

1. DESCRIPTION

The BA358E is a panel mounting, intrinsically safe, 4/20mA rate totaliser primarily intended for use with flowmeters. It simultaneously displays the rate of flow (4/20mA current) and the total flow in engineering units on separate displays. It is loop powered but only introduces a 1.2V drop into the loop.

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.

The BA358E has IECEx, ATEX and UKEX intrinsic safety certification for use in flammable gas & dust atmospheres. FM and cFM approval also permits installation in the USA and Canada. 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 our website.

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

II 1 G, Ex ia IIC T5 Ga, -40°C ≤ Ta ≤ +70°C
 II 2 D, Ex ia IIC T5 Db IP20, -40°C ≤ Ta ≤ +70°C

ITS11ATEX27254X IECEx ITS11.0015X
 ITS21UKEX0080X

FM: IS CL I, DIV 1, GP A,B,C,D; CL I, ZN 0, AEx ia IIC T5
 Entitled per BEKA Dwg. C1300-72
 NI CL I, DIV 2, GP A,B,C,D; CL II, DIV2, GP E, F, G; CL III T5
 CL I, ZN 2, GP IIA, IIB, IIC
 Nonincendive per BEKA Dwg. C1300-73

cFM: IS CL I, DIV 1, GP A,B,C,D; CL I, ZN 0, AEx ia IIC T5
 Entitled per BEKA Dwg. C1300-72
 NI CL I, DIV 2, GP A,B,C,D; CL II, DIV2, GP E, F, G; CL III T5
 CL I, ZN 2 per CEC18-150

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

S/No: 038910 / 04 / 016

Manufactured: 2023

BA358E RATE TOTALISER

Special conditions for safe use

The IECEx, ATEX and UKEX certificates have an 'X' suffix indicating that special conditions apply for safe use.

WARNING

To avoid an electrostatic charge being generated instrument enclosure should only be cleaned with a damp cloth.

Special conditions also apply for use in IIIC conductive dusts - please see full manual.

2. INSTALLATION

The BA358E has IP66 front of panel protection but it should be shielded from direct sunlight and severe weather conditions. The rear of the rate totaliser has IP20 protection.

Cut-out dimensions

Recommended for all installations. Mandatory to achieve an IP66 seal between the instrument and the panel
 136 +0.5/-0.0 x 66.2 +0.5/-0.0

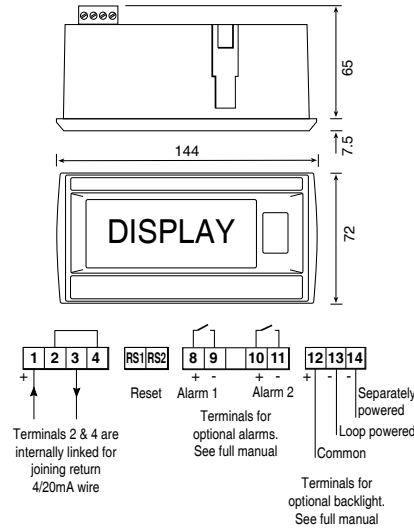
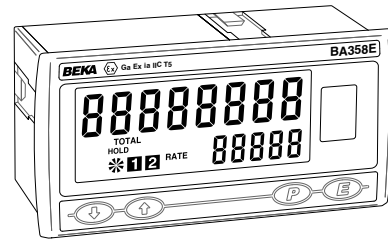


Fig 1 cut out dimensions & terminals

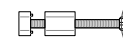
Abbreviated Instructions for
BA358E intrinsically safe panel mounting loop powered rate totaliser



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1. Align foot and body of panel mounting clamp by turning screw anticlockwise



2. Position gasket behind instrument bezel

4. Insert panel clamp into recess and gently pull it onto the dovetail. Engage screw & turn clockwise to tighten the clamp, fit the other clamps. Recommended tightening torque 22cNm (1.95lbf.in) Equivalent to finger tight plus one half turn. **DO NOT OVERTIGHTEN**

3. Insert instrument into the panel from the front

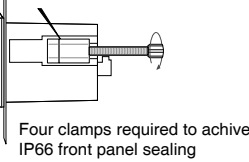


Fig 2 Installation procedure

EMC

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

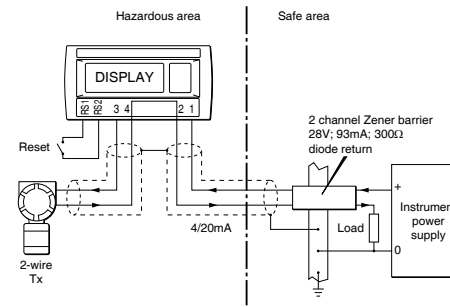


Fig 3 Typical measurement loop

Scale card

The rate totaliser'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.

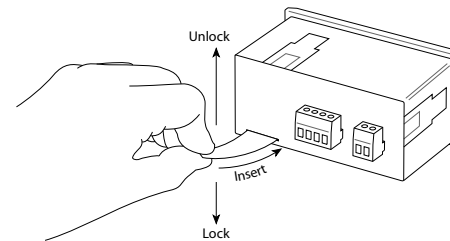


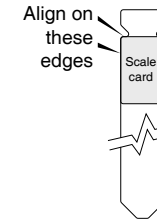
Fig 4 Inserting flexible strip carrying scale card into slot at the rear of indicator.

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

New rate totalisers are supplied with a printed scale card showing the requested units of measurement, if this information was not supplied when the instrument was 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.



Align the self-adhesive printed scale card onto the flexible strip and insert the strip into the indicator as shown above.

Fig 5 Fitting scale card to flexible strip

3. OPERATION

The BA358E is controlled and configured via the four front panel push buttons located below the display. In the display mode i.e. when the instrument is totalising, these push buttons have the following functions:

- P** Displays input current in mA or as a percentage of span. (configurable function)
Modified when optional alarms are fitted.
- ▼** Shows rate display calibration at 4mA input
- ▲** Shows rate display calibration at 20mA input
- E** Shows time since instrument was powered or total display was reset.
- E+▼** Grand total displays least significant 8 digits
- E+▲** Grand total displays most significant 8 digits
- ▼+▲** Resets total display (configurable function)
- P+▼** Shows firmware version
- P+▲** Optional alarm setpoint access
- P+E** Access to configuration menu

4. CONFIGURATION

Totalisers 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 totaliser security code is set to the default '0000' the first parameter 'Func' will be displayed. If the totaliser is protected by a security code, 'CodE' will be displayed and the code must be entered to obtain access to the menu.

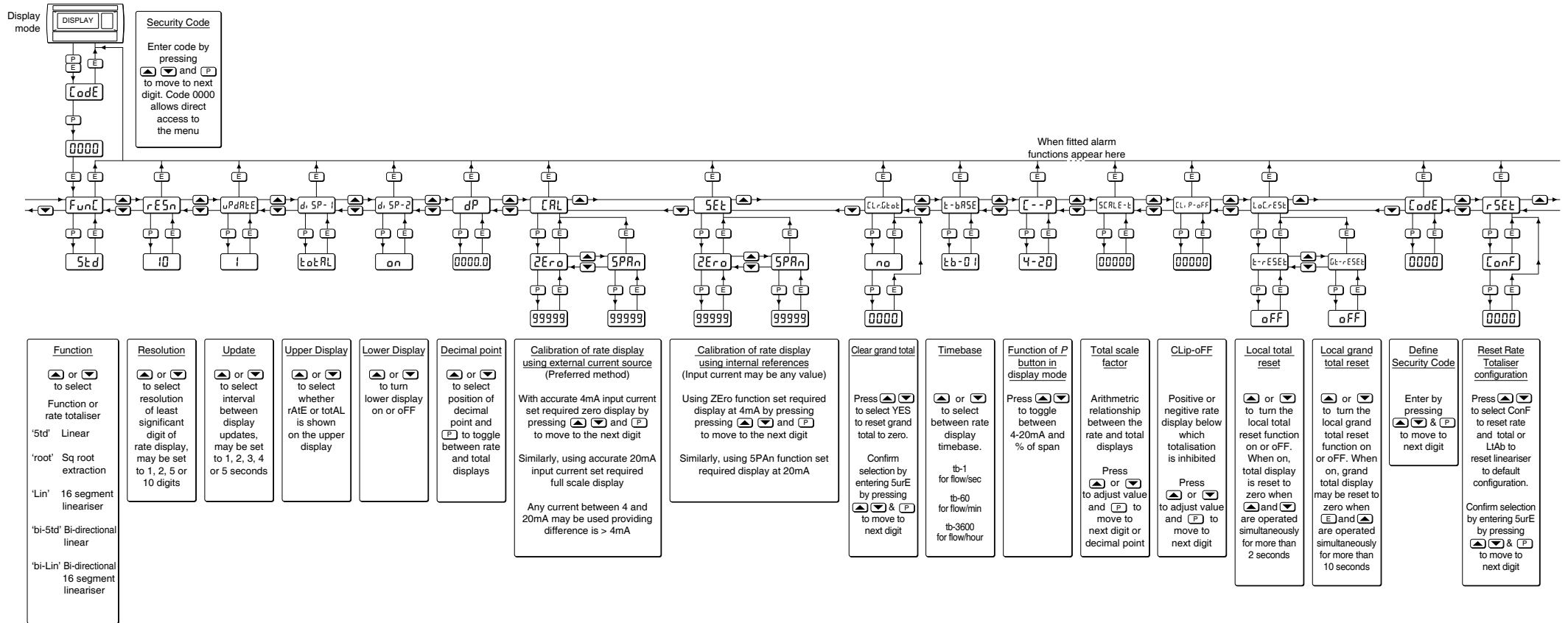


Fig 6 Configuration menu



Full manual, certificates, and data-sheet can be downloaded from <http://www.beka.co.uk/lprt2/>

The BA358E is CE marked to show compliance with the *European Explosive Atmospheres Directive 2014/34/EU* and the *European EMC Directive 2014/30/EU*.
It is also UKCA marked to show compliance with UK statutory requirements *Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations UKSI 2016:1107 (as amended)* and with the *Electromagnetic Compatibility Regulations UKSI 2016:1091 (as amended)*.