# 1. DESCRIPTION

The BA367E-SS is an intrinsically safe, one input Counter housed in a rugged 316 stainless steel panel mounting enclosure which can operate with a wide range of sensors.

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 BA367E-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 number and codes. Other certifications may be shown. Copies of certificates may be downloaded from the BEKA website.
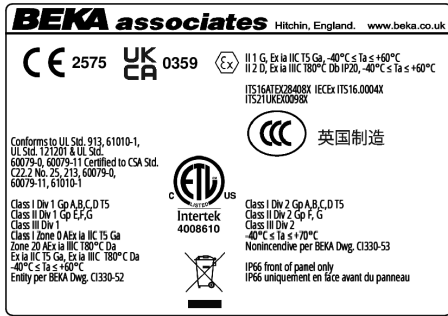


Typical certification information label

## Special conditions for safe use

The 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 BA367E-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 BA367E-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 BA367E-SS Counter will not invalidate the Ex e, Ex p or Ex t panel enclosure certification.
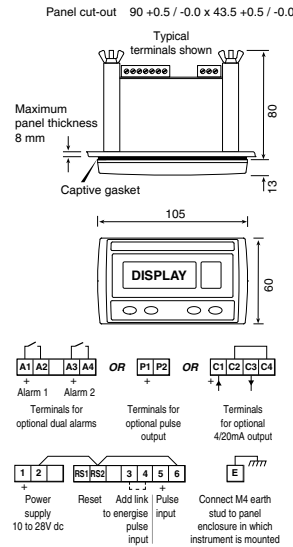
## Use in combustible dust atmospheres

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

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# 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.

Panel cut-out   90 +0.5 / -0.0 x 43.5 +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

### BA367E-SS Rugged one input intrinsically safe Counter
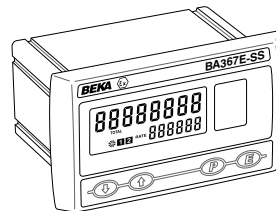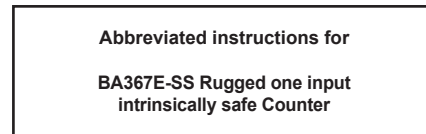


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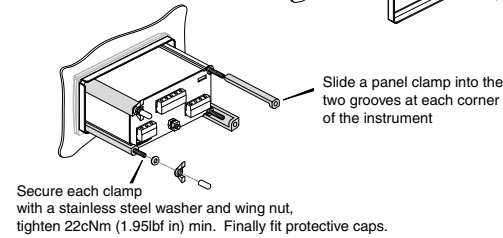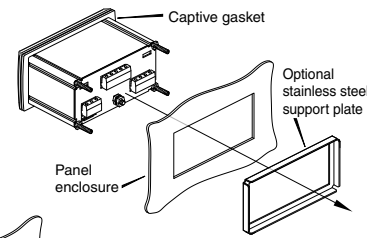web: www.beka.co.uk

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Fig 2 Installation procedure

Slide a panel clamp into the two grooves at each corner of the instrument

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

## EMC

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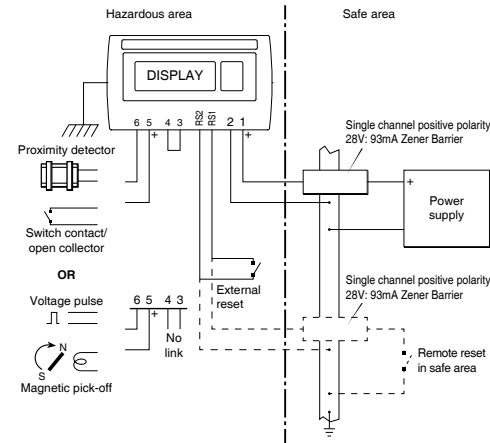


Fig 3 Use with Zener barriers

## Scale card

The Counters 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
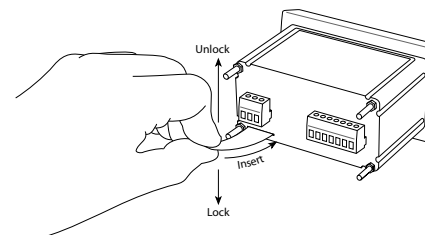


Fig 4     Inserting flexible strip carrying scale card into slot at the rear of Counter.

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Thus the scale card can easily be changed without removing the Counter from the panel or opening the instrument enclosure.

New Counters are supplied with a printed scale card showing the requested units of measurement, if this information is not supplied when the Counter 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 Counter as shown.
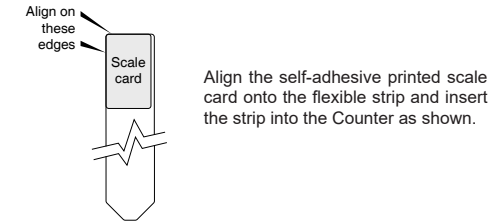
Fig 5  Fitting scale card to flexible strip

# 3. OPERATION

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

P + E    Access to configuration menu.

▼ + ▲    If Local Total Reset Clr tot in the instrument configuration menu has been activated,  operating the ▼ and ▲ buttons simultaneously for three seconds will reset the total display to zero and clear any pulses stored in the optional pulse output.

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 Grand Total Reset Clr Gtot in the instrument configuration menu has been activated,  operating the E and ▲ buttons simultaneously for ten seconds will result in Clr.no being displayed with the no flashing. Operating the ▲ or ▼ button will change the display to Clr.YES,  the E button will then reset the grand total to zero which will be confirmed by a brief display of Gt Clrd.

P + ▼    Shows in succession, firmware version number, instrument function Counter and any output accessories that are fitted:
- A    Dual Alarm Outputs
- P    Pulse output
- 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.

## 4. CONFIGURATION

Counters 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 optional outputs.

Access to the configuration menu is obtained by pressing the P and E buttons simultaneously. If the Counter's security code is set to default 0000 the first parameter ᵢnPut 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.
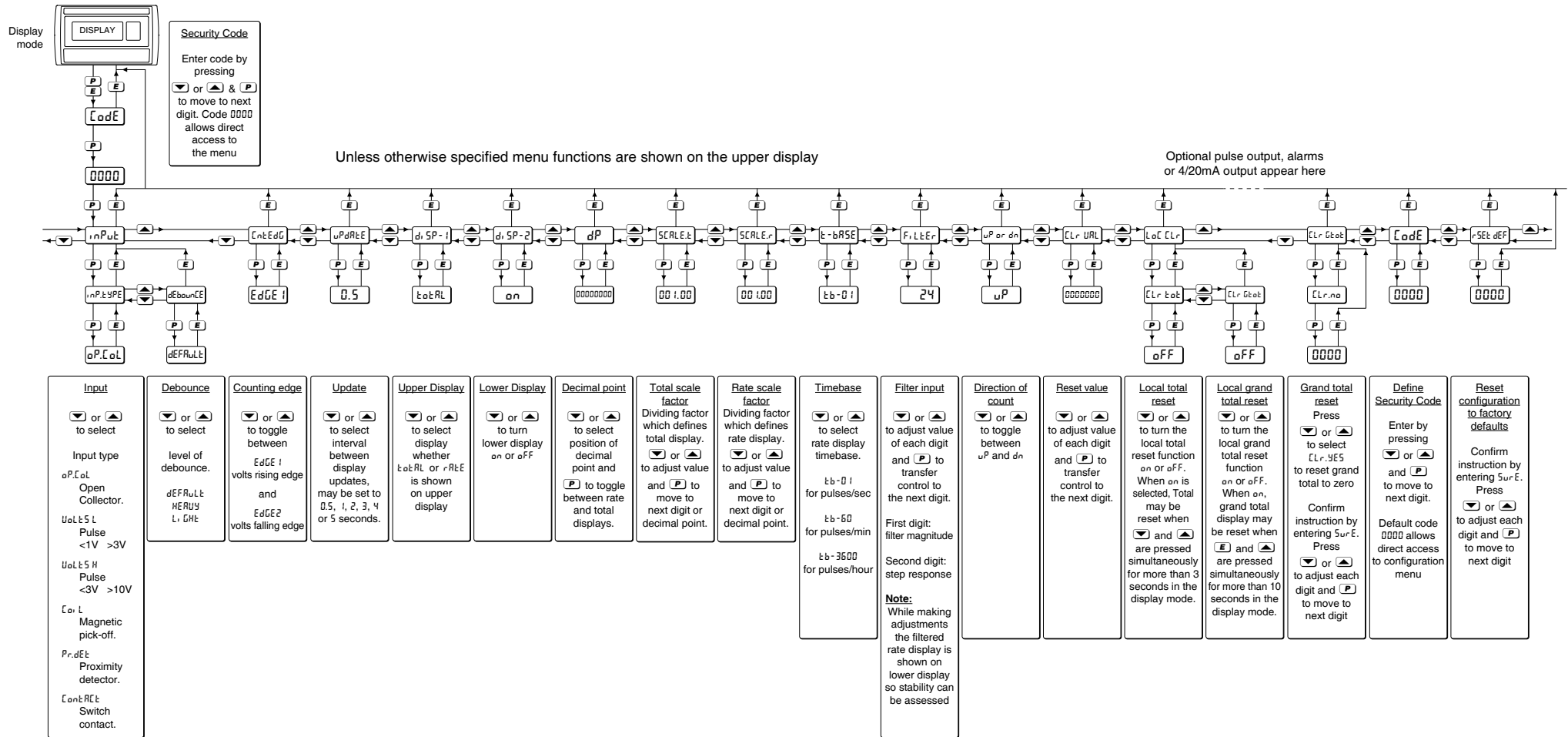


Fig 6 Configuration menu

Display mode — DISPLAY

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

Unless otherwise specified menu functions are shown on the upper display

Optional pulse output, alarms or 4/20mA output appear here

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

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

**Counting edge** — ▼ or ▲ to toggle between EdGE 1 volts rising edge and EdGE2 volts falling edge

**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 display whether totAL or rAtE is shown on upper display

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

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

**Total scale factor** — Dividing factor which defines total display. ▼ or ▲ to adjust value and P to move to next digit or decimal point.

**Rate scale factor** — Dividing factor which defines rate display. ▼ or ▲ to adjust value and P to move to next digit or decimal point.

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

**Filter input** — ▼ 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

**Direction of count** — ▼ or ▲ to toggle between uP and dn

**Reset value** — ▼ or ▲ to adjust value of each digit and P to transfer control to the next digit.

**Local total reset** — ▼ or ▲ to turn the local total reset function on or oFF. When on is selected, Total 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 E and ▲ are pressed simultaneously for more than 10 seconds in the display mode.

**Grand total reset** — Press ▼ or ▲ to select CLr.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. Default code 0000 allows direct access to configuration menu

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