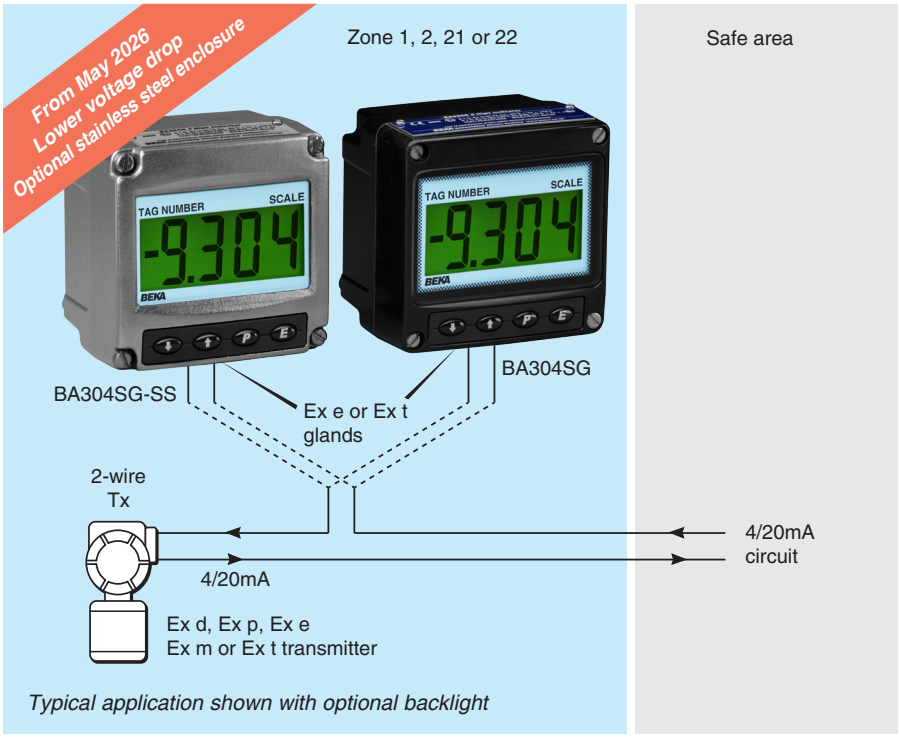

Typical application shown with optional backlight

The BA304SG loop powered 4/20mA indicator is an increased safety field mounting instrument with a 34mm high 4 digit display, housed in a robust IP66 GRP or stainless steel enclosure. The Ex eb and Ex tb certification allow the indicator to be installed in Zone 1, 2, 21 or 22, and connected in series with any hazardous area 4/20mA loop, except an intrinsically safe loop.

Main application of the BA304SG is to display a measured variable or control signal in engineering units within a hazardous area. It is a less expensive, lower weight, easier to install alternative to most Ex d flameproof indicators, with significantly better display visibility thanks to its bold 34mm high display. Only simple Ex e cable glands are required, which further simplifies installation and reduces cost.
The BA304SG indicator may also be safely connected in series with Ex e and Ex p 4/20mA loops, and is a safe replacement for an Ex nA indicator.

To further increase applications the voltage drop introduced by the BA304SG has been reduced, particularly with a backlight. An optional alternative stainless steel enclosure introduced, and the hazardous area certifications have been updated to comply with the latest Edition 7 IEC standards.

Dust ignition protection Ex tb certification confirms that the BA304SG may be safely installed in Zones 21 and 22.

IECEx, ATEX and UKEX certifications permit the BA304SG indicator to be installed worldwide. Application Guide AG320 describes the indicator's multiple explosion protections, and includes typical applications.

A bold 34mm high 4 digit display provides maximum contrast with a very wide viewing angle, allowing the BA304SG to be read in most lighting conditions. The four digits with three dummy decimal points and a negative sign, may be calibrated to display any range between -9999 and 9999. For installations in poorly illuminated areas, an optional loop powered backlight is available, which only increases the total indicator voltage drop to 5.6V.

Impact and IP66 ingress protection is provided by a robust GRP or 316 stainless steel enclosure, which have 8mm thick armoured glass windows and silicone gaskets. The BA304SG is surface mounting but can be pipe or panel mounted using an accessory kit.

Display zero and span are independently adjustable via the front panel buttons, allowing the indicator to be calibrated to display any linear variable represented by the 4/20mA signal. Non-linear variables, such as those from flow and tank level transmitters, may be displayed in linear engineering units using the instruments root extractor or adjustable sixteen segment lineariser. For weighing applications a tare function is included.

Display backlighting which is powered by the 4/20mA loop is available as a factory fitted option. It provides green background illumination which enhances daylight viewing and enables the display to be read in poorly illuminated areas and at night.

A scale card showing the units of measurement and tag information slides into an internal slot and can easily be changed on-site. New instruments can be supplied with the scale card printed to show customer specified information for no additional charge. If this is not requested, a blank card is fitted to which a legend can easily be added on-site.

BA304SG
2-wire 4/20mA 4 digit indicator

Lower cost alternative for Ex d flameproof indicator.

Ex eb increased safety & Ex tb certification allows installation in Zones 1, 2, 21 or 22.

- **IP66 GRP or stainless steel enclosure.**
- **Ex eb gas and Ex tb dust certification.**
- **Loop powered only 2.9V drop.**
- **4 digit 34mm high display.**
- **Optional backlight**
- **May be connected in series with Ex d, Ex p, Ex n, Ex m or Ex t loop.**
- **Easy scale card installation on-site.**
- **Push buttons usable in hazardous area.**
- **3 year guarantee**

www.beka.co.uk/ba304sg

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website: www.beka.co.uk

SPECIFICATION

Input

Current	4 to 20mA HART ® transparent
Voltage drop at 20°C	Less than 2.9V and 5.8V with backlight *(Reduced drop from May 2026)* *(was 5.3V and 9.1V with backlight)*
Overrange	±40V will not damage the indicator

Display

Type	Liquid crystal, 4 digits 34mm high non-multiplexed.
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
Overrange	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 as a % of span.
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.

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

International IECEx

Code	Ex eb ib mb IIC T5 Gb	*Increased safety Ex eb*
	Ex ib mb tb T80°C Db	*Protection by enclosure Ex tb.*
Rated voltage U_N	30V dc	
Cert. No.	IECEx ITS 19.0018X	

Europe ATEX & UKEX

Code and U_N	As IECEx
Cert. No.	ITS19ATEX304891X & ITS21UKEX0100X

USA & Canada ETL & cETL

Class I Zone 1	AEx eb ib mb IIC T5 Gb Ex eb ib mb IIC T5 Gb
ETL control No.	4008610

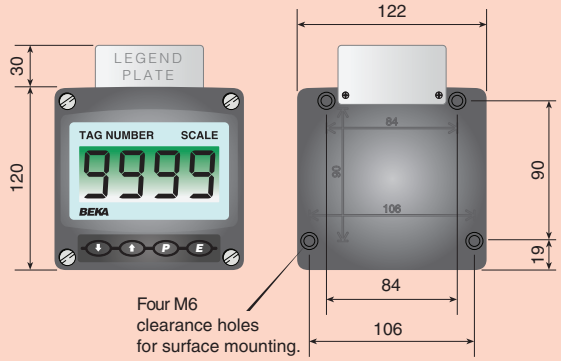
Environmental

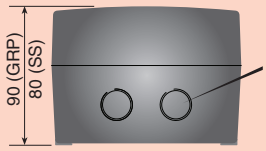
Operating temp	-40 to +60°C
Storage temp	-40 to +85°C
Humidity	To 95% at 40°C non-condensing
EMC	Complies with EU & UK EMC Directives

Mechanical

Enclosure	
Material	GRP or 316 stainless steel.
Ingress protection	IP66
Impact protection	Enclosure 7J Window 4J
Weight	
GRP	1.1kg
Stainless steel	2.7kg
Terminals	Spring clamp for a single 0.2 to 1.5mm² solid wire. or 0.2 to 2.5mm² stranded wire
Scale card	Slide-in card visible through display window. Printed with customer specified units of measurement, tag information and company logo for no additional charge. #

DIMENSIONS (mm)



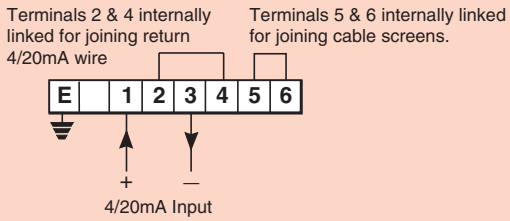


Two cable entries

M20 x 1.5 thread.
Supplied with one Ex e and Ex t certified IP66 stopping plug and one temporary hole plug.

Shown with optional legend plate

TERMINAL CONNECTIONS



Accessories

Backlight loop powered		
Colour	Green	
Input voltage drop	5.6V at 20mA. Indicator & backlight	
Legend plate	316 stainless steel plate laser engraved with tag number or application information #	
Pipe mounting kit		
BA393G	316 stainless steel #	
Panel mounting kit		
BA394G	Mounts indicator into an open panel aperture. Does not seal aperture between the front and the rear of the panel. #	

 # See accessory datasheet for details

HOW TO ORDER

	Please specify	
Model number	BA304SG	GRP enclosure
	BA304SG-SS	Stainless steel enclosure
Display mode	Linear, root or lineariser*	
Display at:		
4.000mA	XXXX	
20.000mA	XXXX	
Scale card marking		
Units	Legend required	
Tag	Legend required	
Logo	If required	

Accessories	**Please specify if required**
Display backlight	Backlight
Stainless legend plate	Legend required
Pipe mounting kit	BA393G
Panel mounting kit	BA394G

* 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.