Shown with optional backlight - loop powered

BA427E-SS

Rugged 4/20mA manual set point station [set point generator]

Intrinsically safe suitable for use in a Ex e, Ex p or Ex t panel enclosure and in harsh environments

- **Loop powered**
- **Front of instrument maintains Ex e, Ex p and Ex t panel enclosure certification.**
- **Rugged IP66 stainless steel enclosure.**
- **Intrinsically safe**
- **5 digit 12.7mm high display & 31 segment bargraph.**
- **Optional backlight and BA490 external rotary encoder.**
- **3 year guarantee**

www.beka.co.uk/ba427e-ss

The BA427E-SS set point station enables the current flowing in a 4/20mA loop to be manually adjusted from within a hazardous area via the front panel push buttons. Intrinsic safety certification and a rugged stainless steel housing allows the BA427E-SS to be safely installed in an Ex e, Ex p or Ex t panel enclosure without invalidating the enclosures certification. It is also suitable for intrinsically safe applications in uncertified panels, in marine environments or where the front of the instrument is likely to be impacted.

Main application of the BA427E-SS is the manual adjustment of a 4/20mA plant parameter such as a controller set point from within a hazardous area. To simplify adjustment, the display may be calibrated to show the output current in engineering units. The front of the set point station has IP66 ingress and impact protection which has been certified to allow installation in an Ex e, Ex p or Ex t panel enclosure without invalidating the enclosure certification.

International intrinsic safety certification permits the BA427E-SS to be installed throughout the world. All certificates clearly specify where the set point station may be installed and a detailed explanation is contained in the instruction manual.

A large digital display and 31 segment bargraph may be calibrated to show the engineering units represented by the 4/20mA current, allowing an operator to easily set the process variable to the required value.

Up to five pre-set output values may be rapidly selected using the instrument's front panel push buttons for applications where the same output currents are repeatedly required. To minimise plant disturbance when the output is adjusted or switched between pre-sets, the maximum rate of output current change may be defined. The 4/20mA output range may also be restricted so that operators can only adjust the plant variable within safe limits.

Units of measurement represented by the 4/20mA output current may be shown on the slide-in scale card which is viewed through the window on the right hand side of the display. If the units are specified when the BA427E-SS is ordered a printed scale card will be fitted. If units are not specified, a blank card will be fitted which can easily be marked and installed on-site without dismantling the set point station enclosure or removing it from the panel.

Display backlighting which may be loop or separately powered is available as a factory fitted option. It provides green background illumination allowing the display to be read at night or in poorly illuminated areas. When powered from the 4/20mA loop no additional intrinsically safe interface or wiring are required. Powering from a separate supply produces a brighter backlight but requires an additional intrinsically safe interface and field wiring. Two backlights may be separately powered from one intrinsically safe interface.

An external quadrature encoder may be directly connected to the BA427E-SS set point station to provide analogue control of the output current. Most three wire devices, such as the BEKA BA490 panel mounting rotary encoder may be located up to 1m from the BA427E-SS.

Reliability is ensured by component conformal coating, protection from incorrect connection and radio frequency interference. The set point station has been subjected to vibration testing and is supported by a three year guarantee.

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SPECIFICATION

Output

Current	3.0 to 22.0mA
Resistance	Greater than 1MΩ

Power supply

Voltage	6.1 to 30V 10 to 30V when optional backlight is loop powered.

Accuracy

Control resolution	1 least significant digit of the display, or 0.3µA whichever is greater.
Temperature effect	Less than 2µA/°C

Display

Type	Liquid crystal, non-multiplexed 5 digit 12.7mm high with 31 segment bargraph.
Zero	Adjustable between 0 & ±99999 with 4mA output.
Span	Adjustable between 0 & ±99999 with 20mA output.
Decimal point	1 of 4 positions or absent
Zero blanking	Blanked apart from 0 in front of decimal point
Direction	Display may increase or decrease with increasing 4/20mA output.

Push buttons

	(Function in operating mode)
E and ▼ or ▲	Scrolls output current down or up. Two handed activation prevents output current being accidentally adjusted if ▼ or ▲ button or external encoder are inadvertently operated. Can be set to single handed operation in configuration menu.
▼	Shows display calibration with 4mA output
▲	Shows display calibration with 20mA output
P	Displays output current in mA, as a % of span or provides access to pre-set outputs.

Intrinsic safety

International IECEx

Code	Ex ia IIC T5 Ga Ex ia IIIC T80°C Db IP20 Tamb = -40 to 60°C (-40 to +70°C when not mounted in certified enclosure).
Cert. No	IECEx ITS15.0056X (As ATEX special conditions).

Europe ATEX and UKEX

Code	Group II Category 1G and 2D Ex ia IIC T5 Ga Ex ia IIIC T80°C Db IP20 Tamb = -40 to +60°C (-40 to +70°C when not mounted in certified enclosure).
Input parameters	
Ui	30V dc
Ii	200mA
Pi	0.84W
Cert. No.s	ITS15ATEX28365X ITS21UKEX0097X (Special conditions permit installation in Ex e, Ex n, Ex p and Ex t enclosures and apply for use in Group IIIC conductive dusts).

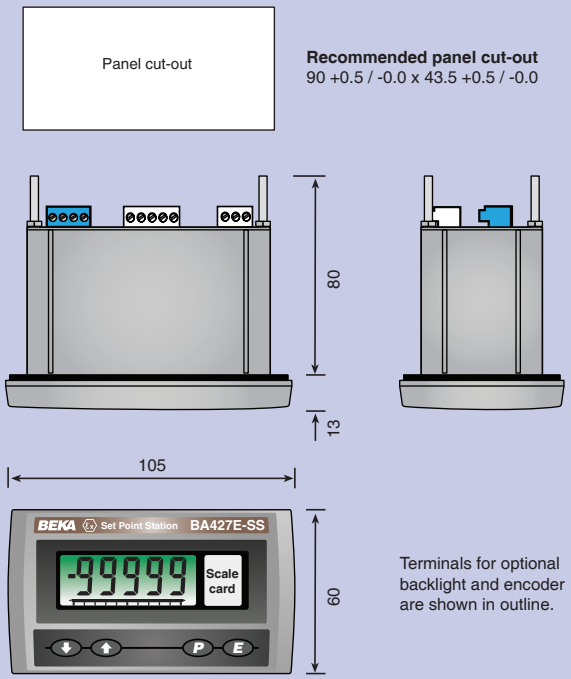
Environmental

Operating temp	-40 to +70°C (May be limited to -40 to +60°C when mounted in certified enclosure - see intrinsic safety certificates).
Storage temp	-40 to +85°C
Humidity	to 95% at 40°C noncondensing
Vibration	Report available
Enclosure	
Ingress protection	Front IP66, rear IP20
Material	Stainless steel BS 3146-2:1977 ANC4B (316)
EMC	Complies with EU and UK Directives

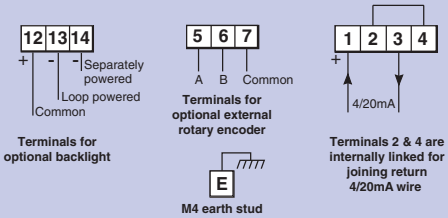
Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm² cable, removable.
Weight	0.85kg

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Accessories

Backlight	Green, may be loop or separately powered
Loop powered	Set point station + backlight 10 to 30V
Separately powered	9 to 30V at 22mA from IS interface
Printed scale card	Blank card fitted to each Set Point Station, can be supplied typeset with specified engineering units.
Tag legend	Specified tag number or application laser etched onto rear of the instrument.
External encoder	BA490 panel mounting rotary quadrature encoder which may be located up to 1m away from the BA427E-SS. See separate datasheet.
BA495 rear cover and sealing kit	Provides impact and IP66 protection for rear of instrument. #

 # See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	BA427E-SS
Display at:	
4.000mA	XXXXX ⎫ Include position of decimal point
20.000mA	XXXXX ⎭ & sign if negative *

Accessories	Please specify if required
Display backlight	Backlight
Scale card	Legend required - No Charge if ordered with Set Point Station.
Tag	Legend required
External rotary encoder	BA490
Rear cover and sealing kit	BA495

* *Will be set to display 0.00 at 4mA output and 100.00 at 20mA output if calibration information is not supplied. Calibration can easily be changed on-site.*