
DA135 Series Intrinsically Safe LED Beacons

High intensity warning beacons for all hazardous areas

**ATEX Certified Ex II 1G,
EEx ia IIC T6**

Super-bright LED in five colours

**Rugged IP65 corrosion resistant
casing with separate terminal
compartment**

Can be used in any zone

Single, Dual or Triple flash

Dual colour option

Pipe or wall mounting

**Can be linked to Sounder and
Pushbutton to make a full alarm
annunciator system**

Fully isolated control inputs

The DA135 LED Beacon provides an ultra-bright LED flash to warn of abnormal events in any hazardous area.

ATEX certified to Ex II 1G for use in any zone. The ruggedised and encapsulated enclosure is sealed to IP65 to ensure reliable operation in harsh environments and is backed up with our 5 year warranty.

Available in five equally bright colours including white and blue, this Beacon is often used as a simple flashing warning signal but there are further unique display features that allow the user to show additional information. These include single, double and triple flash selection and a dual colour version.

Combined with our Intrinsically Safe Sounder and a pushbutton the unit can be configured as a full single point alarm annunciator.



General Specification

Install in Any Zone

The DA135 is ATEX certified for use in Zones 0, 1 and 2. It can be fitted directly to any reasonably flat surface or mounted onto a pipe using the optional mounting kit shown below. The unit can also be used in safe areas and special terminals are provided for this purpose which avoid any of the normal limitations to full brightness.

Enclosure and wiring, cable entries

The enclosure is made from conductive GRP which provides a rugged IP65 housing suitable for harsh environmental conditions. The unit is also fully encapsulated for even greater protection against corrosive atmospheres and impact damage. A separate terminal housing makes connection a simple matter through the four M20 cable entries. The unit is supplied as standard with a brass tapped plate and blanking plugs in all four entries.

Fully Protected

As the whole unit is fully encapsulated, the terminal board includes two fuses that protect the internal electronics from damage in the case of incorrect connection.

Choice of Five Super-bright Colours

One of five equally bright colours must be selected as shown in the ordering information. As all units are clear until illuminated the display colour is shown on the top certification label.

The standard unit has a single colour which can be controlled to flash at a

single, double or triple pulse by triggering different control inputs. This allows users to indicate a change in the process using the same unit

Dual Colour

As an option, the DA135 Beacon can be supplied with a two colour display where each colour can be triggered separately from the two control inputs. This is an ideal way of warning an operator of multiple site problems or to indicate that a problem is becoming more critical.

Control inputs are fully isolated and the inputs certified as equivalent to "simple apparatus".

Full Alarm Annunciator

RTK is a leading supplier of quality alarm products for the worldwide process and power industry. This IS Beacon has been developed with some of these unique annunciation features. Not only can the Beacon be linked to a Sounder, it can also latch in alarms and allow the operator to go through the normal Acknowledge and Reset functions.

The method of operation is consistent with our standard range of alarm annunciators and is user selectable for different functions.

Single Power Feed

An internal current limiting device, combined with the exceptionally high efficiency of LEDs, enables both the DA135 Beacon and a Sounder to be driven through a single barrier/isolator in IIC areas with consequent savings in hardware and plant cabling costs.



Re-alarm

Another user selectable feature is the re-alarm. This allows the Beacon to be acknowledged so the LED goes steady and the Sounder turns off but if the fault condition has not cleared within a programmable time delay (between 1 and 60 minutes) then the alarm will be re-triggered again. This feature is used to prevent critical faults being ignored for extended periods.

Control Inputs

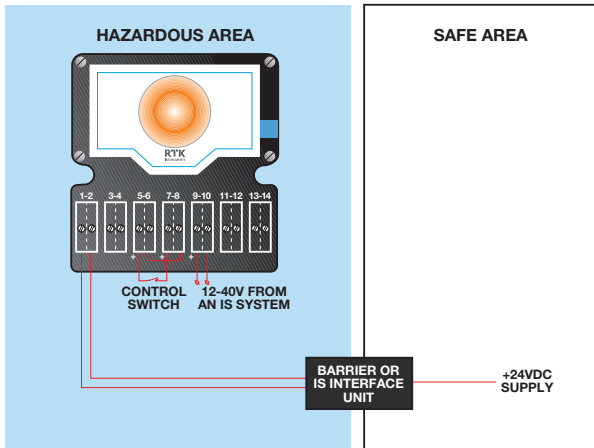
Both control inputs are fully isolated and certified as non-energy storing ($C_{eq}=0$, $L_{eq}=0$) and may be connected into any IS system without affecting the safety, provided the safety input parameters of the unit are not exceeded.

There are two ways of triggering these inputs, as illustrated in the application diagrams below. Firstly by simply linking a control switch/contact from the "control power" available on Terminals 5 and 6, or alternatively, using any 12-40V from an external IS source.

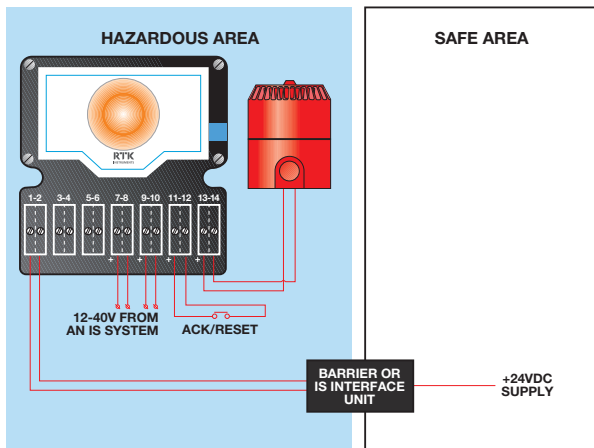


Typical Applications

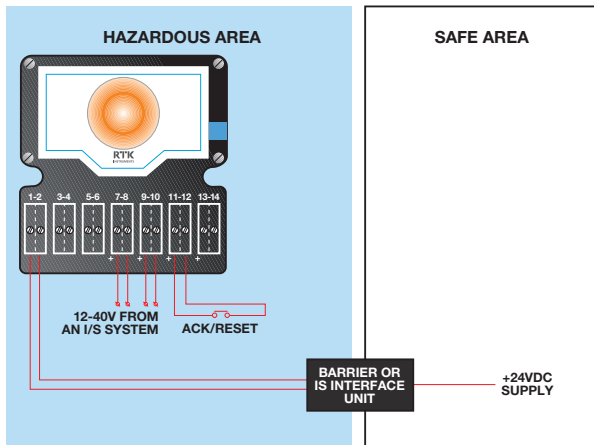
Stand alone system



DA135 connected as single point annunciator with sounder

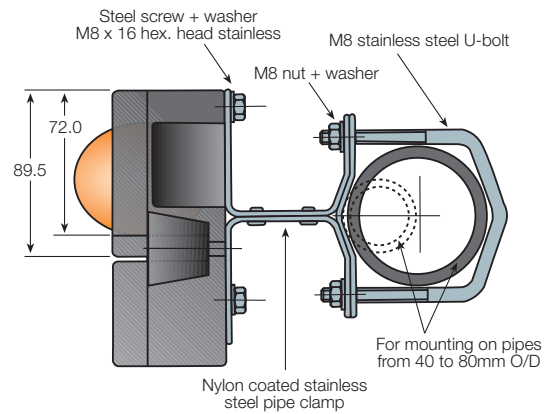


DA135 connected as single point annunciator without sounder

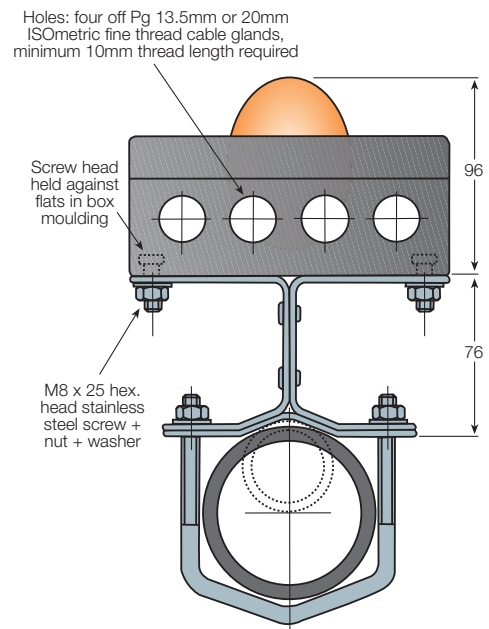


Mounting

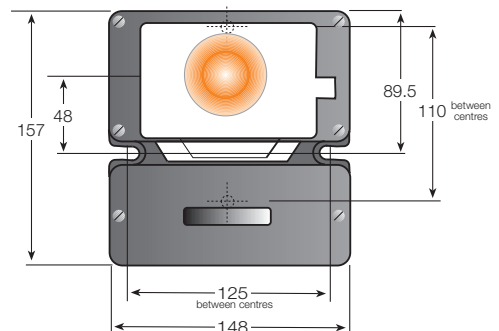
Horizontal pipe mounting



Vertical pipe mounting



Dimensions



Technical Specification

Certification

ATEX certified to EN50014:1997,
EN50020:2002 and EN50284:1999

Group II, Category 1G, EEx ia IIC T6
(Ta -20°C to +55°C)

Location

Zones 0, 1 or 2. Gas Group, IIC, IIB or
IIA, Temp Class up to T6

Certificate No.

Baseefa03ATEX0669

Safety Parameter for the supply

Ui = 28V

Ii = 110mA

Pi = 0.8W

The device can be powered from an
EEx ia IIC certified interface with output
parameters lower than those shown
above. Please see the EC Type
Certificate for all the safety parameters of
the other inputs and outputs.

Supply

For best results the supply voltage
should stay between these limits:
20-28VDC through IS Isolator
24-28VDC through Zener Barrier
12-28VDC in safe area
Current: typical 20mA without Sounder,
45mA with Sounder

Recommended Interfaces

Zener Barriers: MTL7728+ & MTL778AC
IS Isolators: MTL5025

Electrical Safety

Non-energy storing simple apparatus.
Will not store or generate more than 1.5V,
0.1A, 20mJ or 25mW when connected to
intrinsically safe equipment with a
maximum open circuit voltage of not
more than 28V.

Construction

GRP (glass reinforced plastic) casing to
IP65. Transparent acrylic dome for LED
housing.

Good resistance to hostile environments,
saline atmospheres and impact damage.

Output

Single or Dual colours available from
the following: white, red, amber, green
and blue.

Brightness typically 0.5J, all colours

Flash rate typically 1 Hz

Cable Entry

Four clearance holes for glands, internal
plate tapped to accept 13.5Pg DIN40330
or M20 Isometric fine thread cable
glands; shipped with blanking plugs.

Mounting

Direct mounting to walls or flat surfaces.
Or pipe/post mounting using PIP68 kit.

Connections

Rising clamp terminals suitable for
2.5mm² cable.

EMC Compliance

Immunity to EN61000-6-2:2001
Emissions to EN61000-6-4:2001

Environment

Operating Temperature: -20 to 55°C
Storage Temperature: -20 to 80°C
Humidity: 0-95% RH, non condensing

Protection

IP65

Weight

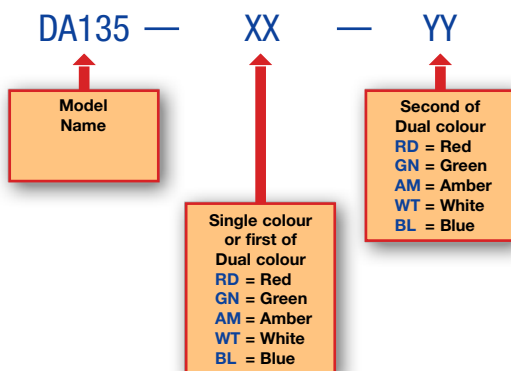
1.9kg

Accessories

Pipe Mounting Kit PIP68

TAG plate

Order Code



Due to our policy of continuous product development, we reserve the right to amend specifications without notice.



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DA170 Series Intrinsically Safe LED Clusters

Reliable, high brightness visual indication for hazardous areas

**ATEX Certified Ex II 1G,
EEx ia IIC T4**

**Available in six super-bright
colours**

Suitable for all zones and gases

11 year life expectancy

**Tough impact-resistant IP65
housing**

Low current (20mA)

**Matching pushbuttons and
selector switches available**

**Two clusters operable from a
single IIC power source**

The DA170 range of LED Clusters provides visual on/off indication of process conditions in hazardous and safe areas. Available in six super-bright colours – red, green, yellow, amber, blue and white – they are standard 22.5mm diameter and seal to IP65 to the panel door.

All colours are matched for equal brightness and all are current limited to 20mA with an integral regulator.

In hazardous areas it is possible to combine LEDs from a single IS interface, two for IIC interfaces and four with a IIB interface. The standard LED Cluster can also be supplied fully mounted in stainless steel boxes ready for immediate mounting on-site.

With the LED's lower power consumption, lower heat dissipation and far greater life expectancy the DA170 is an ideal standard indicator for safe and hazardous areas alike.



Features & Benefits

Colours

The DA170 Series of LED Clusters is available in six superbright colours including a true white LED. Colours are red, green, yellow, amber, blue and white.

Low Current Consumption

The complete DA170 Range features an integral current regulator to limit the current to 20mA, all colours are matched to obtain consistent brightness across the range including white and blue.

Simple Connections

To avoid any wiring problem on site all the LED Clusters have a unique bi-polar input so can be connected to the supply either way around.

Use in Hazardous Areas

The typical applications shown below illustrate some of the possible methods of connecting the LED. The way they can be used is extremely varied with numerous means of powering the device and interfacing to third party equipment such as the IS Relays, IS Annunciators and displays.

Lens Style

The lens is designed to provide the best high intensity, diffused illumination to ensure the maximum visibility in all ambient light conditions. The tough plastic lens will allow side viewing as standard to aid operators.

Interfaces and Systems

RTK Instruments manufacture a complete range of Zener Barrier and IS Isolators that can be used to power the LED Clusters and provide interfaces to trigger the LEDs. Intrinsically safe alarm and display systems can be designed and constructed to suit individual customer requirements.

Special Mounting

RTK has a vast range of experience in supplying LED Clusters pre-mounted, and, if required, prewired to terminals. This can comprise anything from a simple standalone stainless steel enclosure to complex alarm mimics. Please contact the sales office for a detailed quotation.

Simple Installation

It is a simple job to mount the DA170 LED Clusters on any panel door. The lens simply drops through an industry standard 22.5mm diameter hole and the body is screwed securely from the rear. This provides a seal to the panel of IP65.

Matching Components

As shown opposite, the LED Clusters can be supplied with a wide range of matching pushbuttons and selector switches. These all comply to the standard classification of 'simple apparatus' as defined in EN50014.

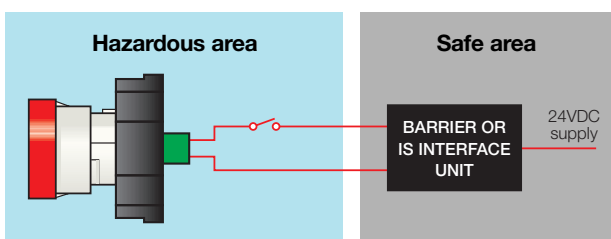
Alarm Applications

As RTK is a major supplier of industrial alarm systems and components, the DA170 range of LED Clusters can be linked into either the LN1000 IS Alarm Annunciator or safe area mounting alarm annunciator systems. This method of operation will provide the clearest method of indicating alarm information within a Zone 1 hazardous area.

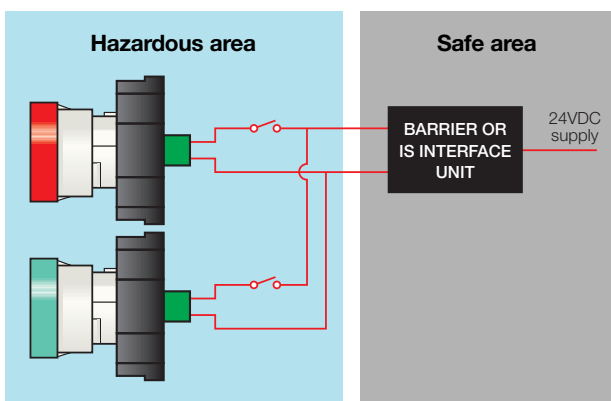
Labelling

Two accessories can be supplied with the LEDs, pre-engraved labels and a plastic label holder.

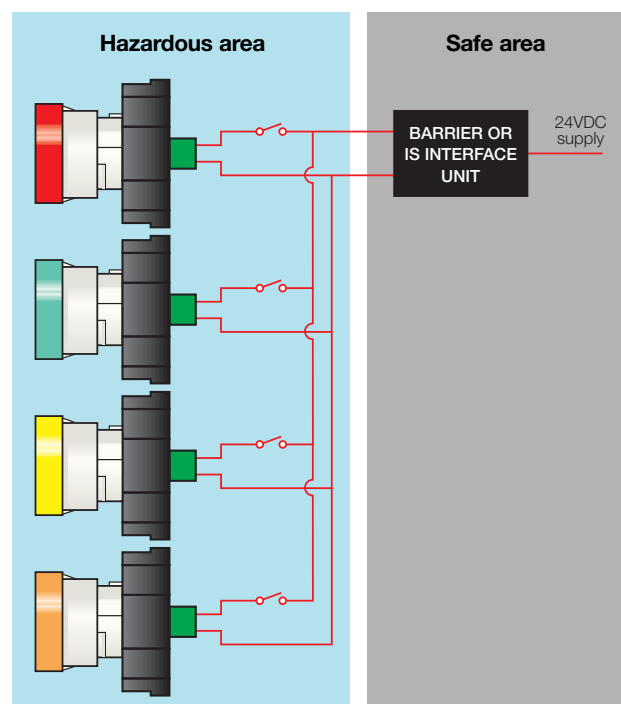
Typical System Configurations



Single Cluster System: IIC Gas Group



Double Cluster System: IIC Gas Group



Four Cluster System: IIB Gas Group

Technical Specification

Certification

ATEX certified to EN50014:1997,
EN50020:1994 and EN50284:1999

Group II, Category 1G, EEx ia IIC T4
(Ta -20°C to +60°C)

Location

Zones 0, 1 or 2. Gas Group IIC, IIB
or IIA. Temp Class up to T4

Certificate No.

BAS02ATEX1311

Safety Parameters

Ui = 40V

Pi = 1.2W (max ambient temp. = 60°C)

Pi = 1.3W (max ambient temp. = 40°C)

Ci = Li = 0

The device can be powered from an
EEx ia IIC certified interface with output
parameters lower than those shown above

Supply

14-26VDC, current 20mA

Recommended Interfaces

Zener Barriers: MTL7728+

IS Isolators: MTL5052

Environment

Operating Temperature: -20 to 60°C

Storage Temperature: -20 to 80°C

Humidity: 0-95% RH, non condensing

Protection

IP65 from the front, IP20 from the rear

Construction

Housing and Mounting Collar

- Polyamide 6.6/reinforced fibreglass FR4

Lens - Polycarbonate

Connections

Raising clamp terminals suitable for
2.5mm² cable

Compliance

Immunity to EN61000-6-2:2001

Emissions to EN61000-6-4:2001

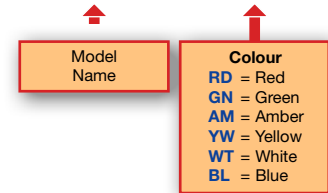
Accessories

DA658: Label Holder

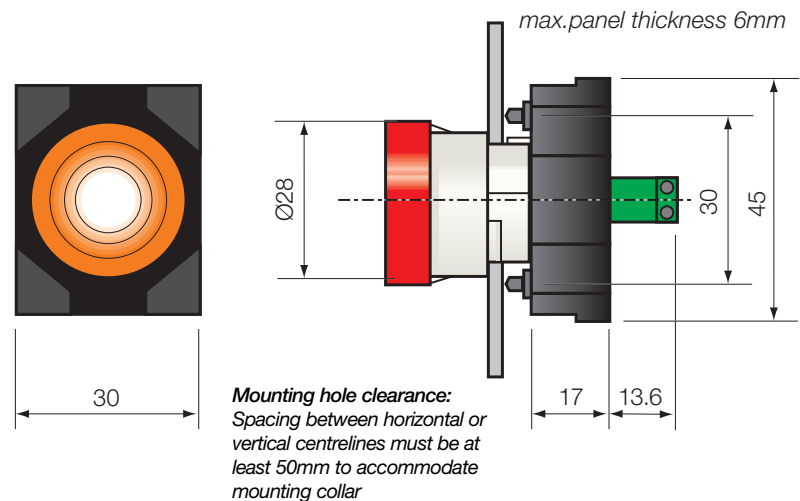
DA659: interchangeable label

Order Code

DA170 — XX



LED Cluster Dimensions



Matching Switches and Pushbuttons

In addition to the standard LED Clusters, RTK can provide a complete matching range of pushbuttons, selector switches and emergency-stop buttons. These can be selected using the following order code, taking note of the limitations as listed in the additional information panel.

Most of the pushbuttons and selector switches can be supplied in either illuminated or non-illuminated versions so your complete intrinsically safe control panel can have a consistent appearance.

The illuminated versions contain a certified BA9s LED Lamp Type P861 this is suitable for use in Zone 1 or 2 hazardous area, see separate datasheet.



Technical Specification for Illuminated Pushbuttons

Certification

ATEX certified to EN50014:1997 and EN50020:2002

Group II, Category 2G, EEx ia IIC T4 (Ta -20°C to +60°C)

Location

Zones 1 or 2. Gas Group IIC, IIB or IIA. Temp Class up to T4

Certificate No.

Kema03ATEX1021X

Safety Parameters

Ui = determined by li and Pi

li = 2A

Pi = 1W

Ci = Li = 0

The device can be powered from an EEx ia IIC certified interface with output parameters lower than those shown above

Supply

With suitable certified interface
18-35VDC, current 20mA

Recommended Interfaces

Zener Barriers: MTL7728+
IS Isolators: MTL5025

Environment

Operating temperature: -20 to 60°C

Storage temperature: -20 to 80°C

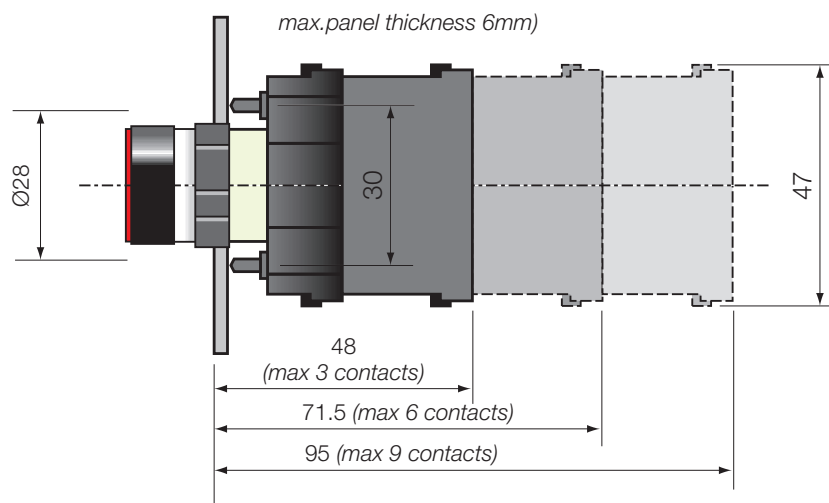
Humidity: 0-95% RH, non condensing

Compliance

Immunity to EN61000-6-2:2001

Emissions to EN61000-6-4:2001

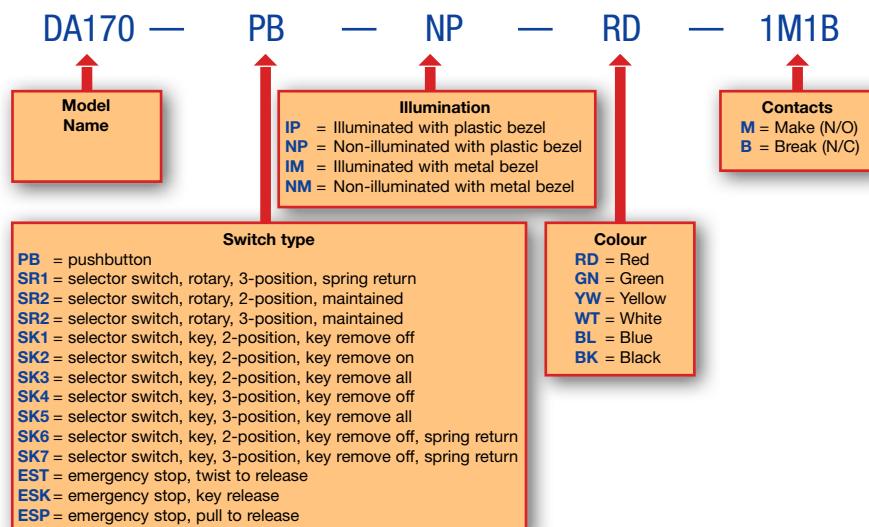
Pushbutton dimensions



Additional Information

- 1 Illumination is not available on emergency-stop pushbuttons
- 2 All the pushbuttons are momentary except the emergency-stop pushbuttons
- 3 Non-illuminated rotary selector switches are only available in black
- 4 Illuminated selector switches are available with a clear lens only
- 5 The maximum number of contacts is nine on non-illuminated units and six on illuminated versions

Order Code



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DA180 Series Intrinsically Safe Giant LED Clusters

For clear indication from a distance and from the side

**ATEX Certified Ex II 2G,
EEx ia IIC T4**

Available in six colours

Suitable for zones 1 & 2

**Tough impact-resistant IP65
housing**

Low current (20mA)

**Can be supplied as loose parts
or as a wall mounting display**

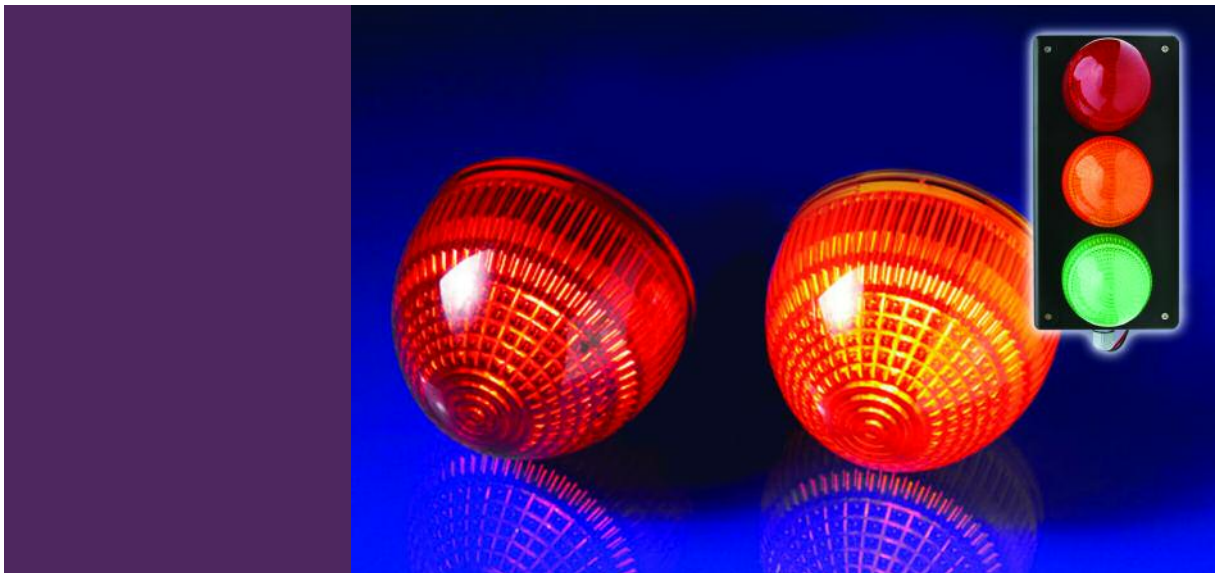
**Two clusters operable from a
single IIC power source**

66mm diameter lens

The DA180 range of Giant LED Clusters provides extremely clear indication of process conditions for use in both safe and hazardous area. The 66mm diameter lens not only provides clear indication from a distance but is also visible from the side. Available in a choice of six colours (red, green, yellow, amber, blue and white), the DA180 is a perfect choice for many visual warning tasks.

All colours are matched for equal brightness and all are current limited to 20mA with an integral regulator.

In hazardous areas it is possible to combine LEDs from a single IS interface, two for IIC interfaces and four with a IIB interface. The standard LED Cluster can also be supplied fully mounted in a stainless steel or polycarbonate box ready for immediate mounting on-site.



Technical Specification

Colours

The DA180 Series of LED Clusters is available in six colours. Colours are red, green, yellow, amber, blue and white

High Reliability

All LED lamps are designed to provide a minimum of 100,000 hours service life

Low Current Consumption

All LED lamps operate at 20mA or less and feature integral current limiting to maintain consistent brightness over the operating range of the voltage supply

Use in Hazardous Areas

In hazardous areas the LED lamps must be powered through suitable intrinsically safe Isolators or Barriers. Up to two LED lamps can be driven from a single IIC interface

Configuration

It is a simple procedure to replace or change the colour of a panel indicator. Access is from the front of the panel and no tools are required. Simply unscrew the lens and replace the BA9s LED lamp

Certification

ATEX certified to EN50014:1997 and EN50020:2002
Group II, Category 2G, EEx ia IIC T4
(Ta -20°C to +60°C)

Location

Zones 1 or 2. Gas Group IIC, IIB or IIA, Temp Class up to T4

Certificate No.

Kema03ATEX1021X

Safety Parameters

Ui = determined by li and Pi

li = 2A

Pi = 1W

Ci = Li = 0

The device can be powered from an EEx ia IIC certified interface with output parameters lower than those shown above

Supply

With suitable certified interface
18-35VDC, current 20mA

Recommended Interfaces

Zener Barriers: MTL7728+
IS Isolators: MTL5025

Environment

Operating temperature: -20°C to 60°C
Storage temperature: -20°C to 80°C
Humidity: 0-95% RH, non condensing

Compliance

Immunity to EN61000-6-2:2001
Emissions to EN61000-6-4:2001

Construction

Lens – Polycarbonate

Protection

IP65 when panel mounted

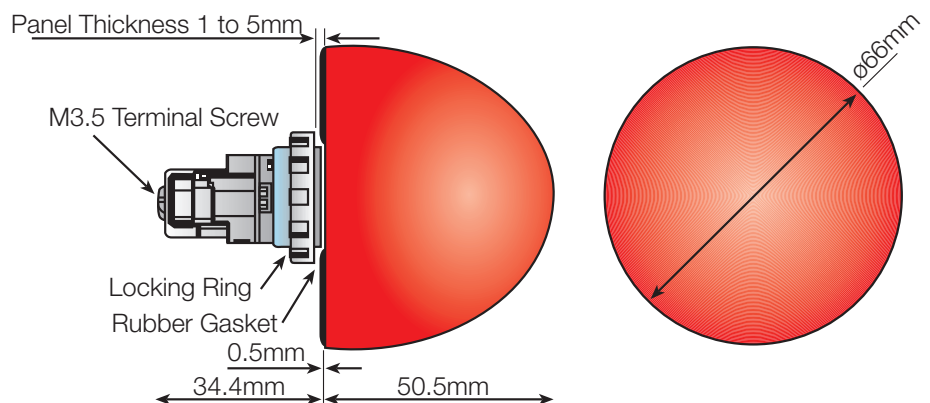
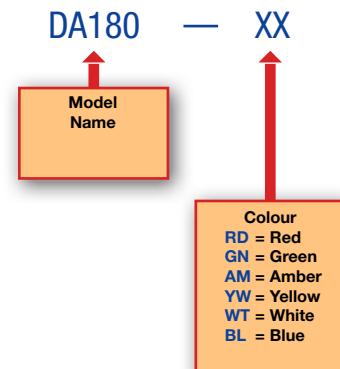
Connections

M3.5 screw terminal for cables from
0.5 to 2.5mm²

Mounting

22.5mm diameter hole
85mm apart

Order Code



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LN870 Intrinsically Safe Light Tower

A multi-tier Light Tower for status indication in hazardous areas

**ATEX certified EX II2G,
EEx ia IIC T4**

**Available in five super-bright
colours**

Suitable for zones 1 and 2

11 year life expectancy

Low current

**Two tiers operable from a single
IIC power source**

Built-in vibration shock absorber

Direct or pole mounting

The LN870 Light Tower provides visual on/off indication of process conditions in safe and hazardous areas. The unit is available up to a maximum of five tiers and each tier can be selected from five super-bright colours: red, amber, white, blue and green.

Each tier has a unique prism cut lens and internal reflective cone to improve visibility and requires one LED Lamp for illumination which is current-limited to take a maximum of only 20mA. Available for hazardous area use in both zones 1 and 2, up to two tiers can be driven from a single IIC interface.

There is a choice of pole or direct mounting, both incorporating a special vibration absorber.

With the LED's low power consumption, low heat dissipation and long life expectancy, the LN870 is an ideal indicator for safe and hazardous areas alike.



Technical Specification

Tiers

Can be stacked up to five tiers high using five different colours in any order.

Colours

Each tier available in five super-bright colours. Colours are red, amber, green, blue and white.

High Reliability

All tiers illuminated with high reliability LED lamps designed to provide a minimum of 100,000 hours service life.

Low Current Consumption

All LED Lamps operate at 20mA or less and feature integral current limiting to maintain consistent brightness over the operating range of the voltage supply.

Use in Hazardous Areas

In hazardous areas the light tower LED lamps must be powered through suitable intrinsically safe isolators or barriers. Up to two LED lamps and therefore two tiers can be driven from a single IIC interface.

Mounting

A special anti-vibration absorber built into the lower portion of the moulding effectively reduces vibration to the LED Lamps.

The unit can be pole or direct base mounting.

Configuration

It is easy to change the order of the colours. Lenses simply unscrew and LED Lamps can be installed in any position.

Certification

ATEX certified to EN50014:1997 and EN50020:2002

Group II, Category 2G, EEx ia IIC T4 (Ta -20°C to +60°C)

Location

Zones 1 or 2. Gas Group, IIC, IIB or IIA, Temp Class up to T4

Certificate No.

Kema03ATEX1022X

Safety Parameters

Ui = 45V

Ii = 2A

Pi = 1.2W (max ambient temp. = 60°C)

Pi = 1.3W (max ambient temp. = 40°C)

Ci = Li = 0

The device can be powered from an EEx ia IIC certified interface with output parameters lower than those shown above.

Supply

With suitable certified interface 18-35VDC, current 20mA per tier

Recommended Interfaces

Zener Barriers: MTL7728P+

IS Isolators: MTL5021 only

Environment

Operating temperature: -20°C to 40°C (Pi <=1.3W)

Operating temperature: -20°C to 60°C (Pi <=1.2W)

Storage temperature: -20 to 80°C

Humidity: 0-95% RH, non condensing

Protection

IP40, IP54 option available

Construction

Heat and shock resistant polycarbonate

Connections

Two flying leads per lamp/tier both marked with tier number. Terminations must be rated to IP20 minimum

Mounting

Direct base or optional pole mounting, both have vibration absorbing base

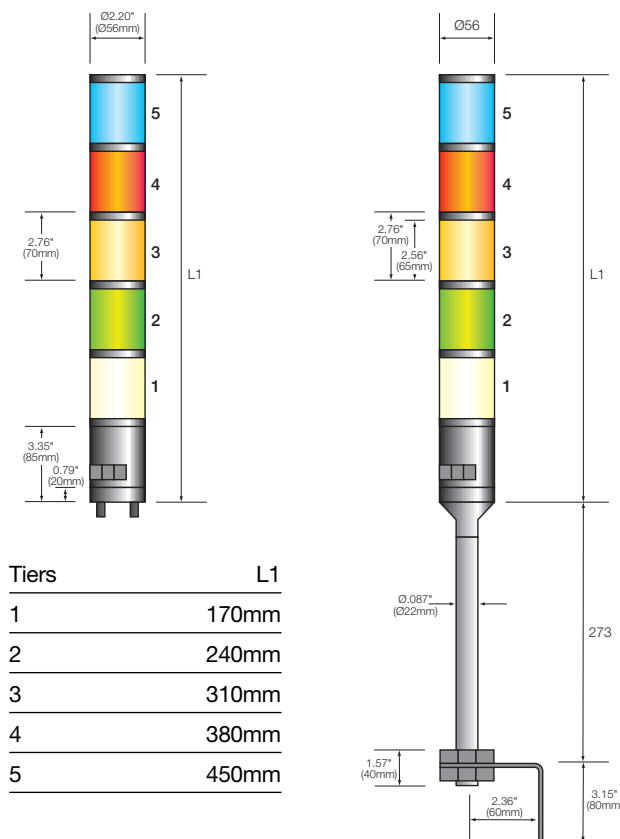
Compliance

Immunity to EN61000-6-2:2001

Emissions to EN61000-6-4:2001

Weight

350g for one tier and 50g for each additional tier



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A member of the MTL Instruments Group plc

P861 Intrinsically Safe LED Lamp

For use in pilot lights and illuminated pushbuttons

**ATEX certified to Ex II 2G
EEx ia IIC T4**

**Available in six super-bright
colours**

Suitable for zones 1 & 2

11 year life expectancy

**Two lamps operable from a
single IIC power source**

**Can be supplied as a complete
assembly or a simple certified
LED Lamp**

**Intensity matched to provide
equally super-bright
performance for all colours**

The P861 LED Lamp provides visual on/off indication of process conditions in both safe and hazardous areas. Available in a choice of six super-bright colours (red, orange, yellow, green, blue and white), they are ideally suited for use as part of a panel mounting indicator or illuminated pushbutton assembly.

The P861 itself is a standard BA9s Intrinsically Safe LED Lamp which can be supplied as part of a pilot light or illuminated pushbutton or alternatively supplied separately to be used in any suitable standard switch or lamp assembly.

With the LED lamp being current limited to take a maximum of only 20mA, it is possible to drive two lamps from a single IIC interface without any effect on the brightness.



Technical Specification

Colours

The P861 Series of LED Lamps are available in six super-bright colours. Colours are red, orange, yellow, green, blue and white.

High Reliability

All LED lamps are designed to provide a minimum of 100,000 hours service life.

Low Current Consumption

All LED lamps operate at 20mA or less and feature integral current limiting to maintain consistent brightness over the operating range of the voltage supply.

Use in Hazardous Areas

In hazardous areas the LED lamps must be powered through suitable intrinsically safe Isolators or Barriers. Up to two LED lamps can be driven from a single IIC interface.

Configuration

Easy to replace or change the colour of a panel indicator. Access is from the front of the panel and no tools are required. Simply unscrew the lens and replace the BA9s LED lamp.

Certification

ATEX certified to EN50014:1997 and EN50020:2002
Group II, Category 2G, EEx ia IIC T4
(Ta -20°C to +60°C)

Location

Zones 1 or 2. Gas Group IIC, IIB or IIA,
Temp Class up to T4

Certificate No.

Kema03ATEX1021X

Safety Parameters

Ui = determined by li and Pi
li = 2A
Pi = 1W
Ci = Li = 0

The device can be powered from an EEx ia IIC certified interface with output parameters lower than those shown above

BA9s LED Lamp

The P861 LED Lamp itself has a standard BA9s fitting and, when installed in accordance with the certificate and relevant standards, can be used in any suitable pilot light or pushbutton.

Supply

With suitable certified interface
18-35VDC, current 20mA

Recommended Interfaces

Zener Barriers: S951-POS, S967-POS
IS Isolators: WIS1211, WIS1212

Environment

Operating temperature: -20°C to 60°C
Storage temperature: -20°C to 80°C
Humidity: 0-95% RH, non condensing

Compliance

Immunity to EN61000-6-2:2001
Emissions to EN61000-6-4:2001

Illuminated Pushbutton and Pilot Light

The P861 LED Lamp can be supplied as an integral part of the DA170 Series of Illuminated Pushbuttons. These are industry standard 22mm pushbuttons which can be supplied in a range of different formats such as rotary, non-illuminated and emergency stop.

See separate datasheet for full details

Construction

Housing/mounting collar – Polyamide6.6 and FR4 fibreglass
Lens – Polycarbonate

Protection

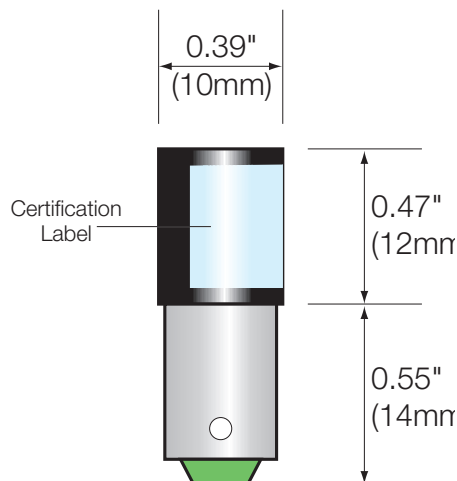
IP65 when panel mounted, IP20 from the rear

Connections

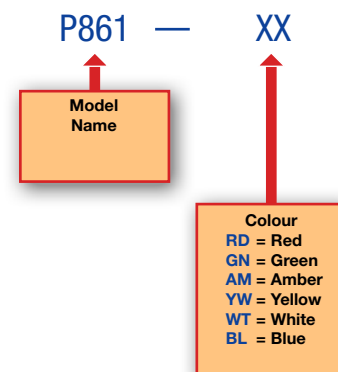
Screw terminals rated to IP20 minimum for cables from 0.5 to 2.5mm²

Mounting

Lamp – BA9s bulb holder
Pushbutton, Pilot Light – Through 22.5mm diameter hole



Order Code



Due to our policy of continuous product development, we reserve the right to amend specifications without notice.



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DB-5 Intrinsically Safe Sounder

100dBA with 26 user-selectable tones

**ATEX certified Ex II 1G
EEx ia IIC T4**

Greater than 100dBA output

26 user selectable sounds

**Two distinctive signals can be
switched remotely**

**Easy to install in all hazardous
areas**

**Low power consumption offers
application flexibility**

IP65 weatherproof rating

The DB-5 intrinsically safe multitone Sounder is ideally suited for use in areas of high ambient noise. Additionally, for extreme noise levels, they can be linked with the DA135 Intrinsically Safe Beacons to combine audible and visual warnings. They are designed with a re-entrant configuration to combine compactness with maximum efficiency.

One of 26 tones can be selected using a 5-way DIL switch and by switching the incoming negative supply to a third terminal a second tone is sounded. The sounders have suitable low frequencies to conform to BS 5839 Part 1, making them ideal for fire alarm systems and other annunciator applications.

The IP65 enclosure enables the DB-5 Sounder to cope with the harsh environmental conditions found offshore as well as those of the onshore oil, gas and chemical industries.



Specification

Sound

26 user selectable tones, see table below for tone types and related volumes. The volume can be adjusted via a single turn potentiometer by 15dB. To obtain the second tone, the negative supply is switched to a third terminal marked "2nd sound".

Certification

ATEX certified to EN50014:1997, EN50020:1994 and EN50284:1999 Group II, Category 1G, EEx ia T4 (Ta -20°C to +55°C)

Location

Zones 0, 1 or 2. Gas Group, IIC, IIB or IIA, Temp Class up to T4

Certificate No.

BAS00ATEX1259

Supply

12 or 24VDC ±20%, depending on model, current 14mA @ 24V, 12mA @ 12V

Safety Parameters

24V Version

U_i = 28v
I_i = 28mA
P_i = 0.81W
C_i = 0
L_i = 20mH + 1000Ω

12V Version

U_i = 15.7V
I_i = 37mA
P_i = 0.56W
C_i = 0
L_i = 20mH + 325Ω
(L_i/R_i = 61.5μH/Ω)

Please refer to to EC Type Examination Certificate and related System Certificate for full details on suitable interface devices.

Recommended Interfaces

Zener Barriers: 24V version MTL7728+, 12V version MTL7715+
IS Isolators: MTL5025

Environment

Operating temperature: 0 to 55°C
Storage temperature: -20 to 80°C
Humidity: 0-95% RH, non condensing

Protection

IP65

Construction

ABS enclosure with encapsulated electronic module. Colour – red

Connections

Six terminals suitable for cable up to 2.5mm²

Installation Details

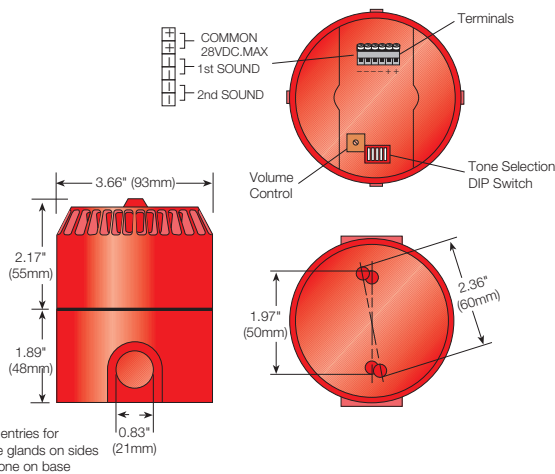
Having a deep base and two terminals per input makes these units convenient for looping to other circuits or for siting 'end-of-line' resistors. The base has three knock-outs, two on the side and one on the base, to accommodate PG13.5/20mm conduit or cable glands. The units are polarised and a chain may be fitted with an 'end-of-line' resistor for reverse polarity testing and to permit line monitoring.

EMC Compliance

Immunity to EN61000-6-2:2001
Emissions to EN61000-6-4:2001

Weight

300g



Tone and Sound Levels with IS Interface

No	Tones	2nd Tone	Switch Code	Sound Type	Level dBA
1	Alternating 800/970Hz at 0.25s	14	11111		88
2	Sweeping 800-970Hz at 7Hz	14	11110	Fast Sweep (LF)	91
3	Sweeping 800-970Hz at 1Hz	14	11101	Med Sweep (LF)	94
4	Continuous at 2850Hz	14	11100		102
5	Sweeping 2400-2850Hz at 7Hz	4	11011	Fast Sweep	100
6	Sweeping 2400-2850Hz at 1Hz	4	11010		103
7	Slow Whoop	14	11001	Slow Sweep	94
8	Sweeping 1200-500Hz at 1Hz	14	11000		91
9	Alternating 2400/2850Hz at 2Hz	4	10111		100
10	Intermittent 970Hz at 1Hz	14	10110	Back-up Alarm (LF)	83
11	Alternating 800/970Hz at 7/8Hz	14	10101		87
12	Intermittent 2850Hz at 1Hz	4	10100	Back-up Alarm (HF)	100
13	970Hz at 0.25s on, 1s off	14	10011		83
14	Continuous 970Hz	4	10010		85
15	554Hz for 100ms, 440Hz for 400ms	14	10001	French fire	91
16	Intermittent 660Hz: 150ms on, 150ms off	14	10000	Swedish fire	86
17	Intermittent 660Hz: 1.8s on, 1.8s off	14	01111	Swedish fire	87
18	Intermittent 660Hz: 6.5s on, 13s off	14	01110	Swedish fire	88
19	Continuous 660Hz	14	01101	Swedish fire	87
20	Alternating 554/440Hz at 1Hz	14	01100	Swedish fire	93
21	Intermittent 660Hz at 7/8Hz	14	01011	Swedish fire	88
22	Intermittent 2850Hz: 150ms on, 100ms off	14	01010	Pelican Crossing	100
23	Sweeping 800-970Hz at 50Hz	14	01001	Low buzz	92
24	Sweeping 2400-2850Hz at 50Hz	14	01000	High buzz	99
25	3 970Hz pulses, 0.5s on/0.5s off, 1.5s off	14	00111		83
26	3 2850Hz pulses, 0.5s on/0.5s off, 1.5s off	14	00110		102

Approvals

Country & Authority	Standard	Certificate number	Approved for
Europe Baseefa	EN50014, EN50020 and EN50284	BAS00ATEX1259	EX II 1G EEx ia IIC T4
Europe MECS Mining	EN50014, EN50020 and EN50303	MECSO1ATEX4260	Ex I 1M EEx ia I
Canada CSA	C22.2 Nos 0, 0.4 0.5, 25, 30, 205	79122	Class 1 Groups A, B, C and D
USA FM		J. I. 3008604	Class1 Div1 FM Groups A, B

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DB-7 Intrinsically Safe Sounder

Up to 110dBA with 26 user-selectable tones

**ATEX certified to Ex II 1G
EEx ia IIC T4**

Greater than 107dBA output

26 user-selectable tones

IP66 weatherproof rating

**Second tone switched by
reversing supply polarity**

**Tones comply to UKOOA/PFEER
guidelines**

**Corrosion-resistant red glass-
reinforced polyester**

The DB-7 is a ruggedised, intrinsically safe multitone Sounder which gives up to 110dBA output. This level of output is suitable for industrial environments with the highest of ambient noise levels. Additionally, they can be linked with the DA135 Intrinsically Safe Beacons to combine audible and visual warnings. They are designed with a re-entrant configuration to combine compactness with maximum efficiency.

Units are available for gas groups IIB and IIC and both feature selectable dual tones. Both of the tones are user selectable using 5 way DIL switches, the second tone being activated by reversing the polarity of the supply.

The IP66 enclosure enables the DB-7 Sounder to cope with the harsh environmental conditions found offshore as well as those of the onshore oil, gas and chemical industries.



Technical Specification

Sound

26 user selectable tones, see table below for tone types and related volumes. Two different tones can be selected using the separate DIL switches, reversing the polarity of the supply will select the second tone.

Certification

ATEX certified to EN50014:1997, EN50020:1994 and EN50284:1999 Group II, Category 1G, EEx ia IIC or IIB T4 (Ta -55°C to +70°C)

Location

Zones 0, 1 or 2. Gas Group, IIC (or IIB depending on model) or IIA, Temp Class up to T4

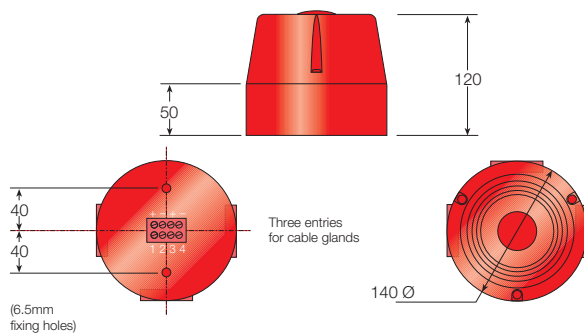
Certificate No.

BAS00ATEX1260

Safety Parameters

24V Version:	12V Version:
Ui = 28V	Ui = 15.7V
Ii = 123mA (IIB vers.)	Ii = 123mA (IIB)
Ii = 61.3mA (IIC vers.)	Ii = 61.3mA (IIC)
Pi = 0.653W	Pi = 0.563W
Ci = 0	Ci = 0
Li = 10mH + 171.5Ω (IIC)/46.1 Ω(IIB)	Li = 10mH + 148.5Ω (IIC)/25.5 Ω(IIB)

Please refer to EC Type Examination Certificate and related System Certificate for full details on suitable interface devices.



Supply

12 or 24VDC ±20%, depending on model, current 34-68mA @ 24V, 25-55mA @ 12V

Recommended Interfaces

Zener Barriers: MTL7715+

Recommended Cable

0.5 to 2.5mm² with earthed screen and insulating sheath. Cable parameters are determined by the output parameters of the interface selected

Environment

Operating temperature: -55 to 70°C
Storage temperature: -55 to 80°C
Humidity: 0-95% RH, non-condensing

Protection

IP66

Construction

UV stable glass reinforced polyester with stainless steel retaining screws.
Colour – red

Connections

Eight terminals suitable for cable up to 2.5mm²

Installation Details

Having a deep base and extra terminals makes these units convenient for looping to other circuits or for siting “end-of-line” resistors. The base has three knock-outs to accommodate PG13.5/20mm conduit or cable glands. The units are polarised and a chain may be fitted with an “end-of-line” resistor for reverse polarity testing and to permit line monitoring.

EMC Compliance

Immunity to EN61000-6-2:2001
Emissions to EN61000-6-4:2001

Weight

1.0kg

Tone and Sound Levels with IS Interface

No	Tones	Switch Code	Sound Type	Level dBA
1	Alternating 800/970Hz at 0.25s	11111		99
2	Sweeping 800-970Hz at 7Hz	11110		97
3	Sweeping 800-970Hz at 1Hz	11101		98
4	Continuous at 2850Hz	11100	HF 2nd tone	107
5	Sweeping 2400-2850Hz at 7Hz	11011		107
6	Sweeping 2400-2850Hz at 1Hz	11010		107
7	Slow Whoop	11001		98
8	Sweeping 1200-500Hz at 1Hz	11000		98
9	Alternating 2400/2850Hz at 2Hz	10111		107
10	Intermittent 970Hz at 1Hz	10110		98
11	Alternating 800/970Hz at 7/8Hz	10101		98
12	Intermittent 2850Hz at 1Hz	10100		107
13	970Hz at 0.25s on, 1s off	10011		98
14	Continuous 970Hz	10010	LF 2nd tone	98
15	554Hz for 100ms, 440Hz for 400ms	10001	French fire	93
16	Intermittent 660Hz: 150ms on, 150ms off	10000	Swedish fire	89
17	Intermittent 660Hz: 1.8s on, 1.8s off	01111	Swedish fire	89
18	Intermittent 660Hz: 6.5s on, 13s off	01110	Swedish fire	89
19	Continuous 660Hz	01101	Swedish fire	89
20	Alternating 554/440Hz at 1Hz	01100	Swedish fire	92
21	Intermittent 660Hz at 7/8Hz	01011	Swedish fire	89
22	Intermittent 2850Hz: 150ms on, 100ms off	01010	Pelican Crossing	107
23	Sweeping 800-970Hz at 50Hz	01001	Low buzz	95
24	Sweeping 2400-2850Hz at 50Hz	01000	High buzz	104
25	3 970Hz pulses, 0.5s on/0.5s off, 1.5s off	00111		98
26	3 2850Hz pulses, 0.5s on/0.5s off, 1.5s off	00110		107

Approvals

Country & Authority	Standard	Certificate	Approved for
Europe Baseefa	EN50014, EN50020 and EN50284	BAS00ATEX1260	EX II 1G EEx ia IIC and IIB T4
Russia Gost	'R' Certification	A-0758	OEx ia IIC and IIB T4

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