

The BA304SG loop powered 4/20mA indicator is a new low cost alternative to a flameproof Ex d indicator featuring a large 34mm high display. Increased safety Ex eb and dust ignition protection by enclosure Ex tb certification allow it to be safely installed in Zones 1, 2, 21 or 22 without the need for a Zener barrier or a galvanic isolator. Installation requirements are the same as those for an Ex d instrument.

Main application of the BA304SG is to display a measured variable or control signal in engineering units within a hazardous area. The indicator may be connected in series with almost any Zone 1 or 2 hazardous area 4/20mA loop containing flameproof Ex d, pressurised Ex p or increased safety Ex e instrumentation. The BA304SG may also be used as an alternative for an Ex nA indicator in Zone 2.

Dust ignition protection by enclosure Ex tb certification confirms that the BA304SG may be safely installed in a Zone 21 or 22 dust atmosphere. Again there is no need for a Zener barrier or galvanic isolator.

IECEX and ATEX certification permits the BA304SG indicator to be installed worldwide. Application Guide AG320 describes the indicator's multiple explosion protection and includes examples of how it may be used.

The large 34mm high 4 digit display provides maximum contrast and has a very wide viewing angle, allowing the BA304SG indicator to be easily read in most lighting conditions. An optional factory fitted backlight is available for installations 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 and impact protection is provided by the robust GRP enclosure, which has an 8mm thick armoured glass window and a silicone gasket. The BA304SG is surface mounting but can be pipe or panel mounted using an accessory kit.

Display zero and span are independently adjustable allowing the indicator to be calibrated to display any linear variable represented by the 4/20mA signal. Non-linear variables such as flow and tank level may be displayed in linear engineering units using the instruments root extractor and 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 at night or in poorly illuminated areas.

The 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.

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

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.

- ◆ 4/20mA loop powered
- ◆ 4 digit 34mm high display.
- ◆ IECEx and ATEX Ex eb gas and Ex tb dust certification.
- ◆ May be connected in series with an Ex d, Ex e, Ex p, Ex nA, Ex m or Ex t loop without a Zener barrier or isolator.
- ◆ Push buttons usable in hazardous area.
- ◆ IP66 impact resistant GRP enclosure.
- ◆ Root extractor, 16 segment lineariser and tare function.
- ◆ Optional loop powered backlight.
- ◆ 3 year guarantee



BEKA

associates

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SPECIFICATION

Input

| | |
|----------------------|---|
| Current | 4 to 20mA HART @ transparent |
| Voltage drop at 20°C | Less than 5.3V |
| Overrange | Less than 9.1V with optional backlight ±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

(Both 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 | <i>Increased safety Ex eb</i> |
| | Ex ib mb tb T80°C Db | <i>Protection by enclosure Ex tb.</i> |

Rated voltage U_N 30V dc

Cert. No. IECEx ITS 19.0018X

Europe ATEX

| | | |
|------|-----------------------------|---------------------------------------|
| Code | II 2G Ex eb ib mb IIC T5 Gb | <i>Increased safety Ex eb.</i> |
| | II 2D Ex ib mb tb T80°C Db | <i>Protection by enclosure Ex tb.</i> |

Rated voltage U_N 30V dc

Cert. No. ITS19ATEX304891X

Environmental

| | |
|----------------|--|
| Operating temp | -40 to +60°C |
| Storage temp | -40 to +85°C |
| Humidity | To 95% at 40°C non-condensing |
| EMC | Complies with EMC Directive 2014/30/EU |

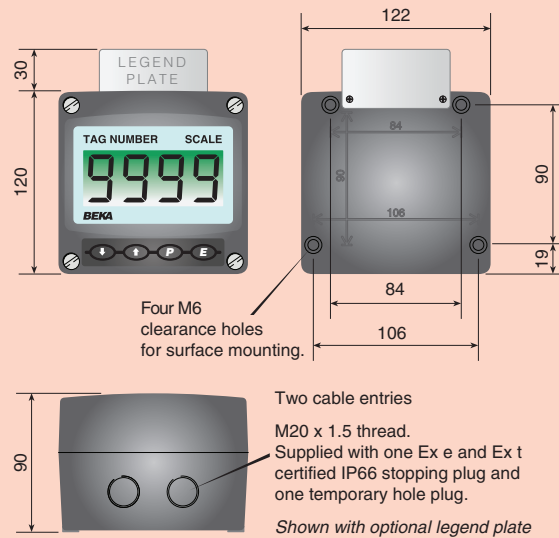
Mechanical

| | |
|--------------------|----------------------------------|
| Enclosure | |
| Material | GRP (Glass reinforced polyester) |
| Ingress protection | IP66 |
| Impact protection | Enclosure 7J, Window 4J |
| Weight | 1.2kg |

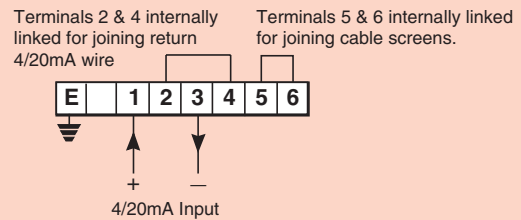
Terminals Spring clamp for a single
0.2 to 1.5mm² solid wire.
or 0.2 to 2.5mm² stranded wire

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)



TERMINAL CONNECTIONS



Accessories

| | |
|---------------------------|---|
| Backlight | |
| Colour | Green |
| Input voltage drop | 9.1V at 20mA |
| 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

| | |
|------------------------|-----------------------------|
| Model number | Please specify BA304SG |
| 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.