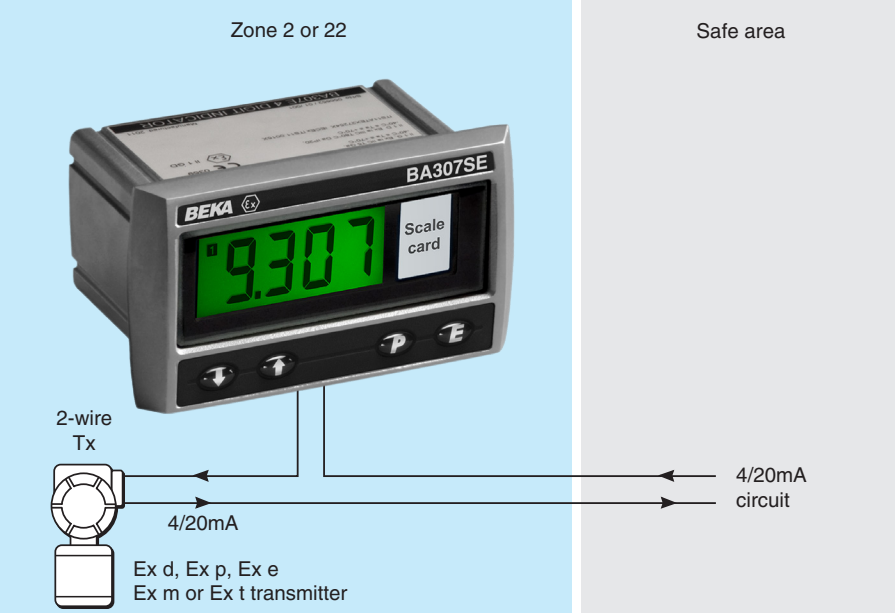


Typical application shown with optional backlight

BA307SE

Rugged 2-wire 4/20mA 4 digit indicator

Ex ec and Ex tc certified for installation in Ex e, Ex t and Ex pzc panels in Zones 2 and 22

- **Rugged IP66 stainless steel enclosure.**
- **International Ex ec & Ex tc certification eliminates the need for Zener barriers and galvanic isolators.**
- **Loop powered only 1.2V drop.**
- **4 digit 15mm high display.**
- **Optional backlight & alarms.**
- **Easy on-site configuration & scale card installation.**
- **Supersedes the BA307NE.**
- **3 year guarantee**

www.beka.co.uk/ba307se

The BA307SE loop powered, panel mounting Indicator has a rugged stainless steel housing allowing it to be safely installed in an Ex e, Ex t or Ex pzc panel located in Zones 2 or 22 without the need for Zener barriers or galvanic isolators. The indicator has a full 4 digit display with guaranteed performance between -40 and +70°C. The scale card can easily be marked to show the units of measurement and can be fitted on-site without dismantling the instrument or removing it from the panel.

The main application of the BA307SE is to display a measured variable in meaningful engineering units in Zones 2 or 22. The front of the indicator has certified impact and ingress protection allowing it to be installed in an Ex e, Ex t or Ex pzc certified panel without invalidating the panel's certification.

The bold 15mm high 4 digit display provides maximum contrast and has a wide viewing angle, allowing the BA307SE 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 point positions and a negative sign, can be configured to display any variable between -9999 and 9999 using the four front panel push buttons which may be protected by a user defined four digit password.

International Ex ec and Ex tc certification complying with the latest standards allows the BA307SE, when installed in a certified Ex e or Ex pzc enclosure, to be operated in a Zone 2 gas hazardous area without the need for Zener barriers or galvanic isolators. For Zone 2 applications worldwide the BA307SE offers a less expensive alternative to intrinsic safety and flameproof indicators. The BA307SE supersedes the BA307NE indicator following the replacement of Ex nA non sparking protection by Ex ec increased safety protection.

Ex tc dust certification also allows the BA307SE, when installed in a certified instrument panel or enclosure, to be operated in a Zone 22 dust hazardous area, again without the need for Zener barriers or galvanic isolators.

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 field wiring is required but the indicator's voltage drop increases. Powering from a separate supply produces a brighter backlight but requires additional field wiring.

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 configured as high or low alarms with normally open or closed outputs. Annunciators on the display show the status of both outputs and the display digits can be configured to flash when an alarm condition occurs.

Units of measurement may be shown on the scale card which is visible through the window on the right hand side of the display. Instruments are supplied with the units legend requested when ordered, but the scale card may be easily changed on-site without removing the BA307SE from the panel or opening the instrument enclosure.

Application Guide AG321 which explains how Ex ec certified instruments should be installed may be downloaded from the BEKA associates website, or requested from the BEKA sales office.

Other models in this range include the BA327SE which has a similar specification with five 11mm high digits and a 31 segment bargraph.

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 e-mail sales@beka.co.uk
website: www.beka.co.uk

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
Over range	±200mA will not damage the indicator

Display

Type	Liquid crystal, non-multiplexed 4 digits 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 the decimal point
Direction	Display may increase or decrease with increasing 4/20mA input.
Reading rate	2 per second
Over range	9999 or -9999 with flashing decimal points

Push buttons

▼	Shows display with 4mA input
▲	Shows display with 20mA input
P	Displays input in mA or as 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 ±1 digit
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.

Hazardous area certification (Certificates specify types of protection in alphabetical order. Zener barriers or galvanic isolators are not required.)

International IECEx

Code	Ex ec ic IIC T5 Gc *Increased safety Ex ec* Ex ic tc IIIC T80°C Dc *Protection by enclosure Ex tc* -40°C ≤ Ta ≤ +70°C
Input rating	
U_{max}	30V dc
I_{max}	200mA
Cert. No.	IECEx ITS 22.0023X

Europe ATEX and UKEX

Code	II 3G Ex ec ic IIC T5 Gc *Increased safety Ex ec* II 3D Ex tc ic IIIC T80°C Dc *Protection by enclosure Ex tc* -40°C ≤ Ta ≤ +70°C
Input rating	As IECEx certification
Cert. Nos.	ITS-1 22 ATEX 34494X R.O ITS 22 UKEX 0609X

USA ETL

Code	Class I Zone 2 AEx ec ic IIC T5 Gc *Increased safety Ex ec* Zone 22 AEx ic tc IIIC T85°C Dc *Protection by enclosure Ex tc* Class I Div 2 Groups A, B, C, D Class II Div 2 Groups F, G Class III Div 2 -40°C ≤ Ta ≤ +70°C
Input rating	As IECEx certification
Authorisation to Mark	104724586LHD-001

Canada cETL

Code	Ex ec ic IIC T5 Gc *Increased safety Ex ec* Ex ic tc IIIC T85°C Dc *Protection by enclosure Ex tc* Class I Div 2 Groups A, B, C, D Class II Div 2 Groups F, G Class III Div 2 -40°C ≤ Ta ≤ +70°C
Input rating	As IECEx certification
Authorisation to Mark	104724586LHD-001

Environmental

Operating temperature	-40 to 70°C
Storage temperature	-40 to 85°C
Humidity	To 95% at 40°C non-condensing
Vibration	Report available
Enclosure	Front IP66, rear IP20
EMC	Complies with EU & UK Directives

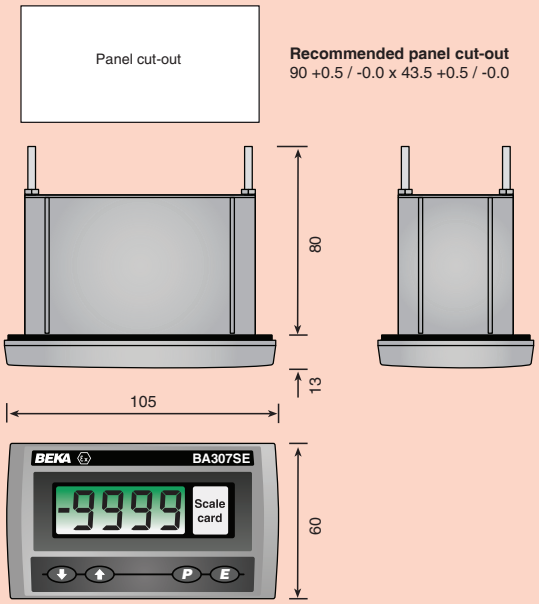
Mechanical

Terminals	Spring clamp for a single 4mm² solid wire
Weight	0.85kg

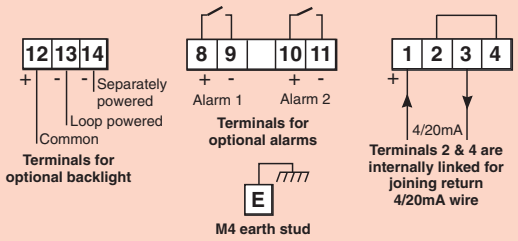
Accessories

Backlight	Green, may be loop or separately powered
Loop powered	Indicator input voltage increased to 5V max.
Separately powered	9 to 30V at 22mA

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Accessories cont.

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
Ron	5Ω + 0.7V max
Roff	1MΩ min
Vmax	30V dc
Imax	200mA
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 2 blank cards.
Tag legend	Specified tag number or application information thermally printed onto a label on the side 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	BA307SE
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXX] Include position of decimal point & sign if negative. Together with intermediate points if linearisation is required.
20.000mA	XXXX]

Accessories

Display backlight	Backlight
Dual alarms	Alarms
Scale card	Legend if required
Tag	Legend if 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.*