## 1. DESCRIPTION

The BA588E is a two input, general purpose panel mounting Rate Totaliser which can operate with a wide variety of pulse output flowmeters. The instrument can display the output from each flowmeter and, depending upon how it has been configured, the sum or difference between them.

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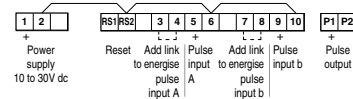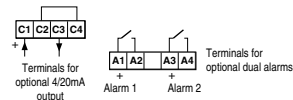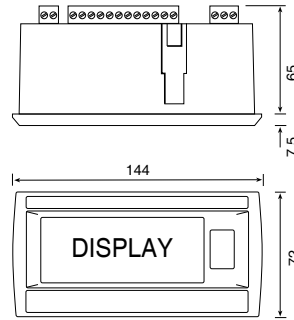
## 2. INSTALLATION

The BA588E 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.
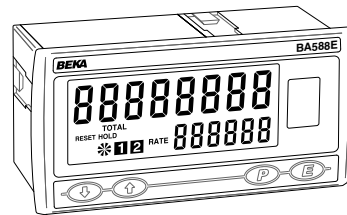
136 +0.5/-0.0 x 66.2 +0.5/-0.0



Support panel wiring to prevent vibration damage

Fig 1 Cut-out dimensions and terminals

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**Abbreviated instructions for**
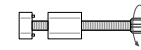
**BA588E Two input**
**General purpose Rate Totaliser**

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

**2.** Position gasket behind instrument bezel

**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
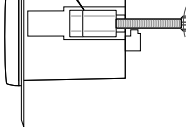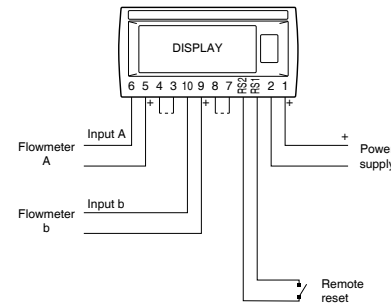


Fig 2 Installation procedure

### EMC

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



| Flowmeter output | Input A | Input b |
|---|---|---|
| Proximity detector Switch contact Open collector | Link 3 & 4 | Link 7 & 8 |
| Voltage pulse Magnetic pick-off | Don't link 3 & 4 | Don't link 7 & 8 |

Fig 3 Typical system

### 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
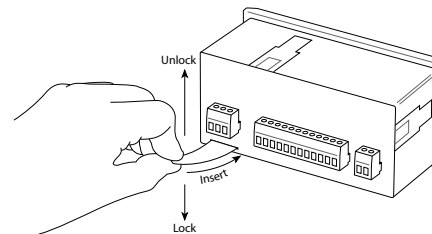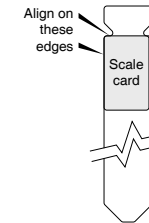


Fig 4    Inserting flexible strip carrying scale card into slot at the rear of Rate Totaliser.

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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 Clr 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 Clr Gtot is enabled.

To reset the grand total to zero from the operating mode press the E + ▲ buttons for ten seconds until Clr.no is displayed. Using the ▼ or ▲ button change the display to Clr.YES and press E which will reset the grand total and restore the original display.

**▼ + ▲**   If the Local Total Reset function Clr 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:
2CHtotAL
Options fitted:
- A   Dual Alarm Outputs
- C   4/20mA output.

**P + ▲**   Provides direct access to the alarm setpoints when the Rate Totaliser is fitted with optional alarms and the ACSP (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 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.
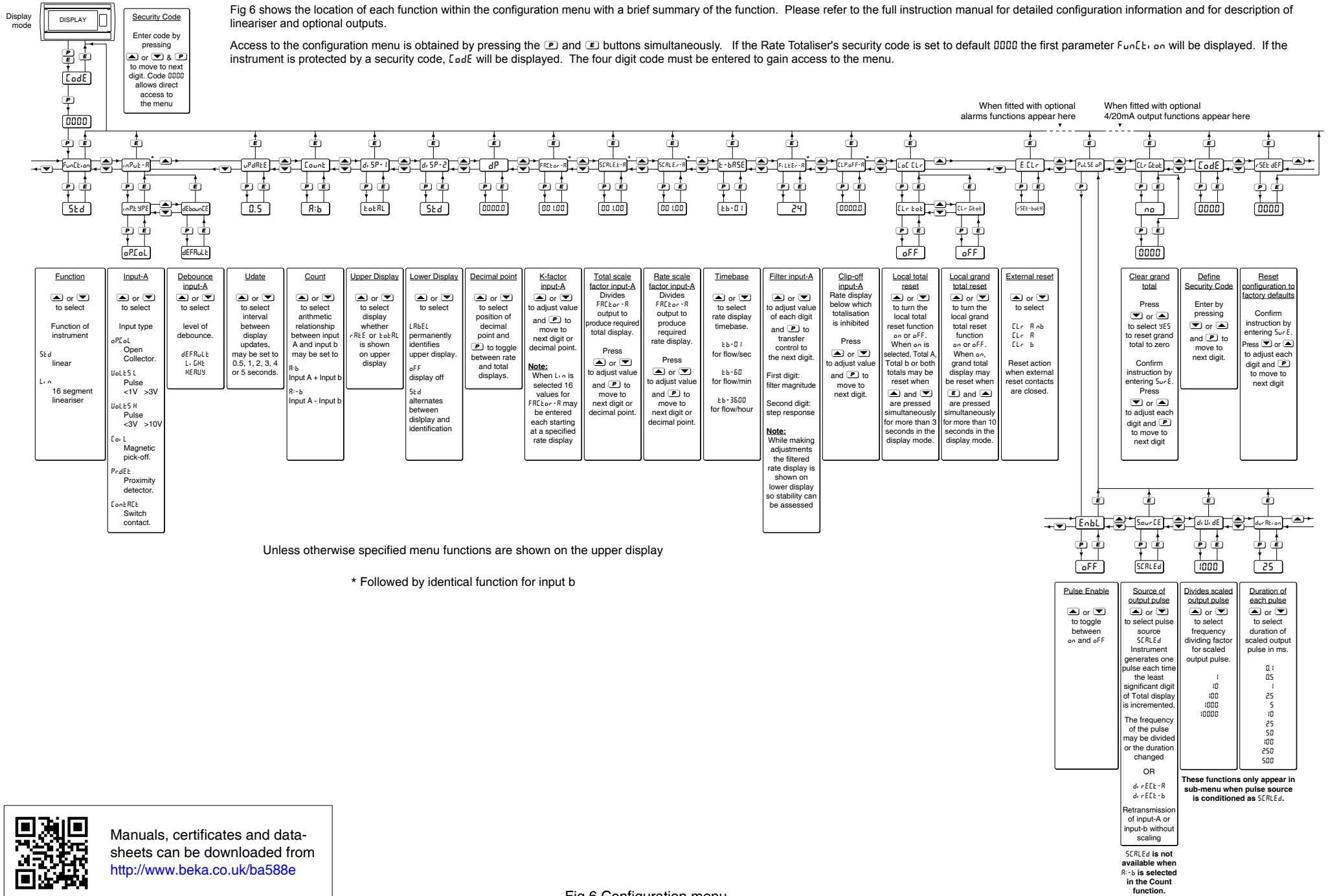
**Display mode** — DISPLAY

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

CodE → 0000

When fitted with optional alarms functions appear here
When fitted with optional 4/20mA output functions appear here



Unless otherwise specified menu functions are shown on the upper display

\* Followed by identical function for input b

**Function**
[▲] or [▼] to select
Function of instrument
Std linear
Lin 16 segment lineariser

**Input-A**
[▲] or [▼] to select
Input type
oPCoL Open Collector.
VoLt5 L Pulse <1V >3V
VoLt5 H Pulse <3V >10V
Coil Magnetic pick-off.
PrdEt Proximity detector.
ContACt Switch contact.

**Debounce input-A**
[▲] or [▼] to select
level of debounce.
dEFAuLt
LiGht
HEAVY

**Udate**
[▲] or [▼] to select interval between display updates, may be set to 0.5, 1, 2, 3, 4 or 5 seconds.

**Count**
[▲] or [▼] to select arithmetic relationship between input A and input b may be set to
A:b Input A + Input b
A:-b Input A - Input b

**Upper Display**
[▲] or [▼] to select display whether rAtE or totAL is shown on upper display

**Lower Display**
[▲] or [▼] to select
LAbEL permanently identifies upper display.
oFF display off
Std alternates between dislplay and identification

**Decimal point**
[▲] or [▼] to select position of decimal point and [P] to toggle between rate and total displays.

**K-factor input-A**
[▲] or [▼] to adjust value and [P] to move to next digit or decimal point.
Note: When Lin is selected 16 values for FACtor-A may be entered each starting at a specified rate display

**Total scale factor input-A**
Divides FACtor-A output to produce required total display.
Press [▲] or [▼] to adjust value and [P] to move to next digit or decimal point.

**Rate scale factor input-A**
Divides FACtor-A output to produce required rate display.
Press [▲] or [▼] to adjust value and [P] to move to next digit or decimal point.

**Timebase**
[▲] or [▼] to select rate display timebase.
tb-01 for flow/sec
tb-60 for flow/min
tb-3600 for flow/hour

**Filter input-A**
[▲] or [▼] to adjust value of each digit and [P] to transfer control to the next 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 input-A**
Rate display below which totalisation is inhibited
Press [▲] or [▼] to adjust value and [P] to move to next digit.

**Local total reset**
[▲] or [▼] to turn the local total reset function on or off.
When on is selected, Total A, Total b or both totals may be reset when [▲] and [▼] are pressed simultaneously for more than 3 seconds in the display mode.

**Local grand total reset**
[▲] or [▼] to turn the local grand total reset function on or off.
When on, grand total display may be reset when [▲] and [▼] are pressed simultaneously for more than 10 seconds in the display mode.

**External reset**
[▲] or [▼] to select
Clr A nb
Clr A
Clr b
Reset action when external reset contacts are closed.

**Clear grand total**
Press [▼] or [▲] to select YES to reset grand total to zero
Confirm instruction by entering SurE.
Press [▼] or [▲] to adjust each digit and [P] to move to next digit

**Define Security Code**
Enter by pressing [▼] or [▲] and [P] to move to next digit.

**Reset configuration to factory defaults**
Confirm instruction by entering SurE.
Confirm instruction by entering SurE.
Press [▼] or [▲] to adjust each digit and [P] to move to next digit

**Pulse Enable**
[▲] or [▼] to toggle between on and oFF

**Source of output pulse**
[▲] or [▼] to select pulse source
SCALEd Instrument generates one pulse each time the least significant digit of Total display is incremented.
The frequency of the pulse may be divided or the duration changed
OR
dirECt-A
dirECt-b
Retransmission of input-A or input-b without scaling
SCALEd is not available when A:-b is selected in the Count function.

**Divides scaled output pulse**
[▲] or [▼] to select frequency dividing factor for scaled output pulse.
1
10
100
1000
10000

**Duration of each pulse**
[▲] or [▼] to select duration of scaled output pulse in ms.
0.1
0.5
1
2.5
5
10
25
50
100
250
500

These functions only appear in sub-menu when pulse source is conditioned as SCALEd.

Manuals, certificates and data-sheets can be downloaded from http://www.beka.co.uk/ba588e

Fig 6 Configuration menu