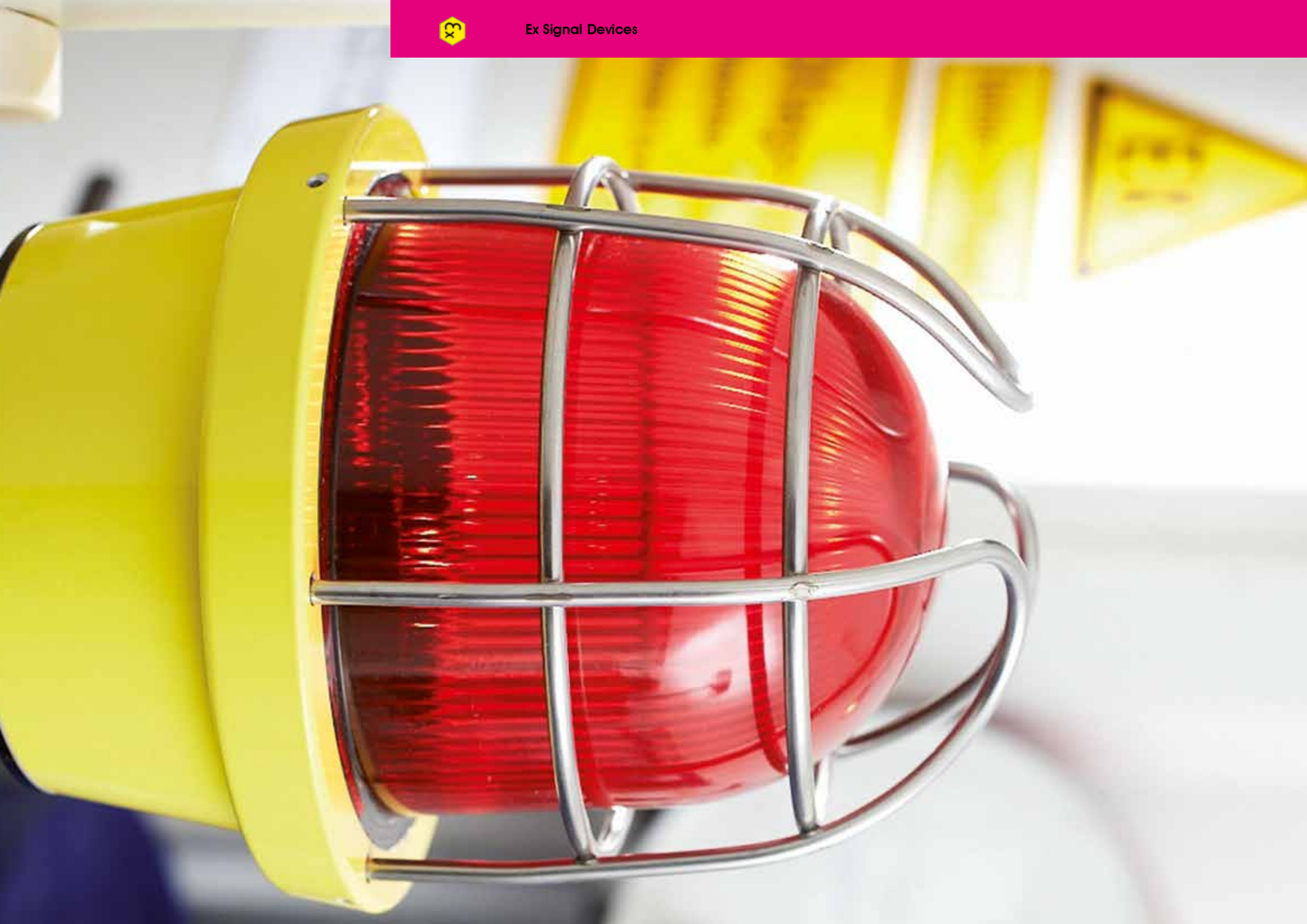

Ex Signal Devices Overview

Ex (LED) Signal Towers

740 Ex Signal Tower

Zone 1, 2, 21, 22
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741 Ex LED Signal Tower

Zone 1 + 2
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Optical Ex Signal Devices

729 Ex LED Permanent Beacon

Zone 2 + 22
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782 Ex LED Permanent Beacon

Zone 1, 2, 21, 22
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785 Ex Rotating Mirror Beacon

Zone 1, 2, 21, 22
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783 Ex Rotating Mirror Beacon

Zone 1, 2, 21, 22
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729 Ex LED Rotating Beacon

Zone 1, 2, 21, 22
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782 Ex LED Rotating Beacon

Zone 1, 2, 21, 22
Page 281

784 Ex Rotating Beacon

Zone 1, 2, 21, 22
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729 Ex LED EVS Beacon

Zone 1, 2, 21, 22
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729 Ex LED Double Flash Beacon

Zone 1, 2, 21, 22
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728 Ex Flashing Beacon

Zone 1, 2, 21, 22
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738 Ex Double Flash Beacon

Zone 1, 2, 21, 22
Page 285

720 Ex Flashing Beacon

Zone 1, 2, 21, 22
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Audible Ex Signal Devices

718 Ex Electronic Installation Buzzer

Zone 1 + 2
Page 288

714 Ex Multi-Tone Sounder

Zone 0, 1, 2
Page 289

750 Ex Signal Horn

Zone 1 + 2
Page 290

761 Ex Signal Horn

Zone 1, 2, 21, 22
Page 291

Regulations and Requirements

Page 268 onwards

Signal devices in areas with explosion hazard

Avoidance of explosion - explosion protection

Safety in explosive areas can only be secured by close co-operation between all parties involved. Close co-operation between manufacturer, operator, safety inspector and safety authority is indispensable.

Three types of explosion protection can be defined:

Primary explosion protection

Primary explosion protection entails preventing the formation of an explosive atmosphere by, for example, adequate ventilation.

Secondary explosion protection

If it is not possible to prevent the build up of an explosive atmosphere through primary explosion protection, possible sources of ignition must be countered through secondary explosion protection.
WERMA can supply devices which are not sources of ignition.

Tertiary explosion protection methods

Tertiary explosion protection is used when the operator cannot completely eradicate ignition sources. Such measures are designed to reduce the vulnerability of explosion to non dangerous proportions.

Responsibilities of operator/contractor:

The operator or responsible contractor must first of all secure all areas against primary explosion. Other potentially explosive areas need then to be risk assessed. Areas will be designated by „zone", an explosion class defined and the max surface temperature defined.

Areas liable to explosion: Zone definitions

Zone definition is carried out according to EC Guideline 1999/92/EG.

The basis for the scope of protective measures required by the operator is the probability of a potentially explosive atmosphere occuring.

	Probability of occurance		
Explosion endangered zone through:	**Frequent, long term or regular**	**Occasional**	**Usually not, but if then only rarely and for a short period**
Inflammable gas, steam or mist	Zone 0	Zone 1	Zone 2
Inflammable dust or air	Zone 20	Zone 21	Zone 22

Explosion groups for gases, vapours and dusts

The **explosion group** is defined by the potentially explosive material and its flammability:

AREA	EXPLOSION GROUP	FLAMMABLE SUBSTANCES	FLAMMABILITY
Mining	I	Pit gas (Methane), coal dust	
Gas	IIA	Acetone, Petrol, Methanol, Propane, Toluene	relatively low
	IIB	Ethylene, City Gas	high
	IIC	Hydrogen, Acetylene, Carbon Sulphide	very high
Dust	IIIA	Flammable Lint	relatively low
	IIIB	Non-Conductive Dusts	high
	IIIC	Conductive Dusts	very high

All WERMA signal devices have been approved for use in the highest explosion groups IIC and IIIC and are thus suitable for use in those areas.

Surface temperature

Explosive materials define the max. **surface temperature** permissible by their ignition temperature.

Explosion protected components are to be specified so that no ignition can take place because of surface temperature.

IGNITION TEMPERATURES AND TEMPERATURE CLASSES OF EXPLOSION-ENDANGERED GAS AND VAPOUR ATMOSPHERES

Temperature classes	Ignition temp of gas/vapour atmosphere	Permissible surface temp of components
T1	≥ 450°C	≤ 450°C
T2	≥ 300 … ≤ 450°C	≤ 300°C
T3	≥ 200 … ≤ 300°C	≤ 200°C
T4	≥ 135 … ≤ 200°C	≤ 135°C
T5	≥ 100 … ≤ 135°C	≤ 100°C
T6	≥ 85 … ≤ 100°C	≤ 85°C

Dust is not temperature classified. Instead the max. permissible surface temperature is given in celcius.

WERMA can offer a variety of products for the different **temperature classes** of gas and vapour and **max. surface temperature**.

Signal devices in areas with explosive hazard

Device categories and EPL protection level

The ATEX directive divides the electrical components into 6 device categories. The IEC standards and the EN standards divide the devices into 6 protection levels or EPLs (Equipment Protection Levels). The device category and EPL are equivalent and indicate the zones in which the device may be used.

Material Group	Gas			Dust		
Equipment category	1G	2G	3G	1D	2D	3D
Protection level EPL	Ga	Gb	Gc	Da	Db	Dc
Suitable for zones	0,1,2	1,2	2	20,21,22	21,22	22

Manufacturers' obligations

Manufactures of equipment for use in explosive areas are obliged according to EC Guideline 94/9/EC to clearly mark the devices according to the permissible areas of use.

The procedure demands that all requirements for the awarding of the CE mark be tested by an independent approved authority. Devices in category 3 are excluded.

This will be confirmed by the EC type examination certificate. In addition the manufacturer must have an appropriate QA system approved by an EC certificate.

Minimum product marking of explosion-protected components

EC Guideline 94/9/EC and associated norms define the appearance of the symbol.

As norms have changed frequently in recent years so has the the appearance of the symbol. It has only been possible to adapt and update the appearance of the symbol which requires approval by the testing authority on a gradual basis. It is therefore possible that devices do not display the latest symbol but this does **not influence** their use in explosive areas.

There is a separate symbol for gas and explosive dust areas.

Further information below:

	Symbol - see Guideline 94/9/EC					Symbol according to norm classification				
GAS	CE	0102	⟨Ex⟩	II	2G	Ex	de	IIC	T6	Gb
DUST	CE	0102	⟨Ex⟩	II	2D	Ex	tb	IIIC	T80°C	Db
	1	2	3	4	5	6	7	8	9	10

1	CE Conformity symbol
2	Number of the named test authority Test Authority for evaluating the device
3	Ex Hexagon Symbol indicating suitable for use in explosive areas.
4	Group I = pit gas, coal dust II = all other explosion endangered areas
5	Device category Defines in which zones the device may be used
6	Ex symbol acc. to norm Relevant Ex norms will apply
7	Spark protection for electrical devices. Each letter represents an ignition protection level A, b or c shows the EPL. If all ignition protection levels have EPL the symbol need not be used after point 10
8	Explosion group Component is suitable for all low explosion groups.
9	Gas temp. class Max surface temp. for dust.
10	Protection level Defines in which zones the device can be used

Quick-Finder

Quick-Finder - the fastest way to find the right signal device for your application!

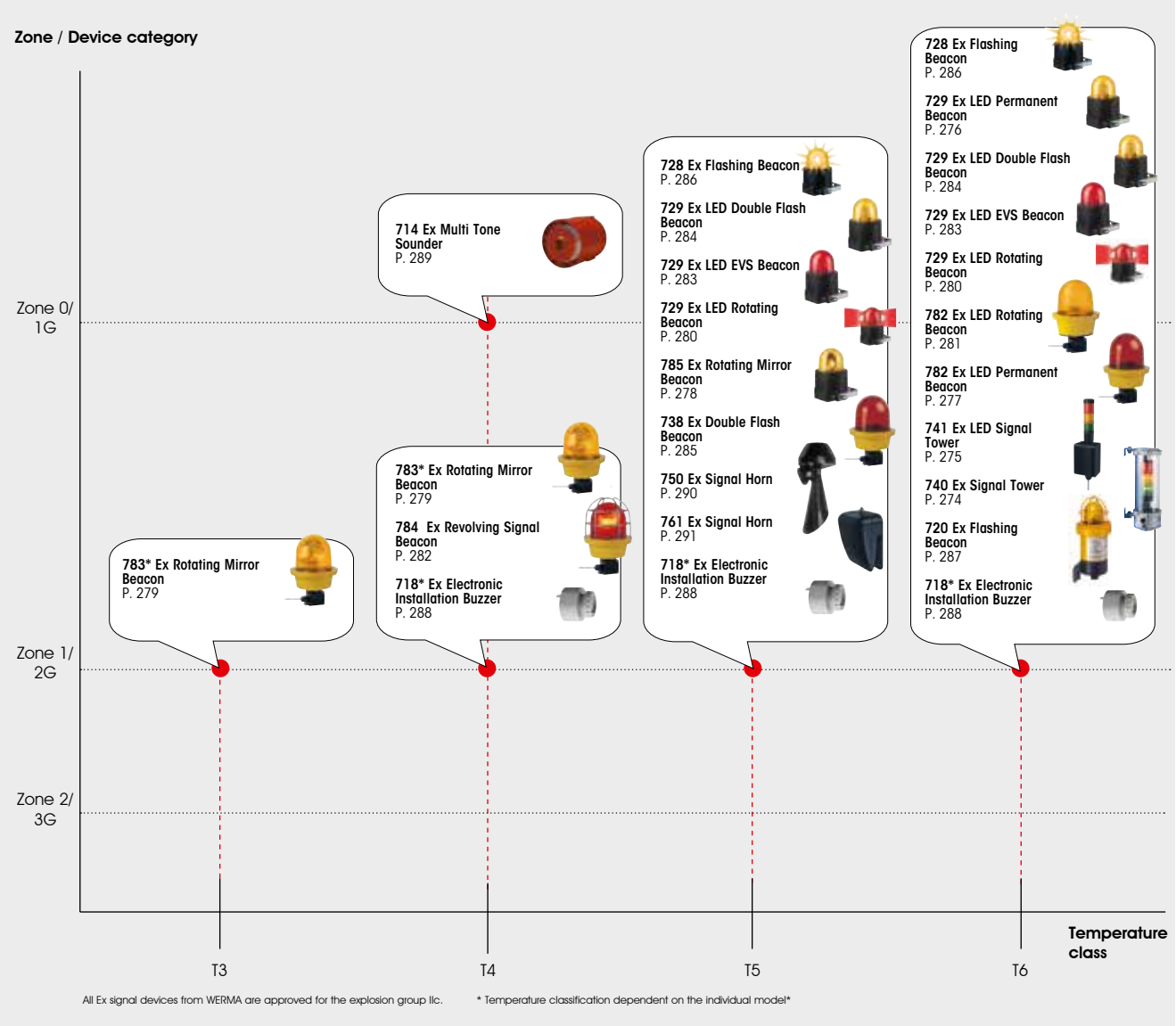
WERMA offers a comprehensive range of explosion protected signal devices. These are suitable for deployment in gas, vapour and dust atmospheres. With our Quick-Finder you can quickly and easily locate the correct signal device for your application.

How to proceed:
Choose the appropriate quick-finder for gas/vapour or dust atmospheres. Then select the zone and temperature or temperature class for the product you are seeking.

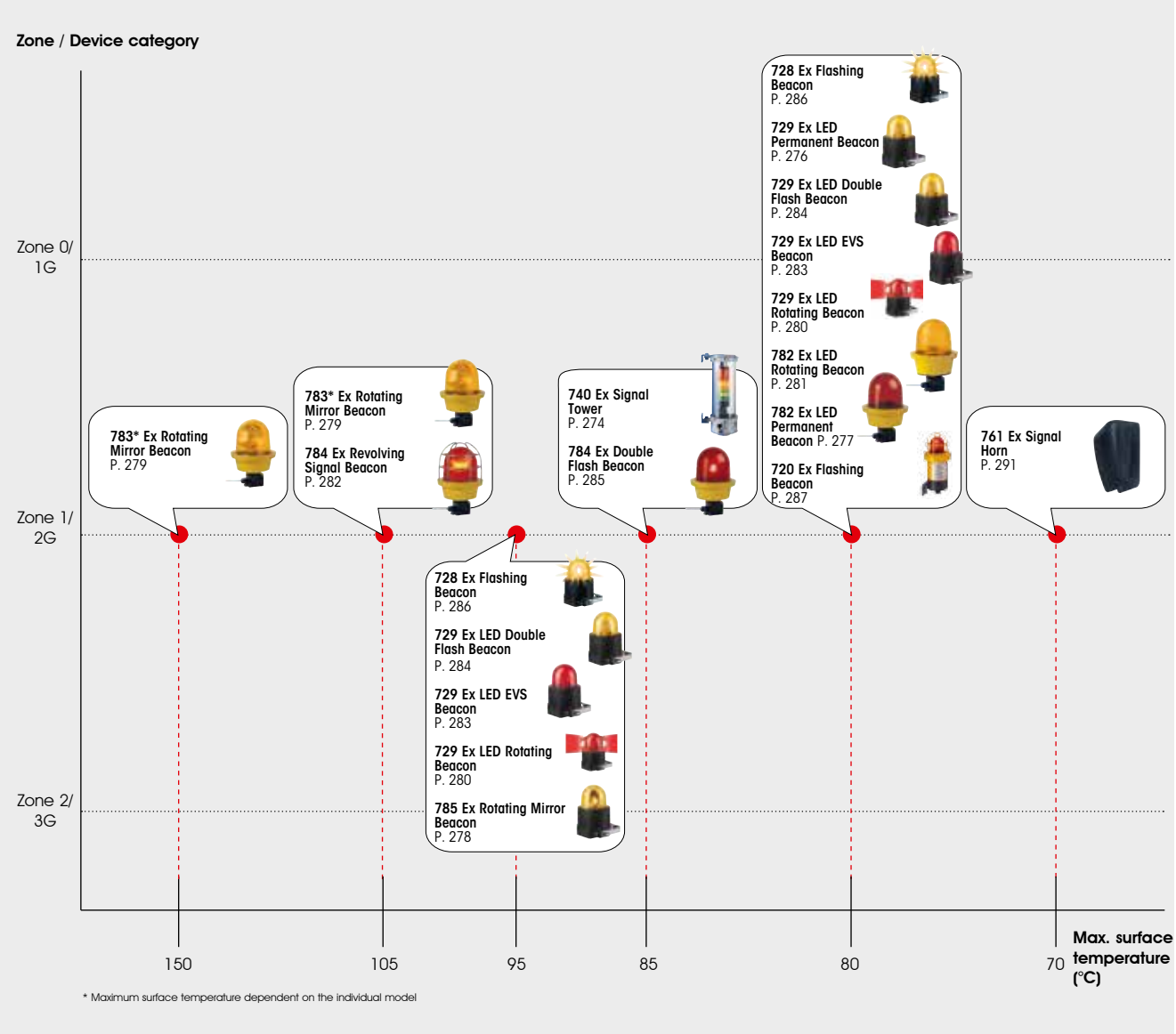
You can use any device which is:

- directly on the „red mark",
- to the right of the point and
- listed above the point.

Signal Devices for Gas or Vapour Atmospheres



Signal Devices for Dust Atmospheres



Should you require further help in selecting the appropriate device just give us a call.
Further information can be found on page 268 or on **www.werma.com**.

740 Ex Signal Tower

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Signal tower Kombi*SIGN* in flame-proof enclosure
- Available with up to 3 light elements
- Also [illegible]

This product is no longer available!

[illegible]

II 2D Ex tD A21 IP68 T85°C

L.C.I.E. 97 EX 6012

Technical specifications of signal tower Kombi*SIGN* 70 see page 47.

ORDER SPECIFICATIONS:

Voltage	12-230 V Bulb	24 V DC LED
red / green	**740 210 00**	**740 210 55**
red / yellow / green	**740 231 00**	**740 231 55**

ACCESSORIES:

Bulb BA15d, 5 W, 24 V	**955 840 35**
Bulb BA15d, 5 W, 230 V	**955 840 38**

TECHNICAL DIAGRAMS:

see page 313

The Ex Signal Tower 740 in the perfume and aroma industry

CE Ex | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 6,3 kg | IP66/IP67 | +40°C -20°C | 24 V PLC

WERMA SIGNALTECHNIK

741 Ex LED Signal Tower

- Gas applications: Zones 1 and 2
- No additional zener barrier required
- Combination of encapsulation "m" and intrinsic safety "ib" with connection area "e"

Life duration up to 50,000 hrs

TECHNICAL SPECIFICATIONS:

Dimensions of the Zener Barrier (L x H x W):	76 mm x 110 mm x 75 mm
Dimensions total:	2 tier (L x B x H): 76 mm x 229 mm x 75 mm
	3 tier (L x B x H): 76 mm x 263 mm x 75 mm
Housing:	Polyamide, black
Signal tower:	PC
Connection:	Screw terminal max. 2.5 mm^2
	incl. approved cable gland "e"
Explosion protection:	Ⓔx II 2G Ex e mb [ib] IIC T6 Gb
Approval:	PTB 06 ATEX 2005

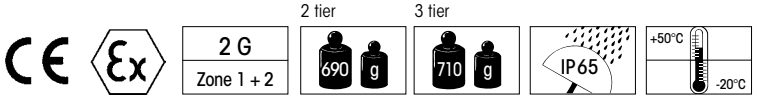
ORDER SPECIFICATIONS:

Voltage	24 V DC
Current consumption	< 90 mA
red / green	**741 110 55**
red / yellow	**741 120 55**
red / yellow / green	**741 130 55**

TECHNICAL DIAGRAMS:

see page 313

The Ex LED Signal Tower 741 warns of imminent danger in gas explosion endangered areas, e.g. in the chemical industry and paint shops



729 Ex LED Permanent Beacon

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection and cabling to power source
- Salt water resistant
- Integral wire guard (VA stainless steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)

The maintenance-free LEDs have a life duration of up to 50,000 hours

TECHNICAL SPECIFICATIONS:

Life duration up to 50,000 hrs

Dimensions (Ø x Height):	139 mm x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm²
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Explosion protection:	Ex II 2G Ex d e IIC T6 Gb Ex II 2D Ex tb IIIC T80°C Db
Approval:	BVS 11 ATEX E 107 IECEx_BVS_11.0082
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm

Additional protection with the robust wire guard (accessory)

ORDER SPECIFICATIONS:

Voltage	24 V DC	115 V/230 V AC
Current consumption	130 mA	30 mA at 230 V AC
red	**729 100 55**	**729 100 68**
yellow	**729 300 55**	**729 300 68**

ACCESSORIES:

Ex wire guard, VA steel, stainless	**975 729 03**
Ex cable gland M20 x 1.5 mm, metal To expand the temperature range from -40 °C to -50 °C	**975 729 04**
Ex screw plug M20 x 1.5 mm	**975 729 02**
Ex cable gland M20 x 1.5 mm For connecting to an additional beacon	**975 729 01**

TECHNICAL DIAGRAMS:

see page 313

CE Ex IECEx 2 G Zone 1 + 2 2 D Zone 21 + 22 2,9 kg IP66 +50°C -40°C

WERMA SIGNALTECHNIK

782 Ex LED Permanent Beacon

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection
- Extremely high light intensitiy
- Can be mounted as required
- Salt water resistant

Life duration up to 50,000 hrs

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	209 mm x 315 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Mounting Plate:	VA stainless steel
Connection:	Screw terminal max. 2.5 mm²
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
Connection area:	Increased Safety "e"
Installation position:	As required
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Duty cycle:	100 %
Explosion protection:	Ⓔx II 2G Ex d e IIC T6 Gb Ⓔx II 2D Ex tb IIIC T80°C Db
Approval:	PTB 06 ATEX 1039

Wire guard (accessory)

ORDER SPECIFICATIONS:

Voltage	24 V DC	115-230 V AC
Current consumption	200 mA	25-60 mA
red	**782 100 55**	**782 100 68**
yellow	**782 300 55**	**782 300 68**

ACCESSORIES:

Wire guard	**975 783 01**
Mounting plate	**975 783 02**
Clamp for tube mounting 1¼"	**975 783 03**
Clamp for tube mounting 1½"	**975 783 04**
Clamp for tube mounting 2"	**975 783 05**
Bracket	**975 783 06**

Clamp for tube mounting (accessory)

TECHNICAL DIAGRAMS:

see page 314

Mounting plate (accessory)

Bracket (accessory)

Excellent light intensity and long life duration

CE Ⓔx | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 4,4 kg | IP66 | +50°C -20°C

785 Ex Rotating Mirror Beacon

Long life duration thanks to low wear wheel and disc drive

Additional protection with the robust wire guard (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Extreme durability thanks to low wear wheel and disc drive
- Salt water resistant
- Integrated mounting bracket (VA steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)
- Connection area "e" for simple connection and cabling to power source

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	139 mm x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm²
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Drive:	Wheel and disc drive, motor in centre of gravity
Mirror rotation rate:	180 r.p.m.
Service life of drive:	> 5,000 hours
Explosion protection:	Ⓔx II 2G Ex d e IIC T5 Gb Ⓔx II 2D Ex tb IIIC T95°C Db
Approval:	BVS 11 ATEX E 107
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm

ORDER SPECIFICATIONS:

Voltage	24 V AC/DC	115 V/230 V AC/DC
Current consumption	1.0 A	130 mA at 230 V AC/350 mA at 115 V AC
red	**785 100 75**	**785 100 70**
yellow	**785 300 75**	**785 300 70**

ACCESSORIES:

Ex wire guard, VA steel, stainless	**975 729 03**
Ex cable gland M20 x 1.5 mm, metal To expand the temperature range from -40 °C to -50 °C	**975 729 04**
Ex screw plug M20 x 1.5 mm	**975 729 02**
Ex cable gland M20 x 1.5 mm For connection to an additional beacon	**975 729 01**

SPARE PARTS:

Halogen bulb 20 W/24 V for 24 V AC/DC	**955 885 25**
Halogen bulb 20 W/12 V for 115 V/230 V AC/DC	**955 885 24**

TECHNICAL DIAGRAMS:

see page 314

CE Ⓔx IECEx 2 G Zone 1 + 2 2 D Zone 21 + 22 2,9 kg IP66 +50°C -30°C

WERMA SIGNALTECHNIK

783 Ex Rotating Mirror Beacon

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection
- High life duration thanks to low wear wheel and disc drive
- Can be mounted as required
- Salt water resistant

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	209 mm x 315 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Mounting Plate:	VA stainless steel
Connection:	Screw terminal max. 2.5 mm²
Cable gland:	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
Connection area:	Increased Safety "e"
Drive:	Wheel and disc drive, motor in centre of gravity
Installation position:	As required
Mirror rotation rate:	180 r.p.m.
Service life of drive:	> 5,000 hrs
Duty cycle:	100 %
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Explosion protection:	Ex II 2G Ex d e IIC T3-T4 Gb (depending on version) Ex II 2D Ex tb IIIC 105 °C - 150 °C Db (depending on version)
Approval:	PTB 06 ATEX 1039
Accesory:	Halogen bulb. Bulb overview beginning on page 184.

ORDER SPECIFICATIONS:

Voltage	24 V AC/DC	24 V AC/DC	115 V AC/DC	230 V AC	230 V AC
Halogen bulb	20 W/24 V	35 W/24 V	35 W/12 V	20 W/12 V	35 W/12 V
Current consumption	900 mA	1,6 A	350 mA	110 mA	170 mA
Temperature Class (gas)	T4	T3	T3	T4	T3
Surface Temperature (dust)	105°C	150°C	150°C	105°C	150°C
red	**783 110 75**	**783 100 75**	**783 100 77**	**783 110 68**	**783 100 68**
yellow	**783 310 75**	**783 300 75**	**783 300 77**	**783 310 68**	**783 300 68**

Wire guard (accessory)

Clamp for tube mounting (accessory)

Mounting plate (accessory)

Bracket (accessory)

ACCESSORIES:

Wire guard	**975 783 01**
Mounting plate	**975 783 02**
Clamp for tube mounting 1¼"	**975 783 03**
Clamp for tube mounting 1½"	**975 783 04**
Clamp for tube mounting 2"	**975 783 05**
Bracket	**975 783 06**

SPARE PARTS:

Halogen bulb 20 W/24 V for 24 V AC/DC	**955 885 25**
Halogen bulb 20 W/12 V for 230 V AC	**955 885 24**
Halogen bulb 35 W/24 V for 24 V AC/DC	**955 883 35**
Halogen bulb 35 W/12 V for 115 V AC, 230 V AC	**955 883 34**

TECHNICAL DIAGRAMS:

see page 314

CE Ex | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 4,6 kg | IP66 | +40°C -20°C

729 Ex LED Rotating Beacon

Intense rotating signal effect with low power consumption

Innovative solution: The universal mounting bracket (included in assembly)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Intense rotating signal effect with low power consumption
- Integrated mounting bracket (VA steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)
- Connection area "e" for simple connection and cabling to power source
- Salt water resistant

Life duration up to 50,000 hrs

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	139 mm x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® bis 2.5 mm²
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Rotation rate:	C. 180 r.p.m.
Duty cycle:	100 %
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm

ORDER SPECIFICATIONS:

Voltage	24 V DC	115 V/230 V AC
Current consumption	< 170 mA	150 mA at 230 V AC
Explosion protection	Ⓔx II 2G Ex d e IIC T6 Gb Ⓔx II 2D Ex tb IIIC T80°C Db	Ⓔx II 2G Ex d e IIC T5 Gb Ⓔx II 2D Ex tb IIIC T95°C Db
Approval	BVS 11 ATEX E 107 IECEx_BVS_11.0082	BVS 11 ATEX E 107 IECEx_BVS_11.0082
red	**729 120 55**	**729 120 68**
yellow	**729 320 55**	**729 320 68**

ACCESSORIES:

Ex wire guard, VA steel, stainless	**975 729 03**
Ex cable gland M20 x 1.5 mm, metal To expand the temperature range from -40 °C to -50 °C	**975 729 04**
Ex screw plug M20 x 1.5 mm	**975 729 02**
Ex cable gland M20 x 1.5 mm For connection to an additional beacon	**975 729 01**

TECHNICAL DIAGRAMS:

see page 313

CE Ⓔx IECEx 2 G Zone 1 + 2 2 D Zone 21 + 22 2,9 kg IP66 +50°C -40°C

WERMA SIGNALTECHNIK

782 Ex LED Rotating Beacon

Ex LED Rotating Beacon
with wire guard (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Wear-free due to the absence of any moving mechanical components
- Intense rotating signal effect with low power consumption
- Connection area "e" for simple connection
- Can be mounted as required
- Salt water resistant

Life duration up to 50,000 hrs

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	209 mm x 315 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Mounting Plate:	VA stainless steel
Connection:	Screw terminal max. 2.5 mm²
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
Connection area:	Increased Safety "e"
Installation position:	As required
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Rotation rate:	C. 180 r.p.m.
Duty cycle:	100 %
Explosion protection:	Ⓔx II 2G Ex d e IIC T6 Gb Ⓔx II 2D Ex tb T 80 °C Db
Approval:	PTB 06 ATEX 1039

ORDER SPECIFICATIONS:

Voltage	24 V DC	115-230 V AC
Current consumption	150 mA	70-180 mA
red	**782 120 55**	**782 120 68**
yellow	**782 320 55**	**782 320 68**

ACCESSORIES:

Wire guard	**975 783 01**
Mounting plate	**975 783 02**
Clamp for tube mounting 11/4"	**975 783 03**
Clamp for tube mounting 11/2"	**975 783 04**
Clamp for tube mounting 2"	**975 783 05**
Bracket	**975 783 06**

(Accessories see page 279)

TECHNICAL DIAGRAMS:

see page 314

Generates a distinctive rotating signal by triggering high output LEDs in sequence

CE Ex | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 4.4 kg | IP66 | +50°C -20°C

784 Ex Revolving Signal Beacon

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- 3 Fresnel lenses effect light convergence and optimise visibility
- Can be mounted as required
- Low rotation rate and long life duration thanks to low wear wheel and disc drive
- Connection area "e" for simple connection
- Salt water resistant

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	209 mm x 315 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Mounting Plate:	VA stainless steel
Connection:	Screw terminal max. 2.5 mm²
Cable gland:	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
Connection area:	Increased Safety "e"
Drive:	Wheel and disc drive, motor in centre of gravity
Installation position:	As required
Halogen bulb:	GY 6.35 35 W 12 V/24 V
Lens rotation rate:	60 r.p.m.
Service life of drive:	> 5,000 hrs
Duty cycle:	100 %
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Explosion protection:	Ⓔx II 2G Ex d e IIC T4 Gb Ⓔx II 2D Ex tb IIIC 105°C Db
Approval:	PTB 06 ATEX 1039

Halogen bulb included in assembly. Bulb overview see pages 184 + 201.

Wire guard (accessory)

ORDER SPECIFICATIONS:

Voltage	24 V AC/DC	115 V AC/DC	230 V AC
Current consumption	1,6 A	350 mA	170 mA
red	**784 100 75**	**784 100 77**	**784 100 68**
yellow	**784 300 75**	**784 300 77**	**784 300 68**

Clamp for tube mounting (accessory)

ACCESSORIES:

Wire guard	**975 783 01**
Mounting plate	**975 783 02**
Clamp for tube mounting 1¼"	**975 783 03**
Clamp for tube mounting 1½"	**975 783 04**
Clamp for tube mounting 2"	**975 783 05**
Bracket	**975 783 06**

Mounting plate (accessory)

SPARE PARTS:

Halogen bulb 35 W/24 V for 24 V AC/DC	**955 883 35**
Halogen bulb 35 W/12 V for 115 V AC, 230 V AC	**955 883 34**

Bracket (accessory)

TECHNICAL DIAGRAMS:

see page 314

CE Ⓔx | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 4,6 kg | IP66 | +40°C -20°C

WERMA SIGNALTECHNIK

729 Ex LED EVS* Beacon

The LED EVS* Beacon generates an attention-grabbing light effect

The LED EVS* Beacon generates an attention-grabbing light effect

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection and cabling to power source
- Extremely powerful signal effect
- Random sequence of light signals prevents acclimatisation effect
- For signalling extremely hazardous situations and the need for immediate action

Life duration up to 50,000 hrs

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	139 x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm²
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm

ORDER SPECIFICATIONS:

Voltage	24 V DC	115 V/230 V AC
Current consumption	< 240 m A	140 mA at 230 V AC
Explosion protection	Ⓔx II 2G Ex d e IIC T6 Gb Ⓔx II 2D Ex tb IIIC T80°C Db	Ⓔx II 2G Ex d e IIC T5 Gb Ⓔx II 2D Ex tb IIIC T95°C Db
Approval	BVS 11 ATEX E 107 IECEx_BVS_11.0082	BVS 11 ATEX E 107 IECEx_BVS_11.0082
red	**729 160 55**	**729 160 68**
yellow	**729 360 55**	**729 360 68**

ACCESSORIES:

Ex wire guard, VA steel, stainless	**975 729 03**
Ex cable gland M20 x 1.5 mm, metal To expand the temperature range from -40 °C to -50 °C	**975 729 04**
Ex screw plug M20 x 1.5 mm	**975 729 02**
Ex cable gland M20 x 1.5 mm For connection to an additional beacon	**975 729 01**

ADDITIONAL INFORMATION:

***EVS** = Enhanced Visibility System.
For further info see page 352.
Please note the photosensitive epilepsy warning on page 352.

TECHNICAL DIAGRAMS:

see page 313

CE Ⓔx IECEx | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 2,9 kg | IP66 | +50°C -40°C

729 Ex LED Double Flash Beacon

Intense double flash with low power consumption

Additional protection with the robust wire guard (accessory)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Intense double flash with low power consumption
- Integrated mounting bracket (VA steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)
- Connection area "e" for simple connection and cabling to power source
- Salt water resistant

Life duration up to 50,000 hrs

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	139 x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm²
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6 -13 mm
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm

ORDER SPECIFICATIONS:

Voltage	24 V DC	115 V/230 V AC
Current consumption	< 140 m A	140 mA at 230 V AC
Explosion protection	Ⓔx II 2G Ex d e IIC T6 Gb Ⓔx II 2D Ex tb IIIC T80°C Db	Ⓔx II 2G Ex d e IIC T5 Gb Ⓔx II 2D Ex tb IIIC T95°C Db
Approval	BVS 11 ATEX E 107 IECEx_BVS_11.0082	BVS 11 ATEX E 107 IECEx_BVS_11.0082
red	**729 150 55**	**729 150 68**
yellow	**729 350 55**	**729 350 68**

ACCESSORIES:

Ex wire guard, VA steel, stainless	**975 729 03**
Ex cable gland M20 x 1.5 mm, metal To expand the temperature range from -40 °C to -50 °C	**975 729 04**
Ex screw plug M20 x 1.5 mm	**975 729 02**
Ex cable gland M20 x 1.5 mm For connection to an additional beacon	**975 729 01**

TECHNICAL DIAGRAMS:

see page 313

CE Ⓔx IECEx | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 2,9 kg | IP66 | +50°C -40°C

WERMA SIGNALTECHNIK

738 Ex Double Flash Beacon

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Connection area "e" for simple connection
- High flash power from two consecutive flashes
- Can be mounted as required
- Salt water resistant

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	209 mm x 315 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Mounting Plate:	VA stainless steel
Connection:	Screw terminal max. 2.5 mm²
Cable gland:	Cable gland M20 x 1.5 mm Cable diameter 5-13 mm
Connection area:	Increased Safety "e"
Installation position:	As required
Flash energy:	C. 15 Ws
Flash frequency:	C. 1 Hz
Life duration:	4 x 10^6 flashes
Fixing:	Base mounting, bracket mounting (accessory), tube mounting (accessory)
Explosion protection:	Ⓔx II 2G Ex d e IIC T5 Gb Ⓔx II 2D Ex tb IIIC 85°C - T 90°C Db (depending on the voltage)
Approval:	PTB 06 ATEX 1039

Wire guard (accessory)

ORDER SPECIFICATIONS:

Voltage	24 V DC	115 V AC	230 V AC
Current consumption	700 mA	300 mA	200 mA
Surface Temp. (dust)	85 °C	90 °C	85 °C
red	**738 100 55**	**738 100 67**	**738 100 68**
yellow	**738 300 55**	**738 300 67**	**738 300 68**

Clamp for tube mounting (accessory)

ACCESSORIES:

Wire guard	**975 783 01**
Mounting plate	**975 783 02**
Clamp for tube mounting 1¼"	**975 783 03**
Clamp for tube mounting 1½"	**975 783 04**
Clamp for tube mounting 2"	**975 783 05**
Bracket	**975 783 06**

Mounting plate (accessory)

TECHNICAL DIAGRAMS:

see page 313

The Ex Double Flash Beacon 738 provides signalling in a range of different explosion protected areas

Bracket (accessory)

CE Ex | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 4,4 kg | IP66 | +40°C -20°C | 15 Ws

728 Ex Flashing Beacon

Ex Flashing Beacon for use in gas and dust explosion-endangered areas

Innovative solution: The universal mounting bracket (included in assembly)

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Ex Flashing Beacon in compact housing
- Salt water resistant
- Integrated mounting bracket (VA steel)
- Effective explosion protection even at extreme temperatures (-50°C to +50°C, with accessory)
- Connection area "e" for simple connection and cabling to power source

Life duration up to 50,000 hrs

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	139 x 214 mm
Housing:	Black coated aluminium, salt water resistant
Lens:	Reinforced borosilicate glass
Connection:	CAGE CLAMP® max. 2.5 mm²
Fixing:	Wall, base and ceiling mounting Integrated mounting bracket, VA steel
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-13 mm
Flash energy:	C. 5 Ws
Flash frequency:	C. 1 Hz
Life duration:	4 x 10^6 flashes
Assembly:	Ex screw plug M20 x 1.5 mm Ex cable gland M20 x 1.5 mm

ORDER SPECIFICATIONS:

Voltage	24 V DC	230 V AC
Current consumption	300 m A	150 mA
Explosion Protection	Ⓔx II 2G Ex d e IIC T6 Gb Ⓔx II 2D Ex tb IIIC T80°C Db	Ⓔx II 2G Ex d e IIC T5 Gb Ⓔx II 2D Ex tb IIIC T95°C Db
Approval	BVS 11 ATEX E 107 IECEx_BVS_11.0082	BVS 11 ATEX E 107 IECEx_BVS_11.0082
red	**728 100 55**	**728 100 68**
yellow	**728 300 55**	**728 300 68**

ACCESSORIES:

Ex wire guard, VA steel, stainless	**975 729 03**
Ex cable gland M20 x 1.5 mm, metal To expand the temperature range from -40 °C to -50 °C	**975 729 04**
Ex screw plug M20 x 1.5 mm	**975 729 02**
Ex cable gland M20 x 1.5 mm For connection to an additional beacon	**975 729 01**

TECHNICAL DIAGRAMS:

see page 313

CE Ex IECEx | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 2,9 kg | IP66 | +50°C -40°C | 5 Ws

WERMA SIGNALTECHNIK

720 Ex Flashing Beacon

- Gas applications: Zones 1 and 2
- Dust applications: Zones 21 and 22
- Compact flashing beacon
- Improved temperature range

TECHNICAL SPECIFICATIONS:

Dimensions (L x H x W):	110 mm x 285 mm x 129 mm
Housing:	Aluminium
Lens:	Reinforced borosilicate glass
Wire guard:	Rust-proof steel, powder-coated
Connection:	Screwable 1.5 mm² fine-strand, 2.5 mm² single-wire
Cable entry:	Cable gland M20 x 1.5 mm Cable diameter 6-9 mm
Life duration:	5 x 10^6 flashes
Explosion protection:	Ⓔx II 2G Ex d e IIC T5/T6 Gb T6: -55 °C ≤ Ta ≤ +40 °C T5: -55 °C ≤ Ta ≤ +55 °C Ⓔx II 2D Ex tb IIIC T95°, T80° C Db
Approval:	PTB 01 ATEX 1057
Fixing:	Bracket mounting
Flash energy:	C. 15 Ws
Flash frequency:	1 Hz

ORDER SPECIFICATIONS:

Voltage	24 V DC	230 V AC
Current consumption	1 A	200 mA
red	**720 101 55**	**720 101 68**
yellow	**720 301 55**	**720 301 68**

TECHNICAL DIAGRAMS:

see page 313

CE Ⓔx | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 2 kg | IP67 | +40°C -55°C | 15 Ws

718 Ex Electronic Installation Buzzer

- Gas applications: Zones 1 and 2
- Intrinsically safe Ex installation buzzer
- For use with a Zener Barrier
- IP 43 with cap
- Low current consumption
- Continuous tone

Play Sound www.werma.com

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	43 mm x 13 mm (Protrusion from panel)
Housing:	ABS
Connection:	Spades 6.3 x 0.8 mm
Audio frequency:	C. 2,400 Hz
Duty cycle:	100 %
Explosion protection:	Ex II 2G Ex ib IIC T4 / T5 / T6 Gb
Approval:	DMT 98 ATEX E 005 X
Maximum values of the Zener barrier:	Ui: 40 V DC, Ii: 660 mA
Minimum values of the Zener barrier:	For 24 V DC 15 V DC/20 mA

Maximum Input Power Pi:

Temp.-classes	Max. surrounding temperature + 40°C	+ 50°C	+ 60°C
T4	Pi = 1.3 W	Pi = 1.2 W	Pi = 1.0 W
T5	Pi = 0.82 W	Pi = 0.66 W	Pi = 0.52 W
T6	Pi = 0.6 W	Pi = 0.45 W	Pi = 0.3 W

Cap (accessory)

Zener Barrier (accessory)

ORDER SPECIFICATIONS:

Voltage	24 V DC
Current consumption	20 mA
	718 000 55

ACCESSORIES:

PC/ABS-Blend Cap (IP 43)	**975 118 00**
Zener Barrier	**975 714 01**

TECHNICAL DIAGRAMS:

see page 312

with cap

CE Ex | 2 G Zone 1 + 2 | 50 g | IP30 | IP43 | +60°C 0°C | 90 dB

WERMA SIGNALTECHNIK

714 Ex Multi-Tone Sounder

- Gas applications: Zone 0, 1 and 2
- 26 tones for a diverse range of applications
- For use with a Zener Barrier
- Adjustable sound output to 103 dB
- High protection rating IP 65
- Direct external setting of two tones possible

Zener Barrier (accessory)

TECHNICAL SPECIFICATIONS:

Dimensions (Ø x Height):	93 mm x 103 mm
Housing:	ABS
Connection:	Screw terminal max. 2.5 mm²
Cable entry:	Cable diameter max. 12 mm
Duty cycle:	100%
Tone types and frequencies:	Selectable via DIP switch, see table below
Fixing:	Wall mounting, base mounting
Installation position:	Sound outlet must not face upwards
Explosion protection:	Ⓔx II 1G EEx ia IIC T4 Ga
Approval:	BASEEFA 06 ATEX 0161

ORDER SPECIFICATIONS:

Voltage	24 V DC
Current consumption	14 mA
	714 000 55

ACCESSORIES:

Zener Barrier	**975 714 01**

TONE TYPES AND FREQUENCIES:

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selectable via DIP switch

Ton A No.	Tone type	Ton A No.	Tone type
1	alternating 800/970 Hz in 2 Hz stroke	14	continuous 970 Hz
2	rising 800/970 Hz in 7 Hz stroke	15	554 Hz/100 ms alternating 440 Hz/400 ms
3	rising 800/970 Hz in 1 Hz stroke	16	660 Hz pulse: 150 ms ON, 150 ms OFF
4	continuous 2,850 Hz	17	660 Hz pulse: 1.8 sec. ON, 1.8 sec OFF
5	rising 2,400-2,850 Hz in 7 Hz stroke	18	660 Hz pulse: 6.5 sec. ON, 13 sec OFF
6	rising 2,400-2,850 Hz in 1 Hz stroke	19	continuous 660 Hz
7	500-1,200 Hz rising in 3 sec., 0.5 sec OFF	20	alternating 554/440 Hz in 0.5 Hz stroke
8	falling 1,200-500 Hz in 1 Hz stroke	21	pulse 660 Hz in 1Hz stroke
9	alternating 2,400/2,850 Hz in 2 Hz stroke	22	2,850 Hz pulse: 150 ms ON / 100 ms OFF
10	pulse 970 Hz in 0.5 Hz stroke	23	rising 800/970 Hz in 50 Hz stroke
11	alternating 800/970 Hz in 1 Hz stroke	24	rising 2,400-2,850 Hz in 50 Hz stroke
12	pulse 2,850 Hz in 0.5 Hz stroke	25	970 Hz pulse: 3 x 500 ms ON, 500 ms OFF, 1.5 sec. pause
13	970 Hz pulse: 0.25 sec. ON / 1 sec. OFF	26	2,850 Hz pulse: 3 x 500 ms ON, 500 ms OFF, 1.5 sec. pause

TECHNICAL DIAGRAMS:

see page 312

CE Ⓔx IECEx 1 G Zone 0, 1 + 2 300 g IP65 +55°C -20°C 103 dB 26

750 Ex Signal Horn

- Gas applications: Zone 1 and 2
- Fully encapsulated
- Silicone free

TECHNICAL SPECIFICATIONS:

Play Sound www.werma.com

Dimensions (L x H x W):	148 mm x 350 mm x 152 mm
Housing:	PC/ABS-Blend
Connection:	Cable 3 m, 2 x 0.75 mm²
Fixing:	Bracket mounting, sound outlet facing downwards
Explosion protection	Ex II 2G Ex mb IIC T5 Gb
Approval:	BVS 03 ATEX E 118X

ORDER SPECIFICATIONS:

Voltage	24 V DC	24 V AC	42-48 V AC	115 V AC		230 V AC
Voltage range	21,6 V ... 26,4 V	21,6 V ... 26,4 V	37,8 V ... 52,8 V	102,5 V ... 126,5 V (50 Hz)	108 V ... 131 V (60 Hz)	208 V ... 250 V (50 Hz)
Current consumpt.	350 mA	450 mA	220 mA	205 mA		70 mA
	750 000 55	**750 000 65**	**750 000 66**	**750 000 67**		**750 000 68**

TECHNICAL DIAGRAMS:

see page 314

The Ex Signal Horn 750 warns of imminent danger in the chemical industry and paint shops

CE Ex | 2 G Zone 1 + 2 | 1,3 kg | IP55 | +50°C -40°C | 105 dB

WERMA SIGNALTECHNIK

761 Ex Signal Horn

- Gas applications: Zone 1 and 2
- Dust applications: Zone 21 and 22
- IP 65 for indoor and outdoor applications
- Flexible mounting possibilities
- Connection area "e" for simple connection

TECHNICAL SPECIFICATIONS:

Play Sound www.werma.com

Dimensions (L x H x W):	178 mm x 104 mm x 207 mm
Fixing dimensions (L x H):	130 mm x 160 mm
Housing:	PC
Connection:	CAGE CLAMP® max. 2.5 mm^2
Cable entry:	Cable gland M16 x 1.5 mm Cable diameter 6.5-9.5 mm
Fixing:	Wall mounting, base mounting
Explosion protection:	Ex II 2G Ex e mb IIC T5 Gb Ex II 2D Ex tb IIIC T 70°C Db
Approval:	BVS 03 ATEX E 118X

ORDER SPECIFICATIONS:

Voltage	24 V DC	24 V AC	48 V AC	115 V AC		230 V AC
Voltage range	21.6 V ... 26.4 V	21.6 V ... 26.4 V	37.8 V ... 52.8 V	102.5 V ... 126.5 V (50 Hz)	108 V ... 131 V (60 Hz)	208 V ... 250 V (50 Hz)
Current consumpt.	350 mA	450 mA	220 mA	205 mA		70 mA
	761 000 55	**761 000 65**	**761 000 66**	**761 000 67**		**761 000 68**

TECHNICAL DIAGRAMS:

see page 314

The Ex signal horn 761 can be used for a range of applications in gas and dust explosion endangered areas, e.g. in joinery and wood processing plants

CE Ex | 2 G Zone 1 + 2 | 2 D Zone 21 + 22 | 1,3 kg | IP65 | +50°C -40°C | max. 105 dB