Instructions for BA490 Rotary encoder

1. DESCRIPTION

The BA490 encoder is a robust panel mounting rotary control knob with a quadrature switch contact output, suitable for installation in hazardous or safe process areas. It may be directly connected to almost any instrument that accepts a three wire quadrature input to allow local adjustment of a process variable.

The encoder contains two single pole switches which open and close 90 degrees out of phase with each other as the control knob is rotated. This enables both the position and direction of rotation to be determined. If contact 'A' leads contact 'B', the knob is rotating in a clockwise direction, if 'B' leads 'A', the knob is rotating in a counter-clockwise direction.

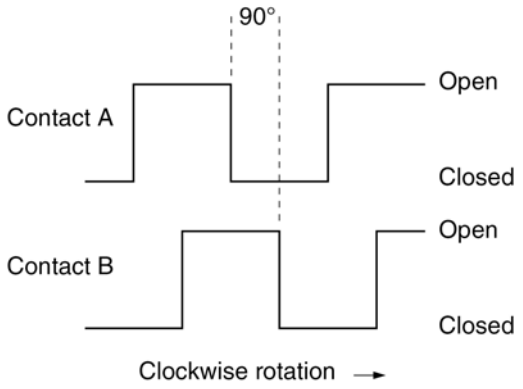

Fig 1 Output waveforms

2. INSTALLATION

The BA490 Rotary encoder has IP65 front of panel protection and a gasket is provided to seal the joint between the panel and the encoder body. The rear of the encoder has IP20 protection which can be increased to IP65 by fitting a BA599 rear sealing assembly - see accessories.

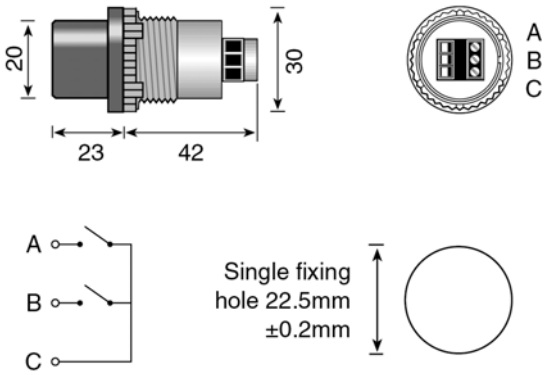

Fig 2 Dimensions & terminals

Mounting is via a single industry standard 22.5mm diameter hole. The encoder housing, fixing nut and terminals have a maximum diameter of 30mm permitting a high packing density on the panel

Each encoder is supplied with a gasket that should be positioned between the encoder body and the front of the panel. To provide an IP65 seal between the BA490 encoder and the mounting panel:

Minimum panel thickness	2mm (0.08") Steel 3mm (0.12") Aluminium
Outside panel finish should be smooth, free from particulate inclusions, runs, or build-up around cut- out.	
Edge of panel cut-out should be deburred	
BA490 securing nut should be tightened between	120 & 140 cNm (10.6 & 12.4inlb)

The rear of the encoder body has IP20 protection that may be increased to IP65 using the optional BA599 rear sealing assembly - see section 9 of these instructions..

3. Use in hazardous areas

The BA490 Rotary encoder complies with requirements for *Simple Apparatus* specified in Clause 5.7 of international intrinsic safety standard IEC 60079-11. This allows the BA490 encoder to be installed in Zones 1, 2, 21 and 22 and to be directly connected to intrinsically safe apparatus located in the same hazardous area.

CAUTION

The BA490 Rotary Encoder includes more than 10% of aluminium, therefore it should not be installed in Zone 0.

If exposed to a Group IIIC conductive dust, the BA490 must be fitted with a BA599 rear protection assembly to prevent the dust accemulating on the encoder terminals.

4. Use with BA427 & BA627E Set Point Stations.
The BA490 Rotary Encoder may be used to adjust the output from a BEKA BA427E or BA627E 4/20mA Set Point Station. Normally the output current of these generators is controlled by the front panel ▼ and ▲ push buttons, but direct connection of the BA490 rotary encoder enables an operator to make adjustments via a conventional rotary control knob.

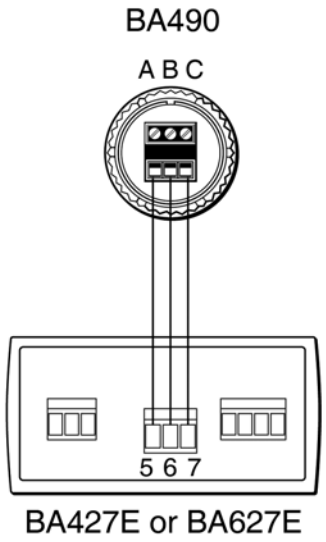

Fig 3 Connecting a BA490 encoder to a BA427E or a BA627E Set Point Station

Fig 3 shows how the encoder should be connected. When used with an intrinsically safe BA427E Set point Station the wiring should be able to withstand 500V ac insulation test to earth for one minute and the BA490 Rotary Encoder must be located within the same hazardous area as the Set Point Station.

5. Maintenance
The mechanical condition of the encoder should be regularly checked, the frequency of inspections depends upon the environmental conditions.

6. Servicing
The BA490 encoder is a sealed assembly that can not be repaired on-site. If an encoder fails it should be replaced by a new device.

7. Guarantee
Encoders that fail within the guarantee period should be returned to BEKA associates or to our local agent.

8. Customer comments
BEKA associates is always pleased to receive comments from customers about our products and services. All communications are acknowledged and whenever possible, suggestions are implemented.

9. Accessories
The BA599 provides IP65 protection for the rear of the encoder and includes a gland for a 7 to 12mm diameter cable. This accessory must be used if the BA490 Rotary Encoder terminals are exposed to a IIIC conductive dust.

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