

# RTK P861

## MTL intrinsically safe LED lamp

### Description

The RTK P861 MTL 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 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 standard switch or lamp assembly. (This assumes that when used in a hazardous area that the special conditions for safe use are adhered to).

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 affect on the brightness.

With the LED's low power consumption, low heat dissipation and long life expectancy, the P861 is an ideal indicator for safe and hazardous areas alike.

### Installation

The P861 LED lamp can be supplied as a loose item or as an integral part of the RTK DA170 range of illuminated pushbuttons, RTK DFR30IS display facias or RTK DA180 range of giant LED clusters.

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.

When supplied loose the LED lamp will need to be fitted to a suitable lamp-holder/enclosure to suit the application bearing in mind the conditions for safe use when using in a hazardous area. In these cases the end terminal of the lamp is the positive and the body of the lamp itself is the negative.

When supplied as part of a DA170 illuminated pushbutton then the P861 lamps are supplied pre-fitted into the integral BA9s lamp holder with terminals marked X1 and X2. To illuminate the lamp, connect X1 to positive and X2 to negative. If these are connected incorrectly the lamp will not illuminate but will not be damaged in any way, simply reverse the two connections.

When supplied as part of a DA180 giant cluster then the P861 lamps are supplied pre-fitted into the integral BA9s lamp holder with terminals marked X1 and X2. To illuminate the lamp, connect X1 to positive and X2 to negative. If these are connected incorrectly the lamp will not illuminate but will not be damaged in any way, simply reverse the two connections.

### Hazardous area use

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.

The LED lamp must be protected to IP20 minimum once installed.

### Safe area use

A power source of 14-26VDC is applied to the LED lamp in order to illuminate the LED lamp.

## Specification

### HAZARDOUS AREA USE

#### Certification

ATEX certified to to EN60079-0:2012 and EN60079-11:2012  
Group II, Category 2  
⊕ II 2G Ex ia IIC Gb T4 (Ta-20°C to 60°C)

#### Location

Zones 1 and 2, Gas Groups IIC, IIB and IIA, Temp Class up to T4

#### Certificate number

Baseefa14ATEX0007X

#### Safety Parameters

Only for connection to certified intrinsically safe circuits with the following maximum values:

$U_i = 30V$

$P_i = 1.0W$   $I_i = 2A$ ,  $C_i = 0nF$   $L_i = 0mH$

#### Supply

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

#### Recommended interfaces

Zener Barriers: MTL7728P+

IS Isolators: MTL5521

#### Environment

Operating temperature: -20°C to +60°C

Storage temperature: -20°C to +80°C

Humidity: 0-95% RH, non-condensing

#### Compliance

Immunity to EN61000-6-2:2005

Emissions to EN6100-6-4:2007

### SAFE AREA USE

#### Power supply requirements

Direct connection: 14-26VDC

Current consumption: 20mA maximum per lamp

#### Environment

Operating temperature: -20°C to +60°C

Storage temperature: -20°C to +80°C

Humidity: 0-95% RH, non-condensing

### GENERAL

#### High Reliability

All LED lamps are designed to provide a minimum of 100,000 hours service life (continuous illumination at 40°C ambient temperature).

#### Colours

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

### WHEN SUPPLIED DA170 ILLUMINATED PUSHBUTTON

#### Construction

Housing/mounting collar: Polyamide 6.6/reinforced fibreglass FR4

Lens: Polycarbonate

#### Protection

IP65 when panel mounted, IP20 from the rear

#### Mounting

Lamp- BA9s bulb holder

Pushbutton, Pilot Light – Through 22.5 mm diameter hole

#### Connections

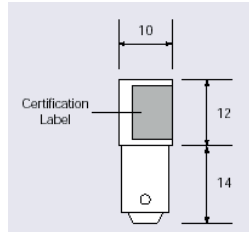
Screw terminals for cable 0.5–2.5 mm<sup>2</sup>

## BA9s LED lamp

The P861 LED lamp itself has a standard BA9s fitting and can be used in any suitable pilot light or pushbutton, taking the special conditions for safe use as shown in the certificate into account.

### Connections

The end terminal of the lamp is the positive and the body of the lamp itself is the negative.



## Special conditions for safe use

### 1. General

- 1.1 The terminations of the lamp holder shall be marked as intrinsically safe in accordance with clause 12.2 of EN 60079-11, when also non-intrinsically safe apparatus are installed in the same enclosure (For instance circuits connected to terminals in type of protection increased safety Ex e).
- 1.2 When more than one intrinsically safe circuit is installed in the same enclosure and/or also non intrinsically safe circuits are installed in that same enclosure, the separations between the circuits have to be assured in accordance with EN 60079-11, taking into account a possible addition of the voltage of the circuits.

### 2. LED lamp of the P861 range (including fittings).

- 2.1 When the LED lamp of the P861 range is mounted in a lamp holder containing other circuits, the lamp holder shall be fitted in an enclosure providing ingress protection of at least IP20 in accordance with EN60529.

When a higher ingress protection is required this has to be achieved by an enclosure, which is suitable for the applicable environmental conditions, in accordance with EN 60079-0 and EN 60079-11.

- 2.2 For the illuminated push-button assembly as specified in the test documentation listed at (19), the special conditions for safe use are met when all the circuits connected to it are intrinsically safe, have a maximum peak voltage of 375V and the required ingress protection has been taken into account.

This illuminated push-button assembly has an ingress protection of IP20 in accordance with EN 60529. This assembly consists of the following parts (or equivalent): lamp holder DA170-LH, switches DA170-SW on either side of the lamp holder, which are fitted on Body DA170-BD and operated by actuator DA170-AC.

### 3. Giant LED cluster of the DA180 range.

- 3.1 When more than one giant LED cluster of the DA180 range is mounted on an enclosure or the enclosure contains also other circuits, the enclosure shall provide a degree of ingress protection in accordance with EN 60529 suitable for the applicable environmental conditions and comply with EN60079-0 and EN60079-11.

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

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