

1. DESCRIPTION

The BA388E is a two input, intrinsically safe panel mounting Rate Totaliser which can operate with a wide variety of pulse output flowmeters. The instrument can display the rate and total output of each flowmeter and, depending upon how it has been configured, the sum or difference between the rate and total outputs.

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 BA388E Rate Totaliser has IECEx (IECEX ITS 16.0004X) and ATEX (ITS16ATEX28408X) 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 downloaded from the BEKA website.



Typical certification information label

Special conditions for safe use

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

WARNING

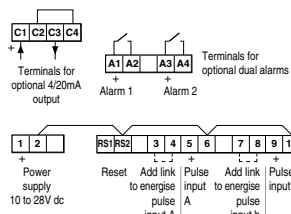
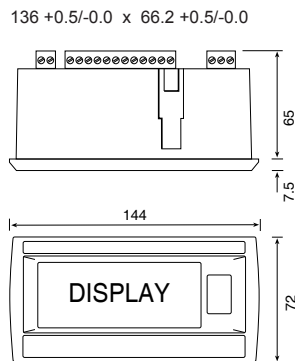
To avoid an electrostatic charge being generated instrument enclosure should only be cleaned with a damp cloth.

2. INSTALLATION

The BA388E Rate Totaliser has IP66 front of panel protection but it should be shielded from direct sunlight and severe weather conditions. The rear of the instrument has IP20 protection.

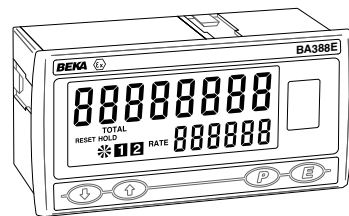
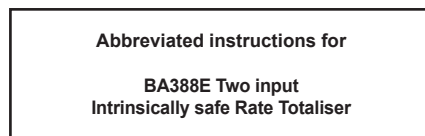
Cut-out dimensions

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



Support panel wiring to prevent vibration damage

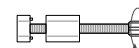
Fig 1 Cut-out dimensions and terminals



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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 clamps. Recommended tightening torque 22cNm (1.95lbf.in) Equivalent to finger tight plus one half turn. DO NOT OVERTIGHTEN

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.

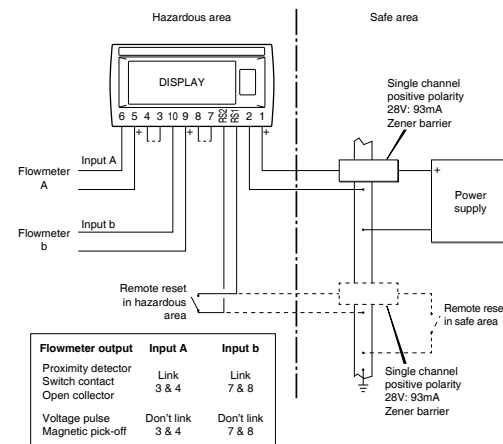


Fig 3 Use with Zener barriers

Scale card

The Rate Totalisers 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

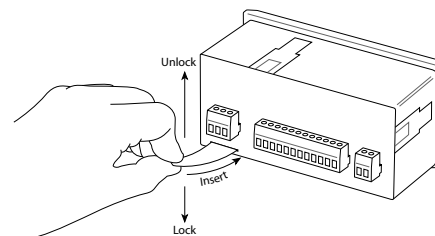


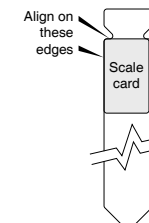
Fig 4 Inserting flexible strip carrying scale card into slot at the rear of Rate Totaliser.

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

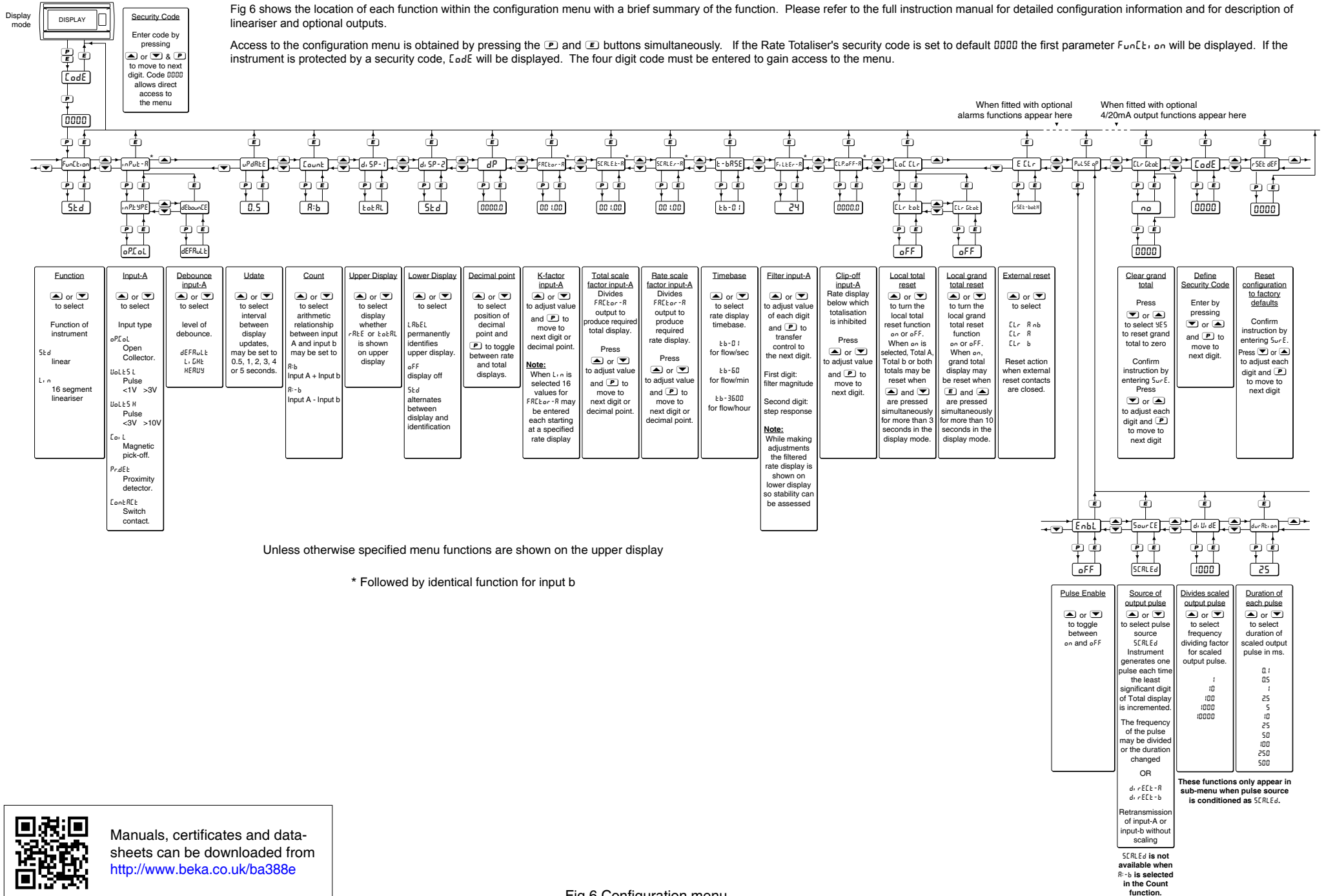
- [P] + [E]** Access to configuration menu.
 - [▼] or [▲]** If the Local Total Reset function [Lr tot] in the instrument configuration menu is enabled, operating the [▼] and [▲] buttons simultaneously for more than 3 seconds allows total A, total b or both totals and any stored pulses in the pulse output to be reset to zero by operating the [E] push button.
 - [E] + [▼]** Grand total - shows Lo followed by the least significant 8 digits.
 - [E] + [▲]** Grand total - shows Hi followed by the most significant 8 digits. If buttons are pressed for longer than 10 seconds the grand total will be reset to zero if the grand total reset function [Lr tEt] is enabled.
- To reset the grand total to zero from the operating mode press the [E] + [▲] buttons for ten seconds until [Lr.no] is displayed. Using the [▼] or [▲] button change the display to [Lr.9E5] and press [E] which will reset the grand total and restore the original display.
- [▼] + [▲]** If the Local Total Reset function [Lr tot] in the instrument configuration menu is enabled, operating the [▼] and [▲] buttons simultaneously for more than 3 seconds allows total A, total b or both totals and any stored pulses in the pulse output to be reset to zero by operating the [E] push button.
 - [P] + [▼]** Shows each for 2 seconds:
 - Firmware number
 - Function of instrument:
 - 2[Et] o[Et] RL
 - Options fitted:
 - R Dual Alarm Outputs
 - P Pulse output
 - E 4/20mA output.
 - [P] + [▲]** Provides direct access to the alarm setpoints when the Rate Totaliser is fitted with optional alarms and the RL 5P (access setpoints) has been enabled.

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 **Funct** will be displayed. If the instrument is protected by a security code, **SecdE** will be displayed. The four digit code must be entered to gain access to the menu.



Unless otherwise specified menu functions are shown on the upper display

* Followed by identical function for input b



Manuals, certificates and data-sheets can be downloaded from <http://www.beka.co.uk/ba388e>

Fig 6 Configuration menu

SRLEd is not available when R-b is selected in the Count function.