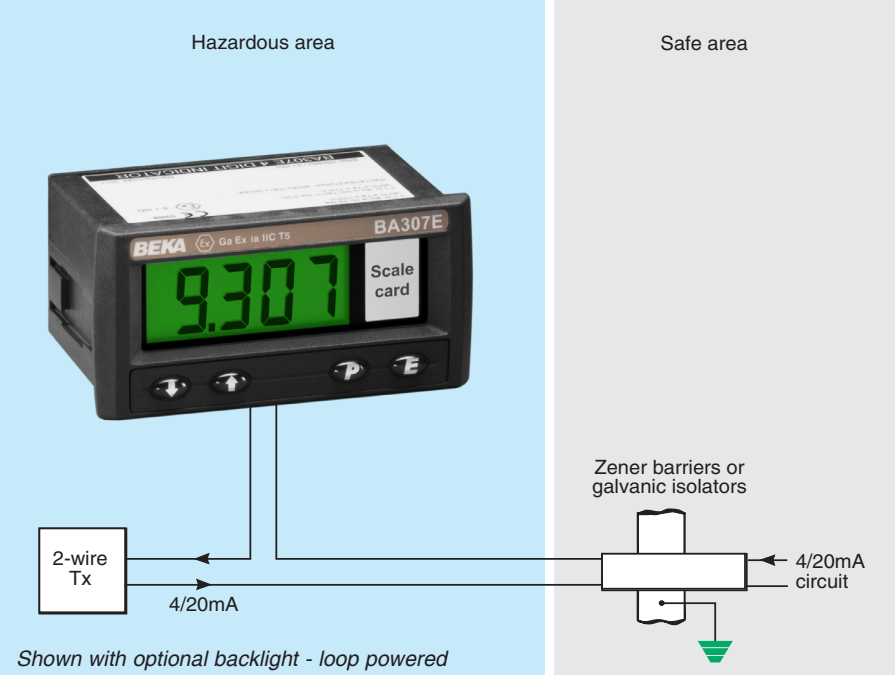

Shown with optional backlight - loop powered

BA307E

2-wire 4/20mA 4 digit indicator

Intrinsically safe for use in gas & dust hazardous areas

- **Loop powered only 1.2V drop.**
- **4 digit 15mm high display.**
- **Intrinsically safe**
- **Optional backlight & alarms.**
- **Easy on-site scale card installation.**
- **IP66 front**
- **96 x 48mm DIN enclosure.**
- **3 year guarantee**

www.beka.co.uk/ba307e

The BA307E loop powered 4/20mA indicator is a fourth generation instrument that is electrically and mechanically compatible with the earlier industry standard BA307C, but has a much larger full 4 digit display providing maximum visibility from a 96 x 48mm instrument. The new model has guaranteed performance between -40 & 70°C, dust certification and an even shorter enclosure depth than its predecessor. The scale card can easily be marked to show the units of measurement and be installed on-site without dismantling the indicator enclosure or removing it from the panel. If the units of measurement are not specified when the indicator is ordered, a blank scale card will be fitted.

The main application of the BA307E is to display a measured variable in meaningful engineering units within a hazardous area. The zero and span of the display are independently adjustable allowing the indicator to be calibrated to display any linear variable represented by the 4/20mA signal. A root extractor and an adjustable sixteen segment lineariser enables the indicator to display flow and non-linear variables such as tank level in linear engineering units. For weighing applications a tare function is included.

A bold 15mm high 4 digit display provides maximum contrast and has a very wide viewing angle, allowing the BA307E indicator to be read easily in most lighting conditions over a wide temperature range. An optional factory fitted backlight is available for applications in poorly illuminated areas. The four digits, with three decimal points and a negative sign, may be configured to display any variable between -9999 and 9999.

IP66 front panel protection and a neoprene gasket to seal the joint between the indicator and the panel make the instrument suitable for use in areas that will be cleaned with a hose. To simplify installation and maintenance, the indicator has a removable terminal block allowing panel wiring to be completed before the BA307E indicator is installed.

International intrinsic safety certification permits the BA307E to be installed throughout the world. The 4/20mA input terminals comply with the requirements for *simple apparatus* which, together with the low voltage drop, allow the indicator to be connected in series with most intrinsically safe 4/20mA loops. The BA307E may also be installed in dust hazardous areas. All input safety parameters are the same or greater than those for the preceding BA307C, thus allowing the BA307E to safely replace the earlier model.

A backlight 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 and the indicator input remains compliant with the requirements for *simple apparatus*. 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.

Optional dual alarm outputs which can switch hazardous or safe area loads, such as sounders, beacons or solenoid valves, are available as a factory fitted option. The two galvanically isolated solid state alarm outputs may be independently conditioned as high or low alarms with normally open or closed outputs. Annunciators on the display show the status of both alarm outputs.

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

Other models in this range include the BA327E which has a similar specification with five 11mm high digits and a 31 segment bargraph.

BEKA associates

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SPECIFICATION

Input

Current	4 to 20mA
Voltage	Less than 1.2V at 20°C Less than 1.3V at -40°C Less than 5V with optional loop powered backlight.
Overrange	±200mA or ±30V will not damage the indicator.

Display

Type	Liquid crystal, non-multiplexed 4 digit 15mm high.
Span	Adjustable between 0 & ±9999 for a 4/20mA input.
Zero	Adjustable between 0 & ±9999 with 4mA input.
Decimal point	1 of 3 positions or absent
Polarity	Automatic minus sign
Zero blanking	Blanked apart from 0 in front of decimal point
Direction	Display may increase or decrease with increasing 4/20mA input.
Reading rate	2 per second
Overange	9999 or -9999 with all decimal points flashing.

Push buttons *(Function in display mode)*

▼	Shows display with 4mA input
▲	Shows display with 20mA input
'P'	Displays input in mA or a % of span, has a modified function when alarms are fitted.
'E'	Used for tare function

Accuracy at 20°C

Linear	±0.02% of span ±1digit
Root extracting	±16µA at input ±1 digit.
Temperature effect on:	
Zero	Less than 25ppm of span/°C
Span	Less than 50ppm of span/°C
Series mode rejection	Less than 0.05% of span error for 1mA pk to pk 50 or 60Hz interference.

Intrinsic safety

International IECEx

Code	Ex ia IIC T5 Ga Ex ia IIIC T80°C Db IP20 Tamb = -40 to 70°C
Cert. No	IECEx ITS11.0015X

Europe ATEX & UKEX

Code	Group II Category 1G and 2D Ex ia IIC T5 Ga Ex ia IIIC T80°C Db IP20 Tamb = -40 to 70°C
Input parameters	
Ui	30V dc
Ii	200mA
Pi	0.84W
Output parameters	Complies with requirements for *simple apparatus*.
Cert. No.	ITS11ATEX27254X & ITS21UKEX0088X

USA FM

Standard	3610 Entity
Code	CL I: Div 1 Gp A, B, C, & D T5 @ 70°C
Standard	3611 Nonincendive
Code	CL I, II, III: Div 2 Gp A, B, C, D, E, F & G T5 @ 70°C
File	3041487

Canada cFM

File	3041487C

China CCC As IECEx - see certificate

India CCOE/PESO As ATEX - see certificate

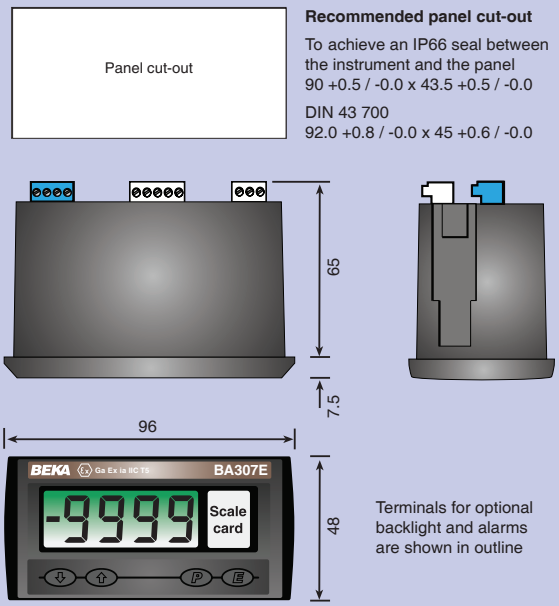
Environmental

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 EU & UK EMC Directives

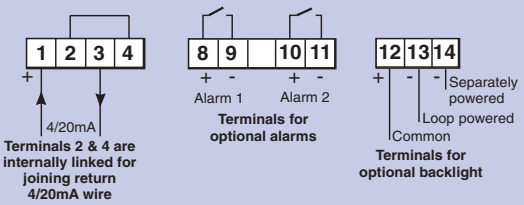
Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm^2 cable, removable terminal blocks.
Weight	0.2kg

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Accessories

Backlight	Green, may be loop or separately powered.
Loop powered	Indicator input voltage 5V max.
Separately powered	9V at 22.5mA from IS interface
Alarms	Two alarm outputs each of which may be independently configured as a high or low alarm contact with a NO or NC output.
Output	Isolated solid state switch complying with requirements for *simple apparatus*.
Ron	5Ω + 0.7V max
Roff	1MΩ min
Printed scale card	Blank card fitted to each Indicator can be supplied printed with specified units of measurement.
Pack of printed scale cards	Contains 26 common units of measurement and four blanks.
Tag legend	Specified tag number or application thermally printed onto rear of the instrument.
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	BA307E
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXX
20.000mA	XXXX

*Include position of decimal point & sign if negative, plus intermediate points if linearisation is required.**

Accessories	**Please specify if required**
Display backlight	Backlight
Dual alarms	Alarms
Scale card	Legend required
Tag	Legend required
Rear cover and sealing kit	BA495

* *Will be set to display 0.0 at 4mA and 100.0 at 20mA with a linear display if calibration information is not supplied. Can easily be recalibrated on-site.*