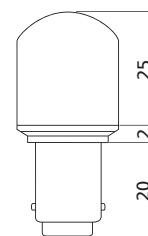
- TIPO - M = 1 LED, frontal light only
- TIPO - R = 1 LED, frontal and lateral light
- TIPO - L = 6 LED, frontal light only
- TIPO - N = 8 LED, frontal light only
- TIPO - E = 9 LED, frontal light only
- TIPO - V = 9 LED, frontal and lateral light
- TIPO - T = 12 LED, frontal and lateral light
- TIPO - K = 21 LED, frontal light only



## LED bulbs - BA 15d

| COLOR | TYPE E    |         |         | TYPE N    |         |         | TYPE K    |
|-------|-----------|---------|---------|-----------|---------|---------|-----------|
|       | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC |
| ●     | 11EB2     | 11EF2   | 11EG2   | 11NB2     | 11NF2   | 11NG2   | 11KB2     |
| ●     |           |         |         | 11NB3     | 11NF3   | 11NG3   |           |
| ●     | 11EB4     | 11EF4   | 11EG4   | 11NB4     | 11NF4   | 11NG4   | 11KB4     |
| ●     | 11EB5     | 11EF5   | 11EG5   | 11NB5     | 11NF5   | 11NG5   | 11KB5     |
| ●     | 11EB6     | 11EF6   | 11EG6   | 11NB6     | 11NF6   | 11NG6   | 11KB6     |
| ●     | 11EB9     | 11EF9   | 11EG9   | 11NB9     | 11NF9   | 11NG9   | 11KB9     |

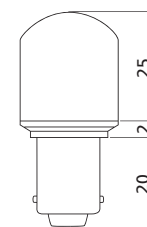
| COLOR | TYPE V    |         |         | TYPE L    |         |         | TYPE T    |
|-------|-----------|---------|---------|-----------|---------|---------|-----------|
|       | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC |
| ●     | 11VB2     | 11VF2   | 11VG2   | 11LB2     | 11LF2   | 11LG2   | 11TB2     |
| ●     | 11VB3     | 11VF3   | 11VG3   | 11LB3     | 11LF3   | 11LG3   |           |
| ●     | 11VB4     | 11VF4   | 11VG4   | 11LB4     | 11LF4   | 11LG4   | 11TB4     |
| ●     | 11VB5     | 11VF5   | 11VG5   | 11LB5     | 11LF5   | 11LG5   | 11TB5     |
| ●     | 11VB6     | 11VF6   | 11VG6   | 11LB6     | 11LF6   | 11LG6   | 11TB6     |
| ●     | 11VB9     | 11VF9   | 11VG9   | 11LB9     | 11LF9   | 11LG9   | 11TB9     |



Ø 23X47

## LED bulbs - BA 15s

| COLOR | TYPE N    |         |         | TYPE V    |         |         | TYPE L    |         |         |
|-------|-----------|---------|---------|-----------|---------|---------|-----------|---------|---------|
|       | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC |
| ●     | 1QNB2     | 1QNF2   | 1QNG2   | 1QVB2     | 1QVF2   | 1QVG2   | 1QLB2     | 1QLF2   | 1QLG2   |
| ●     | 1QNB3     | 1QNF3   | 1QNG3   | 1QVB3     | 1QVF3   | 1QVG3   | 1QLB3     | 1QLF3   | 1QLG3   |
| ●     | 1QNB4     | 1QNF4   | 1QNG4   | 1QVB4     | 1QVF4   | 1QVG4   | 1QLB4     | 1QLF4   | 1QLG4   |
| ●     | 1QNB5     | 1QNF5   | 1QNG5   | 1QVB5     | 1QVF5   | 1QVG5   | 1QLB5     | 1QLF5   | 1QLG5   |
| ●     | 1QNB6     | 1QNF6   | 1QNG6   | 1QVB6     | 1QVF6   | 1QVG6   | 1QLB6     | 1QLF6   | 1QLG6   |
| ●     | 1QNB9     | 1QNF9   | 1QNG9   | 1QVB9     | 1QVF9   | 1QVG9   | 1QLB9     | 1QLF9   | 1QLG9   |



Ø 23X47

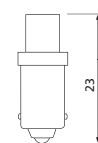
## LED bulbs - BA 9s

| COLOR | TIPO M    |           |           |         |         |
|-------|-----------|-----------|-----------|---------|---------|
|       | 12V DC-AC | 24V DC-AC | 48V DC-AC | 115V AC | 230V AC |
| ●     | 1YMA2     | 1YMB2     | 1YMD2     | 1YMF2   | 1YMG2   |
| ●     | 1YMA3     | 1YMB3     | 1YMD3     | 1YMF3   | 1YMG3   |
| ●     | 1YMA4     | 1YMB4     | 1YMD4     | 1YMF4   | 1YMG4   |
| ●     | 1YMA5     | 1YMB5     | 1YMD5     | 1YMF5   | 1YMG5   |
| ●     | 1YMA6     | 1YMB6     | 1YMD6     | 1YMF6   | 1YMG6   |
| ●     | 1YMA9     | 1YMB9     | 1YMD9     | 1YMF9   | 1YMG9   |



Ø 9X28

| COLOR | TIPO 1    |
|-------|-----------|
|       | 24V DC-AC |
| ●     | 1Y1B2     |
| ●     | 1Y1B4     |
| ●     | 1Y1B5     |
| ●     | 1Y1B6     |
| ●     | 1Y1B9     |

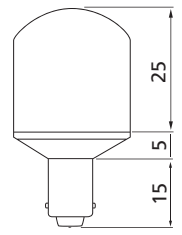


Ø 9X23



## LED bulbs - BA 9s

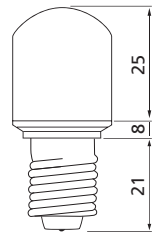
| COLOR | TYPE N    |         |         | TYPE V    |         |         | TYPE L    |         |         |
|-------|-----------|---------|---------|-----------|---------|---------|-----------|---------|---------|
|       | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC |
| ●     | 1YNB2     | 1YNF2   | 1YNG2   | 1YVB2     | 1YVF2   | 1YVG2   | 1YLB2     | 1YLF2   | 1YLG2   |
| ●     | 1YNB3     | 1YNF3   | 1YNG3   | 1YVB3     | 1YVF3   | 1YVG3   | 1YLB3     | 1YLF3   | 1YLG3   |
| ●     | 1YNB4     | 1YNF4   | 1YNG4   | 1YVB4     | 1YVF4   | 1YVG4   | 1YLB4     | 1YLF4   | 1YLG4   |
| ●     | 1YNB5     | 1YNF5   | 1YNG5   | 1YVB5     | 1YVF5   | 1YVG5   | 1YLB5     | 1YLF5   | 1YLG5   |
| ●     | 1YNB6     | 1YNF6   | 1YNG6   | 1YVB6     | 1YVF6   | 1YVG6   | 1YLB6     | 1YLF6   | 1YLG6   |
| ●     | 1YNB9     | 1YNF9   | 1YNG9   | 1YVB9     | 1YVF9   | 1YVG9   | 1YLB9     | 1YLF9   | 1YLG9   |



Ø 23X45

## LED bulbs - E 14

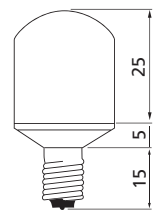
| COLOR | TYPE N    |         |         | TYPE V    |         |         | TYPE L    |         |         |
|-------|-----------|---------|---------|-----------|---------|---------|-----------|---------|---------|
|       | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC |
| ●     | 1HNB2     | 1HNF2   | 1HNG2   | 1HVB2     | 1HVF2   | 1HVG2   | 1HLB2     | 1HLF2   | 1HLG2   |
| ●     | 1HNB3     | 1HNF3   | 1HNG3   | 1HVB3     | 1HVF3   | 1HVG3   | 1HLB3     | 1HLF3   | 1HLG3   |
| ●     | 1HNB4     | 1HNF4   | 1HNG4   | 1HVB4     | 1HVF4   | 1HVG4   | 1HLB4     | 1HLF4   | 1HLG4   |
| ●     | 1HNB5     | 1HNF5   | 1HNG5   | 1HVB5     | 1HVF5   | 1HVG5   | 1HLB5     | 1HLF5   | 1HLG5   |
| ●     | 1HNB6     | 1HNF6   | 1HNG6   | 1HVB6     | 1HVF6   | 1HVG6   | 1HLB6     | 1HLF6   | 1HLG6   |
| ●     | 1HNB9     | 1HNF9   | 1HNG9   | 1HVB9     | 1HVF9   | 1HVG9   | 1HLB9     | 1HLF9   | 1HLG9   |



Ø 23X54

## LED bulbs - E 10

| COLOR | TYPE N    |         |         | TYPE V    |         |         | TYPE L    |         |         |
|-------|-----------|---------|---------|-----------|---------|---------|-----------|---------|---------|
|       | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC | 24V DC-AC | 115V AC | 230V AC |
| ●     | 1TNB2     | 1TNF2   | 1TNG2   | 1TVB2     | 1TVF2   | 1TVG2   | 1TLB2     | 1TLF2   | 1TLG2   |
| ●     | 1TNB3     | 1TNF3   | 1TNG3   | 1TVB3     | 1TVF3   | 1TVG3   | 1TLB3     | 1TLF3   | 1TLG3   |
| ●     | 1TNB4     | 1TNF4   | 1TNG4   | 1TVB4     | 1TVF4   | 1TVG4   | 1TLB4     | 1TLF4   | 1TLG4   |
| ●     | 1TNB5     | 1TNF5   | 1TNG5   | 1TVB5     | 1TVF5   | 1TVG5   | 1TLB5     | 1TLF5   | 1TLG5   |
| ●     | 1TNB6     | 1TNF6   | 1TNG6   | 1TVB6     | 1TVF6   | 1TVG6   | 1TLB6     | 1TLF6   | 1TLG6   |
| ●     | 1TNB9     | 1TNF9   | 1TNG9   | 1TVB9     | 1TVF9   | 1TVG9   | 1TLB9     | 1TLF9   | 1TLG9   |

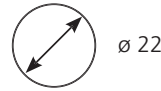
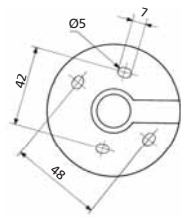
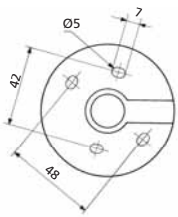
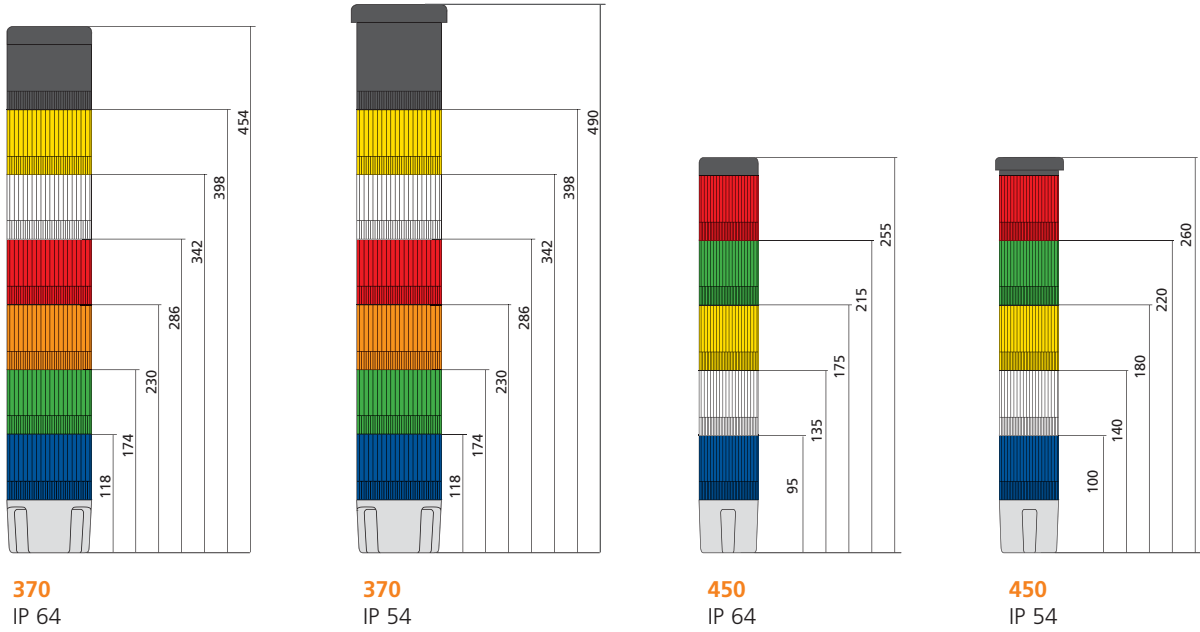


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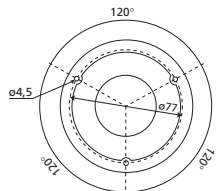
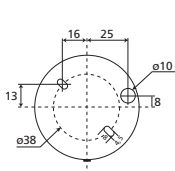
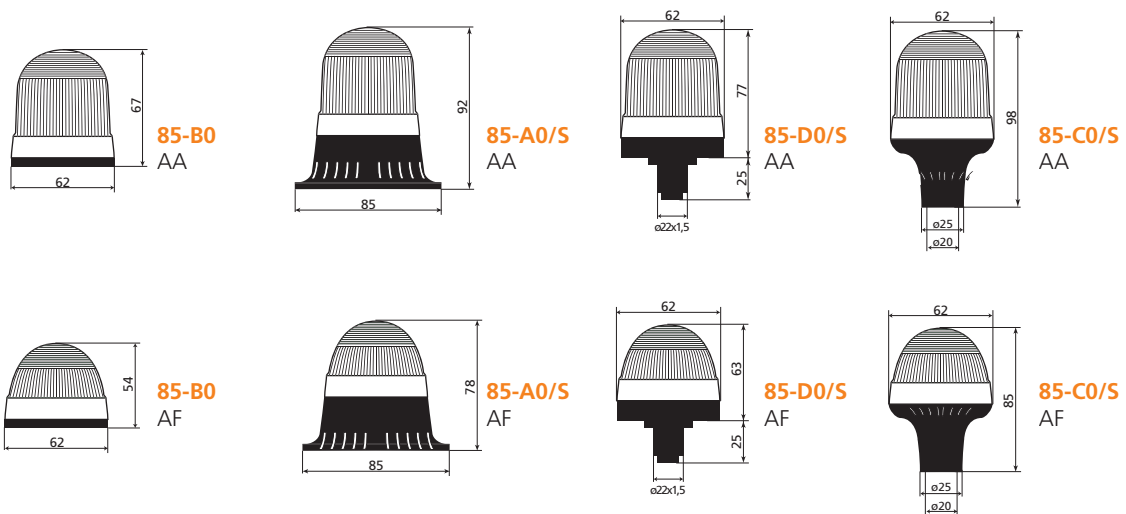


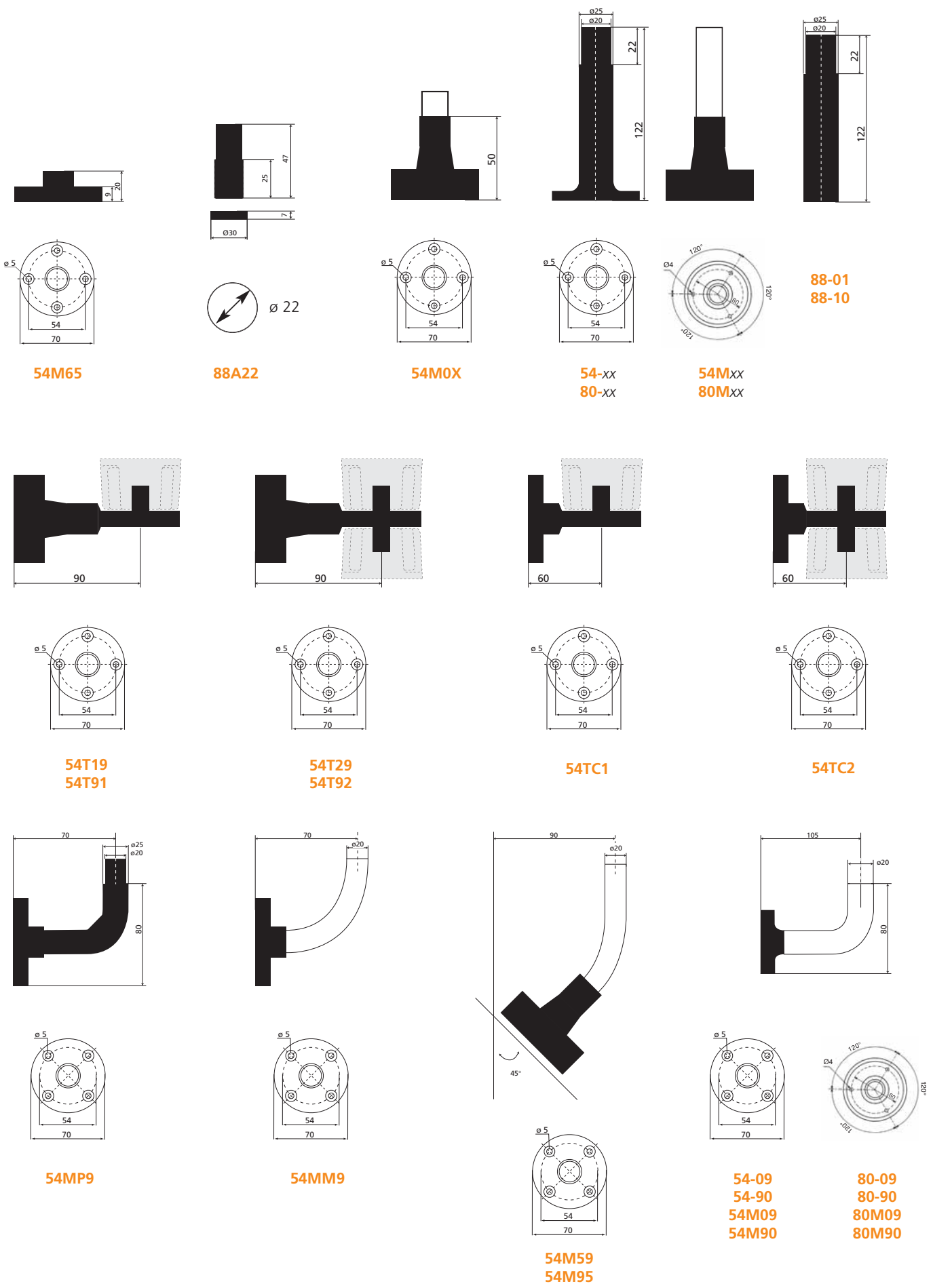
# TECHNICAL DIAGRAMS

## TECHNICAL DIAGRAMS / SIGNAL TOWERS

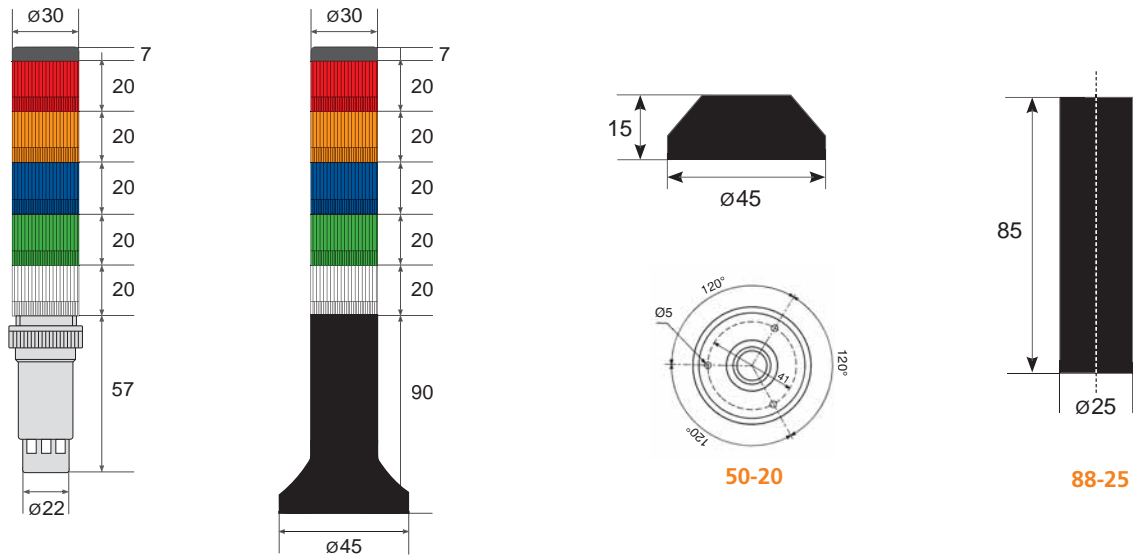


## TECHNICAL DIAGRAMS / LAMPS

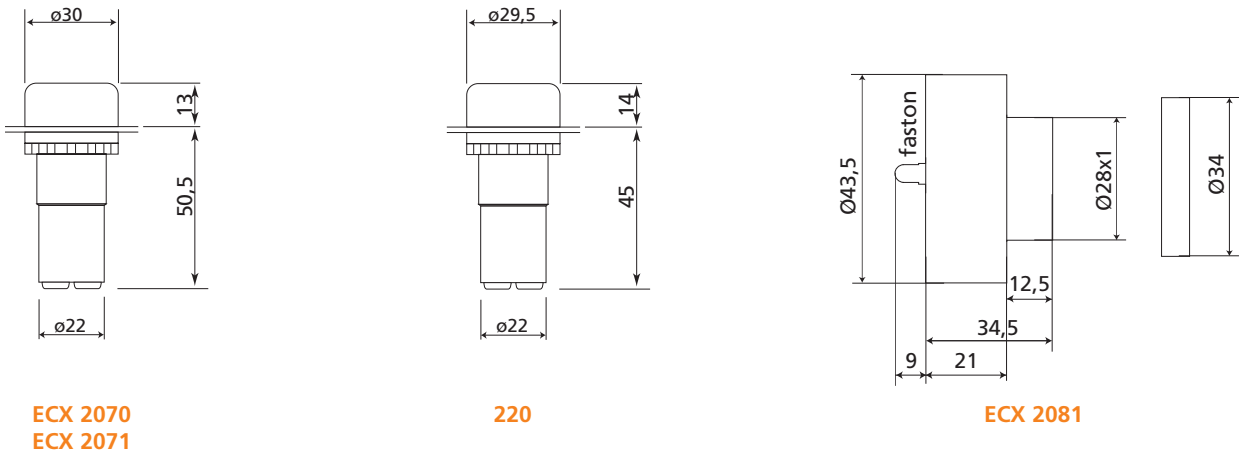




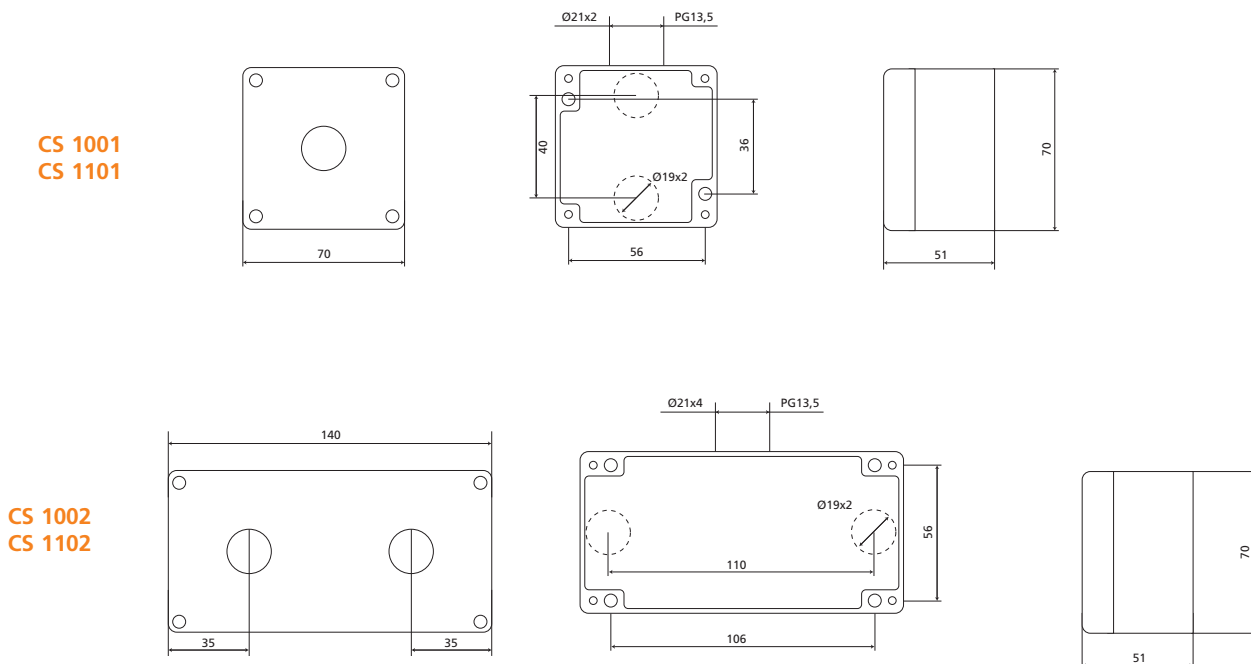
## TECHNICAL DIAGRAMS / SIGNAL TOWERS



## TECHNICAL DIAGRAMS / AUDIO AND VISUAL SIGNAL DEVICES








## TECHNICAL DIAGRAMS / HOUSING






EN 60073 - Table 5

| MEANING OF COLORS OF THE INDICATORS IN REFERENCE TO THE CONDITION OF A PROCESS  |                              |   |  |  |
|---|------------------------------|---|--|--|
| COLOR   | MEANING                      | EXPLANATION   | ACTION OF THE OPERATOR   | EXAMPLES OF APPLICATION  |
| <b>RED</b><br>                                    | Emergency                    | Dangerous conditions  | Immediate action to deal with a dangerous condition, e. g. by: <ul style="list-style-type: none"> <li>operating emergency stop</li> <li>opening safety valve</li> <li>starting cooling pump</li> </ul> | <ul style="list-style-type: none"> <li>pressure/temperature out of safe limits</li> <li>voltage drop</li> <li>breakdown of a main unit</li> <li>stoppage of necessary machines, service systems</li> <li>deep-freezer temperature too high</li> <li>over-travelling of a stop position of a hoist</li> </ul>                         |
| <b>YELLOW</b><br>                                 | abnormal                     | <ul style="list-style-type: none"> <li>abnormal conditions</li> <li>impending critical condition</li> </ul> | Monitoring and/or intervention (e.g. by reestablishing the intended function)  | <ul style="list-style-type: none"> <li>pressure/temperature different from normal level</li> <li>tripping of a protecting device or of auxiliary unit</li> <li>conveyor overloaded</li> <li>overtravelling of a limit switch</li> <li>position change of a valve or conveyor belt</li> <li>deep-freezer on super freezing</li> </ul> |
| <b>GREEN</b><br>                                  | normal                       | normal conditions   | optional   | <ul style="list-style-type: none"> <li>authorisation to proceed</li> <li>indication of normal working limits</li> </ul>  |
| <b>BLUE</b><br>                                   | mandatory                    | indication of a conditions which requires action  | mandatory action   | <ul style="list-style-type: none"> <li>instruction to the operator to enter preselected values</li> </ul>  |
| <b>WHITE</b><br><b>GREY</b><br><b>BLACK</b><br> | no specific meaning assigned | any meaning; may be used whenever doubt exists about the application of Red, Yellow, Green, Blue            | monitoring   | <ul style="list-style-type: none"> <li>general information (e.g.: confirmation of a command, indication of measured values)</li> </ul>   |

EN 981 Table 1

| MEANING OF COMBINED SIGNALS FOR GENERAL PURPOSES, LISTED ACCORDING TO EMERGENCY LEVEL                        |  |   |   |
|--|--|---|---|
| VISUAL SIGNAL  | MESSAGE TYPE                                       | AUDIO SIGNAL  |   |
|  |  | character available for "ON" phase  | configuration of time   |
| <b>RED</b><br>             | DANGER<br>urgent intervention to save or protect   | <ul style="list-style-type: none"> <li>with variable frequency</li> <li>series of sounds</li> <li>alternate tone (two or three frequency intervals)</li> </ul> Note: urgency can be underlined by a rapid rhythm, dissonance or high tone | <ul style="list-style-type: none"> <li>ON/OFF continuous or alternating</li> <li>ON/OFF alternating</li> <li>ON/OFF continuous or alternating</li> </ul> Any danger signal must possess a configuration of time clearly different from EMERGENCY EVACUATION |
| <b>YELLOW OR AMBER</b><br> | ATTENTION<br>intervention when necessary           | <ul style="list-style-type: none"> <li>one sound only with a constant spectrum, min. duration: 0,3 s</li> </ul>   | Alternating ON/OFF, which must be clearly different from EMERGENCY EVACUATION. Max 2 different "ON" segment lengths can be in the configuration; the first one is to be long.   |
| <b>BLUE</b><br>            | COMMAND<br>compulsory intervention to be done      | <ul style="list-style-type: none"> <li>two or three different sounds, each of them with a constant spectrum</li> </ul>  | ON/OFF continuous or alternating  |
| <b>WHITE</b><br>           | ANNOUNCEMENT/ INFORMATION<br>instruction to public | <ul style="list-style-type: none"> <li>ringing-tone consisting of two tones</li> </ul>  | non-repetitive high - low (followed by instructions)  |
| <b>GREEN</b><br>           | END OF ALARM<br>situation: out of danger           | <ul style="list-style-type: none"> <li>sound with constant spectrum</li> </ul>  | Continuous, at least 30s<br>Signal which follows one previous alarm signal  |

Note: generally it is not necessary to synchronise sound and light, but this can improve perception.

EN 457

• Audio signals

-Identification: the certain identification of an audio signal of danger requires that the signal is clearly audible, is sufficiently different from other

-Audibility: the audio signal must be clearly audible. Masking level must be overcome. This is usually obtained when "A" weight audio pressure







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