1. DESCRIPTION

The BA337E-SS is an intrinsically safe, one input rate totaliser housed in a rugged 316 stainless steel panel mounting enclosure, primarily intended for use with pulse output flowmeters.

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.

The BA337E-SS has IECEx, ATEX and UKEX intrinsic safety certification for use in flammable gas and dust 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 numbers and codes. Other certifications may be shown. Copies of certificates may be downloaded from the BEKA website.



Typical certification information label

Special conditions for safe use

The IECEx, ATEX and UKEX intrinsic safety certificate numbers have an 'X' suffix indicating that for some applications special conditions apply for safe use.

a. When installed in an Ex e, Ex p or Ex t panel enclosure all connections to the BA337E-SS must be made by appropriately rated Zener barriers or galvanic isolators.

This means that when installed in an Ex e, Ex p or Ex t panel enclosure the BA337E-SS remains an intrinsically safe instrument.

b. The front of the stainless steel enclosure complies with the requirements for Ex e, Ex p & Ex t type of protection.

Therefore when correctly installed the BA337E-SS Rate Totaliser will not invalidate the Ex e, Ex p or Ex t panel enclosure certification.

Use in combustible dust atmospheres

See full instruction manual for installation information requirements and special conditions for safe use in combustible dust atmospheres.

2. INSTALLATION

Cut-out dimensions

Mandatory to achieve an IP66 seal between instrument and panel and to maintain certification of panel enclosure in which it is mounted.







Support panel wiring to prevent vibration damage

Fig 1 Cut-out dimensions and terminals







with a stainless steel washer and wing nut, tighten 22cNm (1.95lbf in) min. Finally fit protective caps

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



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.



Fig 5 Fitting scale card to flexible strip

3. OPERATION

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

- P + E Access to configuration menu.
- + Grand total shows Lo followed by least significant 8 digits of the 16 digit grand total.
- E + A Grand total shows H, followed by the most significant 8 digits of the 16 digit grand total.
- + A If Local Total Reset [Lr bob in the configuration menu has been activated, operating the T + 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 LoLRL, 5E and any output accessories that are fitted:
 - 8 Dual Alarm Outputs
 - P Pulse output
 - [4/20mA output.
- P + A When optional alarms are fitted provides direct access to the alarm setpoints if R5CP (access setpoints) in the configuration menu has been enabled.



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

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

4. CONFIGURATION

(Tr

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 the 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 DDD 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 | Security Column C | by Pext DDD ct | l | Jnless otherwi | se specified m | enu functions are shown on the upper display | | | | | | | Whe | n fitted optional al | arms, | | |
|---|--|--|---|--|--|---|---|---|--|--|--|---|--|--|---|--|---|
| | | | | | | | | | | | output functions appear here. | | | | | | |
| | | | Ē | | | | | | | | | | | | Ē | | |
| | | | | | | | | | | | | | | | | | |
| Eunction To select Function of rate totaliser Std Linear Linear 16 segment lineariser | Input To select Input type oP.EoL Open Collector. UoLE5 L Pulse <1V >3V UoLE5 H Pulse <3V >10V Eor L Magnetic pick-off. Pr.dEL Proximity detector. EontARLE Switch contact. | Debounce To select level of debounce. dEFRuLL HERUY L. GNL | Update To select interval between display updates, may be set to 0.5, 1, 2, 3, 4 or 5 seconds | Upper Display To select whether rRE or tokRL is shown on the upper display | Lower Display To turn lower display on Or oFF | Decimal point or or to select position of decimal point and for to toggle between rate and total displays | K-factor To select value and P to move to next digit or decimal point Note: When L n is selected 16 values for FRELor may be entered | Total scale factor Divides FREbar to produce total display Press To adjust value and To next digit or decimal point | Bate scale factor. Divides FREbar to produce rate display Press To adjust value and P to move to next digit or decimal point | Timebase To select rate display timebase Eb-0 i for flow/sec Eb-50 for flow/min Eb-3600 for flow/hour | Eilter To adjust value of each digit and To transfer control to other digit First digit: filter magnitude second digit: step response Note: While making adjustments the filtered rate display is shown on lower display so stability can be assessed | Clip off Rate display below which totalisation is inhibited Press To af or a to adjust value of each digit and P to move to next digit | Local total reset ▼ or ▲ to turn the local total reset function on or oFF. When on, total display is reset to zero when ▼ and ▲ are operated simultaneously in display in display is dis display is display is display is display | Local grand total reset to turn the local grand total reset function on or oFF. When on, grand total display may be reset to zero when i display may be are operated simultaneously in display mode for more than 10 seconds | Clear grand total Press ♥ or ▲ to select ¥55 to reset grand total to zero Confirm instruction by entering Sur E. Press ♥ or ▲ to adjust each digit and ₱ to move to next digit | Define Security Code Enter by pressing ♥ or ▲ and ₱ to move to next digit | Beset configuration to factory defaults Confirm instruction by entering Sur E. Press ♥ or 	 to adjust each digit and 	 function to move to next digit |

Fig 6 Configuration menu



Manuals, certificates and datasheets can be downloaded from http://www.beka.co.uk/ba337e-ss The BA337E-SS 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).