

Shown with optional loop powered backlight

The BA427E is an intrinsically safe panel mounting set point station that enables the current flowing in a 4/20mA loop to be manually adjusted via the front panel push buttons from within the hazardous area. It is a second generation instrument that is mechanically and electrically compatible with the earlier BA405C, but has more display digits plus additional functions.

**Main application** of the BA427E is the adjustment of a 4/20mA plant parameter from within a hazardous area. For example, used as the remote set point generator for a speed controller the BA427E enables speed adjustments from within the hazardous process area. The BA427E may also be used to position an actuator or valve with a 4/20mA input. The BA427E incorporates a five digit display plus a bargraph that 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.

**International intrinsic safety certification** permits the BA427E to be installed throughout the world. All input safety parameters are the same or greater than those for the preceding BA405C, thus allowing the BA427E to safely replace the earlier model.

**Five pre-set output** values may be rapidly selected using the instrument's front panel push buttons for applications where the same output values 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.

The bold 11mm high liquid crystal display provides maximum contrast and has a very wide viewing angle, allowing the BA427E set point station display to be read easily in most lighting conditions over a wide temperature range. The five digits, with four decimal points and a negative sign, may be configured to display any variable

represented by the 4/20mA output current between -99999 and 99999.

**Engineering units** represented by the 4/20mA output current are shown on the scale card viewed through a window on the right hand side of the display. If the units are specified when the BA427E is ordered a printed scale card will be fitted. If units are not specified, a blank card will be supplied 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 is 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.

**IP66 front panel protection** and a neoprene gasket to seal the joint between the set point station and the panel make the instrument suitable for use in areas that will be cleaned with a hose. To simplify installation and maintenance, the set point station has a removable terminal block allowing panel wiring to be completed before the BA427E is installed.

A BA490 panel mounting external rotary encoder may be directly connected to the BA427E set point station to provide analogue control of the output current. The encoder complies with the requirements for *Simple Aparatus* and can be installed in the same hazardous area as the set point station.

**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.

# BA427E

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

*Intrinsically safe for use in all gas and dust hazardous areas*

- ◆ Loop powered
- ◆ Intrinsically safe ATEX, IECEx ETL & cETL.
- ◆ 5 digit 11mm high display & 31 segment bargraph.
- ◆ Optional backlight & BA490 external rotary encoder.
- ◆ IP66 front
- ◆ Easy on-site scale card installation.
- ◆ 96 x 48mm DIN enclosure.
- ◆ 3 year guarantee

[www.beka.co.uk/ba427e](http://www.beka.co.uk/ba427e)



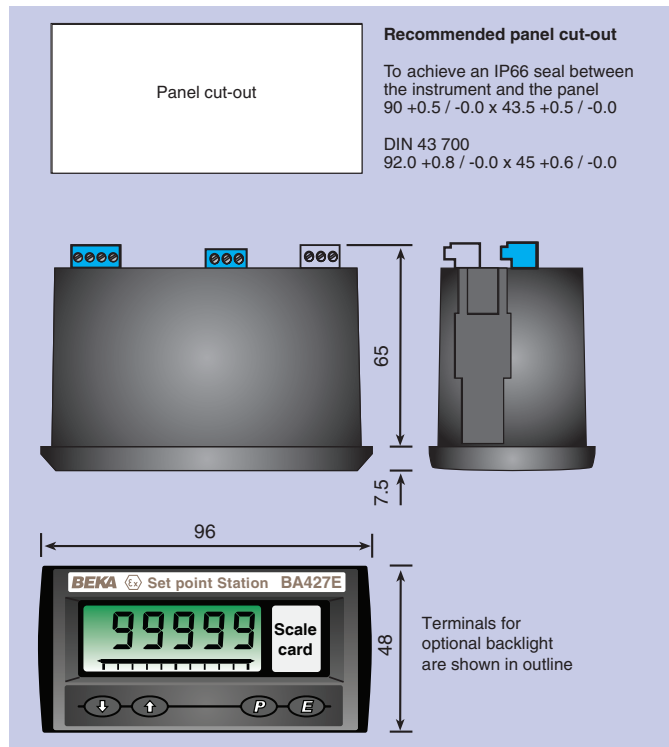
# BEKA associates

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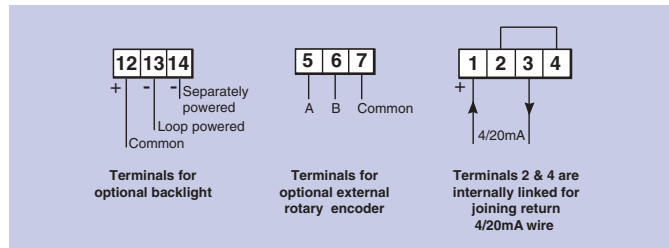
## SPECIFICATION

<b>Output</b>	
Current	3.0 to 22.0mA
Resistance	Greater than 1MΩ
<b>Power supply</b>	
Voltage	6.1 to 30V 10 to 30V when optional backlight is loop powered.
<b>Accuracy</b>	
Control resolution	1 least significant digit of the display, or 0.3μA whichever is greater.
Temperature effect	Less than 2μA/°C
<b>Display</b>	
Type	Liquid crystal, non-multiplexed 5 digit 11mm 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.
<b>Push buttons</b>	(Function in operating mode)
'E' and ▼ or ▲	Scrolls output current down or up. Pressing 'E' prevents output current being accidentally adjusted if ▼ or ▲ buttons or optional rotary encoder are inadvertently operated. This function can be disabled in the 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.
<b>Intrinsic safety</b>	
<b>Europe ATEX</b>	
Code	Group II Category 1GD Ex ia IIC T5 Ga Ex ia IIIC T80°C Da IP20 Tamb = -40 to 70°C
Input parameters	
Ui	30V dc
Ii	200mA
Pi	0.84W
Cert. No.	ITS12ATEX27718X (Special conditions only apply for use in Group IIIC conductive dusts)
<b>International IECEx</b>	
Code	Ex ia IIC T5 Ga Ex ia IIIC T80°C Da IP20 Tamb = -40 to 70°C
Cert. No.	IECEX ITS12.0084X (Special conditions only apply for use in Group IIIC conductive dusts)
<b>USA ETL</b>	
Standards	ANSI/ISA 60079-0 & 11 conforms to UL 913 7th edition & UL 60079-0 & 11.
IS Code	IS CL I, Div 1, GP A, B, C, & D: CL I, ZN 0, AEx ia IIC T5 Ga.
NI Code	NI CL I, DIV 2, GP A, B, C & D: CL II, DIV 2, GP E, F & G: CL III, T5. CL I, ZN 2, GP IIA, IIB, IIC, T5 Ta = 70°C
File	4008610
<b>Canada cETL</b>	
File	4008610
<b>Environmental</b>	
Operating temp	-40 to 70°C
Storage temp	-40 to 85°C
Humidity	To 95% at 40°C noncondensing
Vibration	Report available
Enclosure	Front IP66, rear IP20
EMC	Complies with EMC Directive 2014/30/EU
<b>Mechanical</b>	
Terminals	Screw clamp for 0.5 to 1.5mm <sup>2</sup> cable, removable.
Weight	0.2kg

## DIMENSIONS (mm)



## TERMINAL CONNECTIONS



### Accessories

<b>Backlight</b>	Green, may be loop or separately powered. Set point station + backlight supply 10 to 30V. 9 to 30V at 22mA from IS interface
Loop powered	
Separately powered	
<b>Printed scale card</b>	Blank card fitted to each Set Point Station can be supplied typeset with specified engineering units.
<b>Tag legend</b>	Specified tag number or application thermally printed onto rear of the instrument.
<b>BA490 rotary encoder</b>	Panel mounting IP65 sealed rotary encoder which provides analogue control of the BA427E output current. Complies with the requirements for <i>Simple Apparatus</i> . See separate datasheet.
<b>BA495 rear cover and sealing kit</b>	Provides impact and IP66 protection for rear of instrument. #

# See accessory datasheet for details

## HOW TO ORDER

<b>Model number</b>	BA427E
<b>Display at:</b>	XXXXX } Include position of 4.000mA } decimal point & sign if negative * 20.000mA }
<b>Accessories</b>	<b>Please specify if required</b>
Display backlight	Backlight
Scale card	Legend required
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.