Reliable, high brightness visual indication for hazardous areas.

The RTK 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.

- 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

RTK DA170 range
MTL intrinsically safe LED clusters
FEATURES & BENEFITS

Colours
The DA170 range 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
We 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.

TYPICAL SYSTEM CONFIGURATIONS

**Special mounting**
We have 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 Eaton 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.
**TECHNICAL SPECIFICATION**

**Certification**
  - Group II, Category 1G, EEx ia IIC T4
  - (Ta: -20ºC to +60ºC)

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

**Certificate No.**
- BAS02ATEX1311

**Safety parameters**
- $U_i = 40V$
- $P_i = 1.2W$ (max ambient temp. = 60ºC)
- $P_i = 1.3W$ (max ambient temp. = 40ºC)
- $C_i = L_i = 0$

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 60ºC
- Storage Temperature: -20 to 80ºC
- Humidity: 0-95% RH, non condensing

**Protection**
- IP65 from the front, IP20 from the rear

**Construction**
- Housing and Mouting 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

**Accessories**
- DA658: Label Holder
- DA659: interchangeable label

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**LED CLUSTER DIMENSIONS**

**MATCHING SWITCHES AND PUSHBUTTONS**

In addition to the standard LED Clusters, Eaton 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.

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**ORDER CODE**

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA170</td>
<td>RD = Red</td>
</tr>
<tr>
<td></td>
<td>GN = Green</td>
</tr>
<tr>
<td></td>
<td>AM = Amber</td>
</tr>
<tr>
<td></td>
<td>YW = Yellow</td>
</tr>
<tr>
<td></td>
<td>WT = White</td>
</tr>
<tr>
<td></td>
<td>BL = Blue</td>
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</tbody>
</table>
TECHNICAL SPECIFICATION FOR ILLUMINATED PUSHBUTTONS

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

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 60ºC
Storage temperature: –20 to 80ºC
Humidity: 0-95% RH, non condensing

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

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

PUSHBUTTON DIMENSIONS

ORDER CODE

<table>
<thead>
<tr>
<th>DA170</th>
<th>PB</th>
<th>NP</th>
<th>RD</th>
<th>1M1B</th>
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<tbody>
<tr>
<td>Model</td>
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<tr>
<td>Switch type</td>
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<tr>
<td>Illumination</td>
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<tr>
<td>PB = pushbutton</td>
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</tr>
<tr>
<td>SR1 = selector switch, rotary, 3-position, spring return</td>
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<td></td>
<td></td>
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<tr>
<td>SR2 = selector switch, rotary, 2-position, maintained</td>
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<tr>
<td>SR2 = selector switch, rotary, 3-position, maintained</td>
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<tr>
<td>SK1 = selector switch, key, 2-position, key remove off</td>
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<tr>
<td>SK2 = selector switch, key, 2-position, key remove on</td>
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<tr>
<td>SK3 = selector switch, key, 2-position, key remove all</td>
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<td>SK4 = selector switch, key, 3-position, key remove off</td>
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<td>SK5 = selector switch, key, 3-position, key remove on</td>
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<td>SK6 = selector switch, key, 2-position, key remove off, spring return</td>
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<tr>
<td>SK7 = selector switch, key, 3-position, key remove off, spring return</td>
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<tr>
<td>EST = emergency stop, twist to release</td>
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<td>ESK = emergency stop, key release</td>
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<tr>
<td>ESP = emergency stop, pull to release</td>
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<tr>
<td>Colour</td>
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<td>BL = Blue</td>
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<tr>
<td>BK = Black</td>
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</tbody>
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