

1. DESCRIPTION

The BA307E-SS and BA327E-SS are rugged intrinsically safe digital indicators housed in stainless steel panel mounting enclosures. They are loop powered by the 4/20mA current which they display in engineering units.

The two models are electrically similar, but have different size displays.

Model	Display
BA307E-SS	4 digits 15mm high
BA327E-SS	5 digits 11mm high and bargraph.

This abbreviated instruction sheet is intended to assist with installation and commissioning, a comprehensive instruction manual describing safety certification, system design and calibration is available from the BEKA sales office or may be downloaded from the BEKA website www.beka.co.uk/manuals.html.

Both models have ATEX & IECEx gas and dust certification and FM & cFM gas approval. The certification label, which is located on the top of the instrument enclosure shows the certificate numbers and the certification codes. Copies of certificates may be downloaded from www.beka.co.uk/certificates.html

2. INSTALLATION

Both models have IP66 front of panel protection but they should be shielded from direct sunlight and severe weather conditions. The rear of each indicator has IP20 protection.

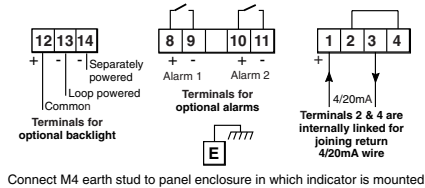
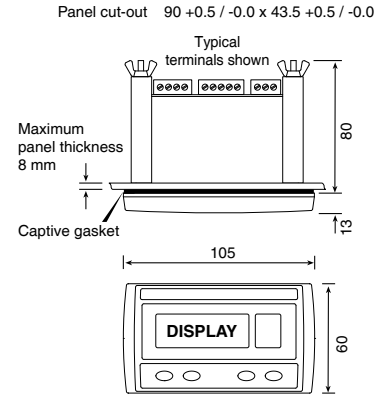
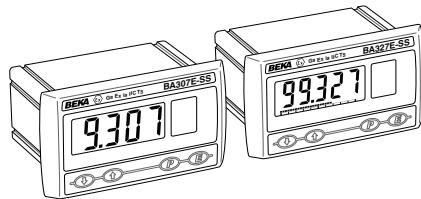


Fig 1 cutout dimensions & terminals

Abbreviated instructions for
BA307E-SS & BA327E-SS rugged intrinsically safe panel mounting loop powered indicators



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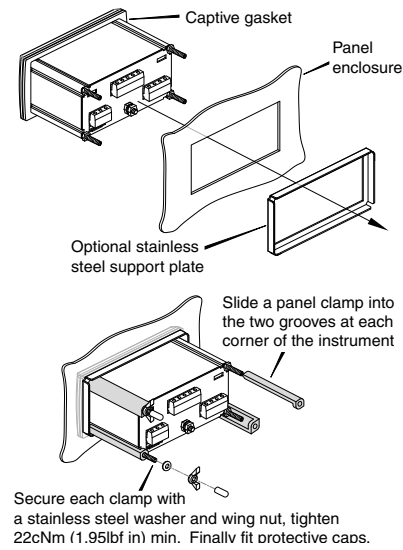


Fig 2 Installation procedure

EMC

For specified immunity all wiring should be in screened twisted pairs, with the screens earthed at one point within the safe area.

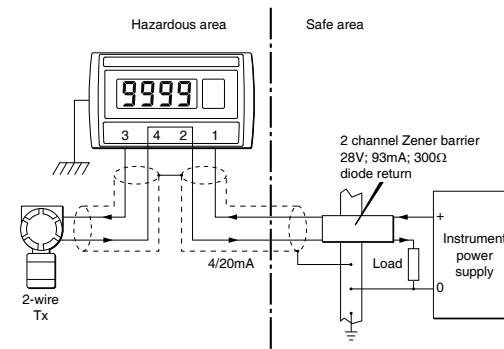


Fig 3 Typical measurement loop

Scale card

The indicator's units of measurement are shown on a printed scale card visible through a window at the right hand side of the display. The scale card is mounted on a flexible strip that is inserted into a slot at the rear of the instrument as shown below.

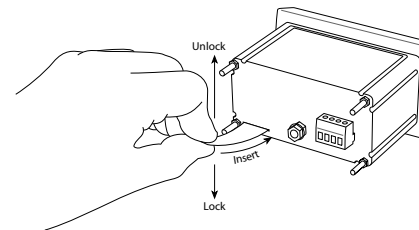


Fig 4 Inserting flexible strip carrying scale card into slot at the rear of indicator.

Thus the scale card can easily be changed without removing the indicator from the panel or opening the instrument enclosure.

New indicators are supplied with a printed scale card showing the requested units of measurement, if this information is not supplied when the indicator is ordered a blank card will be fitted.

A pack of self-adhesive scale cards printed with common units of measurement is available as an accessory from BEKA associates. Custom printed scale cards can also be supplied.

To change a scale card, unclip the protruding end of the flexible strip by gently pushing it upwards and pulling it out of the enclosure. Peel the existing scale card from the flexible strip and replace it with a new printed card, which should be aligned as shown below. Do not fit a new scale card on top of an existing card.

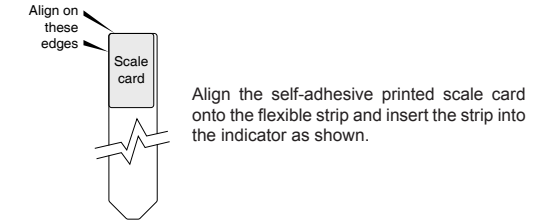


Fig 5 Fitting scale card to flexible strip

3. OPERATION

The indicators are controlled via four front panel push buttons. In the display mode i.e. when the indicator is displaying a process variable, these push buttons have the following functions:

- P** While this button is pushed the indicator will display the input current in mA, or as a percentage of the instrument span depending upon how the indicator has been conditioned. When the button is released the normal display in engineering units will return. The function of this push button is modified when optional alarms are fitted to the indicator.
- ▼** While this button is pushed the indicator will display the numerical value and analogue bargraph* the indicator has been calibrated to display with 4mA input. When released the normal display in engineering units will return.
- ▲** While this button is pushed the indicator will display the numerical value and analogue bargraph* the indicator has been calibrated to display with 20mA input. When released the normal display in engineering units will return.
- E** No function in the display mode unless the tare function is being used.
- P + ▼** Indicator displays firmware number followed by version.
- P + ▲** When optional alarms are fitted provides direct access to the alarm setpoints if the 'ACSP' access setpoints in display mode function has been enabled.
- P + E** Provides access to the configuration menu via optional security code.

* Only the BA327E-SS has a bargraph

The BA307E-SS and BA327E-SS are CE marked to show compliance with the European Explosive Atmospheres Directive 94/9/EC and the EMC Directive 2004/108/EC.

Typical certification information label

BEKA associates Hitchin, England. www.beka.co.uk

II 1 G, Ex Ia IIC T5 Ga, -40°C ≤ Ta ≤ +70°C CE 0359

II 1 D Ex Ia IIC T80°C Da IP20, -40°C ≤ Ta ≤ +70°C

ITS14ATEX28077X IECEx ITS14.0048X II 1 GD

FM: IS CL I, DIV 1, GP A, B, C, D; CL I, ZN 0, AEx Ia IIC T5 Ga
Entity per BEKA Dwg. CI300-72

NI CL I, DIV 2, GP A, B, C, D;
CL I, ZN 2, GP IIA, IIB, IIC
Nonincendive per BEKA Dwg. CI300-73 FM APPROVED

cFM: IS CL I, DIV 1, GP A, B, C, D; CL I, ZN 0, Ex Ia IIC T5 Ga
Entity per BEKA Dwg. CI300-72

NI CL I, DIV 2, GP A, B, C, D;
CL I, ZN 2, GP IIA, IIB, IIC
Nonincendive per BEKA Dwg. CI300-73
CL I, ZN 2 per CEC18-160 FM APPROVED

T5 Ta = 70°C, IP66 front of panel only
No direct sunlight exposure

S/No: 054321 / 01 / 001 Manufactured: 2015

BA307E-SS 4 DIGIT INDICATOR

In addition to conventional intrinsic safety applications, these indicators may be installed in a certified Ex e, Ex p, Ex n and Ex t enclosure without invalidating the enclosure's certification.

ATEX & IECEx special conditions for safe use

The certificates have an 'X' suffix indicating that special conditions apply for some installations.

- a. When installed in an Ex e or Ex t panel enclosure the indicator must be powered by an appropriately rated Zener barrier or galvanic isolator located in a safe area.
- b. When installed in an Ex p panel enclosure the indicator must be powered by an appropriately rated Zener barrier or galvanic isolator located in a safe area and the supply circuit shall be rated for a prospective short circuit current of less than 10kA.
- c. For use in Group IIIC conductive dust atmospheres the indicator shall be mounted such that the instrument terminals have at least IP6X protection.

Please refer to the certificate or the full instruction manual for details.

FM & cFM special conditions for safe use

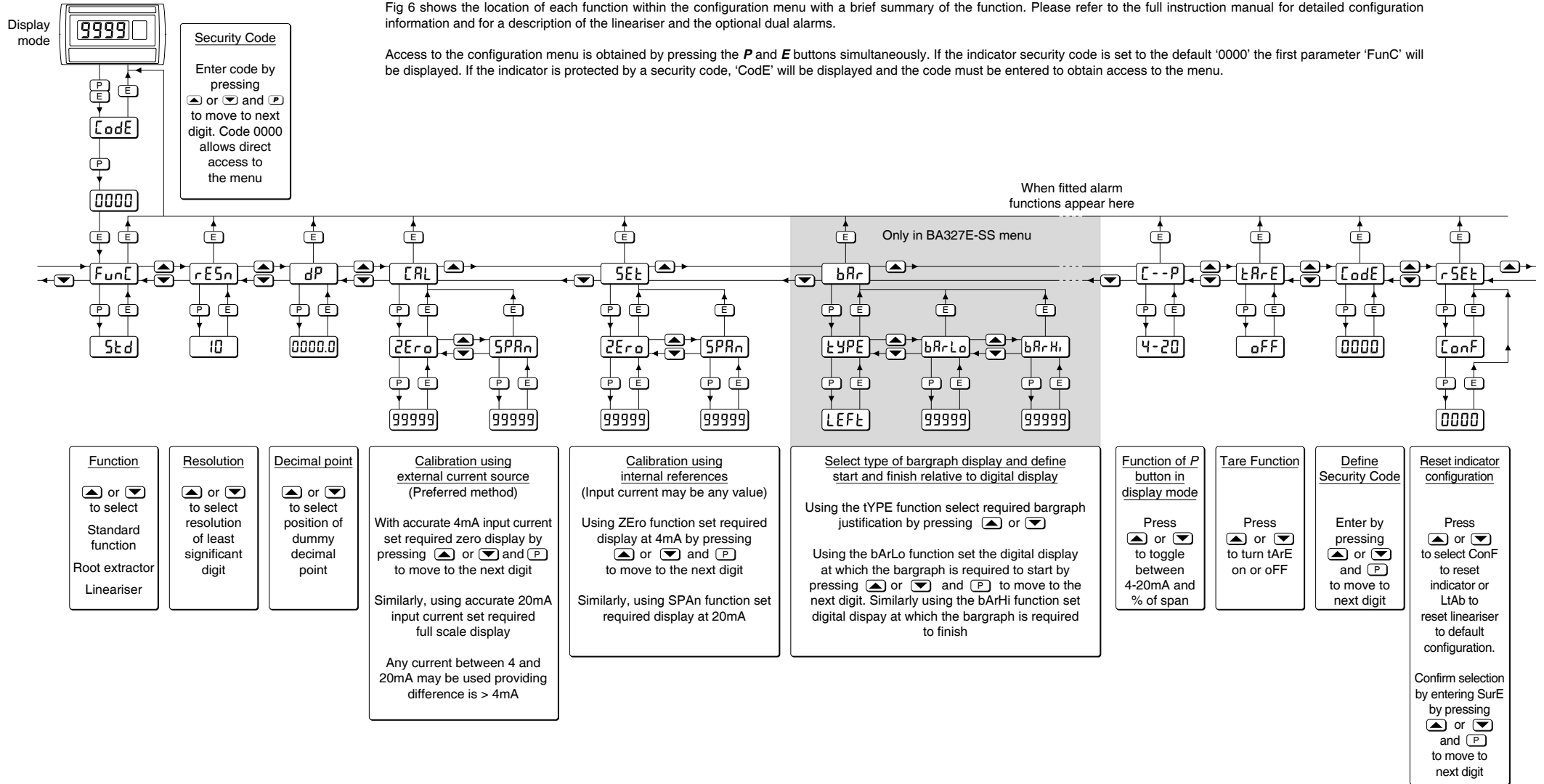
The indicators must be installed as specified by FM Control Drawings CI300-72 and CI300-73 which may be downloaded with the FM certificates from www.beka.co.uk/certificates

4. CONFIGURATION

Indicators are supplied calibrated as requested when ordered, if not specified default configuration will be supplied but can easily be changed on-site.

Fig 6 shows the location of each function within the configuration menu with a brief summary of the function. Please refer to the full instruction manual for detailed configuration information and for a description of the lineariser and the optional dual alarms.

Access to the configuration menu is obtained by pressing the **P** and **E** buttons simultaneously. If the indicator security code is set to the default '0000' the first parameter 'FunC' will be displayed. If the indicator is protected by a security code, 'CodE' will be displayed and the code must be entered to obtain access to the menu.



Manuals, certificates and data-sheets can be downloaded from <http://www.beka.co.uk/lpi6/>

Fig 6 Configuration menu