

## 1. DESCRIPTION

The BA304NG and BA324NG are field mounting, Ex nA and Ex tc certified digital indicators that display the current flowing in a 4/20mA loop in engineering units. They are loop powered but only introduce a 1.2V drop into the loop.

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

Model	Display
BA304NG	4 digits 34mm high
BA324NG	5 digits 29mm high and 31 segment 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 our website.

Both models have ATEX, IECEx, ETL and cETL certification permitting installation in Zone 2 flammable gas and Zone 22 combustible dust atmospheres without the need for Zener barriers or galvanic isolators. 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 down-loaded from [www.beka.co.uk](http://www.beka.co.uk).



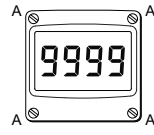
## 2. INSTALLATION

The BA304NG & BA324NG indicators have robust IP66 glass reinforced polyester (GRP) carbon loaded enclosures incorporating an armoured glass window & stainless steel fittings. They are suitable for exterior surface mounting in industrial Zone 2 and Zone 22 environments, or pipe mounting using one of the accessory kits.

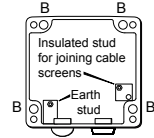
If the enclosure is not bolted to an earthed post or structure, the earth terminal on the cable entry bonding plate, which may be assembled on the inside or outside of the enclosure, should be connected to local earthed metalwork or to the plant's potential equalising conductor.

Terminals 8, 9, 10, 11, 12, 13 & 14 are only fitted when the indicator includes optional alarms and a backlight. See full manual for details.

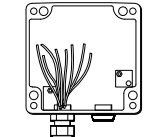
The BA304NG & BA324NG are CE marked to show compliance with the European Explosive Atmospheres Directive 2014/34/EU and the European EMC Directive 2014/30/EC



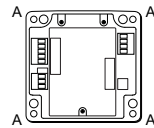
**Step A**  
Unscrew the four captive 'A' screws and separate the indicator assembly and the back-box.



**Step B**  
Secure the enclosure back-box to a flat surface with M6 screws through the four 'B' holes. Alternatively use a pipe mounting kit.

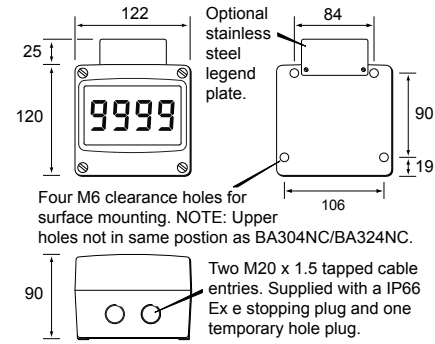


**Step C**  
Remove the temporary hole plug and install an appropriate IP rated cable gland or conduit fitting. Feed the field wiring through the cable entry.



**Step D**  
Terminate field wiring on the indicator assembly. Replace the indicator assembly on the enclosure back-box and tighten the four 'A' screws.

Fig 1 BA304NG & BA324NG Installation procedure



Four M6 clearance holes for surface mounting. NOTE: Upper holes not in same position as BA304NC/BA324NC.

Two M20 x 1.5 tapped cable entries. Supplied with a IP66 Ex e stopping plug and one temporary hole plug.

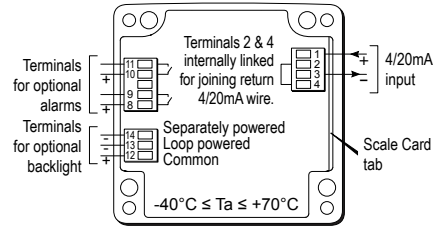


Fig 2 Dimensions and terminal connections

## EMC

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

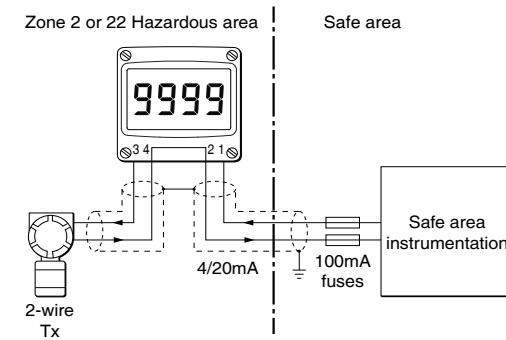


Fig 3 Typical measurement loop

## Scale card

The indicator's units of measurement and tag information are shown above the display on a slide-in scale card. New instruments are fitted with a scale card showing the information requested when the instrument was ordered, if this is not provided a blank scale card will be fitted which can easily be marked on-site. Custom printed scale cards are available from BEKA associates.

To remove the scale card, carefully pull the tab perpendicularly away from the rear of the indicator assembly. See Fig 2 for the location of the scale card tab.

To replace the scale card carefully insert it into the slot on the right hand side of the input terminals which is shown in Fig 2. Force should be applied evenly to both sides of the scale card to prevent it twisting. The card should be inserted until about 2mm of the transparent tab remains protruding.

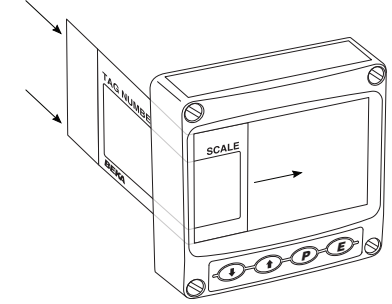


Fig 4 Inserting scale card into the instrument assembly.

## 3. OPERATION

Both models are controlled and calibrated 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 configured. 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 a 4mAΦ 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 a 20mAΦ 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 + ▲** Provides direct access to the alarm setpoints when the indicator is fitted with optional alarms and the RE5P access setpoints function has been enabled.
- P + E** Provides access to the configuration menu via optional security code.

**Note** \* BA324NG only  
Φ If the indicator has been calibrated using the CAL function, calibration points may not be 4 and 20mA.

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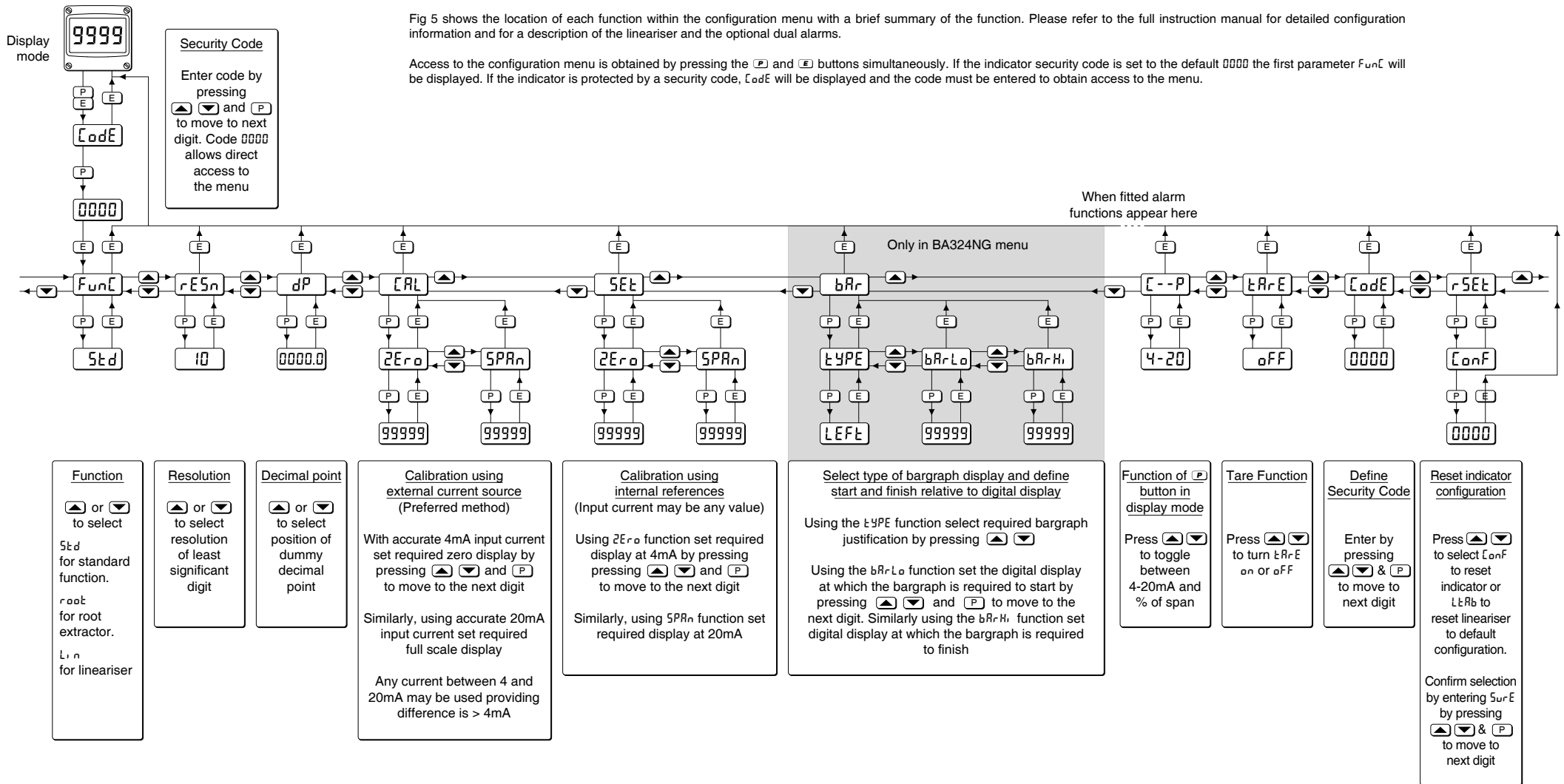

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#### 4. CONFIGURATION

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

Fig 5 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/lpi3/>

Fig 5 Configuration menu