

The BA304G loop powered 4/20mA indicator is an intrinsically safe field mounting instrument with a large 4 digit display housed in a robust IP66 GRP or stainless steel enclosure.

**Main application** of the BA304G is to display a measured variable in 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 enable the indicator to display flow and variables such as tank level in linear engineering units. For weighing applications a tare function is included.

**The large 34mm high 4 digit display** provides maximum contrast and has a very wide viewing angle, allowing the BA304G 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 protection** is provided by a robust GRP or 316 stainless steel enclosure, both have thick armoured glass windows and silicone gaskets. Impact and ingress protection have been assessed by UKAS accredited bodies. The BA304G is surface mounting but can be pipe or panel mounting using accessories.

**IECEX, ATEX and ETL** intrinsic safety gas and dust certification permit world wide installation. 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.

**Display backlighting** 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 slightly brighter backlight but requires an additional 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 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 alarms.

**The scale card** which shows 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 which can easily be marked 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.

# BA304G BA304G-SS 2-wire 4/20mA 4 digit indicator

*Intrinsically safe for use in all gas & dust hazardous areas*

- ◆ IP66 GRP or stainless steel enclosure.
- ◆ Intrinsically safe ATEX, IECEX, ETL and cETL certification.
- ◆ Loop powered only 1.2V drop.
- ◆ 4 digit 34mm high display.
- ◆ Optional backlight & alarms.
- ◆ Root extractor, lineariser and tare function.
- ◆ Easy scale card installation on-site.
- ◆ 3 year guarantee

[www.beka.co.uk/ba304g](http://www.beka.co.uk/ba304g)



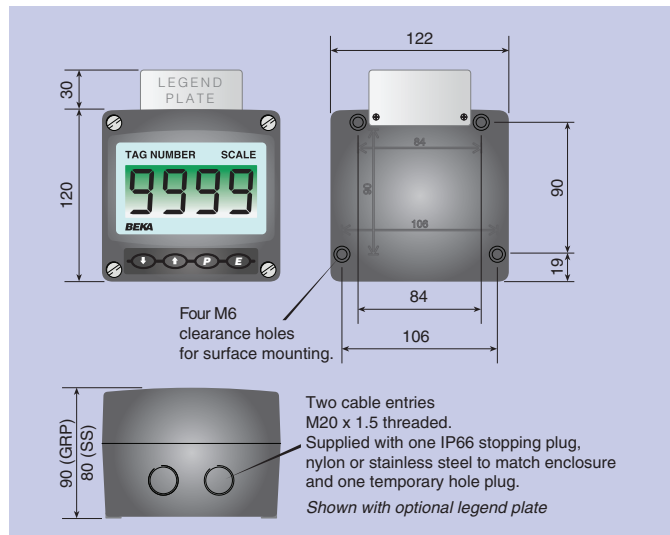
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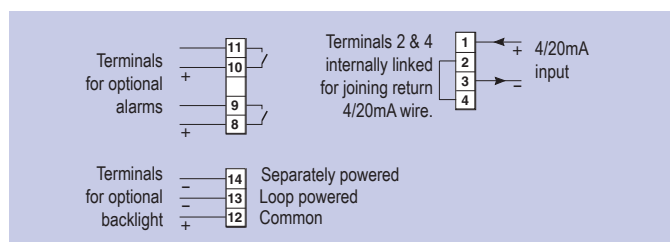
## SPECIFICATION

<b>Input</b>	
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
<b>Display</b>	
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 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
<b>Push buttons</b>	
▼	(Function in display mode)
▲	Shows display with 4mA input
P	Shows display with 20mA input
	Displays input in mA or as a % of span, has a modified function when alarms are fitted.
E	Used for tare function
<b>Accuracy at 20°C</b>	
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.
<b>Intrinsic safety</b>	
<b>International IECEx</b>	
Code	Ex ia IIC T5 Ga Ex ia IIIC T80°C Da IP66 -40°C ≤ Ta ≤ 70°C
Input parameters	
Ui	30V dc
Ii	200mA
Pi	0.84W
Output parameters	
Cert. No.	Comply with requirements for <i>simple apparatus</i> IECEx ITS 11.0014X (Special conditions only apply for Zone 0)
<b>Europe ATEX</b>	
Code	Group II
Category 1GD	Ex ia IIC T5 Ga Ex ia IIIC T80°C Da IP66 -40°C ≤ Ta ≤ 70°C
Safety parameters	
Cert. No.	As IECEx certification ITS11ATEX27253X (Special conditions only apply for Zone 0)
<b>USA &amp; Canada ETL &amp; cETL</b>	
Code	Class I, Div 1, Gp A, B, C, D. T5 Class I, Zone 0, AEx ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C
	Class II, Div 1, Gp E, F, G. Class III, Div 1 Zone 20 AEx ia IIIC T80°C Da -40°C ≤ Ta ≤ 60°C
	Ex ia T5 Ga -40°C ≤ Ta ≤ 70°C Ex ia IIIC Da -40°C ≤ Ta ≤ 60°C
ETL control No.	4008610
<b>USA &amp; Canada Nonincendive</b>	
Code	Class I, Div 2, Gp A, B, C, D T5 Class II, Div 2, Gp F, G Class III, Div 2 -40°C ≤ Ta ≤ 70°C
ETL control No.	4008610
<b>Environmental</b>	
Operating temp	-40 to +70°C
Storage temp	-40 to +85°C
Humidity	to 95% at 40°C noncondensing
EMC	Complies with EMC Directive 2014/30/EU
<b>Mechanical</b>	
<b>Enclosure</b>	
Material	GRP or 316 stainless steel
Ingress protection	IP66
Impact protection	Enclosure 7J Window 4J
Weight	
GRP	1.1kg
Stainless steel	2.6kg
Terminals	Blue with screw clamp for 0.5 to 1.5mm² cable
Scale card	Slide-in card showing units of measurement and tag information through display window.

## DIMENSIONS (mm)



## TERMINAL CONNECTIONS



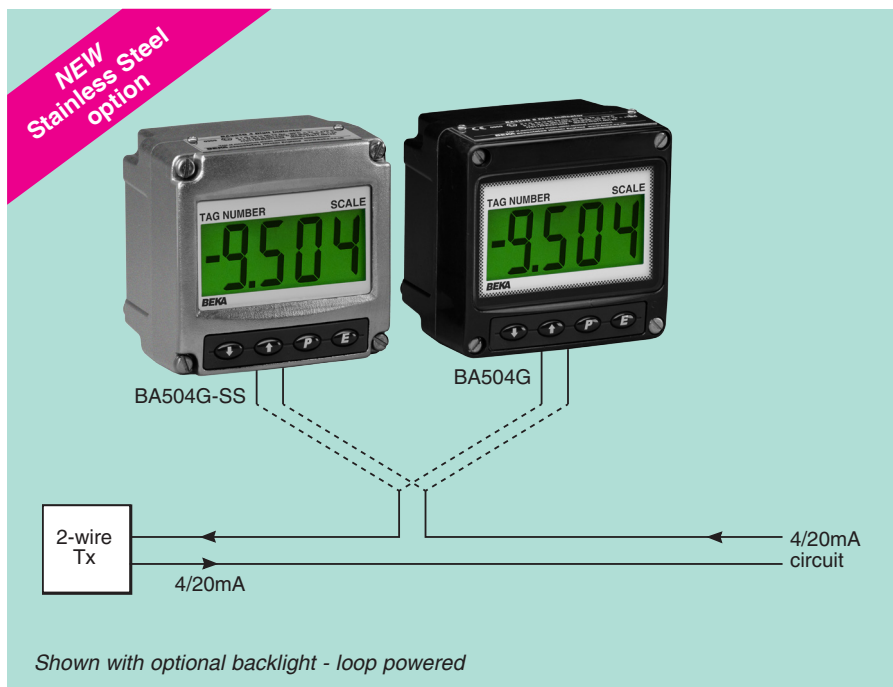
### Accessories

Backlight	Green, may be loop or separately powered
Loop powered	Indicator input voltage 5V
Separately powered	11V at 35mA 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, voltage free solid state switch complying with requirements for <i>simple apparatus</i> .
Ron	5Ω + 0.7V max
Roff	1MΩ min
Legend plate	Stainless steel plate laser engraved tag number or application information attached to rear of the instrument, visible from the front. #
Pipe mounting kit	BA393G 316 stainless steel #
Panel mounting kits #	
For BA304G & BA304G-SS	
BA394G	Mounts indicator into an open panel aperture, does not seal aperture.
For BA304G	
BA494G	Mounts indicator into an open panel aperture & seals aperture
For BA304G-SS	
BA494G-SS	Mounts indicator into an open panel aperture & seals aperture
Back-box terminals	Including 4/20mA loop maintenance diode for BA304G.
# See accessory datasheet for details	

## HOW TO ORDER

<b>Please specify</b>	
Model number	
GRP enclosure	BA304G
Stainless steel enclosure	BA304G-SS
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXX
20.000mA	XXXX
	Include position of decimal point & sign if negative.
Scale card marking	
Units	Legend required
Tag	Legend required
<b>Accessories</b>	
Display backlight	<b>Please specify if required</b>
Dual alarms	Backlight
Stainless legend plate	Alarms
Pipe mounting kit	Legend required
Panel mounting kit	BA393G
Back-box terminals	BA394G, BA494G or BA494G-SS
	Back-box terminals

\* 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.



The **BA504G** is a general purpose, loop powered 4/20mA field mounting indicator, with a large four digit display housed in a robust IP66 GRP or stainless steel enclosure.

**Main application** of the BA504G is to display a measured variable in meaningful engineering units within a process 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 enable the indicator to display flow and variables such as tank level in linear engineering units. For weighing applications a tare function is included.

**The large 34mm high 4 digit display** provides maximum contrast and has a very wide viewing angle, allowing the BA504G indicator to be easily read in most lighting conditions over a wide temperature range. 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** are provided by a robust GRP or 316 stainless steel enclosure. Both have a thick armoured glass window and silicone gaskets. Impact and ingress protection have been assessed by UKAS accredited bodies. The BA504G and BA524G are surface mounting, but can be pipe or panel mounted using accessories.

**Display backlighting** which may be loop or separately powered is available as a factory fitted option. It provides green background illumination enabling the display to be read at night or in poorly illuminated areas. When powered from the 4/20mA loop, no additional wiring is required but the indicator's voltage drop is increased. Powering from a separate supply produces a slightly brighter backlight but requires additional field wiring.

**Optional dual alarm outputs** which can switch low power loads, such as sounders, beacons or solenoid valves, are available as a factory fitted option. The two galvanically isolated solid state 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 alarms.

**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.

**Other field mounting models** in this range include the BA524G which has a similar specification with a five digit 29mm high display plus a 31 segment bargraph.

**If flammable atmospheres are present** either the 4 digit BA304G or the 5 digit BA324G, should be used. Both have the same features as the BA504G, but are intrinsically safe and have international certification for use in hazardous, gas and dust areas worldwide.

# BA504G BA504G-SS 2-wire 4/20mA 4 digit indicator

## General purpose





- ◆ IP66 GRP or stainless steel enclosure.
- ◆ Loop powered only 1.2V drop.
- ◆ 4 digit 34mm high display.
- ◆ Optional backlight & alarms.
- ◆ Root extractor and 16 segment lineariser.
- ◆ Easy scale card installation on-site.
- ◆ 3 year guarantee

[www.beka.co.uk/ba504g](http://www.beka.co.uk/ba504g)

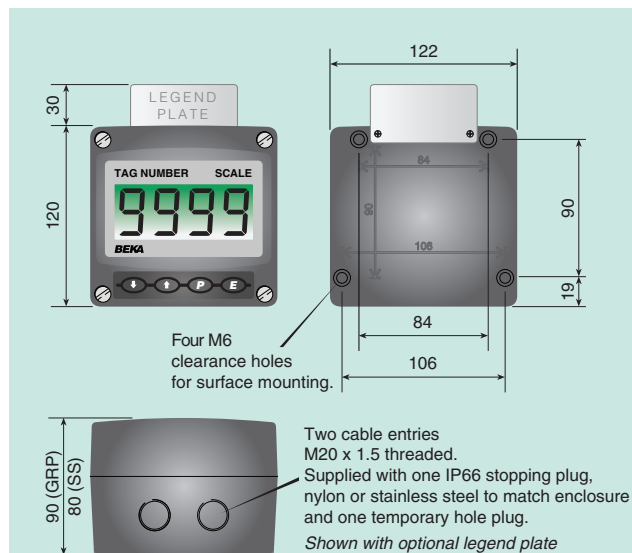
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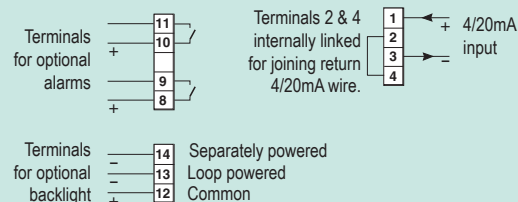
## SPECIFICATION

<b>Input</b>	
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.
<b>Display</b>	
Type	Liquid crystal, non-multiplexed 4 digits 34mm 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.
<b>Push buttons</b>	
	(Function in display mode) Shows display with 4mA input
	Shows display with 20mA input
	Displays input in mA or as a % of span, has a modified function when alarms are fitted.
	Used for tare function
<b>Accuracy at 20°C</b>	
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.
<b>Environmental</b>	
Operating temp	-40 to +70°C
Storage temp	-40 to +85°C
Humidity	To 95% at 40°C noncondensing
EMC	Complies with EMC Directive 2014/30/EU.
<b>Mechanical</b>	
Enclosure	
Material	GRP or 316 stainless steel
Ingress protection	IP66
Impact protection	Enclosure 7J, Window 4J
Weight	
GRP	1.1kg
Stainless steel	2.6kg
Terminals	Orange with screw clamp for 0.5 to 1.5mm <sup>2</sup> cable.
Scale card	Slide-in card showing units of measurement and tag information through display window.
<b>Accessories</b>	
Backlight	Green, may be loop or separately powered.
Loop powered	Indicator input voltage increases to 5V.
Separately powered	
V supply	11 to 30V dc
I in	35mA
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, voltage free solid state switch.
Vmax	40V dc
Imax	200mA
Ron	5Ω + 0.7V max
Roff	1MΩ min

## DIMENSIONS (mm)



## TERMINAL CONNECTIONS



Legend plate	316 stainless steel plate laser engraved with tag number or application information attached to rear of the instrument, visible from the front. #
Pipe mounting kit	BA393G 316 stainless steel #
Panel mounting kits	
For BA504G and BA504G-SS	
BA394G	Mounts indicator into an open panel aperture, does not seal aperture #
For BA504G	
BA494G	Mounts indicator into an open panel aperture and seals aperture #
For BA504G-SS	
BA494G-SS	Mounts indicator into an open panel aperture and seals aperture #
Back-box terminals for BA504G.	Including 4/20mA loop maintenance diode

# See accessory datasheet for details

## HOW TO ORDER

<b>Please specify</b>	
Model number	
GRP enclosure	BA504G
Stainless steel enclosure	BA504G-SS
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXX
20.000mA	XXXX
	Include position of decimal point & sign if negative.*
Scale card marking	
Units	Legend required
Tag	Legend required
<b>Please specify if required</b>	
Accessories	
Display backlight	Backlight
Dual alarms	Alarms
Stainless legend plate	Legend required
Pipe mounting kit	BA393G
Panel mounting kit	BA394G, BA494G or BA494G-SS
Back-box terminals	Back-box terminals

\* 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.