

Data Sheet

BA304G

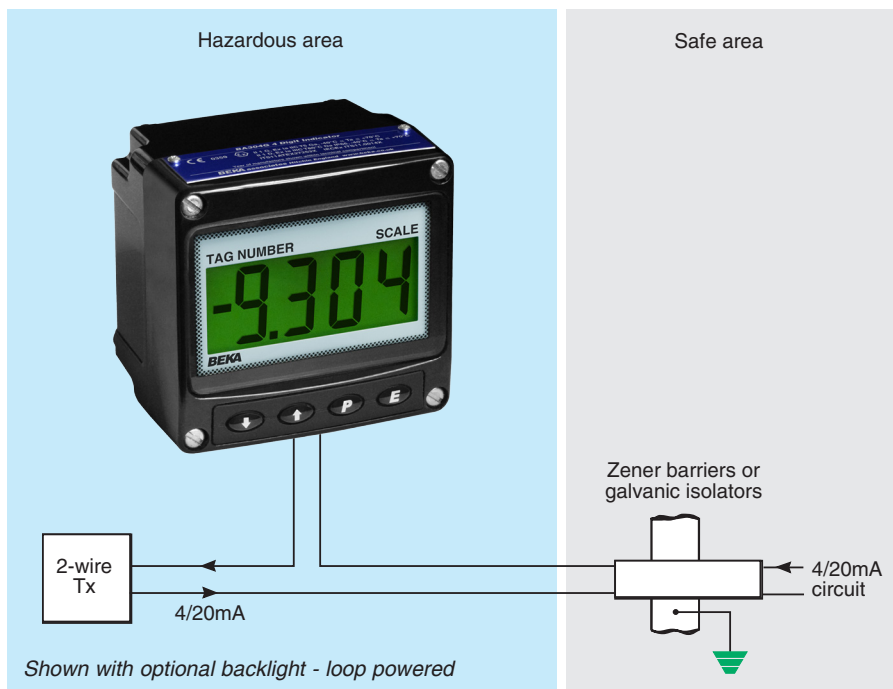
2-Wire 4/20mA 4 Digit Indicator



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The **BA304G loop powered 4/20mA** indicator is a new field mounting instrument that supersedes the well established BA304C. It is electrically and mechanically compatible with the earlier model but has a much larger full 4 digit display and guaranteed performance between -40 and $+70^{\circ}\text{C}$. Like its predecessor, the BA304G is housed in a robust IP66 enclosure which may be surface or pipe mounting.

Main application of the BA304G is to display a measured variable in meaningful 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.

A 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 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 protection is provided by the robust GRP enclosure which has stainless steel fittings, silicone gaskets and an 8mm thick armoured glass window. Ingress and impact protection have been independently assessed by Intertek. An optional back-box terminal assembly including a continuity diode in the 4/20mA loop is available for users wishing to terminate field wiring before the indicator assembly is installed.

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 are supplied with a printed scale card showing customer

specified information, if this is not supplied a blank card is fitted which can easily be marked on-site.

IECEx and ATEX intrinsic safety gas and dust certification permits the BA304G to be installed throughout the world. 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. All BA304G indicators may be installed in gas or dust hazardous areas. Input safety parameters are the same or greater than those for the preceding BA304C, thus allowing the BA304G to safely replace the earlier model.

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 intrinsically safe interface or wiring is required and the indicator input remain compliant with the requirements for *simple apparatus*. Powering from a separate supply produces a brighter backlight but requires an additional intrinsically safe interface and 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 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 BA324G which has a similar specification with a five digit 29mm high display plus a 31 segment bargraph.

BA304G

2-wire 4/20mA

4 digit indicator

Intrinsically safe for use in all gas & dust hazardous areas

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

www.beka.co.uk/ba304g



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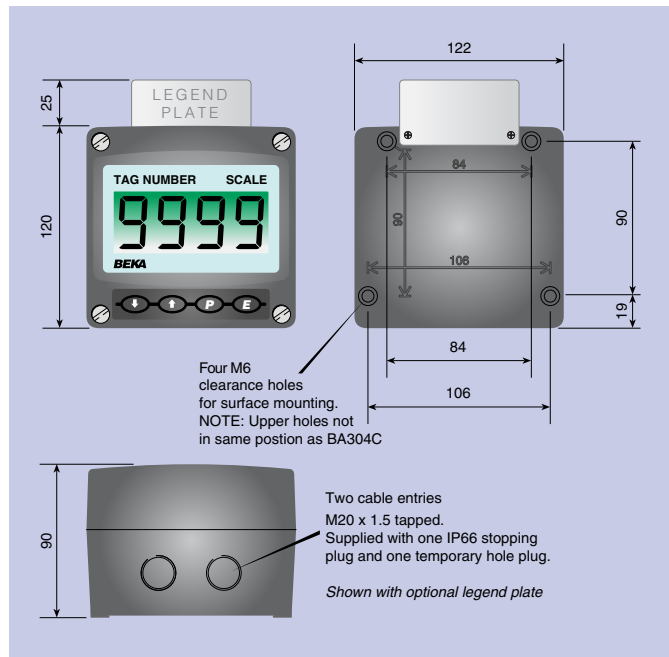
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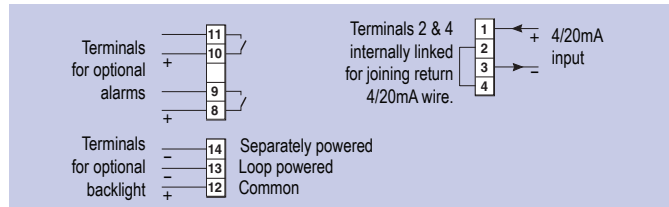
SPECIFICATION

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.
Overrange	±200mA or ±30V will not damage the indicator.
Display	
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.
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, has a modified function when alarms are fitted.
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.
Intrinsic safety	
Europe ATEX	
Code	Group II Category 1GD Ex ia IIC T5 Ga Ex ia IIIC T80°C Da IP66 Ta = -40 to +70°C
Input parameters	
U _i	30V dc
I _i	200mA
P _i	0.84W
Output parameters	Comply with requirements for <i>simple apparatus</i> ITS11ATEX27253X (Special conditions only apply for installations in Zone 0)
Cert. No.	
International IECEx	
Code	Ex ia IIC T5 Ga Ex ia IIIC T80°C Da IP66 Ta = -40 to +70°C
Input parameters	
U _i	30V dc
I _i	200mA
P _i	0.84W
Output parameters	Comply with requirements for <i>simple apparatus</i> IECEx ITS 11.0014X (Special conditions only apply for installations in Zone 0)
Cert. No.	
Environmental	
Operating temp	-40 to +70°C
Storage temp	-40 to +85°C
Humidity	to 95% at 40°C noncondensing
Enclosure	GRP IP66
EMC	Complies with EMC Directive 2004/108/EC
Mechanical	
Terminals	Blue with screw clamp for 0.5 to 1.5mm ² cable
Weight	1.1kg
Accessories	
Backlight	Green, may be loop or separately powered
Loop powered	Indicator input voltage 5V
Separately powered	11V at 35mA from IS interface

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Alarms	Two alarm outputs each of which may be independently configured as a high or low alarm contact with a NO or NC output. Isolated solid state switch complying with requirements for <i>simple apparatus</i> . 5Ω + 0.7V max 1MΩ min
Output	
Ron	
Roff	
Scale card	Slide-in card showing units of measurement and tag information through display window.
Stainless steel legend plate.	Stainless steel plate laser engraved with tag number or application information attached to rear of the instrument, visible from the front. #
Terminal assembly	Mounted in enclosure back-box for terminating field wiring before indicator assembly is installed. Includes continuity diode in 4/20mA loop.
Pipe mounting kit	BA393G #

See accessory datasheet for details

HOW TO ORDER

Model number	BA304G
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXX } Include position of decimal point & sign if negative, plus intermediate points if linearisation is required.*
20.000mA	
Accessories	
Display backlight	Backlight
Dual alarms	Alarms
Scale card marking	
Units	Legend required
Tag	Legend required
Stainless legend plate	Legend required
Back-box terminal assembly	Terminal assembly
Pipe mounting kit	BA393G

* 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.