

P861 Intrinsically Safe LED Lamp

Description

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 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 DA170 Series of Illuminated Pushbuttons, DFR30IS Display Facias or DA180 series 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.

Manufacturers of

Alarm Annunciators and Systems | Sequential Event Recorders | Display Facias | Hazardous Area Interface, Alarm and Display Products | Signal Conditioning & Trip Amplifiers | Process Instrumentation

Specification

HAZARDOUS AREA USE

Certification

ATEX certified to EN60079-0:2006 and
EN60079-11:2007
Group II, Category 2



II 2G Ex ia IIC 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 KEMA07ATEX0204X

Safety Parameters

Only for connection to certified intrinsically safe
circuits with the following maximum values:
 $U_i = P_i/I_i$ for a supply circuit with non-linear current
limiting
 $U_i = 4P_i/I_i$ for a supply circuit with linear current
limiting
 $P_i = 1.0W$ $I_i = 2A$, $C_i = 0nF$ $L_i = 0mH$

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 EN61000-6-4:2007

Labelling

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 Series 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

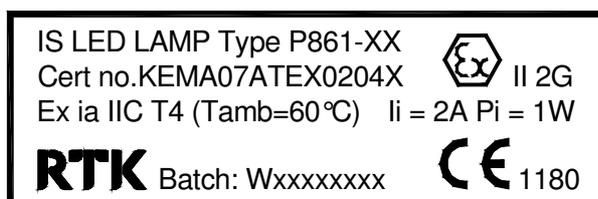
IP65 when panel mounted, IP20 from the rear

Mounting

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

Connections

Screw terminals for cable 0.5–2.5 mm²

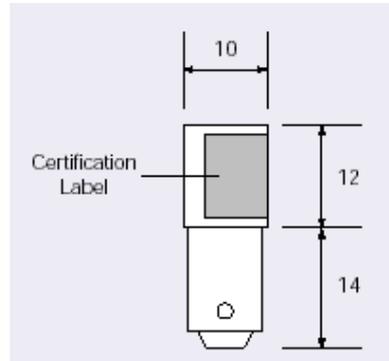


BA9s LED Lamp

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 series (including fittings)

- 2.1 When the LED Lamp of the P861 series 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 take 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 series

- 3.1 When more than one Giant LED Cluster of the DA180 series 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

EC DECLARATION OF CONFORMITY

This is to certify that the P861 LED Lamp

Manufactured by:-

**RTK INSTRUMENTS LTD
ST JAMES BUSINESS PARK
KNARESBOROUGH
NORTH YORKSHIRE
HG5 8PJ**

Conforms to the protection requirements of the following directives:

- Council directive 89/336/EEC (EMC Directive) to BS EN 61000-6-4 and BS EN 61000-6-2
- Council Directive 94/9/EC (ATEX Directive) to EN60079-0 and EN60079-11

The product is certified to:



II 2 G Ex ia IIC T4

Certificate No: KEMA07ATEX0204X

The Quality System is certified and monitored by Baseefa Ltd, Rockhead Business Park, Staden Lane, Buxton, Derbyshire, SK17 9RZ

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PAUL HARTLEY - MANAGING DIRECTOR

Date: 12th March 2008

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