

The **BA504E loop powered 4/20mA indicator** is a fourth generation field mounting instrument that is electrically and mechanically compatible with the earlier BA504D. It has a much larger full 4 digit display and guaranteed performance between -40 and 70°C. Like its predecessor, the BA504E is housed in a robust IP66 enclosure with a separate terminal compartment.

**Main application** of the BA504E 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 **bold 34mm** high 4 digit display provides maximum contrast and has a very wide viewing angle, allowing the BA504E 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.

The **robust GRP enclosure** has stainless steel fittings, silicone gaskets and an armoured glass window providing IP66 protection between -40 and 70°C. Ingress and impact protection have been independently assessed by Intertek. A separate terminal compartment allows the instrument to be installed and terminated without exposing the display electronics. To further simplify field wiring and

subsequent inspection, the terminal cable entries and clamping screws are forward facing. Additional terminals are provided which may be used for linking the return 4/20mA conductor and the cable screens.

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 wiring is required, but the indicators voltage is increased. Powering from a separate supply produces a brighter backlight but requires an additional field wiring.

**Optional dual alarm outputs** which can switch low power loads such as sounders, beacons and 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 alarm outputs.

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

**Other field mounting models** in this range include the BA524E which has a similar specification but has a five digit 29mm high display plus a 31 segment bargraph.

**If flammable atmospheres are present** either the BA304E or BA304NE should be used. Both have the same features as the BA504E but have been certified for use in hazardous area.

# BA504E

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

*General purpose*

- ◆ **Loop powered only**  
1.2V drop.
- ◆ **4 digit 34mm high**  
display.
- ◆ **IP66 GRP enclosure**  
with separate terminal  
compartment.
- ◆ **Root extractor and**  
16 segment lineariser.
- ◆ **Optional backlight,**  
alarms & external  
keypad.
- ◆ **3 year guarantee**

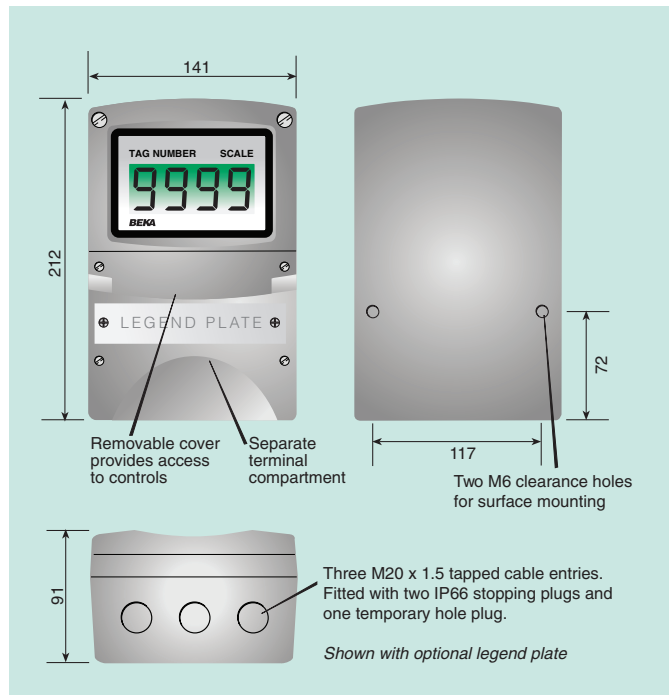
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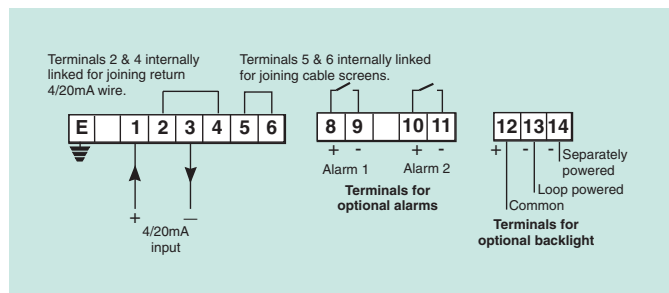
## SPECIFICATION

<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
'P'	Displays input in mA or 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>Environmental</b>	
Operating temp	-40 to 70°C
Storage temp	-40 to 85°C
Humidity	to 95% at 40°C noncondensing
Vibration	Report available
Enclosure	IP66
EMC	Complies with EMC Directive 2004/108/EC.
<b>Mechanical</b>	
Terminals	Screw clamp for 0.5 to 1.5mm <sup>2</sup> cable
Weight	1.7kg
<b>Accessories</b>	
Backlight	Green, may be loop or separately powered.
Loop powered	Indicator input voltage 5V
Separately powered	
V supply	11V 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 solid state switch
Vmax	40V dc
Imax	200mA
Ron	5Ω + 0.7V max
Roff	1MΩ min
External keypad	Membrane keypad enables indicator to be controlled without removing cover.
Scale legend	Units of measurement marked onto display escutcheon. #
Tag legend	Tag number or application marked onto display escutcheon. #
Stainless steel legend plate	Stainless steel plate etched legend plate with tag number or application attached to front of the instrument. #
Pipe mounting kit	BA392D or BA393 #

## DIMENSIONS (mm)



## TERMINAL CONNECTIONS



## HOW TO ORDER

<b>Model number</b>	BA504E
<b>Display mode</b>	Linear, root or lineariser*
<b>Display at:</b>	
4.000mA	XXXX } Include position of decimal point & sign if negative, plus intermediate points if linearisation is required.*
20.000mA	
<b>Accessories</b>	<b>Please specify if required</b>
External keypad	External keypad
Display backlight	Backlight
Dual alarms	Alarms
Escutcheon marking	
Scale	Legend required
Tag	Legend required
Stainless legend plate	Legend required
Pipe mounting kit	BA393D or BA393

\* 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.

# See accessory datasheet for details