

## DFR30IS Intrinsically Safe Display Facias

### Description

The DFR30IS range of intrinsically safe Display Facias has been designed to complement the RTK Instruments range of alarm annunciators and instrumentation products. The DFR30IS Displays provide a visual indication of alarm and plant status information within a hazardous area in the clearest and brightest possible way.

The DFR30IS range is modular in design and can be supplied in any overall size comprising different window sizes. Pushbuttons can also be integrated to provide a complete solution for plant status monitoring.

All units are supplied pre-fitted with the certified IS LED Lamp Type P861. These units provide the backlit illumination of the individual windows to the defined colours.

### Installation

DFR30IS units are supplied with two terminals per window. Each window will have two terminals marked X1 and X2.

For use in hazardous areas the LEDs must be powered through suitable intrinsically safe isolators or barriers. Up to two lamps can be driven from a single IIC interface. The supply voltage should be connected with the X1 connected to the positive and the X2 terminals connected to the negative.

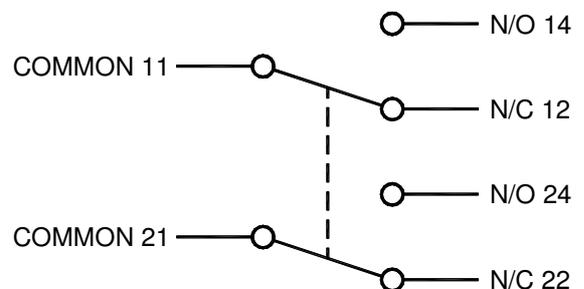
Windows which require more than one LED such as medium and large will be connected so the LEDs for that individual window are connected in parallel.

Refer to page 3 for individual connection diagrams depending on window size

### Pushbuttons

If specified at the time of ordering, the unit can be supplied with DPDT pushbuttons for use as Test, Accept and Reset pushbuttons. These are normally fitted in the bottom right hand corner of the unit. To connect refer to the diagrams below.

Pushbuttons:



### Overall dimensions and panel cut-out

Small DFR30:  
Height = 24mm + (rows x 30mm)  
Width = 24mm + (columns x 30mm)

Medium DFR30:  
Height = 24mm + (rows x 30mm)  
Width = 24mm + (columns x 60mm)

Large DFR30:  
Height = 24mm + (rows x 60mm)  
Width = 24mm + (columns x 60mm)

For cut-out size, subtract 10mm from each dimension

## DFR30IS Specification

### Window size

Small: 30x30mm  
Medium: 30x60mm  
Large: 60x60mm

### LED illumination

Illuminated by P861 IS LED Lamp

Small windows have 1 LED  
Medium windows have 2 LEDs in parallel  
Large windows have 4 LEDs in parallel

### Environmental

Operating temperature: -20°C to 60°C  
Storage temperature: -20°C to 80°C  
Humidity: 0-95% RH non-condensing  
Protection: IP41

### Connection

Rear mounted screw terminals suitable for 2.5mm<sup>2</sup> solid or stranded cable for LED's and 1.25mm<sup>2</sup> for pushbuttons  
Recommended torque:  
0.6 to 1.0Nm (M3.5 Switches and pushbuttons)  
1.0 to 1.3Nm (M3 Bulb and LED holders)

### Pushbuttons and switches

Maximum switch voltage: 250VAC/DC  
Thermal current: 5A  
Operating voltage / and current (resistive load):  
125VAC/3A, 250VAC/2A  
30VDC/2A, 125VDC/0.4A  
Contact type: Silver  
Insulation resistance: 100MΩ min (500VDC megger)  
Dielectric strength: 2500VAC for 1 minute (Between terminals of the same pole: 1000VAC for 1 minute)

## P861 Specification

### Lifetime

100,000 hours minimum (11 years) 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

### High Reliability

All LED Lamps are designed to provide a minimum of 1000,000 hours service life

### Certification

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



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<sub>i</sub> = P<sub>i</sub>/I<sub>i</sub> for a supply circuit with non-linear current limiting

U<sub>i</sub> = 4P<sub>i</sub>/I<sub>i</sub> for a supply circuit with linear current limiting

P<sub>i</sub> = 1W

I<sub>i</sub> = 2A,

C<sub>i</sub> = 0nF    L<sub>i</sub> = 0mH

### Supply

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

### Ambient temperature

Operating: -20°C to +60°C (P<sub>i</sub> 1.0W)

Storage: -55°C to +80°C

### Compliance

Immunity to EN61000-6-2:2001

Emissions to EN6100-6-4:2001

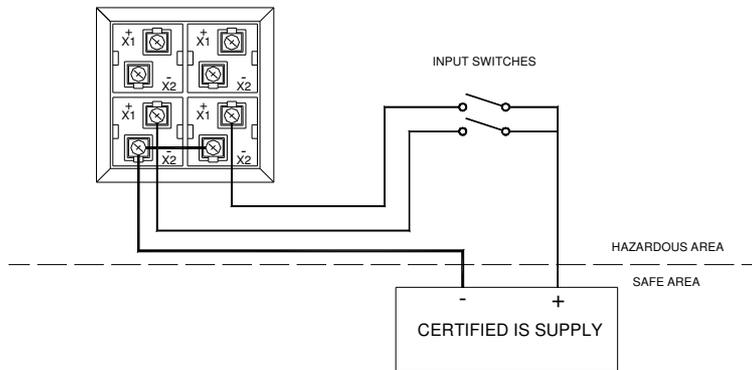
## Operating Instructions

After installation and testing, the unit may be operated according to the wiring configuration. Please ensure all the switches and windows are fully tested in all conditions prior to use, to eliminate any potential wiring faults.

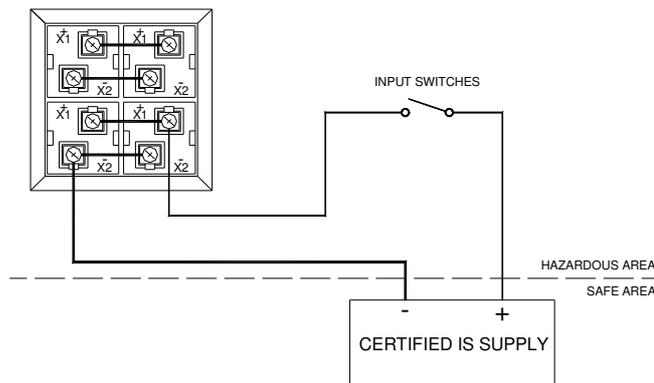
## Connection Diagrams

Example connection diagrams are shown below for all three window sizes. A common connection is provided to link windows together. The input switches may be of any type according to the application.

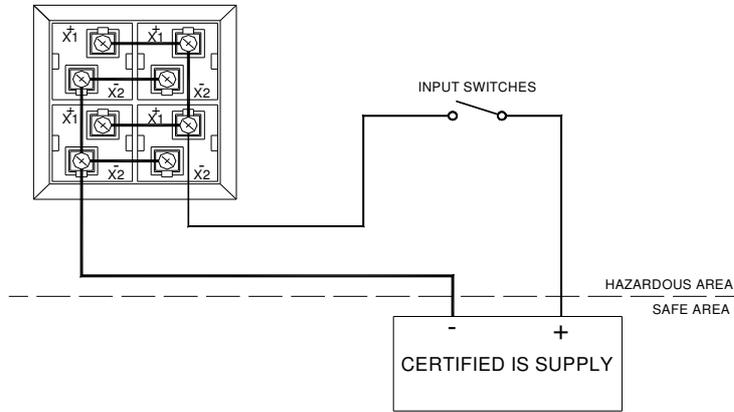
### Small Windows



### Medium Windows

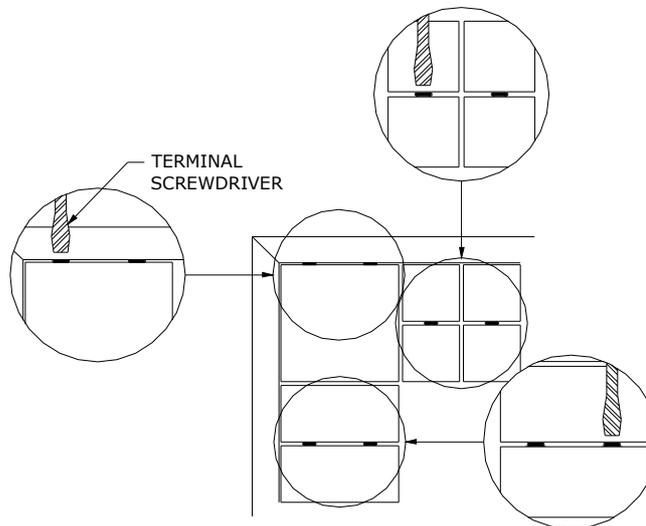


## Large Windows



## Maintenance

If the unit incorporates a lamp-test function, it should be used periodically. Any LEDs found to be defective should be replaced by carefully levering out the corresponding window and removing the LED. Refer to the diagram below.



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

## EC DECLARATION OF CONFORMITY

This is to certify that the DF30IS Intrinsically Safe Display Facias

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 2G EEx 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

.....  
**PAUL HARTLEY - MANAGING DIRECTOR**

Date: 12<sup>th</sup> March 2008