1. DESCRIPTION

The BA537E and BA538E are panel mounting, general purpose 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
BA537E	8 digits 9mm high 5 digits 6mm high	96 x 48mm
BA538E	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 system design and configuration may be downloaded from the BEKA website or may be requested from the BEKA sales office.
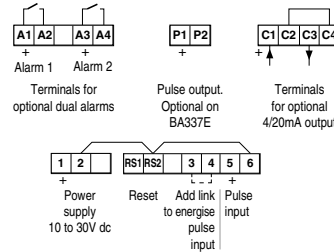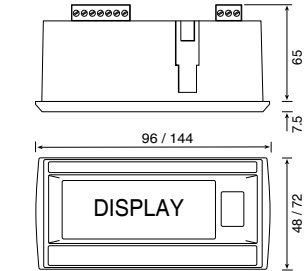
2. INSTALLATION

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.
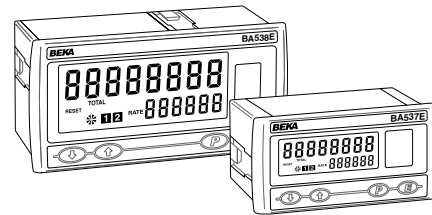
BA537E
90 +0.5/-0.0 x 43.5 +0.5/-0.0

BA538E
136 +0.5/-0.0 x 66.2 +0.5/-0.0

Support panel wiring to prevent vibration damage

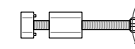Fig 1 Cut-out dimensions and terminals

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Abbreviated instructions for

BA537E and BA538E one input
**General purpose Rate Totalisers**

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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 clamp(s). Recommended tightening torque 22cNm (1.95lbf.in) Equivalent to finger tight plus one half turn. DO NOT OVERTIGHTEN
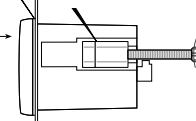
BA538E requires 4 clamps for IP66 front panel sealing

Fig 2 Installation procedure

EMC

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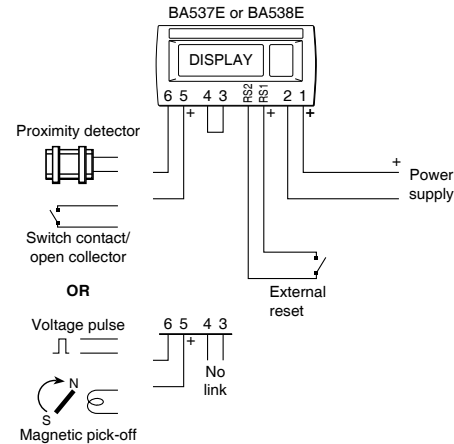

Fig 3 Typical system

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
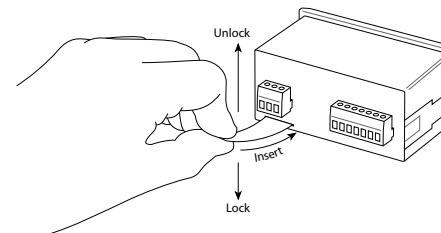

Fig 4   Inserting flexible strip carrying scale card into slot at the rear of Rate Totaliser.

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.
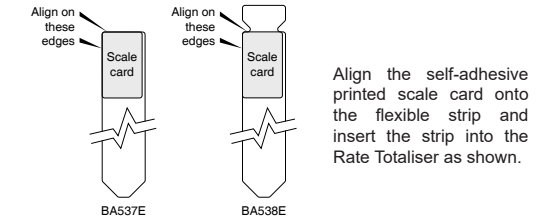
Fig 5 Fitting scale card to flexible strip

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 BA538E*
- 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 ⒫ and ⒠ 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.

Fig 6 Configuration menu

Unless otherwise specified menu functions are shown on the upper display

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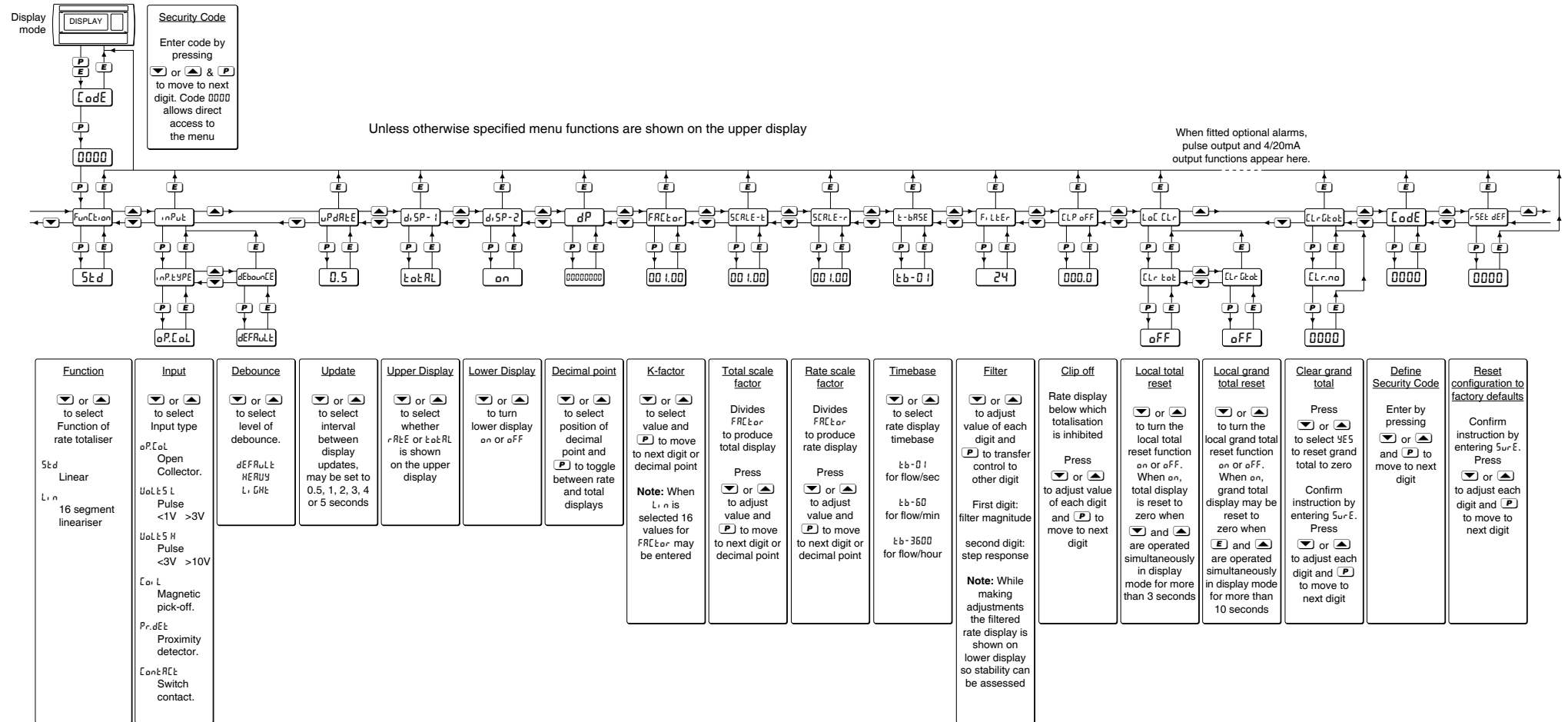
Display mode

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

Function — ▼ or ▲ to select Function of rate totaliser. Std Linear. Lin 16 segment lineariser

Input — ▼ or ▲ to select Input type. oP.CoL Open Collector. VoLtS L Pulse <1V >3V. VoLtS H Pulse <3V >10V. CoiL Magnetic pick-off. Pr.dEt Proximity detector. ContACt Switch contact.

Debounce — ▼ or ▲ to select level of debounce. dEFAuLt HEAVY LiGHt

Update — ▼ or ▲ to select interval between display updates, may be set to 0.5, 1, 2, 3, 4 or 5 seconds

Upper Display — ▼ or ▲ to select whether rAtE or totAL is shown on the upper display

Lower Display — ▼ or ▲ to turn lower display on or oFF

Decimal point — ▼ or ▲ to select position of decimal point and ⒫ to toggle between rate and total displays

K-factor — ▼ or ▲ to select value and ⒫ to move to next digit or decimal point. Note: When Lin is selected 16 values for FACtor may be entered

Total scale factor — Divides FACtor to produce total display. Press ▼ or ▲ to adjust value and ⒫ to move to next digit or decimal point

Rate scale factor — Divides FACtor to produce rate display. Press ▼ or ▲ to adjust value and ⒫ 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 — ▼ or ▲ 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 ▼ or ▲ to adjust value of each digit and ⒫ 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 mode for more than 3 seconds

Local grand total reset — ▼ or ▲ to turn the local grand total reset function on or oFF. When on, grand total display may be reset to zero when ⒠ and ▲ are operated simultaneously in display mode for more than 10 seconds

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 ⒫ to move to next digit

Define Security Code — Enter by pressing ▼ or ▲ and ⒫ to move to next digit

Reset configuration to factory defaults — Confirm instruction by entering SurE. Press ▼ or ▲ to adjust each digit and ⒫ to move to next digit

Menu items (upper display): FunCtion, inPut, uPdAtE, diSP-1, diSP-2, dP, FACtor, SCALE-t, SCALE-r, t-bASE, FiLtEr, CLP oFF, LoC CLr, ClrGtot, CodE, rSEt dEF

Sub values: Std, inP.tYPE, dEbounCE, oP.CoL, dEFAuLt, 0.5, totAL, on, 00000000, 001.00, 001.00, 001.00, tb-01, 24, 000.0, CLr tot, ClrGtot, oFF, oFF, CLr.no, 0000, 0000