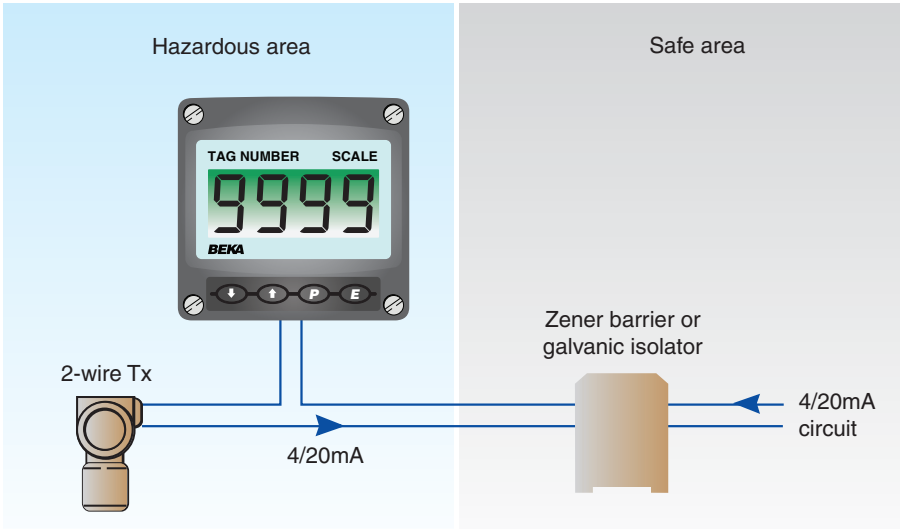
4/20mA Loop Powered Digital Indicators
Field Mounting



An extensive range of 4/20mA loop powered field mounting indicators in GRP and 316 stainless steel enclosures.

- **Large high contrast displays with a wide viewing angle**
- **General purpose and certified hazardous area models**
  International Ex ia gas and dust intrinsic safety
  Ex nA non sparking
  Ex t dust ignition protection certification.
- **Robust impact resistant GRP and 316 stainless steel IP66 enclosures**
  Compact 'G' models with GRP or stainless steel enclosure
  'E' models with separate terminal compartment
- **Internal calibrator, root extractor, lineariser & tare function**
- **-40 to +70˚C operating temperature range**
- **Accessories**
  Dual isolated alarms
  Pipe & panel mounting kits
  Scale cards - *can be supplied printed with units of measurement and tag information for no additional charge.*
  Laser engraved stainless steel legend plates



Intrinsically safe

Ex nA

Flameproof

General purpose



Slide-in scale card can be supplied printed with customer specified information for no extra charge.



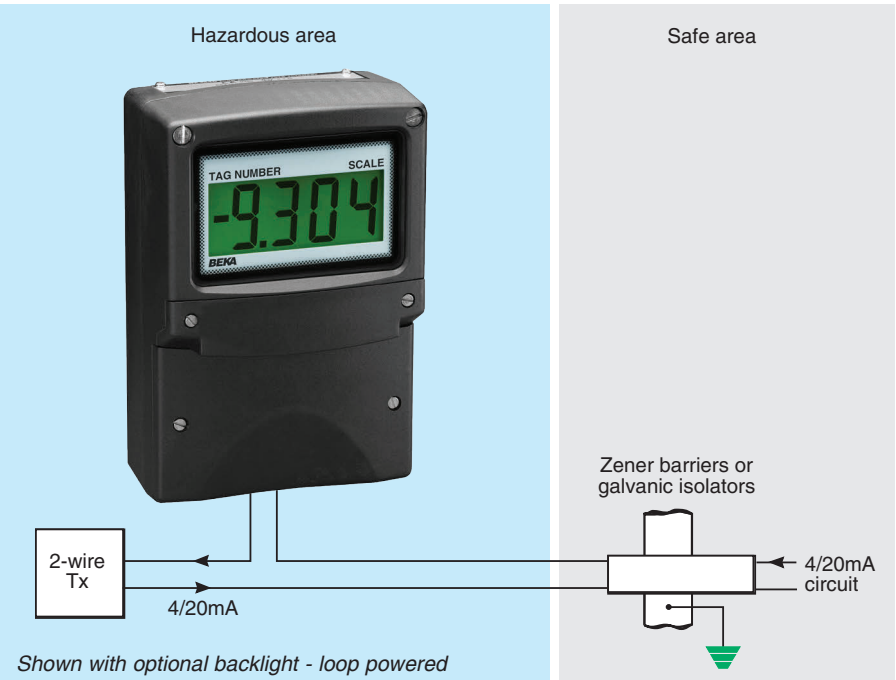
'G' instrument panel mounted using BA494G panel mounting kit.



'G' instrument attached to pipe using BA393G panel mounted kit.

4/20mA Loop Powered Digital Indicators. Field mounting models available:

Model No.	Enclosure	Display				Certification					
		Digits		Bargraph		Europe ATEX		International IECEx		USA & Canada	
		Number	Height	Segments	Length	Gas	Dust	Gas	Dust	Gas	Dust
Ex ia intrinsically safe - for use in Zones 0, 1 & 2 and 20, 21 & 22											
BA304E	GRP - separate tml. compartment	4	34mm	–	–	✔	✔	✔	✔	✔	✔
BA324E	GRP - separate tml. compartment	5	29mm	31	83mm	✔	✔	✔	✔	✔	✔
BA304G	GRP Compact	4	34mm	–	–	✔	✔	✔	✔	✔	✔
BA304G-SS	Stainless Steel	4	34mm	–	–	✔	✔	✔	✔	✔	✔
BA324G	GRP Compact	5	29mm	31	83mm	✔	✔	✔	✔	✔	✔
BA324G-SS	Stainless Steel	5	29mm	31	83mm	✔	✔	✔	✔	✔	✔
Ex nA & Ex tc - for use in Zones 2 and 22 without Zener barriers or galvanic isolators											
BA304NE	GRP - separate tml. compartment	4	34mm	–	–	✔	✔	✔	✔	–	–
BA324NE	GRP - separate tml. compartment	5	29mm	31	83mm	✔	✔	✔	✔	–	–
BA304NG	GRP Compact	4	34mm	–	–	✔	✔	✔	✔	✔	✔
BA324NG	GRP Compact	5	29mm	31	83mm	✔	✔	✔	✔	✔	✔
Ex d Flameproof for use in Zones 1, 2. 21 and 22											
BR323AL	Aluminium	5	10mm	–	–	✔	✔	–	–	–	–
BR323SS	Stainless Steel	5	10mm	–	–	✔	✔	–	–	–	–
General Purpose - for use in safe areas											
BA504E	GRP - separate tml. compartment	4	34mm	–	–						
BA524E	GRP - separate tml. compartment	5	29mm	31	83mm						
BA504G	GRP Compact	4	34mm	–	–						
BA504G-SS	Stainless Steel	4	34mm	–	–						
BA524G	GRP Compact	5	29mm	31	83mm						
BA524G-SS	Stainless Steel	5	29mm	31	83mm						



Shown with optional backlight - loop powered

BA304E

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 gas
  ***or* ATEX gas & dust**
  ***or* FM, cFM & ATEX gas**
  All versions have IECEx certification.
- **IP66 GRP enclosure with separate terminal compartment.**
- **Root extractor and 16 segment lineariser.**
- **Optional backlight, alarms & external keypad.**
- **3 year guarantee**

www.beka.co.uk/ba304e

The BA304E loop powered 4/20mA indicator is a fourth generation field mounting instrument that is electrically and mechanically compatible with the earlier BA304D. It has a much larger full 4 digit display and guaranteed performance between -40 and 70°C. Like it's predecessor, the BA304E is housed in a robust IP66 enclosure with a separate terminal compartment.

Main application of the BA304E 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 non-linear 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 BA304E 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.

International intrinsic safety certification permits the BA304E 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. The BA304E may also be installed in dust hazardous areas. All input safety parameters are the same or greater than those for the preceding BA304D, thus allowing the BA304E 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 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 BA324E which has a similar specification but has a five digit 29mm high display plus a 31 segment bargraph.

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

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 digits34mm 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
Overange	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 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 *Dust option, see How to order*
Input parameters	
Ui	30V dc
Ii	200mA
Pi	0.84W
Output parameters	Complies with requirements for *simple apparatus*.
Cert. No.	ITS11ATEX27253X (Special conditions only apply for installations in Zone 0)

USA FM

Standard	3610 Entity
Code	CL I, II, III: Div 1 Gp A, B, C, D, E, F & G T5 @ 70°C
Standard	3611 Nonincendive
Code	CL I, II, III: Div 2 GP A, B, C, D, E, F & G T5 @ 70°C
File	3041487

Canada cFM

File	3041487C

International IECEx

Code	Ex ia IIC T5 Ga Ex ia IIIC T80°C Da IP66- Tamb = -40 to 70°C *Dust option, see How to order*
Cert. No	IECEx ITS11.0014X (Special conditions only apply for installations in Zone 0)

Environmental

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 2014/30/EU

Mechanical

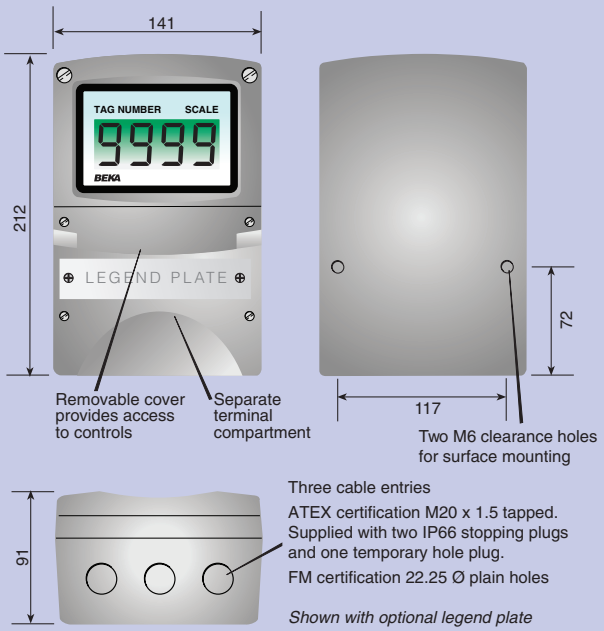
Terminals	Screw clamp for 0.5 to 1.5mm^2 cable
Weight	1.7kg

Accessories

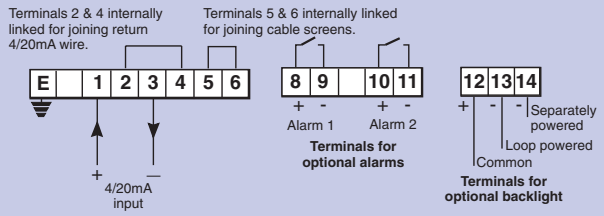
Backlight	Green, may be loop or separately powered
Loop powered	Indicator input voltage 5V
Separately powered	11V at 35mA from IS interface
Alarms	Two alarm outputs each of which may be independently configured as a high or low alarm contact with a NO or NC output.
Output	Isolated solid state switch complying with requirements for *simple apparatus.*
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	Etched legend plate.with tag number or application attached to front of the instrument.#
Pipe mounting kit	BA392D or BA393 #

 # See accessory datasheet for details

DIMENSIONS (mm)



TERMINAL CONNECTIONS



HOW TO ORDER

		Please specify
Model number		BA304E
Certification		ATEX gas
	or	ATEX gas & dust
	or	FM, cFM & ATEX gas

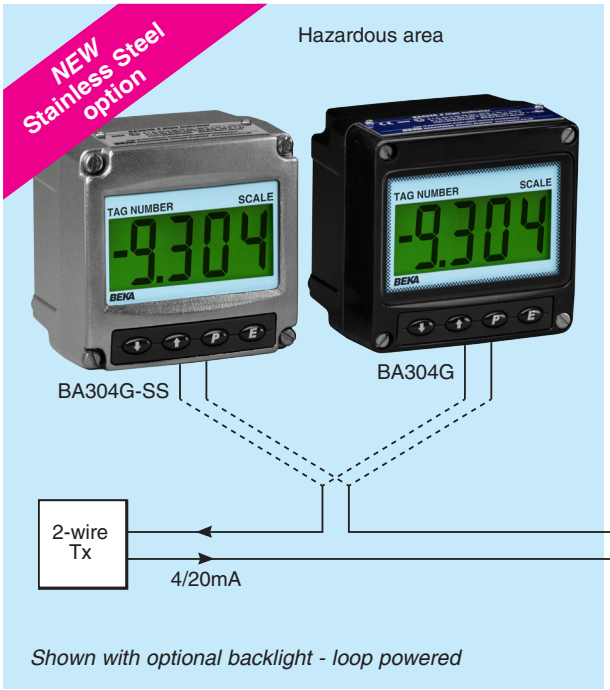
All versions have IECEx certification.

Display mode	Linear, root or linariser*
Display at:	
4.000mA	XXXX
20.000mA	XXXX

*Include position of decimal point & sign if negative, plus intermediate points if linearisation is required.**

Accessories	**Please specify if required**
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	BA392D 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.



Shown with optional backlight - loop powered

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

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.

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Input

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

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 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

International IECEx

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	Comply with requirements for *simple apparatus*
Cert. No.	IECEx ITS 11.0014X (Special conditions only apply for Zone 0)

Europe ATEX

Code Group II	Category 1GD Ex ia IIC T5 Ga Ex ia IIIC T80°C Da IP66 -40°C ≤ Ta ≤ 70°C
Safety parameters	As IECEx certification
Cert. No.	ITS11ATEX27253X (Special conditions only apply for Zone 0)

USA & Canada ETL & cETL

Code	Class I, Div 1, Gp A, B, C, D. T5	USA & Canada
	Class I, Zone 0, AEx ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C	USA
	Class II, Div 1, Gp E, F, G. Class III, Div 1	USA & Canada
	Zone 20 AEx ia IIIC T80°C Da -40°C ≤ Ta ≤ 60°C	USA
	Ex ia T5 Ga -40°C ≤ Ta ≤ 70°C Ex ia IIIC Da -40°C ≤ Ta ≤ 60°C	Canada
ETL control No.	4008610	

USA & Canada Nonincendive

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

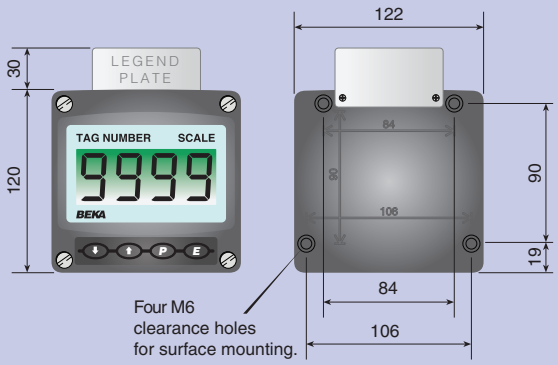
Environmental

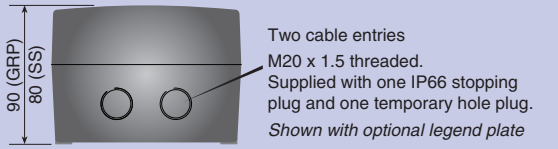
Operating temp	-40 to +70°C
Storage temp	-40 to +85°C
Humidity	to 95% at 40°C noncondensing
EMC	Complies with EMC Directive 2014/30/EU

Mechanical

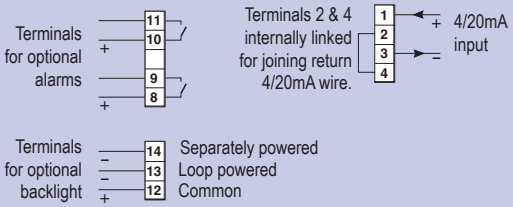
Enclosure	
Material	GRP or 316 stainless steel
Ingress protection	IP66
Impact protection	Enclosure 7J Window 4J
Weight	
GRP	1.1kg
Stainless steel	2.6kg
Terminals	Blue with screw clamp for 0.5 to 1.5mm² cable
Scale card	Slide-in card showing units of measurement and tag information through display window.

DIMENSIONS (mm)





TERMINAL CONNECTIONS



Accessories

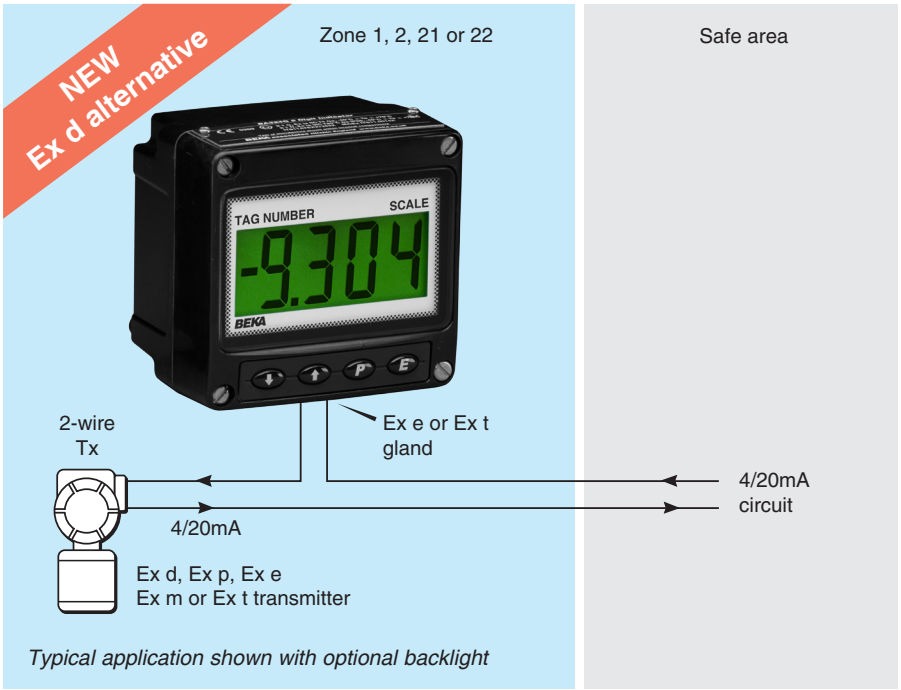
Backlight	Green, may be loop or separately powered
Loop powered	Indicator input voltage 5V
Separately powered	11V at 35mA from IS interface
Alarms	Two alarm outputs each of which may be independently configured as a high or low alarm contact with a NO or NC output.
Output	Isolated, voltage free solid state switch complying with requirements for *simple apparatus*.
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 for BA304G.	Including 4/20mA loop maintenance diode

See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	
GRP enclosure	BA304G
Stainless steel enclosure	BA304G-SS
Display mode	Linear, root or linearliser*
Display at:	
4.000mA	XXXX] Include position of decimal point & sign if negative.
20.000mA	XXXX]
Scale card marking	
Units	Legend required
Tag	Legend required

Accessories	**Please specify if required**
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



Typical application shown with optional backlight

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.**
- **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.**
- **Optional loop powered backlight.**
- **3 year guarantee**

www.beka.co.uk/ba304sg

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, ATEX and UKEX 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.

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 e-mail sales@beka.co.uk
website: www.beka.co.uk

SPECIFICATION

Input

Current	4 to 20mA HART ® transparent
Voltage drop at 20°C	Less than 5.3V Less than 9.1V with optional 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	II 2G Ex eb ib mb IIC T5 Gb	*Increased safety Ex eb.*
	II 2D Ex ib mb tb T80°C Db	*Protection by enclosure Ex tb.*
Rated voltage U_N	30V dc	
Cert. No.	ITS19ATEX304891X & ITS21UKEX0100X	

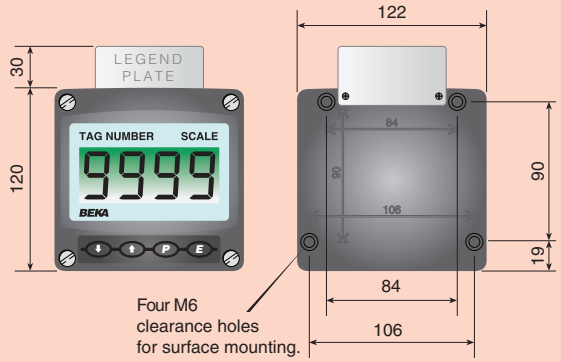
Environmental

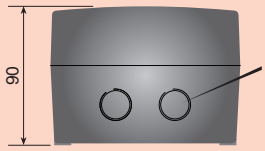
Operating temp	-40 to +60°C
Storage temp	-40 to +85°C
Humidity	To 95% at 40°C non-condensing
EMC	Complies with EU & UK EMC Directives

Mechanical

Enclosure	
Material	GRP (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)



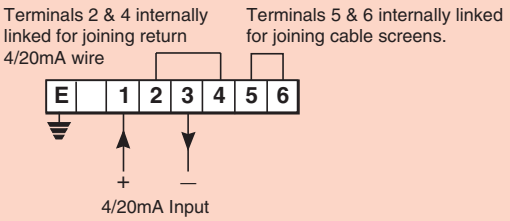


Two cable entries

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		
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. #	

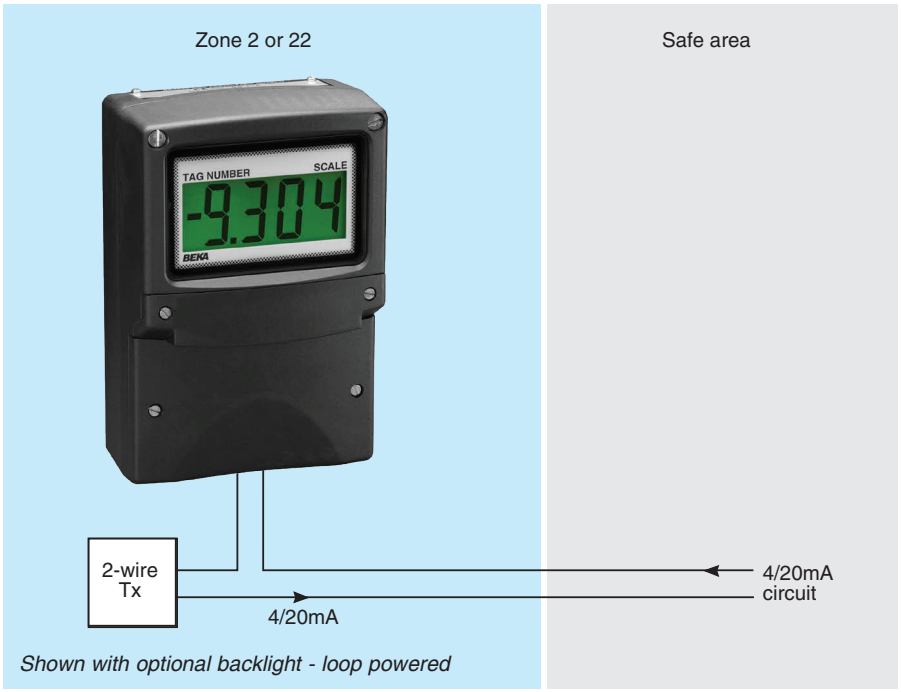
 # See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	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.



Shown with optional backlight - loop powered

BA304NE

2-wire 4/20mA 4 digit indicator

Type nA & tc certified for use in Zones 2 & 22 hazardous areas

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

www.beka.co.uk/ba304ne

The BA304NE loop powered 4/20mA indicator is a fourth generation field mounting instrument that is mechanically compatible and electrically similar to the earlier BA304ND. It has a much larger full 4 digit display and guaranteed performance between -40 and 70°C. Like it's predecessor, the BA304NE is housed in a robust IP66 enclosure with a separate terminal compartment.

Main application of the BA304NE is to display a measured variable in meaningful engineering units within a Zone 2 or 22 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 bold 34mm high 4 digit display provides maximum contrast and has a very wide viewing angle, allowing the BA304NE 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.

ATEX and IECEx non sparking Ex nA certification allows the BA304NE to be installed in a Zone 2 gas hazardous areas without the need for Zener barriers, galvanic isolators or a flameproof enclosure. For European and international Zone 2 applications the BA304NE offers a less expensive alternative to intrinsic safety and flameproof instrumentation.

Ex tc dust certification also allows the BA304NE to be installed in Zone 22 dust hazardous areas, again without the need for Zener barriers, galvanic isolators or a flameproof enclosure.

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 field wiring is required but the indicator's voltage drop is increased. Powering from a separate supply produces a brighter backlight but requires additional 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 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 BA324NE which has a similar specification but has a five digit 29mm high display plus a 31 segment bargraph.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Input

Current	4 to 20mA
Voltage	Less than 1.2V at 20°C Less than 1.3V at 040°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.
Root extractor	Selectable
Lineariser	16 adjustable segments
Reading rate	2 per second
Overange	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 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.

Certification

Europe ATEX

Code	Group II Category 3G Ex nA ic IIC T5 Gc Group II Category 3D Ex tc IIIC 80°C Dc IP66 Ta = -40 to 70°C
Input parameters	
Ii	100mA
Cert. No.	ITS11ATEX47255

International IECEx

Code	Ex nA ic IIC T5 Gc Ex tc IIIC T80°C Dc IP66 Tamb = -40 to 70°C
Cert. No	IECEx ITS11.0016

Environmental

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 2014/30/EU

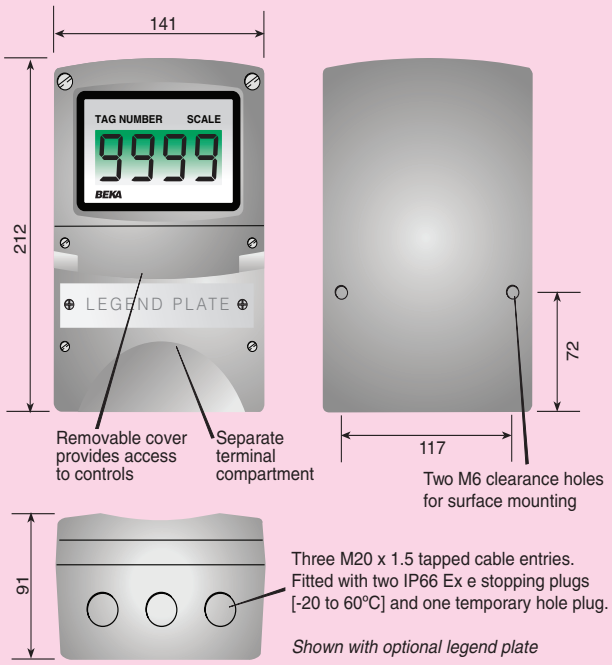
Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm^2 cable
Weight	1.7kg

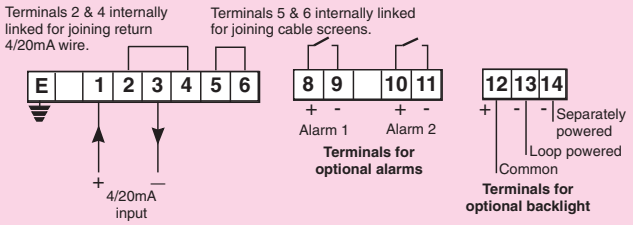
Accessories

Backlight	Green, may be loop or separately powered.
Loop powered	Input voltage increased to 5V
Separately powered	11V min at 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
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.#

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Stainless steel legend plate.	Stainless steel plate etched with tag number or applicationattached to front of the instrument. #
Pipe mounting kit	BA392D or BA393 #

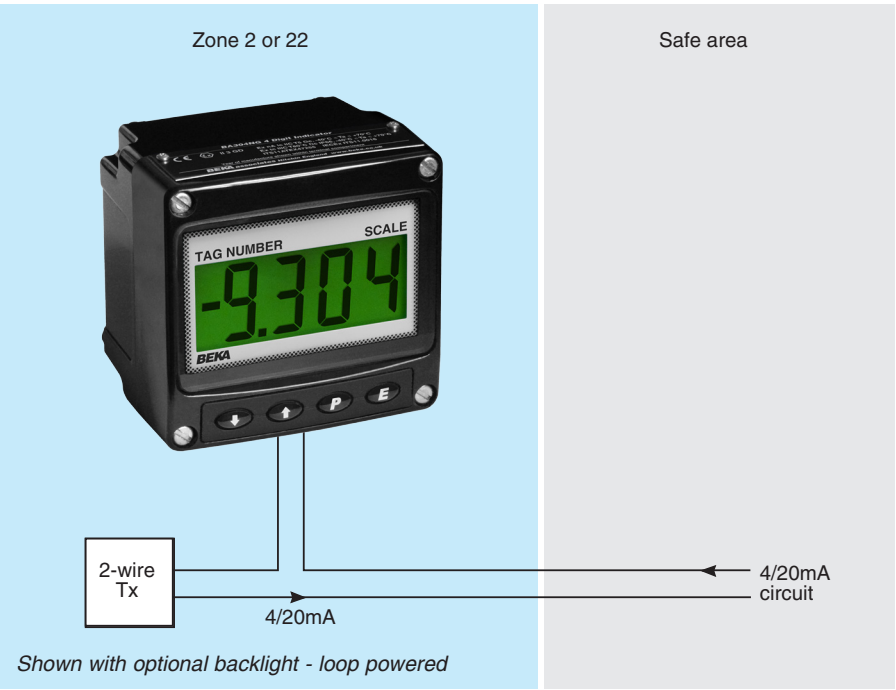
See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	BA304NE
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	XXXX]

Accessories	**Please specify if required**
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.*



Shown with optional backlight - loop powered

BA304NG

2-wire 4/20mA 4 digit indicator

Ex nA & tc certified for use in Zones 2 & 22 hazardous areas

- **Loop powered only 1.2V drop.**
- **4 digit 34mm high display.**
- **Ex nA gas and Ex tc dust ATEX, IECEx, ETL and cETL 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/ba304ng

The BA304NG loop powered 4/20mA indicator is a new field mounting instrument that supersedes the well established BA304NC. It is electrically and mechanically compatible with the earlier model but has a much larger full 4 digit display, dust certification and guaranteed performance between -40 and +70°C. Like it's predecessor, the BA304NG is housed in a robust IP66 enclosure which may be surface or pipe mounting.

Main application of the BA304NG is to display a measured variable in meaningful engineering units within a Zone 2 or 22 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 BA304NG 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 show 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, ATEX and ETL non sparking Ex nA certification allows the BA304NG to be installed in Zone 2 hazardous area without the need for Zener barriers or galvanic isolators. For Zone 2 applications the BA304NG offers a less expensive alternative to intrinsic safety and flameproof instrumentation.

Ex tc dust certification permits the BA304NG to be installed in Zone 22 dust hazardous areas, again without the need for Zener barriers or galvanic isolators.

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 field wiring is required. Powering from a separate supply produces a brighter backlight but requires additional 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 BA324NG which has a similar specification with a five digit 29mm high display plus a 31 segment bargraph.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Input

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 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
Overange	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.

Certification

Europe ATEX

Code	Group II Category 3GD Ex nA ic IIC T5 Gc Ex tc IIIC T80°C Dc IP66 -40°C ≤ Ta ≤ 70°C
Cert. No.	ITS11ATEX47255

International IECEx

Code	Ex nA ic IIC T5 Gc Ex tc IIIC T80°C Dc IP66 -40°C ≤ Ta ≤ 70°C
Cert. No.	IECEx ITS 11.0016

ETL & cETL USA & Canada

Code	Class I, Zone 2, AEx nA ic IIC T5 Gc Zone 22, AEx ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ 60°C	USA
	Ex nA ic IIC T5 Gc: Ex n IIC T5 Gc Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ 60°C	Canada
ETL control No.	4008610	

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 2014/30/EU

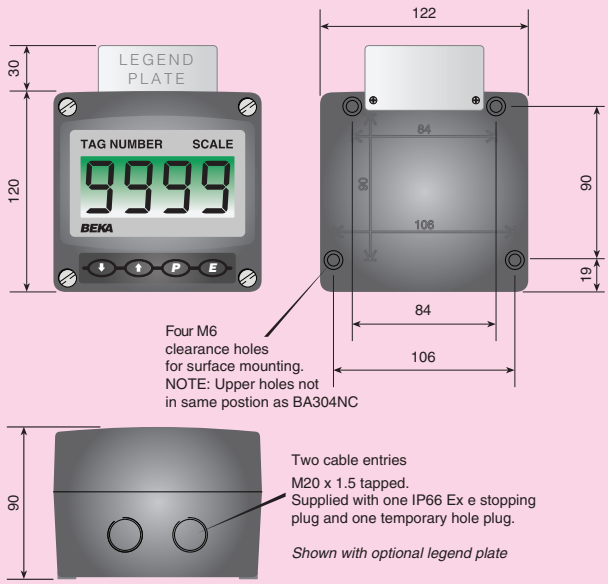
Mechanical

Terminals	Black with screw clamp for 0.5 to 1.5mm² cable
Weight	1.1kg

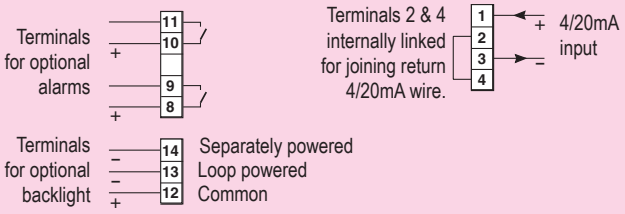
Accessories

Backlight	Green, may be loop or separately powered
Loop powered	Indicator input voltage 5V
Separately	11V to 30V dc at 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	30V
Imax	200mA
Ron	5Ω + 0.7V max
Roff	1MΩ min

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Scale card	Slide-in card showing through display window units of measurement and tag information.
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 316 stainless steel #
Panel mounting kits	BA394G 316 stainless steel not sealing #

 # See accessory datasheet for details

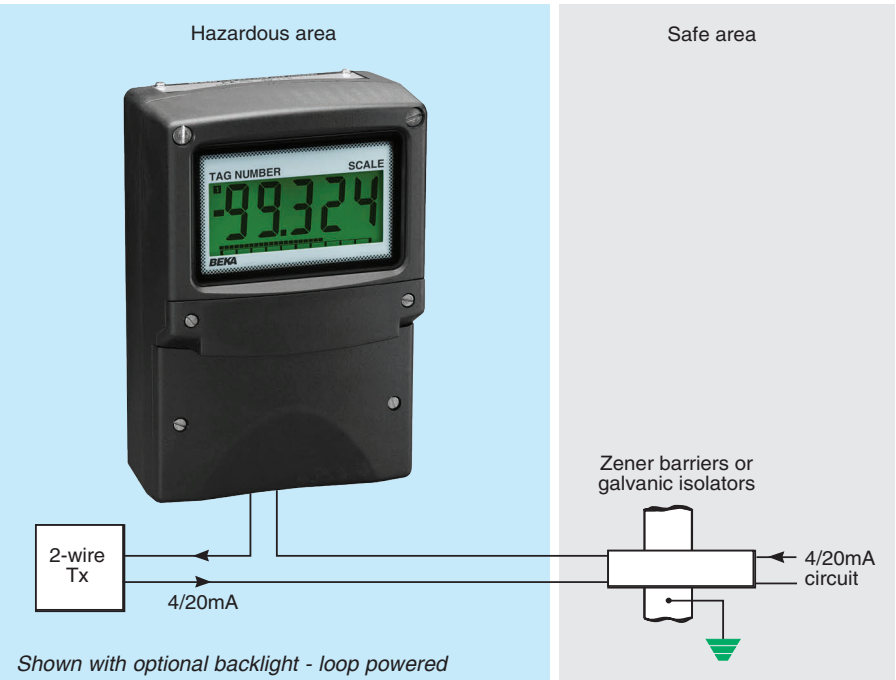
HOW TO ORDER

	Please specify
Model number	BA304NG
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXX
20.000mA	XXXX

*Include position of decimal point & sign if negative, plus intermediate points if linearisation is required. **

Accessories	**Please specify if required**
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
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.*



Shown with optional backlight - loop powered

BA324E

2-wire 4/20mA 5 digit indicator

Intrinsically safe for use in all gas & dust hazardous areas

- **Loop powered only 1.2V drop.**
- **5 digit 29mm high display & 31 segment bargraph.**
- **Intrinsically safe**
  ATEX gas
  ***or* ATEX gas & dust**
  ***or* FM, cFM & ATEX gas**
  All versions have IECEx certification.
- **IP66 GRP enclosure with separate terminal compartment.**
- **Root extractor and 16 segment lineariser.**
- **Optional backlight, alarms & external keypad.**
- **3 year guarantee**

www.beka.co.uk/ba324e

The BA324E loop powered 4/20mA indicator is a fourth generation field mounting instrument that is electrically and mechanically compatible with the earlier BA324D. It has a much larger full 5 digit display and guaranteed performance between -40 and 70°C. Like it's predecessor, the BA324E is housed in a robust IP66 enclosure with a separate terminal compartment.

Main application of the BA324E 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 non linear variables such as tank level in linear engineering units. For weighing applications a tare function is included.

The bold 29mm high 5 digit display and 31 segment bargraph provide maximum contrast and have a very wide viewing angle, allowing the BA324E 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 five digits, with four decimal points and a negative sign, may be configured to display any variable between -99999 and 99999.

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.

International intrinsic safety certification permits the BA324E 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. The BA324E may also be installed in dust hazardous areas. All input safety parameters are the same or greater than those for the preceding BA324D, thus allowing the BA324E 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 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 BA304E which has a similar specification and an even larger four digit 34mm high display.

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

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 5 digits 29mm high & 31 segment bargraph.
Span	Adjustable between 0 & ±99999 for a 4/20mA input
Zero	Adjustable between 0 & ±99999 with 4mA input
Decimal point	1 of 4 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
Bargraph	31 segment 80mm long
Overange	99999 or -99999 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 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 — *Dust option, see How to order*
Input parameters	
Ui	30V dc
Ii	200mA
Pi	0.84W
Output parameters	Complies with requirements for *simple apparatus*
Cert. No.	ITS11ATEX27253X (Special conditions only apply for installations in Zone 0)

USA FM

Standard	3610 Entity
Code	CL I, II, III: Div 1 GP A, B, C, D, E, F & G T5 @ 70°C
Standard	3611 Nonincendive
Code	CL I, II, III: Div 2 GP A, B, C, D, E, F & G T5 @ 70°C
File	3041487

Canada cFM

File	3041487C

International IECEx

Code	Ex ia IIC T5 Ga Ex ia IIIC 20 T80°C Da IP66- Tamb = -40 to 70°C — *Dust option, see How to order*
Cert. No	IECEx ITS11.0014X (Special conditions only apply for installations in Zone 0)

Environmental

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 2014/30/EU

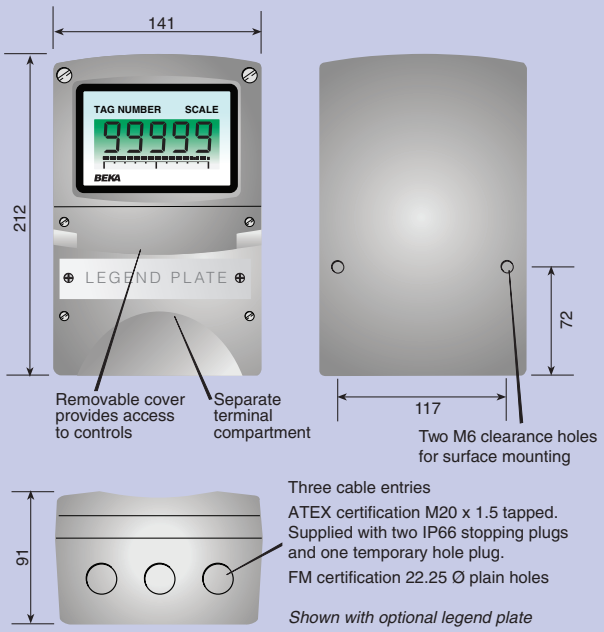
Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm^2 cable
Weight	1.7kg

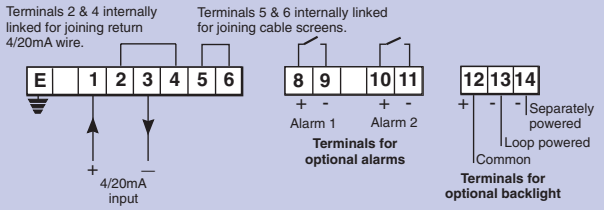
Accessories

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 solid state switch complying with requirements for *simple apparatus*.
Ron	5Ω + 0.7V max
Roff	1MΩ min
External keypad	Membrane keypad enables indicator to be controlled without removing cover.

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Scale legend	Units of measurement marked onto display escutcheon. #
Tag legend	Tag number or application marked onto display escutcheon. #
Stainless steel legend plate	Etched legend plate with tag number or application attached to front of the instrument. #
Pipe mounting kit	BA392D or BA393 #

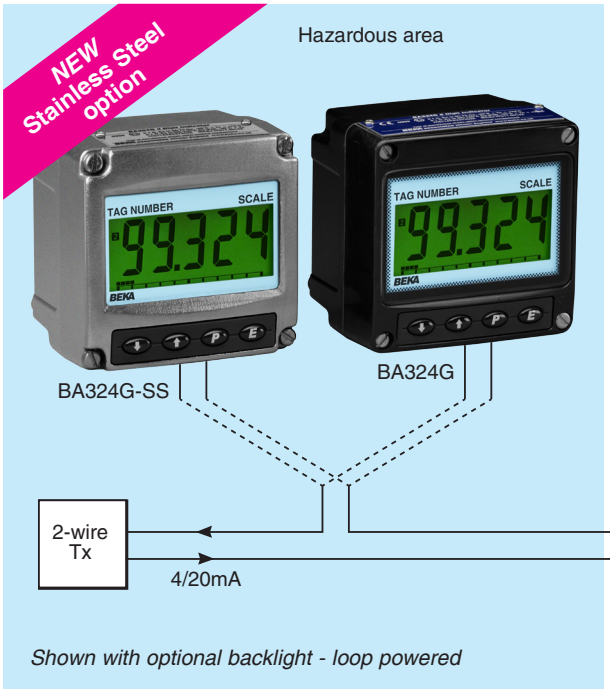
See accessory datasheet for details

HOW TO ORDER

		Please specify
Model number		BA324E
Certification		ATEX gas — *All versions have IECEx certification.*
	or	ATEX gas & dust
	or	FM, cFM & ATEX gas
Display mode		Linear, root or lineariser*
Display at: 4.000mA		XXXXX — *Include position of decimal point & sign if negative, plus intermediate points if linearisation is required.**
20.000mA		XXXXX

Accessories	**Please specify if required**
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	BA392D or BA393

* *Will be set to display 0.00 at 4mA and 100.00 at 20mA with a linear display if calibration information is not supplied. Can easily be recalibrated on-site.*



Shown with optional backlight - loop powered

BA324G
BA324G-SS
2-wire 4/20mA 5 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.**
- **5 digit 29mm high display & 31 segment bargraph.**
- **Optional backlight & alarms.**
- **Root extractor, lineariser and tare function.**
- **Easy scale card installation on-site.**
- **3 year guarantee**

www.beka.co.uk/ba324g

The BA324G loop powered 4/20mA indicator is an intrinsically safe field mounting instrument with a large 5 digit display housed in a robust IP66 GRP or stainless steel enclosure.

Main application of the BA324G 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.

A large 29mm high 5 digit display and 31 segment bargraph provide maximum contrast and have a very wide viewing angle, allowing the BA324G 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 five digits, with four decimal points and a negative sign, may be configured to display any variable between -99999 and 99999.

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 BA324G 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.

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Input

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

Display

Type	Liquid crystal, non-multiplexed 5 digits 29mm high
Span	Adjustable between 0 & ±99999 for a 4/20mA input
Zero	Adjustable between 0 & ±99999 with 4mA input
Decimal point	1 of 4 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
Bargraph	31 segments 80mm long
Overrange	99999 or -99999 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 -40°C ≤ Ta ≤ 70°C
Input parameters	
Ui	30V dc
Ii	200mA
Pi	0.84W
Output parameters	Comply with requirements for *simple apparatus*.
Cert. No.	ITS11ATEX27253X (Special conditions only apply for Zone 0)

International IECEx

Code	Ex ia IIC T5 Ga Ex ia IIIC T80°C Da IP66 -40°C ≤ Ta ≤ 70°C
Parameters	As ATEX
Cert. No.	IECEx ITS 11.0014X (Special conditions only apply for Zone 0)

USA & Canada ETL & cETL

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	USA & Canada USA
	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	USA & Canada USA
	Ex ia T5 Ga -40°C ≤Ta ≤ 70°C Ex ia IIIC Da -40°C ≤Ta ≤ 60°C	Canada
ETL control No	4008610	

USA & Canada Nonincendive

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	USA & Canada
ETL control No.	4008610	

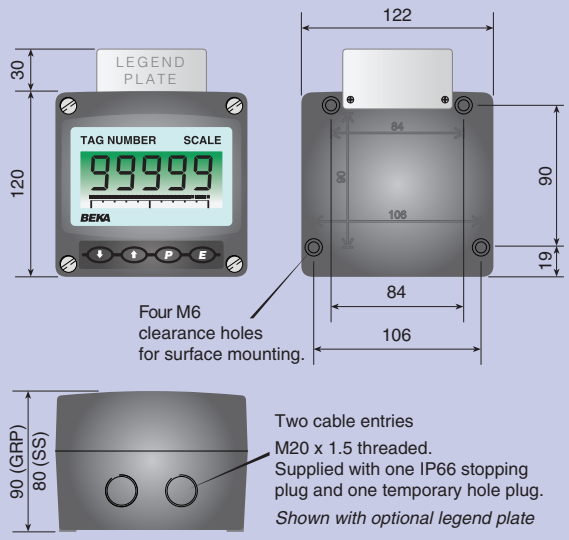
Environmental

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

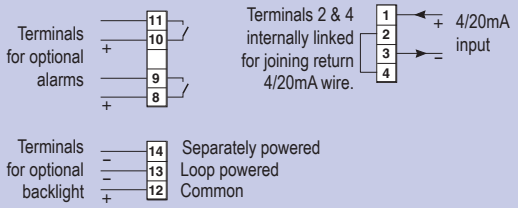
Mechanical

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	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

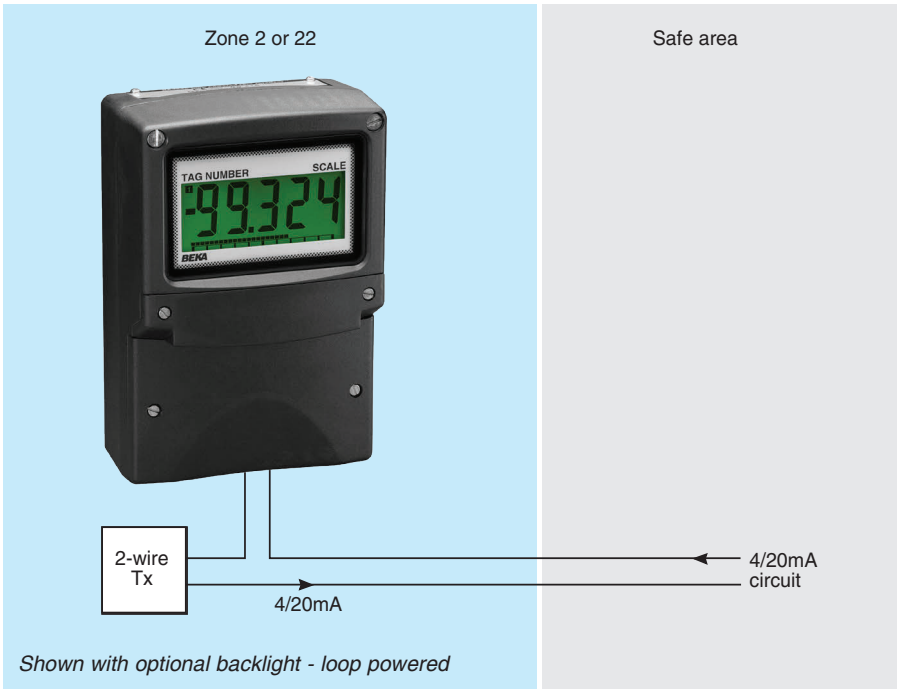
Backlight	Green, may be loop or separately powered
Loop powered	Indicator input voltage 5V
Separately powered	11V at 35mA from IS interface
Alarms	Two alarm outputs each of which may be independently configured as a high or low alarm contact with a NO or NC output.
Output	Isolated, voltage free solid state switch complying with requirements for *simple apparatus*.
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 BA324G & BA324G-SS	
BA394G	Mounts indicator into an open panel aperture, does not seal aperture.
For BA324G	
BA494G	Mounts indicator into an open panel aperture & seals aperture
For BA324G-SS	
BA494G-SS	Mounts indicator into an open panel aperture & seals aperture
Back-box terminals for BA324G.	Including 4/20mA loop maintenance diode

See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	
GRP enclosure	BA324G
Stainless steel enclosure	BA324G-SS
Display mode	Linear, root or linearliser
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

Accessories	Please specify if required
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



Shown with optional backlight - loop powered

BA324NE

2-wire 4/20mA 5 digit indicator

Type nA & tc certified for use in Zones 2 & 22 hazardous areas

- **Loop powered only 1.2V drop.**
- **5 digit 29mm high display & 31 segment bargraph.**
- **Ex nA gas and Ex tc dust ATEX & IECEx certification.**
- **IP66 GRP enclosure with separate terminal compartment.**
- **Root extractor and 16 segment lineariser.**
- **Optional backlight, alarms & external keypad.**
- **3 year guarantee**

www.beka.co.uk/ba324ne

The BA324NE loop powered 4/20mA indicator is a fourth generation field mounting instrument that is mechanically compatible and electrically similar to the earlier BA324ND. It has a much larger full 5 digit display and guaranteed performance between -40 and 70°C. Like it's predecessor, the BA324NE is housed in a robust IP66 enclosure with a separate terminal compartment.

Main application of the BA324NE is to display a measured variable in meaningful engineering units within a Zone 2 or 22 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 bold 29mm high 5 digit display and 31 segment bargraph provide maximum contrast and has a very wide viewing angle, allowing the BA324NE 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 -99999 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.

ATEX and IECEx non sparking Ex nA certification allows the BA324NE to be installed in a Zone 2 gas hazardous areas without the need for Zener barriers, galvanic isolators or a flameproof enclosure. For European and international Zone 2 applications the BA324NE offers a less expensive alternative to intrinsic safety and flameproof instrumentation.

Ex tc dust certification also allows the BA324NE to be installed in Zone 22 dust hazardous areas, again without the need for Zener barriers, galvanic isolators or a flameproof enclosure.

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 field wiring is required but the indicator's voltage drop is increased. Powering from a separate supply produces a brighter backlight but requires additional 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 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 BA304NE which has a similar specification but has a four digit 34mm high display.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

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 5 digits 29mm high and 31 segment bargraph.
Span	Adjustable between 0 & ±99999 for a 4/20mA input.
Zero	Adjustable between 0 & ±99999 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.
Root extractor	Selectable
Lineariser	16 adjustable segments
Reading rate	2 per second
Bargaph	31 segments 80mm long
Overange	99999 or -99999 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 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.

Certification

Europe ATEX

Code	Group II Category 3G Ex nA ic IIC T5 Gc Group II Category 3D Ex tc IIIC 80°C Dc IP66 Ta = -40 to 70°C
Input parameters	
Ii	100mA
Cert. No.	ITS11ATEX47255

International IECEx

Code	Ex nA IIC T5 Gc Ex tc IIIC T80°C Dc IP66 Tamb = -40 to 70°C
Cert. No	IECEx ITS11.0016

Environmental

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 2014/30/EU

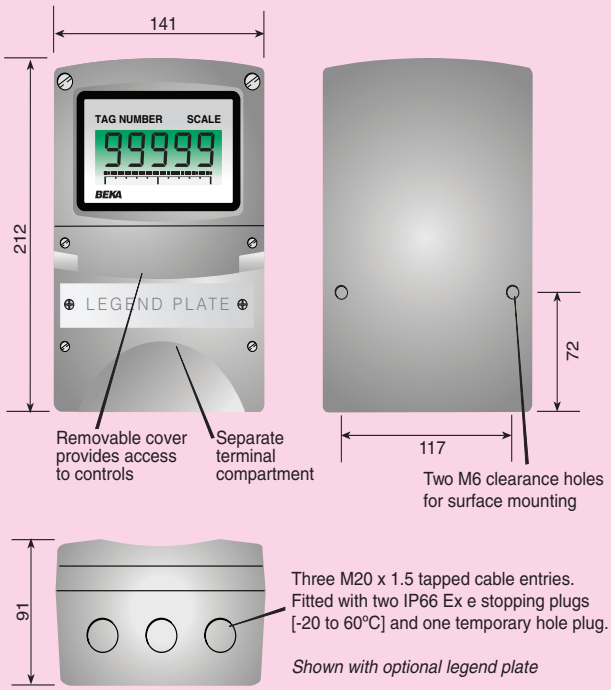
Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm^2 cable
Weight	1.7kg

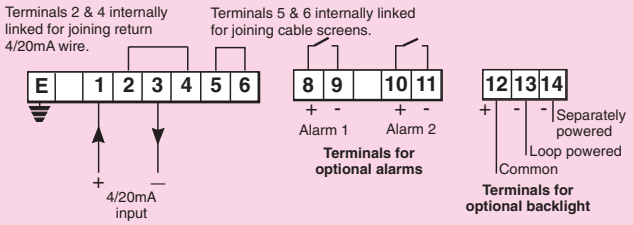
Accessories

Backlight	Green, may be loop or separately powered.
Loop powered	Input voltage increased to 5V
Separately powered	11V min at 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
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.#

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Tag legend	Tag number or application marked onto display escutcheon.#
Stainless steel legend plate.	Stainless steel plate etched with tag number or applicationattached to front of the instrument. #
Pipe mounting kit	BA392D or BA393 #

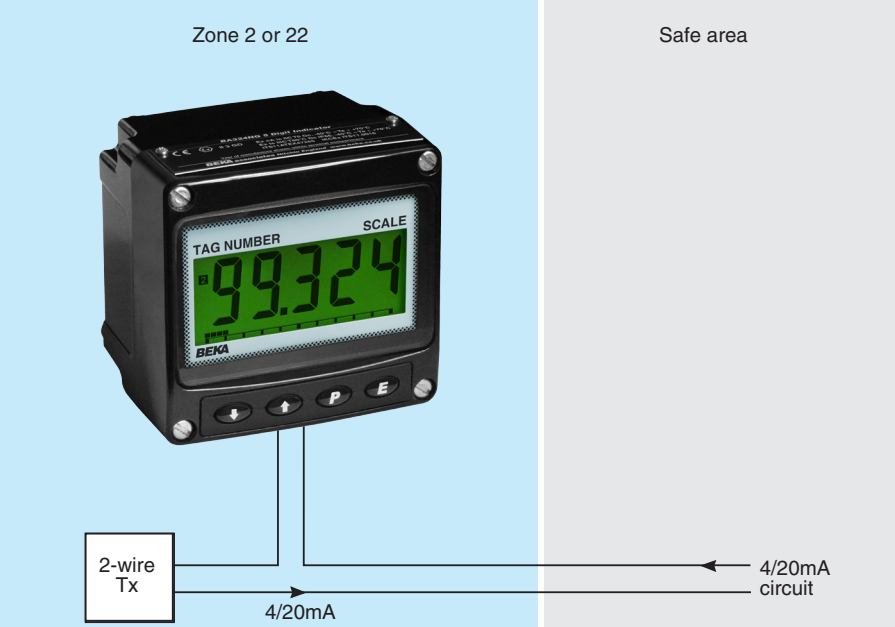
See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	BA324NE
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXXX ⎫ Include position of decimal point & sign if negative, plus intermediate points if linearisation is required. *
20.000mA	XXXXX ⎭

Accessories	**Please specify if required**
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 0.00 at 4mA and 100.00 at 20mA with a linear display if calibration information is not supplied. Can easily be recalibrated on-site.*



Shown with optional backlight - loop powered

BA324NG

2-wire 4/20mA 5 digit indicator

Ex nA & tc certified for use in Zones 2 & 22 hazardous areas

- **Loop powered only 1.2V drop.**
- **5 digit 29mm high display & 31 segment bargraph.**
- **Ex nA gas and Ex tc dust ATEX, IECEx, ETL & cETL 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/ba324ng

The BA324NG loop powered 4/20mA indicator is a new field mounting instrument that supersedes the well established BA324NC. It is electrically and mechanically compatible with the earlier model but has a much larger full 5 digit display, bargraph, dust certification and guaranteed performance between -40 and +70°C. Like it's predecessor, the BA324NG is housed in a robust IP66 enclosure which may be surface or pipe mounting.

Main application of the BA324NG is to display a measured variable in meaningful engineering units within a Zone 2 or 22 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 29mm high 5 digit display and 31 segment bargraph provided maximum contrast and have a very wide viewing angle, allowing the BA324NG 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 five digits, with four decimal points and a negative sign, may be configured to display any variable between -99999 and 99999.

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, ATEX and ETL non sparking Ex nA certification allows the BA324NG to be installed in a Zone 2 hazardous area without the need for Zener barriers or galvanic isolators. For Zone 2 applications the BA324NG offers a less expensive alternative to intrinsic safety and flameproof instrumentation.

Ex tc dust certification permits the BA324NG to be installed in Zone 22 dust hazardous areas, again without the need for Zener barriers or galvanic isolators.

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 field wiring is required. Powering from a separate supply produces a brighter backlight but requires additional 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 BA304NG which has a similar specification and an even larger four digit 32mm high display.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Input

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 indicator

Display

Type	Liquid crystal, non-multiplexed 5 digits 29mm high.
Span	Adjustable between 0 & ±99999 for a 4/20mA input.
Zero	Adjustable between 0 & ±99999 with 4mA input.
Decimal point	1 of 4 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
Bargraph	31 segments 80mm long
Overange	99999 or -99999 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.

Certification

Europe ATEX

Code	Group II Category 3GD Ex nA ic IIC T5 Gc Ex tc IIIC T80°C Dc IP66 -40°C ≤ Ta ≤ 70°C
Cert. No.	ITS11ATEX47255

International IECEx

Code	Ex nA ic IIC T5 Gc Ex tc IIIC T80°C Dc IP66 -40°C ≤ Ta ≤ 70°C
Cert. No.	IECEx ITS 11.0016

USA & Canada ETL & cETL

Code	Class I, Zone 2, AEx nA ic IIC T5 Gc Zone 22, AEx ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ 60°C	USA
	Ex nA ic IIC T5 Gc: Ex n IIC T5 Gc Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ 60°C	Canada
ETL control No.	4008610	

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 2014/30/EU

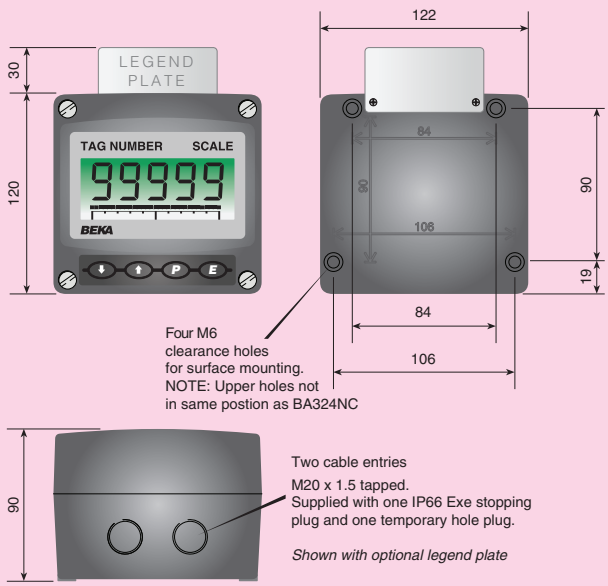
Mechanical

Terminals	Black with screw clamp for 0.5 to 1.5mm² cable.
Weight	1.1kg

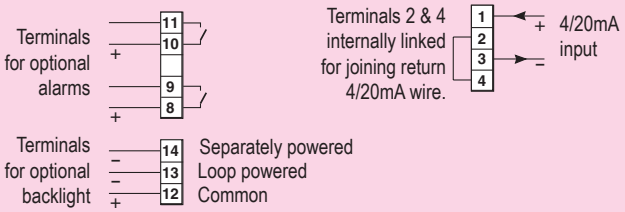
Accessories

Backlight	Green, may be loop or separately powered
Loop powered	Indicator input voltage 5V
Separately	11V to 30V dc at 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	30V
Imax	200mA
Ron	5Ω + 0.7V max
Roff	1MΩ min

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Scale card	Slide-in card showing through display window units of measurement and tag information.
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 316 stainless steel #
Panel mounting kits	BA394G 316 stainless steel not sealing #

 # See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	BA324NG
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXXX
20.000mA	XXXXX

*Include position of decimal point & sign if negative, plus intermediate points if linearisation is required. **

Accessories	**Please specify if required**
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
Panel mounting kit	BA394G

** Will be set to display 0.00 at 4mA and 100.00 at 20mA with a linear display if calibration information is not supplied. Can easily be recalibrated on-site.*

Zone 1, 2,11 or 22 Hazardous area



BR323AL and BR323SS

2 wire 4/20mA 5 digit indicators

Flameproof enclosure for use in gas & dust hazardous areas

- **Loop powered**
- **± 99999 display 10mm high.**
- **IP66, NEMA Type 4X enclosures**
  - **BR323AL aluminium**
  - **BR323SS 316 stainless steel.**
- **No additional charge for Configuration and calibration.**
- **ATEX certification**
- **Root extractor and lineariser.**
- **Programmable units of measurement legend.**
- **3 Year guarantee**

www.beka.co.uk/br323

The BR323AL and BR323SS are flameproof field mounting loop powered indicators that only introduces a 2.3V drop making them suitable for inclusion in almost any 4/20mA loop. The two instruments are electrically identical but have different enclosure materials. The BR323AL is housed in an epoxy painted aluminium enclosure and the BR323SS in a 316 stainless steel enclosure. Both provide IP66 and NEMA Type 4X protection.

The main application of both instruments is to display a process variable or control signal in a hazardous process area. The zero and span are independently adjustable so the indicator may be calibrated to display any variable represented by a 4/20mA current, such as temperature, pressure or level. A fully adjustable lineariser is included which enables almost any non linear variable to be displayed in linear engineering units. For use with differential flow transmitters, a square root function is included with the lineariser.

ATEX flameproof certification allows the BR323AL and the BR323SS to be installed throughout Europe in Zones 1 and 2 gas hazardous and in Zones 21 and 22 dust hazardous areas.

Indicator configuration and calibration is performed for no additional charge so indicator arrives ready for use. Reconfiguration can easily be performed on-site using simple Windows® compatible software running on a personal computer connected to the instrument via a temporary serial communications cable. The free of charge software may be downloaded from the BEKA website, or is available on CD. A cable for temporarily connecting the indicator to an RS232 serial port and a USB to serial port converter are available from BEKA.

The 'View' button on the front of the indicator adjacent to the terminals provides a rapid check of loop function and instrument calibration with no risk of the calibration being accidentally changed. The first operation of the button changes the display from normal engineering units to the loop current in milliamps, subsequent operations of the button display the instrument calibration at 4 and 20 mA.

Units of measurement can be displayed by the BR323AL and BR323SS indicators. Up to five upper case alphanumeric characters may be entered via the configuration software, these are stored by the indicator and appear below the main instrument display.

A 128 segment lineariser is contained in the configuration software which can accurately linearise almost any curve. Data can be imported as a comma delimited csv file or typed point by point into a table. Again the software is very easy to use.

Both robust enclosures provide IP66 and NEMA 4X protection and have two M20 or $^{1}/_{2}$ inch NPT tapped entries. The BR323AL, which has an aluminium enclosure, is suitable for general industrial application, whereas the BR323SS 316 stainless steel enclosure is intended for use in corrosive and marine environments. Both enclosures are available with an optional pipe mounting kit.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Input

Current	4 to 20mA
Minimum operating	3.8mA
Maximum operating	20.2mA
Overrange	±100mA will not cause damage.
Voltage	Less than 2.3V

Display

Type	Liquid crystal 10mm high -99999 to 99999
Resolution selectable	None, one or two digits after the decimal point, or maximum number possible.
Polarity	Automatic minus sign
Direction	Display may increase or decrease with increasing current.
Reading rate	10 per second

Scale legend

Type	Liquid crystal 6mm high
Digits	Five alphanumeric upper case characters entered via configuration software.

Accuracy

At 20°C	±0.0012% of input
Temp effect.	±0.015% of span/°C max
Stability	
1 year	0.08mA
2 year	0.14mA
5 years	0.18mA

Safety certification

Europe ATEX	ATEX flameproof certification applies to the loop powered indicator in both the aluminium and stainless steel enclosures.
Standards	IEC 60079-1; IEC 61241-1
Code	Group II Category 2GD Ex d IIC T6
Location	Zone 1, 2, 21 or 22
Cert. No.	ISSeP08ATEX035X

Environmental

Operating temp	-20 to 60°C
Certification temp	
ATEX	-20 to 60°C
Storage temp	-45 to 85°C
Humidity	To 95% non condensing
Enclosure	IP66, NEMA Type 4X
BR323AL	Aluminium, polyester powder coated.
BR323SS	316 stainless steel
EMC	In accordance with EU Directive 89/336/EU
Complies with	EN61326
Immunity	Less than 0.5% error for 20V/m field strength between 80MHz & 1GHz.
Emissions	Undetectable above background noise, Class B equipment

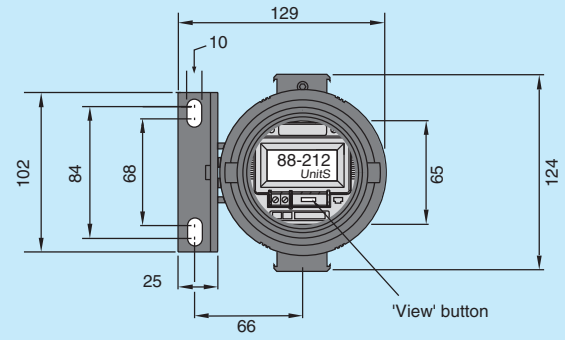
Mechanical

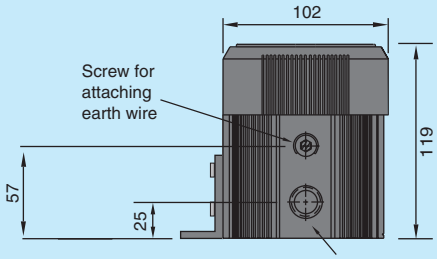
Terminals	Screw clamp for 0.5 to 1.5mm^2 cable.
Weight	
BR323AL	1.6kg
BR323SS	3.2kg

Accessories

Tag strip	Thermally printed label
Tag plate	Etched tie-on stainless steel label

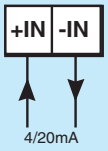
DIMENSIONS (mm)





Two M20 x 1.5 cable entries (model number suffix 'M')~
or Two 1/2 inch NPT cable entries (model number suffix 'N')~

TERMINAL CONNECTIONS



Pipe mounting kit	304 stainless steel 'U' bolt to fit up to 50mm outside diameter pipe.
RS232 cable	Connects BR323 indicator to serial communications port or to USB serial converter.
USB to serial converter	Chipi-X10 cable converts USB to RS232 serial port. USB port must be configured as COM 1, 2, 3 or 4. RS232 cable is also required.

HOW TO ORDER

	Please specify
Model number	
Aluminium enclosure	BR323AL
Stainless steel enclosure	BR323SS
Entry threads~	M20 x 1.5 (model number suffix 'M')
or	½ inch NPT (model number suffix 'N')
Calibration	
Display at 4mA	XXXXX Include position of decimal point
Display at 20mA	XXXXX and sign if negative.*
Units of measurement	XXXXX*
Accessories	**Please specify if required**
Tag strip	Legend
Tag plate	Legend
Pipe mounting kit	BR391 Pipe mounting kit
RS232 cable	RS 232 cable
USB to RS232 converter	Chipi-X10 Cable (RS232 cable also required)

* *Will be set to display 0.00 at 4mA and 100.00 at 20mA with 'PCT' as units of measurement if calibration information is not supplied.*

~ *Unless otherwise requested indicators supplied in the UK will have M20 entries.*



Shown with optional backlight - loop powered

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**

www.beka.co.uk/ba504e

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 it's 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.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

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
Overange	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 a % of span, has a modified function when alarms are fitted.
'E'	Used for tare function

Accuracy at 20ºC

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.

Environmental

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.

Mechanical

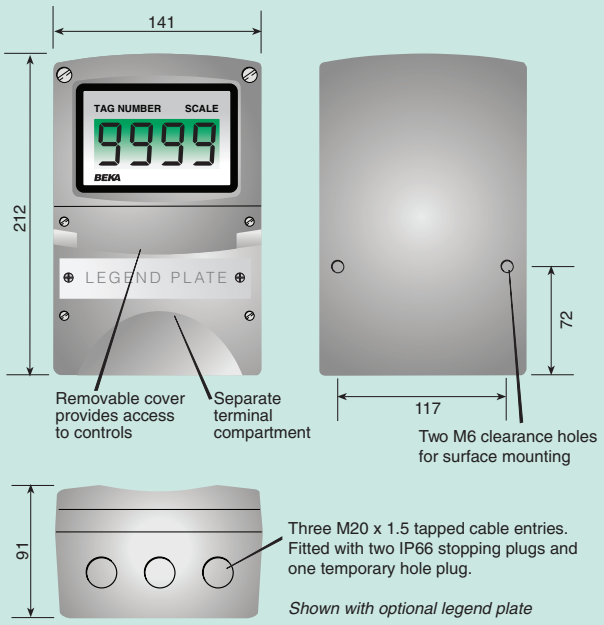
Terminals	Screw clamp for 0.5 to 1.5mm^2 cable
Weight	1.7kg

Accessories

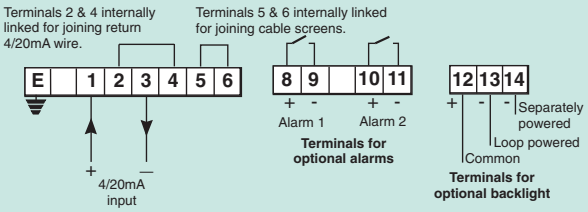
Backlight	Green, may be loop or separately powered.
Loop powered	Indicator input voltage 5V
Separately powered	
V supply	11V to 30V dc
I in	35mA
Alarms	Two alarm outputs each of which may be independently configured as a high or low alarm contact with a NO or NC output
Output	Isolated solid state switch
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 #

See accessory datasheet for details

DIMENSIONS (mm)



TERMINAL CONNECTIONS



HOW TO ORDER

	Please specify
Model number	BA504E
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXX
20.000mA	XXXX

*Include position of decimal point & sign if negative, plus intermediate points if linearisation is required.**

Accessories	**Please specify if required**
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

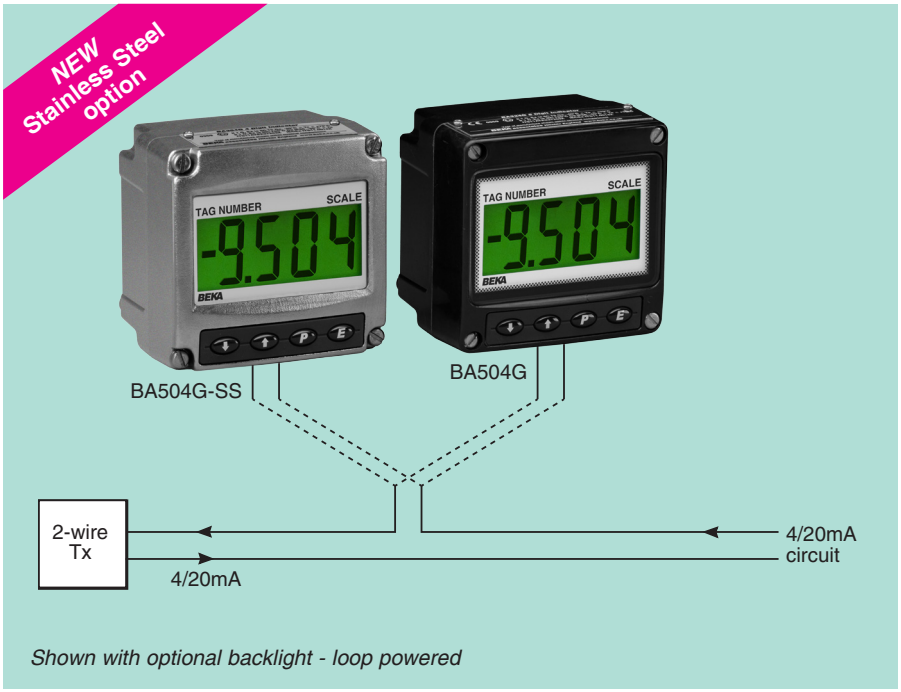
** Will be set to display 0.0 at 4mA and 100.0 at 20mA with a linear display if calibration information is not supplied. Can easily be recalibrated on-site.*

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



Shown with optional backlight - loop powered

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.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

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.

Environmental

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.

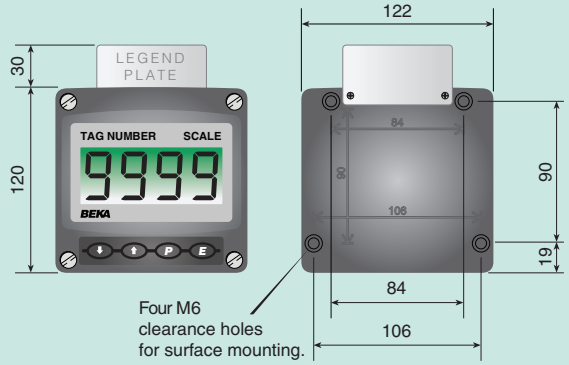
Mechanical

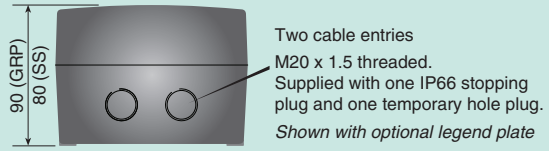
Enclosure	
Material	GRP or 316 stainless steel
Ingress protection	IP66
Impact protection	Enclosure 7J, Window 4J
Weight	
GRP	1.1kg
Stainless steel	2.6kg
Terminals	Orange with screw clamp for 0.5 to 1.5mm² cable.
Scale card	Slide-in card showing units of measurement and tag information through display window.

Accessories

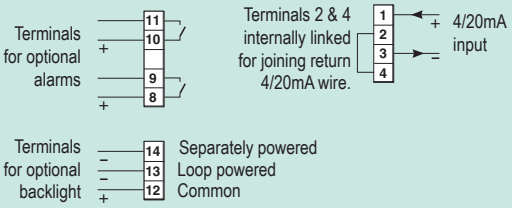
Backlight	Green, may be loop or separately powered.
Loop powered	Indicator input voltage increases to 5V.
Separately powered	
V supply	11 to 30V dc
I in	35mA
Alarms	Two alarm outputs each of which may be independently configured as a high or low alarm contact with a NO or NC output.
Output	Isolated, 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

	Please specify
Model number	
GRP enclosure	BA504G
Stainless steel enclosure	BA504G-SS
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXX] Include position of decimal point & sign if negative.*
20.000mA	XXXX]
Scale card marking	
Units	Legend required
Tag	Legend required

Accessories	**Please specify if required**
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

BA524E

2-wire 4/20mA 5 digit indicator

General purpose



Shown with optional backlight - loop powered

- **Loop powered only 1.2V drop.**
- **5 digit 29mm high display & 31 segment bargraph.**
- **IP66 GRP enclosure with separate terminal compartment.**
- **Root extractor and 16 segment lineariser.**
- **Optional backlight, alarms & external keypad.**
- **3 year guarantee**

www.beka.co.uk/ba524e

The BA524E loop powered 4/20mA indicator is a fourth generation field mounting instrument that is electrically and mechanically compatible with the earlier BA524D. It has a much larger full 5 digit display and guaranteed performance between -40 and 70˚C. Like it's predecessor, the BA524E is housed in a robust IP66 enclosure with a separate terminal compartment.

Main application of the BA524E 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 29mm high 5 digit display and 31 segment bargraph provide maximum contrast and have a very wide viewing angle, allowing the BA524E 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 five digits, with four decimal points and a negative sign, may be configured to display any variable between -99999 and 99999.

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 field wiring is required. Powering from a separate supply produces a brighter backlight but requires 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 BA504E which has a similar specification and an even larger four digit 34mm high display.

If flammable atmospheres are present either the BA324E or BA324NE should be used. Both have the same features as the BA524E but have been certified for use in hazardous area.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

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 5 digits 29mm high & 31 segment bargraph.
Span	Adjustable between 0 & ±99999 for a 4/20mA input.
Zero	Adjustable between 0 & ±99999 with 4mA input.
Decimal point	1 of 4 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
Bargraph	31 segment 80mm long
Overange	99999 or -99999 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 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.

Environmental

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.

Mechanical

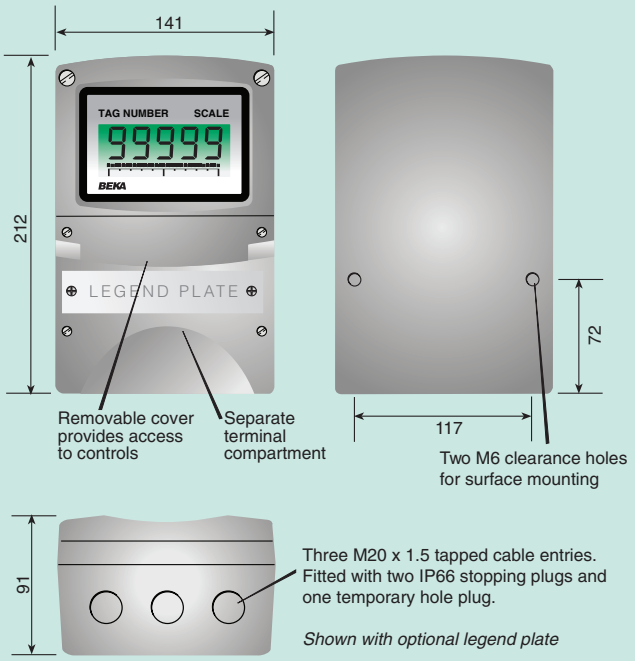
Terminals	Screw clamp for 0.5 to 1.5mm^2 cable
Weight	1.7kg

Accessories

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 with tag number or applicationattached to front of the instrument. #
Pipe mounting kit	BA392D or BA393 #

 # See accessory datasheet for details

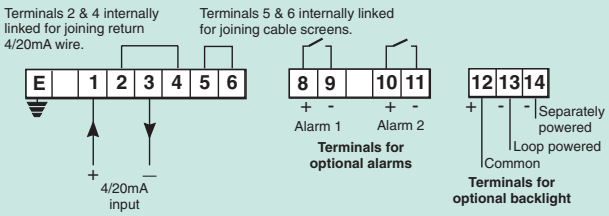
DIMENSIONS (mm)



Three M20 x 1.5 tapped cable entries. Fitted with two IP66 stopping plugs and one temporary hole plug.

Shown with optional legend plate

TERMINAL CONNECTIONS



HOW TO ORDER

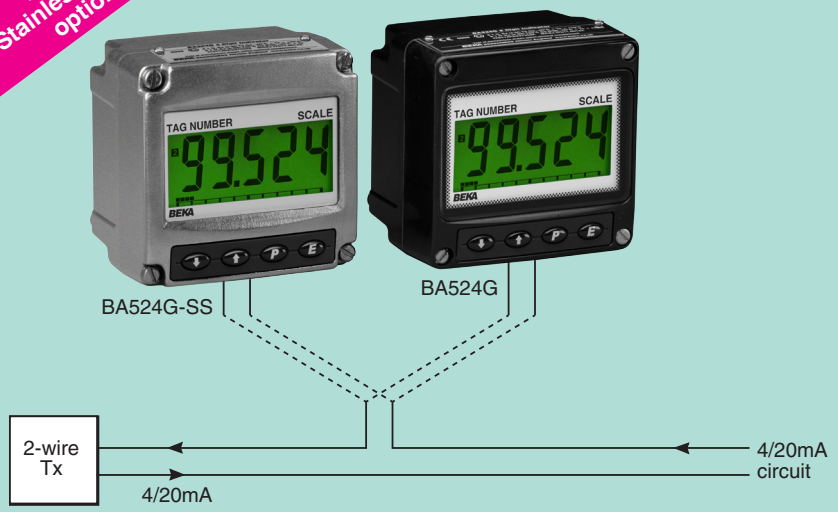
	Please specify
Model number	BA524E
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXX
20.000mA	XXXX

*Include position of decimal point & sign if negative, plus intermediate points if linearisation is required.**

Accessories	**Please specify if required**
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 0.00 at 4mA and 100.00 at 20mA with a linear display if calibration information is not supplied. Can easily be recalibrated on-site.*

NEW Stainless Steel option



Shown with optional backlight - loop powered

BA524G
BA524G-SS
2-wire 4/20mA 5 digit indicator

General purpose

- **IP66 GRP or stainless steel enclosure.**
- **Loop powered only 1.2V drop.**
- **5 digit 29mm high display & 31 segment bargraph.**
- **Optional backlight & alarms.**
- **Root extractor and 16 segment lineariser.**
- **Easy scale card installation on-site.**
- **3 year guarantee**

www.beka.co.uk/ba524g

The BA524G is a general purpose, loop powered 4/20mA field mounting indicator, with a large five digit display and a bargraph housed in a robust IP66 GRP or stainless steel enclosure.

Main application of the BA524G is to display a measured variable in 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 also 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 29mm high 5 digit display and 31 segment bargraph provide maximum contrast and have a very wide viewing angle, allowing the BA524G indicator to be easily read in most lighting conditions over a wide temperature range. Optional factory fitted backlighting is available for installations in poorly illuminated areas. The five digit display, with four decimal points and a negative sign, may be configured to display any variable between -99999 and 99999.

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 BA524G and BA524G-SS 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. t 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 BA504G which has a similar specification with an even larger 4 digit, 34mm high display.

If flammable atmospheres are present either the BA324G or BA304G, should be used. Both have the same features as the BA524G, but are intrinsically safe and have international certification for use in hazardous gas and dust atmospheres.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

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 5 digits 29mm high.
Span	Adjustable between 0 & ±99999 for a 4/20mA input.
Zero	Adjustable between 0 & ±99999 with 4mA input.
Decimal point	1 of 4 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
Bargraph	31 segments 80mm long
Overrange	99999 or -99999 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.

Environmental

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.

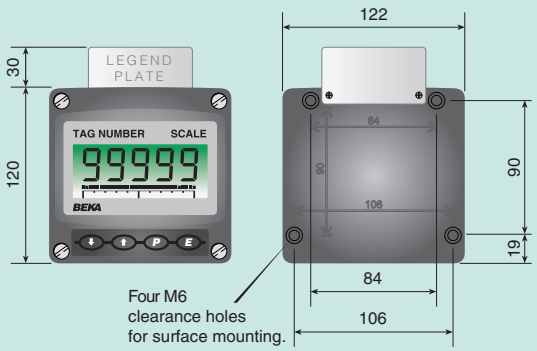
Mechanical

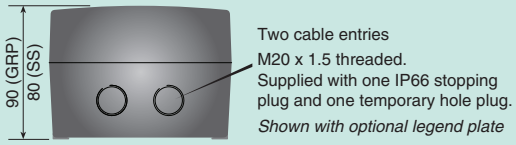
Enclosure	
Material	GRP or 316 stainless steel
Ingress protection	IP66
Impact protection	Enclosure 7J, Window 4J
Weight	
GRP	1.1kg
Stainless steel	2.6kg
Terminals	Orange with screw clamp for 0.5 to 1.5mm² cable.
Scale card	Slide-in card showing units of measurement and tag information through display window.

Accessories

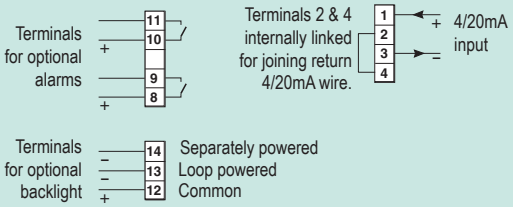
Backlight	Green, may be loop or separately powered.
Loop powered	Indicator input voltage increases to 5V.
Separately powered	
V supply	11 to 30V dc
I in	35mA
Alarms	Two alarm outputs each of which may be independently configured as a high or low alarm contact with a NO or NC output.
Output	Isolated, 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 BA524G and BA524G-SS	
BA394G	Mounts indicator into an open panelaperture, does not seal aperture #
For BA524G	
BA494G	Mounts indicator into an open panel aperture and seals aperture.#
For BA524G-SS	
BA494G-SS	Mounts indicator into an open panel aperture and seals aperture #
Back-box terminals for BA524G.	Including 4/20mA loop maintenance diode

See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	
GRP enclosure	BA524G
Stainless steel enclosure	BA524G-SS
Display mode	Linear, root or lineariser*
Display at:	
4.000mA	XXXXX] Include position of decimal point & sign if negative.*
20.000mA	XXXXX]
Scale card marking	
Units	Legend required
Tag	Legend required

Accessories	**Please specify if required**
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 0.00 at 4mA and 100.00 at 20mA with a linear display if calibration information is not supplied. Can easily be recalibrated on-site.