1. DESCRIPTION

The BA427E-SS is a rugged intrinsically safe Set Point Station housed in a stainless steel panel mounting enclosure which enables the current flowing in a 4/20mA loop to be manually adjusted from within a hazardous area. The BA427E-SS is loop powered and includes a five digit display that may be calibrated to show the 4/20mA current in linear engineering units.

This abbreviated instruction sheet is intended to assist with installation and commissioning, a comprehensive instruction manual describing safety certification system design and calibration is available from the BEKA sales office or may be downloaded from the BEKA website www.beka.co.uk/manuals.html.

Typical certification information label

In addition to conventional intrinsic safety certification, the BA427E-SS may be installed in a certified Ex e, Ex p or Ex t enclosure without invalidating the enclosure's certification.

Special conditions for safe use

The IECEx, ATEX and UKEX certificate numbers have an 'X' suffix indicating that the following special installation conditions apply for some applications.

When installed in an Ex e, Ex p or Ex t panel enclosure all connections to the BA427E-SS must be made by appropriately rated Zener barriers or galvanic isolators.

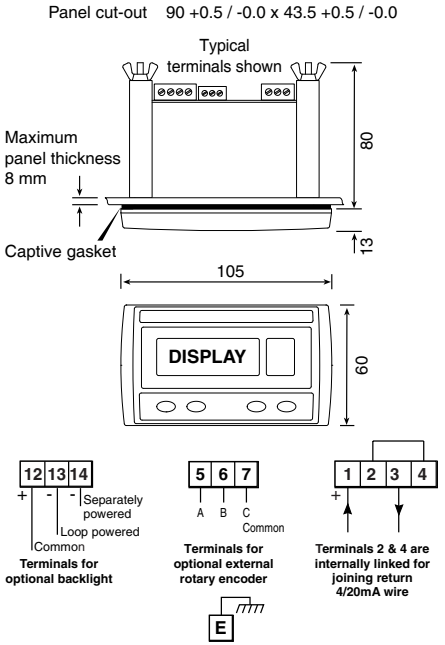
This means that when installed in an Ex e, Ex p or Ex t panel enclosure, the BA427E-SS remains an intrinsically safe instrument and must comply with the installation requirements shown in the full instruction manual.

For use in Group IIIC explosive dust atmospheres, the Set Point Station shall be mounted such that the instrument terminals are protected by at least an IP6X enclosure.

This means that a BA427E-SS Set Point Station exposed to a IIIC conductive dust atmospheres should be mounted in an IP6X panel enclosure.

2. INSTALLATION

The BA427E-SS has IP66 front of panel protection but should be shielded from continuous direct sunshine and severe weather conditions. The rear of the instrument has IP20 protection.



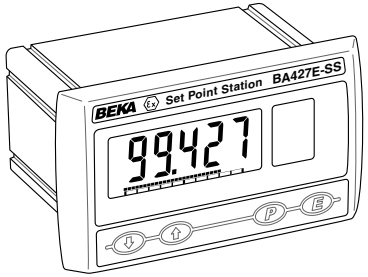
Connect M4 earth stud to panel enclosure in which Set Point Station is mounted

Support panel wiring to prevent vibration damage

Fig 1 Cut-out dimensions and terminals

Abbreviated instructions for

BA427E-SS rugged intrinsically safe panel mounting Set Point Station



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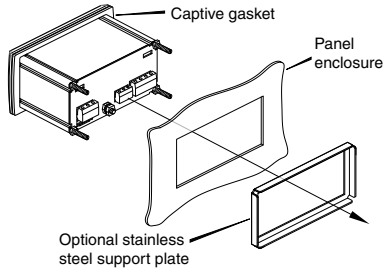
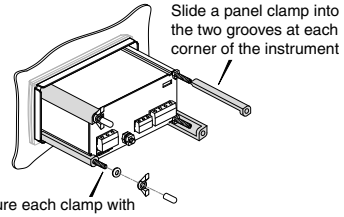
BEKA associates Ltd. Old Charlton Rd, Hitchin, Hertfordshire, SG5 2DA, UK Tel: +44(0)1462 438301 e-mail: sales@beka.co.uk
web: www.beka.co.uk





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

Fig 2 Installation procedure

EMC

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

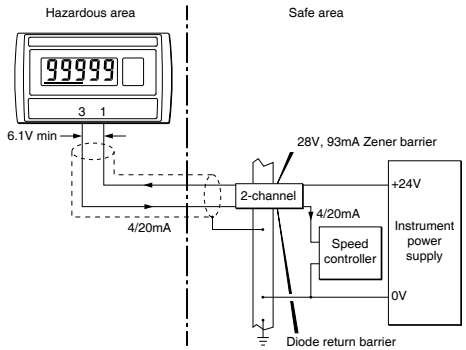


Fig 3 Typical control loop

Scale card

The Set Point Station'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.

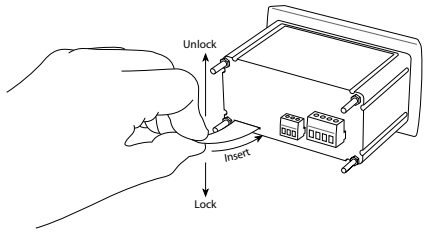


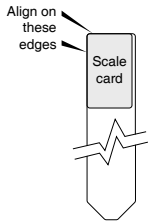
Fig 4 Inserting flexible strip carrying scale card into slot at the rear of Set Point Station.

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

New Set Point Stations are supplied with a printed scale card showing the requested units of measurement, if this information is not supplied when the Set Point Station 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 indicator as shown.

Fig 5 Fitting scale card to flexible strip

3. OPERATION

The BA427E-SS Set Point Station is controlled and configured via four front panel push buttons located below the display. In the operating mode i.e. when the Set Point Station is controlling the loop current and the display is showing the output in engineering units, these push buttons have the following functions:

E * + ▼ Output current slowly decreases. After five seconds the rate of change accelerates so that large changes may be made quickly. Push E button first followed by ▼ button to decrease output current.

E * + ▲ Output current slowly increases. After five seconds the rate of change accelerates so that large changes may be made quickly. . Push E button first followed by ▲ button to increase output current.

* Optional depending on configuration

E Pushing this button for 5 seconds enables the Set Point Station output to be entered digit by digit in engineering units using the ▼ or ▲ push button to adjust the flashing digit and the P button to move control to the next digit. When set as required pressing the E button will enter the new set point value and the output current will change.

P While this button is pushed the BA427E-SS Set Point Station will display one of three alternatives depending upon how the instrument has been configured. Output current in mA; output current as a % of span or provide access to the pre-set outputs.

▼ or ▲ While this button is pushed the Set Point Station will display the numerical value the Set Point Station has been calibrated to display with a 4mA or 20mA output.

P + E Access to configuration menu via optional security code.

4. CONFIGURATION

The BA427E-SS Set Point Station is supplied calibrated as requested when ordered, 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.

Access to the configuration menu is obtained by pressing the P and E buttons simultaneously. If the Set Point Station security code is set to the default 0000 the first parameter rESn will be displayed. If the Set Point Station configuration menu is protected by a non-default security code, CodE will be displayed and the non-default code must be entered to obtain access to the menu.

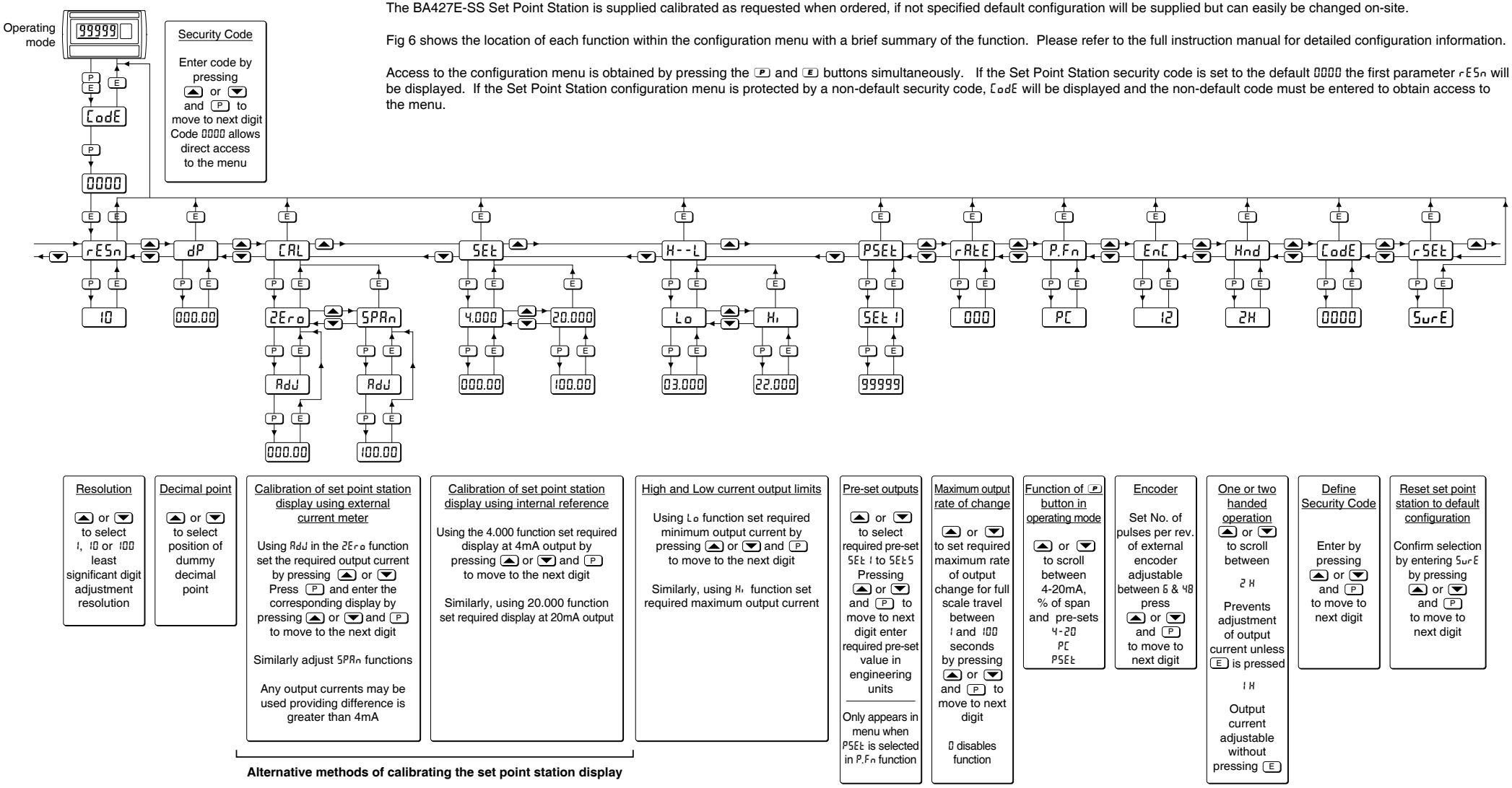


Fig 6 Configuration menu

Manuals, certificates and data-sheets can be downloaded from http://www.beka.co.uk/ba427e-ss

The BA427E-SS is CE marked to show compliance with the *European Explosive Atmospheres Directive 2014/34/EU* and the *European EMC Directive 2014/30/EU.*

It is also UKCA marked to show compliance with UK statutory requirements Equipment and Protective Systems Intended for Use in *Potentially Explosive Atmospheres Regulations UKSI 2016:1107 (as amended)* and with the *Electromagnetic Compatibility Regulations UKSI 2016:1091 (as amended).*