1. DESCRIPTION

The BA337E and BA338E are panel mounting, intrinsically safe, one input rate totalisers, primarily intended for use with pulse output flowmeters.

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

Model	Displays	Bezel size
BA337E	8 digits 9mm high 5 digits 6mm high	96 x 48mm
BA338E	8 digits 18mm high 5 digits 12mm high	144 x 72mm

This abbreviated instruction sheet is intended to assist with installation, a comprehensive instruction manual describing safety certification, system design and configuration may be downloaded from the BEKA website or may be requested from the BEKA sales office.

Both models have IECEx, ATEX and UKEX intrinsic safety certification for use in flammable gas atmospheres. ETL and cETL approval permits installation in the USA and Canada. The certification information label, which is located on the top of the instrument enclosure, shows the certification number and codes. Other certifications may be shown. Copies of certificates may be down loaded from the BEKA website.

Typical certification information label

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.
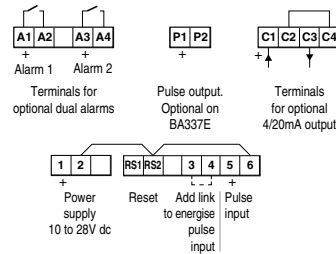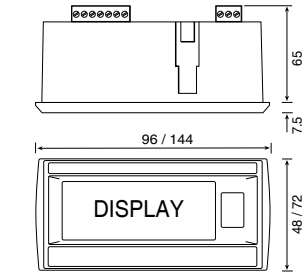
2. INSTALLATION

Both models have IP66 front of panel protection but they should be shielded from direct sunlight and severe weather conditions. The rear of both models have IP20 protection.
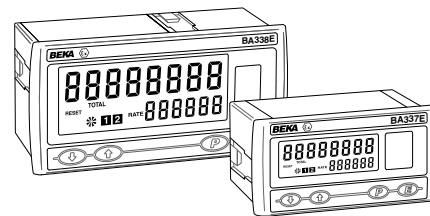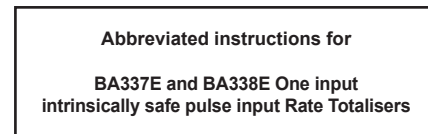
Cut-out dimensions

Recommended for all installations. Mandatory to achieve IP66 seal between instrument and panel.

BA337E
90 +0.5/-0.0 x 43.5 +0.5/-0.0

BA338E
136 +0.5/-0.0 x 66.2 +0.5/-0.0

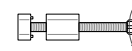Support panel wiring to prevent vibration damage

Fig 1 Cut-out dimensions and terminals

Abbreviated instructions for

BA337E and BA338E One input intrinsically safe pulse input Rate Totalisers

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BEKA associates Ltd. Old Charlton Rd, Hitchin, Hertfordshire, SG5 2DA, UK   Tel: +44(0)1462 438301   e-mail: sales@beka.co.uk
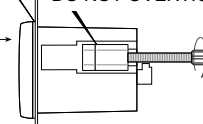web: www.beka.co.uk

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

2. Position gasket behind instrument bezel

3. Insert instrument into the panel from the front

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

BA338E requires 4 clamps for IP66 front panel sealing

Fig 2 Installation procedure

EMC

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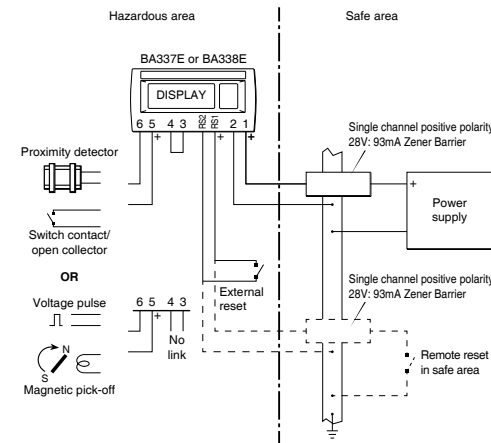

Fig 3 Use with Zener barriers

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
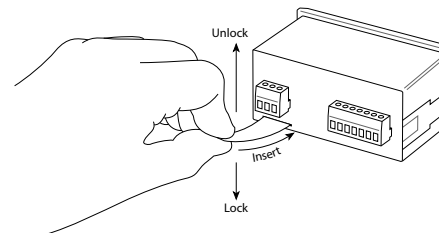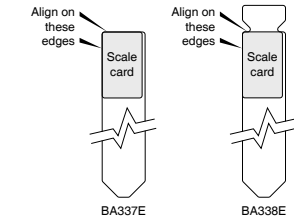

Fig 4   Inserting flexible strip carrying scale card into slot at the rear of Rate Totaliser.

Thus the scale card can easily be changed without removing the Rate Totaliser 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 is not supplied when the instrument 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.

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

Fig 5 Fitting scale card to flexible strip

3. OPERATION

The Rate Totalisers are controlled by four front panel push buttons. When in operating mode they have the following functions:

E + ▼   Grand total - shows Lo followed by least significant 8 digits of the 16 digit grand total.

E + ▲   Grand total - shows Hi followed by the most significant 8 digits of the 16 digit grand total.

▼ + ▲   If Local Total Reset CLr tot in the configuration menu has been activated, operating the ▼ + ▲ buttons for three seconds will reset the total display to zero and clear any pulses stored in the optional pulse output. The Grand Total is not reset.

P + ▼   Shows in succession, firmware version number, instrument function totRLiSE and any output accessories that are fitted:
- A   Dual Alarm Outputs
- P   Pulse output *fitted to all BA338E*
- C   4/20mA output.

P + ▲   When optional alarms are fitted provides direct access to the alarm setpoints if ASCP (access setpoints) has been enabled in the configuration menu.

P + E   Access to configuration menu.

4. CONFIGURATION

Rate Totalisers are supplied configured as requested at time of ordering, 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 description of lineariser and optional outputs.

Access to the configuration menu is obtained by pressing the P and E buttons simultaneously. If the Rate Totaliser's security code is set to default 0000 the first parameter FunCtion will be displayed. If the instrument is protected by a security code, CodE will be displayed. The four digit code must be entered to gain access to the menu.
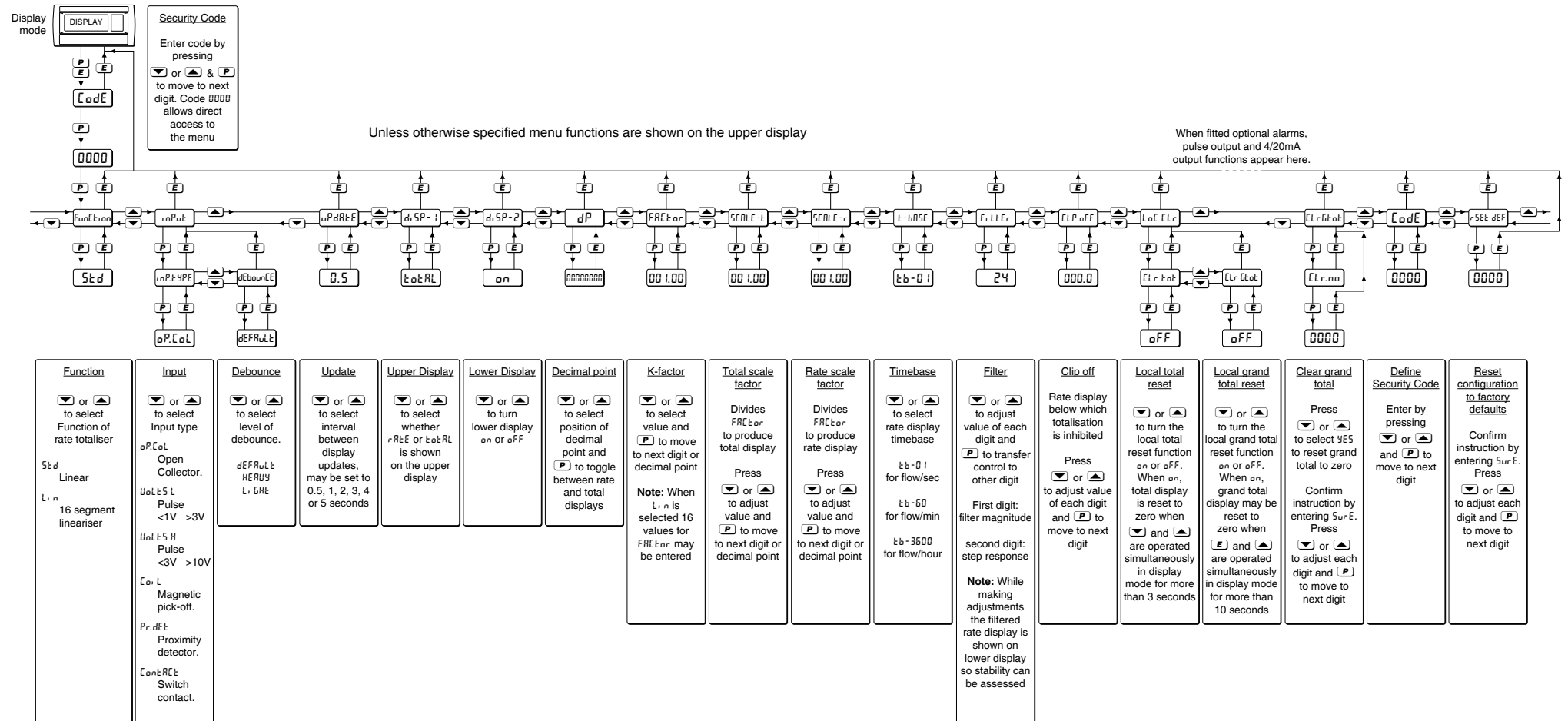
Display mode

DISPLAY

Security Code
Enter code by pressing ▼ or ▲ & P to move to next digit. Code 0000 allows direct access to the menu

CodE
0000

Unless otherwise specified menu functions are shown on the upper display

When fitted optional alarms, pulse output and 4/20mA output functions appear here.

Function	Input	Debounce	Update	Upper Display	Lower Display	Decimal point	K-factor	Total scale factor	Rate scale factor	Timebase	Filter	Clip off	Local total reset	Local grand total reset	Clear grand total	Define Security Code	Reset configuration to factory defaults
▼ or ▲ to select Function of rate totaliser	▼ or ▲ to select Input type	▼ or ▲ to select level of debounce.	▼ or ▲ to select interval between display updates, may be set to 0.5, 1, 2, 3, 4 or 5 seconds	▼ or ▲ to select whether rAtE or totAL is shown on the upper display	▼ or ▲ to turn lower display on or oFF	▼ or ▲ to select position of decimal point and P to toggle between rate and total displays	▼ or ▲ to select value and P to move to next digit or decimal point	Divides FACtor to produce total display	Divides FACtor to produce rate display	▼ or ▲ to select rate display timebase	▼ or ▲ to adjust value of each digit and P to transfer control to other digit	Rate display below which totalisation is inhibited	▼ or ▲ to turn the local total reset function on or oFF.	▼ or ▲ to turn the local grand total reset function on or oFF.	Press ▼ or ▲ to select YES to reset grand total to zero	Enter by pressing ▼ or ▲ and P to move to next digit	Confirm instruction by entering SurE.
Std Linear	oP.CoL Open Collector.	dEFAuLt HEAVY LiGHt					**Note:** When Lin is selected 16 values for FACtor may be entered	Press ▼ or ▲ to adjust value and P to move to next digit or decimal point	Press ▼ or ▲ to adjust value and P to move to next digit or decimal point	tb-01 for flow/sec	First digit: filter magnitude	Press ▼ or ▲ to adjust value of each digit and P to move to next digit	When on, total display is reset to zero when ▼ and ▲ are operated simultaneously in display mode for more than 3 seconds	When on, grand total display may be reset to zero when E and ▲ are operated simultaneously in display mode for more than 10 seconds	Confirm instruction by entering SurE. Press ▼ or ▲ to adjust each digit and P to move to next digit		▼ or ▲ to adjust each digit and P to move to next digit
Lin 16 segment lineariser	VoLtS L Pulse <1V >3V									tb-60 for flow/min	second digit: step response						
	VoLtS H Pulse <3V >10V									tb-3600 for flow/hour	**Note:** While making adjustments the filtered rate display is shown on lower display so stability can be assessed						
	CoiL Magnetic pick-off.																
	Pr.dEt Proximity detector.																
	ContACt Switch contact.																

Fig 6 Configuration menu

The BA337E and BA338E are CE marked to show compliance with the *European Explosive Atmospheres Directive 2014/34/EU* and the *European EMC Directive 2014/30/EU*.

They are 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).