

---

## 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  
colors**

**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**

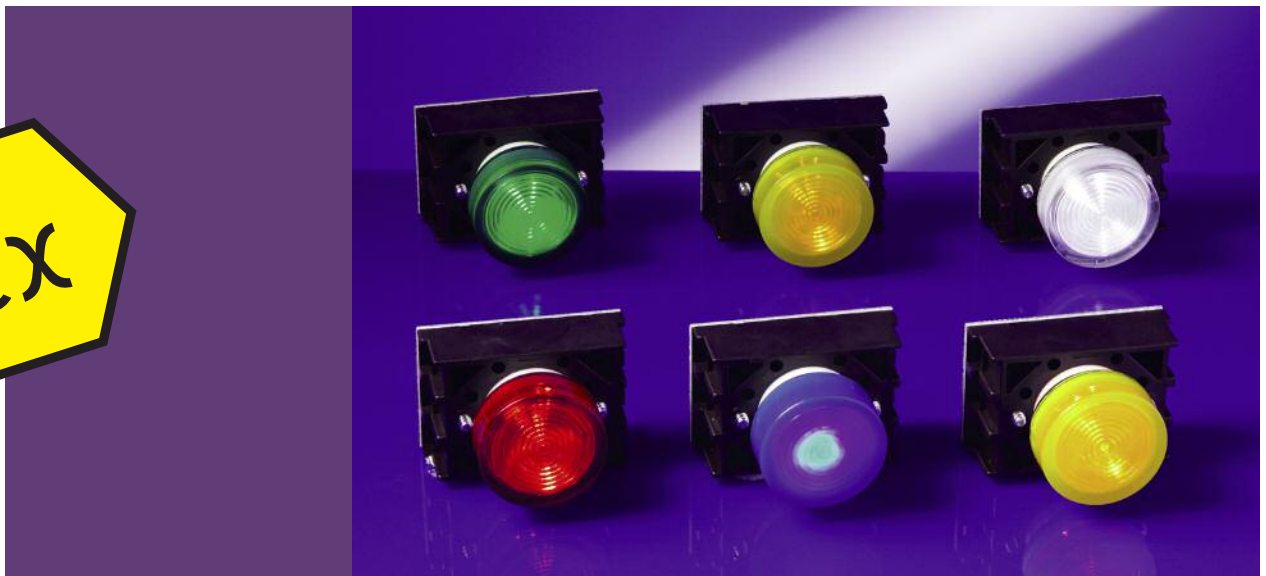
---

The DA170 range of LED Clusters provides visual on/off indication of process conditions in hazardous and safe areas. Available in six super-bright colors – red, green, yellow, amber, blue and white – they are standard 0.88" (22.5mm) diameter and seal to IP65 to the panel door.

All colors 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

## Colors

The DA170 Series of LED Clusters is available in six superbright colors including a true white LED. Colors 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 colors 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 0.88" (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.

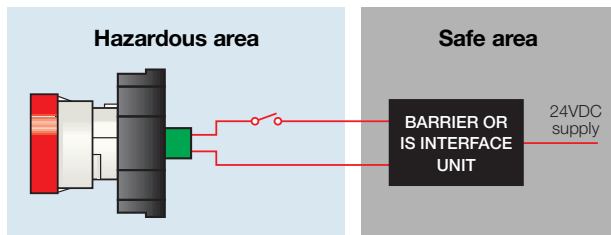
## Alarm Applications

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.

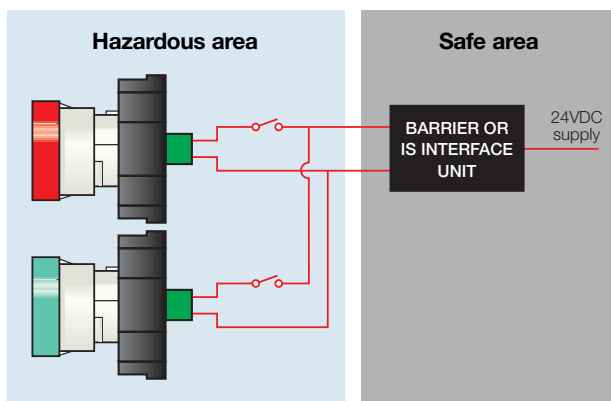
## Labelling

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

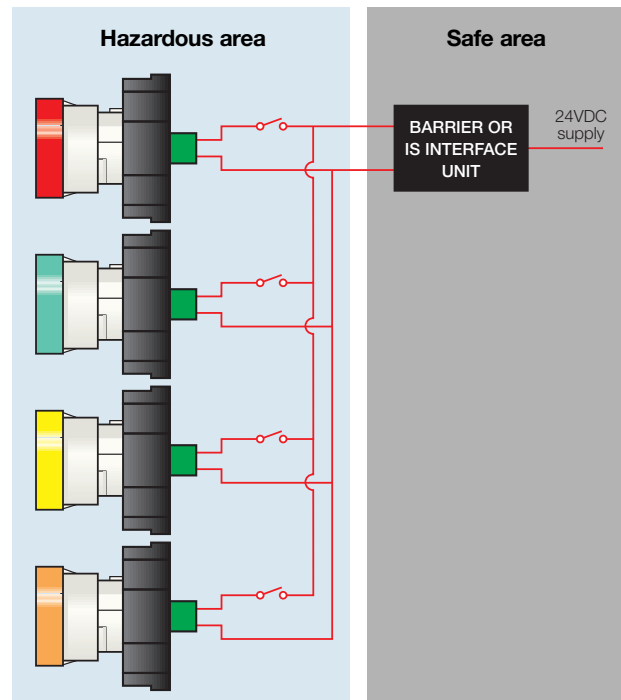
# Typical System Configurations



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 -4°F to 140°F (-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. = 140°F (60°C))

Pi = 1.3W

(max ambient temp. = 104°F (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:

32°F to 140°F (0 to 60°C)

Storage Temperature:

-4°F to 176°F (-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 12

AWG (2.5mm<sup>2</sup>) wire

## Compliance

Immunity to EN61000-6-2:2001

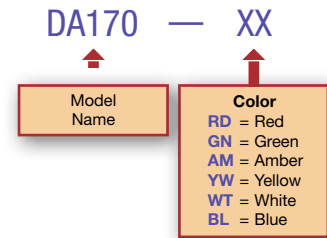
Emissions to EN61000-6-4:2001

## Accessories

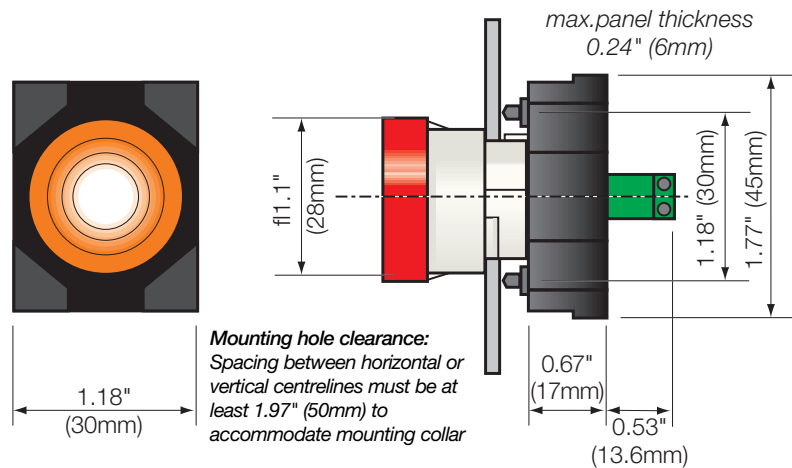
DA658: Label Holder

DA659: interchangeable label

## Order Code



## 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 -4°F to 140°F (-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:  
-4°F to 140°F (-20 to 60°C)

Storage temperature:  
-4°F to 176°F (-20 to 80°C)

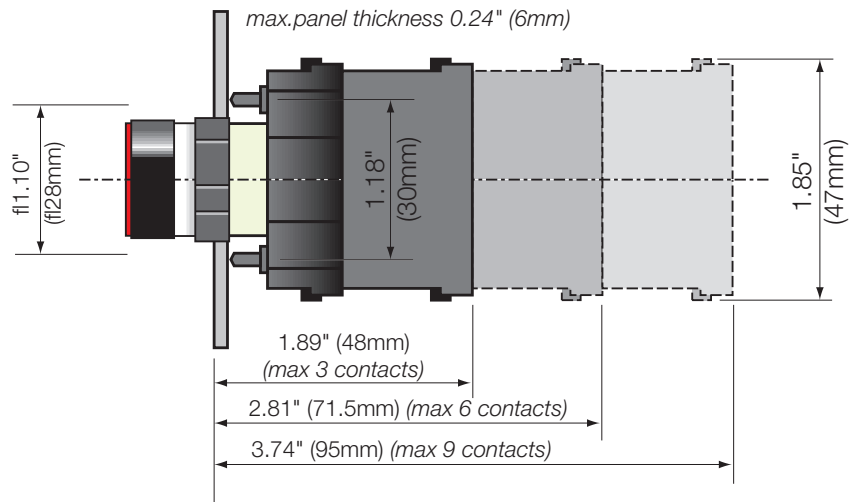
Humidity: 0-95% RH, non condensing

## Compliance

Immunity to EN61000-6-2:2001

Emissions to EN61000-6-4:2001

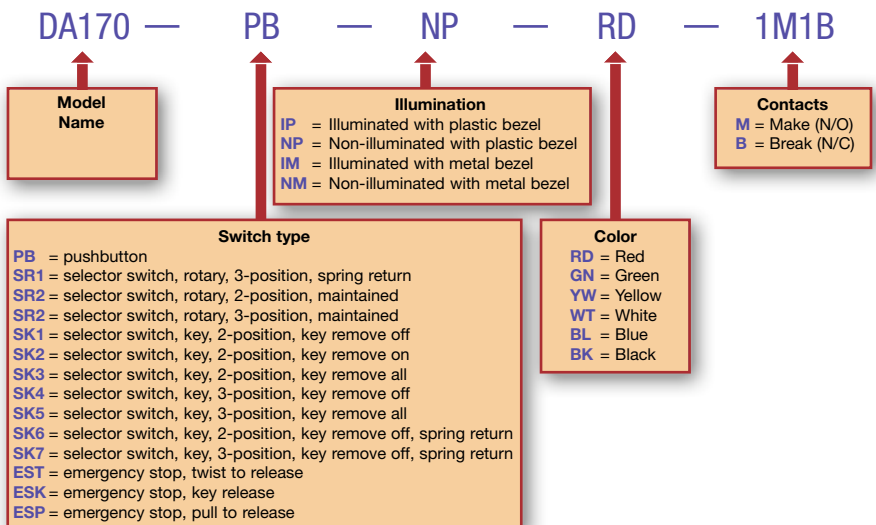
## Pushbutton dimensions



## 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



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



RTK Instruments  
1531 Stuyvesant Avenue  
Union  
New Jersey 07083  
USA

A member of the MTL Instruments Group plc

Telephone: 908 688 6709  
Facsimile: 908 688 9040  
Email: sales@rtkinstruments.com  
Web: www.rtkinstruments.com