## 1. DESCRIPTION

The BA317E-SS is an intrinsically safe, one input Tachometer 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 BA317E-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.
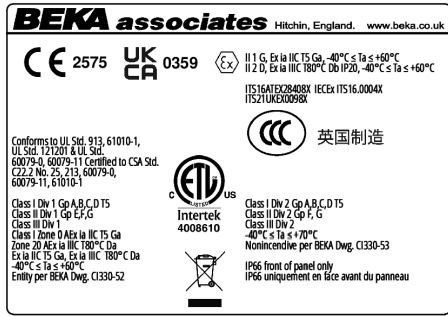
Typical certification information label
Other approvals may be shown

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 BA317E-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 BA317E-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 BA317E-SS Tachometer 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.
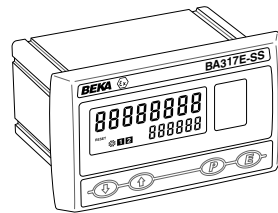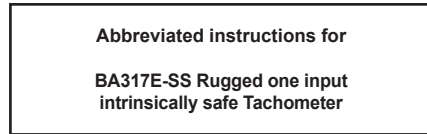
2. INSTALLATION

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.
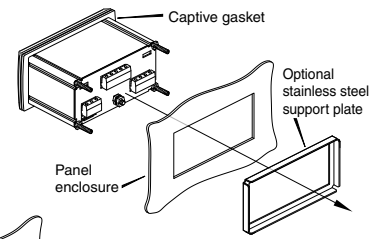

Panel cut-out   90 +0.5 / -0.0 x 43.5 +0.5 / -0.0
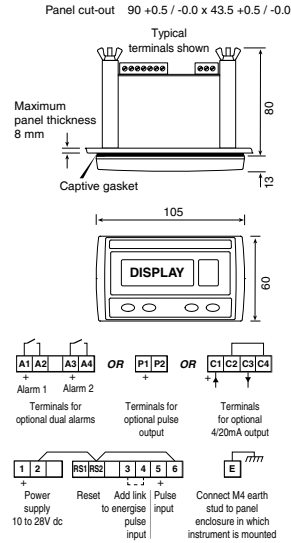
Support panel wiring to prevent vibration damage

Fig 1 Cut-out dimensions and terminals

Abbreviated instructions for

BA317E-SS Rugged one input intrinsically safe Tachometer

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.
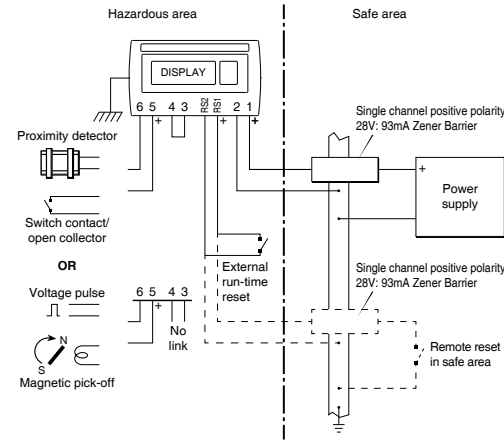

Fig 3 Use with Zener barriers

Scale card

The Tachometer'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
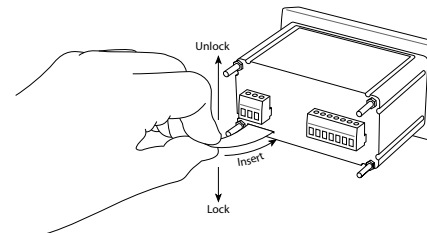

Fig 4   Inserting flexible strip carrying scale card into slot at the rear of Tachometer.

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

New Tachometers 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.
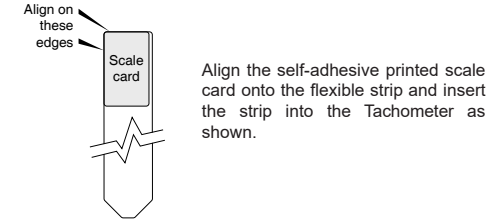

Align the self-adhesive printed scale card onto the flexible strip and insert the strip into the Tachometer as shown.

Fig 5 Fitting scale card to flexible strip

3. OPERATION

The Tachometer 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 the Local Run-time reset function CLr tot in the instrument configuration menu is enabled, operating the ▼ and ▲ buttons simultaneously for more than 3 seconds resets the run-time display to zero.

E + ▲   Run-time grand total.
If buttons are pressed for ten seconds or longer grand total run-time is reset to zero. This is a configurable function.

P + ▼   Shows in succession, firmware version number, instrument function tACHo 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 ASEP (access to setpoints) has been enabled in the configuration menu.
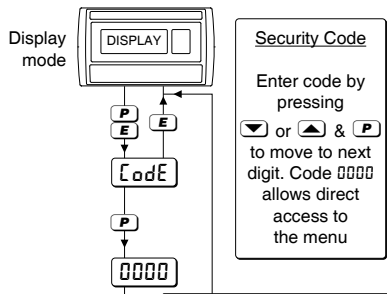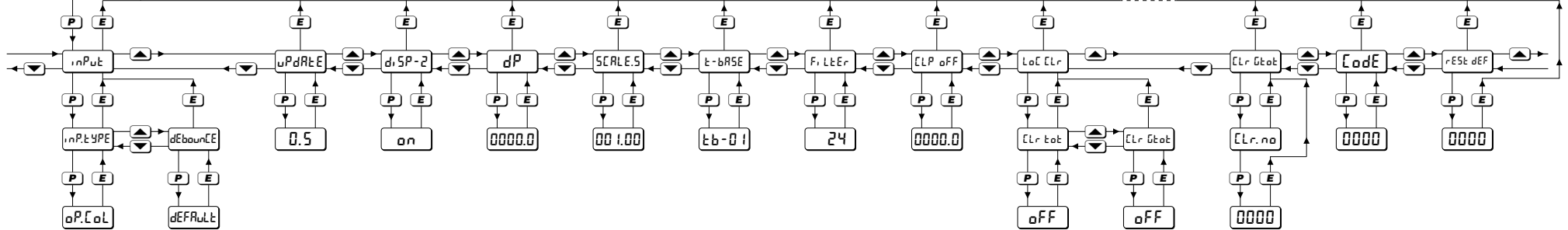
4. CONFIGURATION

Tachometers 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 optional outputs.

Access to the configuration menu is obtained by pressing the P and E buttons simultaneously. If the Tachometer's security code is set to default 0000 the first parameter ι n P u t will be displayed. If the instrument is protected by a security code, C o d E 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

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

Display mode

Security Code

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

Fig 6 Configuration menu

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

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

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

Run-time Display
▼ or ▲ to turn run-time display on or oFF

Decimal point
▼ or ▲ to select position of decimal point in the speed display

Speed scale factor
▼ or ▲ to select value of each digit and P to transfer control to next digit or decimal point

Timebase
▼ or ▲ to select speed display timebase
tb-01 for speed/sec
tb-60 for speed/min
tb-3600 for speed/hour

Filter
▼ or ▲ to adjust value of each digit and P 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 assured

Clip off
Tachometer display below which run-time timer is inhibited
▼ or ▲ to adjust value and P to move to next digit

Local run-time reset
▼ or ▲ to turn the local run-time reset function on or oFF. When on, run-time display is reset to zero when ▼ and ▲ are operated simultaneously in display mode for more than 3 seconds

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

Reset run-time 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. Press ▼ or ▲ to adjust each digit and P to move to next digit