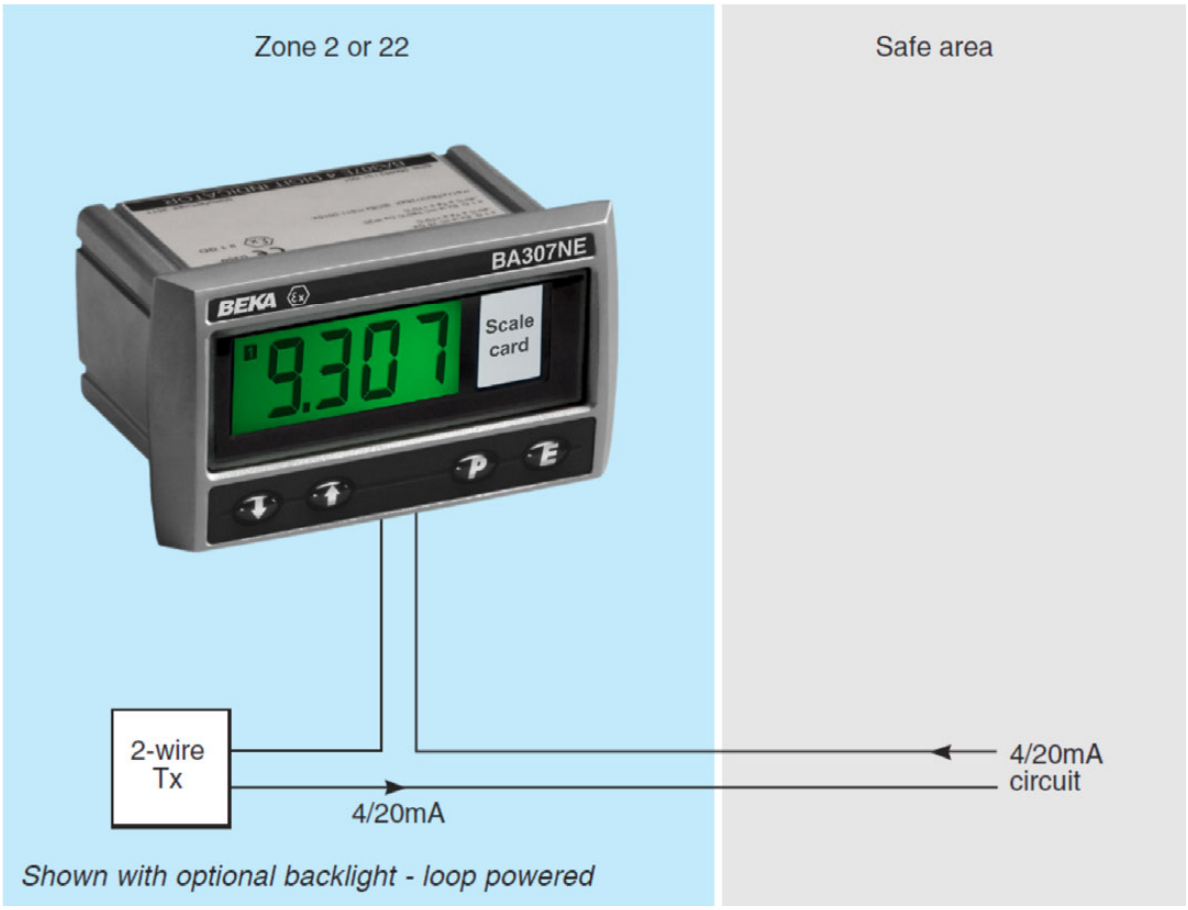
BA307NE Type nA Rugged 2-wire 4-20mA 4 digit Indicator



- Ex nA and Ex tc certified for installation in Ex n, Ex e, Ex p or Ex tc panel enclosure located in Zones 2 or 22
- Rugged IP66 Stainless Steel enclosure
- Ex nA & Ex tc certification eliminates the need for Zener barriers and galvanic isolators.
- Loop Powered – only 1.2V drop
- 4 digit 15mm high display
- Root extractor and 16 segment lineariser
- Easy on-site scale card installation
- Optional backlight & alarms
- 3 year guarantee

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The BA307NE loop powered, panel mounting Indicator has a rugged stainless steel housing allowing it to be safely installed in an Ex n, Ex p, Ex e or Ex tc panel enclosure located in Zone 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 installed on-site without dismantling the instrument or removing it from the panel.

The main application of the BA307NE is to display a measured variable in meaningful engineering units in Zone 2 or 22. The front of the indicator has certified impact and ingress protection allowing it to be installed in an Ex n, Ex p, Ex e or Ex tc panel enclosure without invalidating the panel's impact and ingress protection.

The bold 15mm high 4 digit display provides maximum contrast and has a wide viewing angle, allowing the BA307NE 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, may be configured to display any variable between -9999 and 9999.

ATEX, IECEx and ETL Ex nA non sparking certification allows the BA307NE, when installed in an Ex n, Ex p, or Ex e panel, to be operated in a Zone 2 gas hazardous area without the need for Zener barriers or galvanic isolators. For Zone 2 applications the BA307NE offers a less expensive alternative to intrinsically safe and flameproof indicators.

Ex tc dust certification also allows the BA307NE, when installed in an Ex tc panel 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 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.

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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 BA307NE from the panel or opening the instrument enclosure.

Other models in this range include the BA327NE which has a similar specification with five 11mm high digits and a 31 segment bargraph.

Specification

Input	
Current	4 to 20mA HART® Transparent
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 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 decimal point
Direction	Display may increase or decrease with increasing 4-20mA input
Reading rate	2 per second
Overrange	9999 or -9999 with all decimal points flashing

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Push buttons	*(Function in display mode)*
▼	Shows display with 4mA input
▲	Shows display with 20mA input
'P'	Displays unit in mA or % 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

Intrinsic Safety

Europe ATEX

Code	Group II Category 3GD Ex nA ic IIC T5 Gc Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ 70°C
Cert. No.	ITS14ATEX48028X *(Special conditions permit installation in Ex n, Ex e, Ex p and Ex tc enclosures)*

International IECEx

Code	Ex nA ic IIC T5 Gc Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ 60°C
Cert. No.	IECEx ITS14.0026X *(Special conditions permit installation in Ex n, Ex e, Ex p and Ex tc enclosures)*

USA & Canada ETL & cETL

Code	Class I, Zone 2, AEx nA ic IIC T5 Gc Zone 22, AEx ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ 60°C	] USA
	Ex nA ic IIC T5 Gc: Ex n IIC T5 Gc Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ 60°C	] Canada
ETL Control No.	4008610	

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Environmental	
Operating Temperature	-40 to 70°C
Storage Temperature	-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 EMC Directive 2014/30/EU
Mechanical	
Terminals	Screw clamp for 0.5 to 1.5mm^2 cable with removable terminal blocks
Weight	0.85kg
Accessories	
Backlight	Green, may be loop or separately powered
Loop powered	Input voltage increased to 5V
Separately powered	9V at 22mA
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
R_{on}	5Ω + 0.7V max
R_{off}	1MΩ min
Printed scale card	Blank card fitted to each indicator can be supplied printed with specified units of measurement.
Pack of printed scale	Contains 26 common units of measurement cards and 2 blank cards.
Tag legend	Specified tag number or application information laser etched onto rear of instrument
BA495 read cover and sealing kit	Provides impact and IP66 protection for rear of instrument

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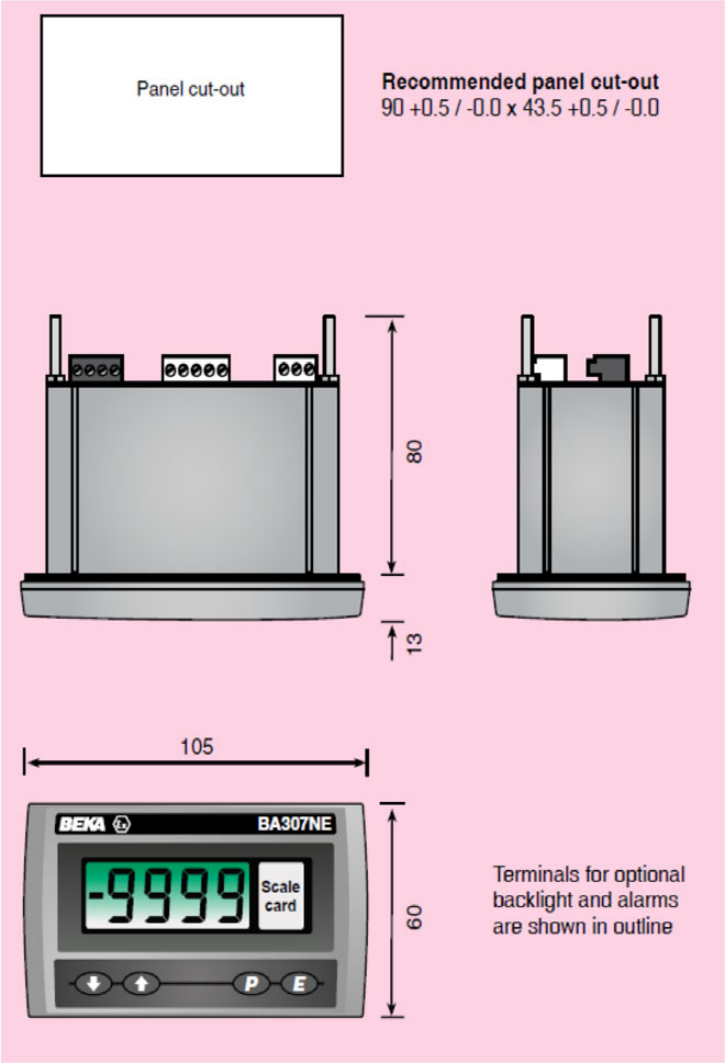
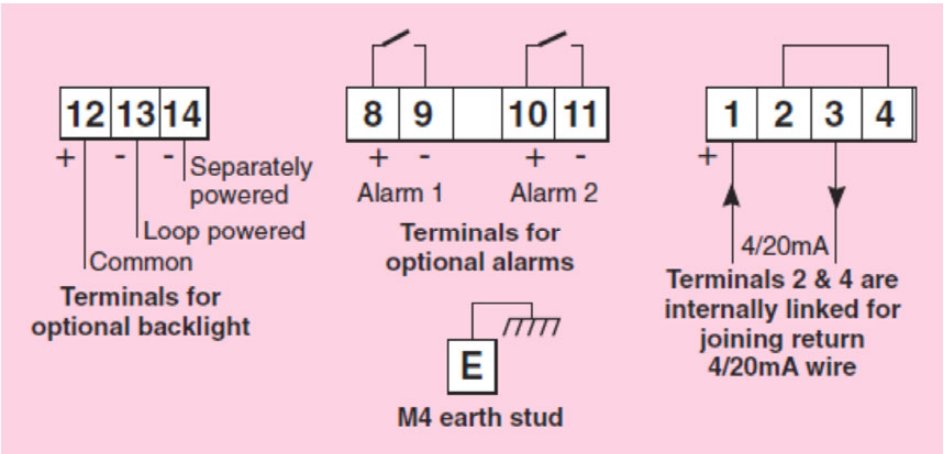
Dimensions



Terminal Connections



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Ordering Information

	Please specify
Model Number	BA307NE
Display mode	Linear, root or lineariser *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.*
Display at:	
4.000mA	*Include position of decimal point & sign if negative, plus intermediate points if linearization is required*
20.000mA	

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

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