

BEKA

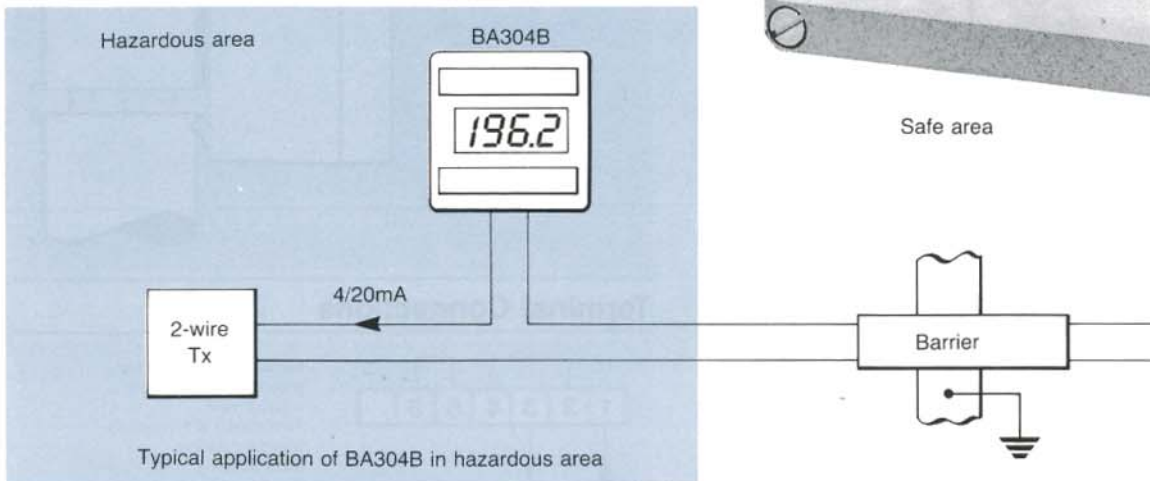
associates

BA304B

2-wire 4/20mA 3¹/₂ digit indicator

Intrinsically safe for use in all hazardous areas

- Loop powered less than 1.1V drop
- Intrinsically safe, certified by BASEEFA, FM and SA
- 25mm high, \pm 1999 liquid crystal display
- IP66 aluminium or GRP enclosure with glass window
- Fully adjustable span & zero
- Three year guarantee



The BA304B 2-wire digital indicator displays the current flowing in a 4/20mA process loop in meaningful engineering units. It is powered from the live-zero signal, but only introduces a 1V drop which allows it to be installed in almost any 4/20mA current loop. No additional power supply or battery is required. The BA304B has a 25mm high, easy to read liquid crystal display, and incorporates an automatic polarity indicator plus three decimal point positions which are selectable by an internal link.

Main application of the BA304B is to display a measured variable or control signal in the process area. The zero and span of the display are independently adjustable so that the indicator can be calibrated to display any linear variable represented by the 4/20mA signal, such as temperature, pressure, level or actuator position.

The intrinsic safety of the BA304B indicator allows it to be installed in hazardous areas without the need for a purged or flameproof enclosure. The BA304B indicator, which has been certified intrinsically safe by BASEEFA to the CENELEC standard, appears as a non energy-storing device and may therefore be connected to most intrinsically safe circuits without the need for additional certification. Full details of compatible Zener barriers are shown in Application Guide AG300 which is available from BEKA Associates. This flexible certification, together with the very low voltage drop, make the BA304B indicator ideal for use with intrinsically safe transmitters.

Two types of enclosure are available, each is sealed with a neoprene gasket and is fitted with a solvent resistant, toughened glass window. The epoxy painted aluminium enclosure is suitable for most industrial applications. For water treatment and off-shore industries the sturdy glass reinforced polyester (GRP) enclosure provides maximum protection. Both the aluminium and GRP versions of the BA304B have been environmentally tested by ERA and provide IP66 protection as specified in BS5490. To simplify installation, the BA304B is fitted with additional terminals which allow the return 4/20mA conductor to be looped through the indicator. The indicator can be removed from the enclosure without disconnecting the field wiring or disturbing the 4/20mA loop, continuity being maintained by a diode within the terminal assembly.

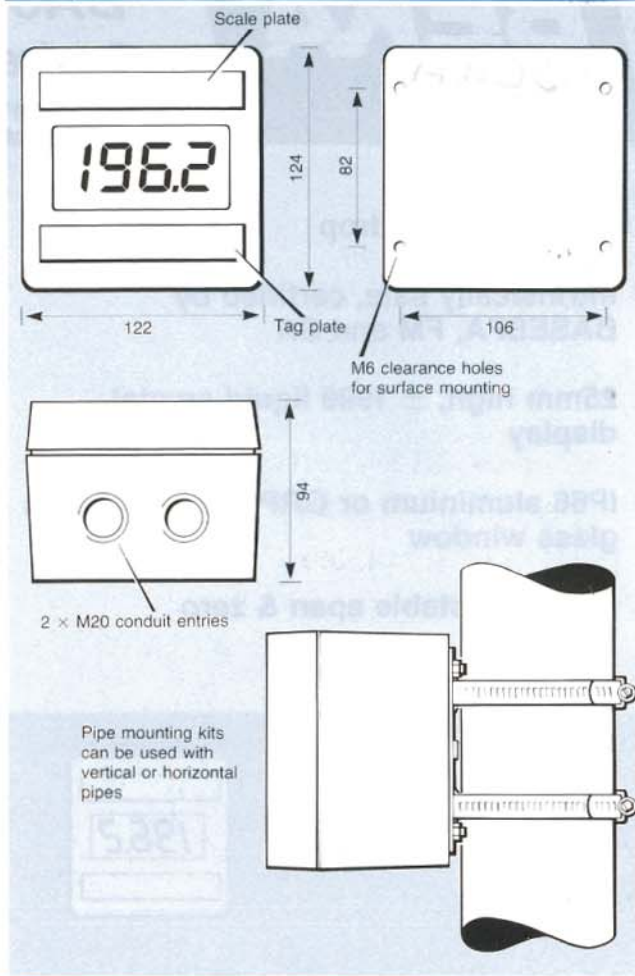
Reliability is ensured by BEKA Associates BS5750 approved quality control system, and an elevated temperature soak test for all instruments before despatch. An 'instrument quality' liquid crystal display, and coated printed circuit boards enable every instrument to be guaranteed for three years. The BA304B is protected from input overrange currents and incorporates radio frequency filtering which reduces interference from portable transceivers operating to within a few feet of the indicator.

Complementary indicators for use in safe and hazardous areas are available. Please refer to BEKA Associates catalogue or datasheets for the full range.

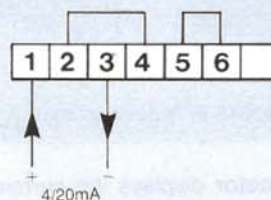
SPECIFICATION

Input	
Current	4 to 20mA
Voltage drop at 20mA	Less than 1V @ 20°C Less than 1.1V @ -20°C ±300mA will not cause damage
Overrange	
Display	
Type	3½ digits (-1999 to 1999) Liquid crystal 25mm high
Span	Adjustable between: 100 & 1000 for 4 to 20mA input Adjustable between: -1000 & 1000 with 4mA input
Zero	Automatic minus sign
Polarity	1 of 3 positions, selected by link
Decimal point	2.5 per second
Reading rate	3 least significant digits are blanked
Overrange	
Accuracy	
@ 20°C	±1 digit
Temperature effect on:	
Span	Typ 50ppm, max 100ppm/°C
Zero	Typ 0.05 digit + 100ppm/°C Max 0.1 digit + 200ppm/°C
Series mode rejection	Typ 1 digit error for 1mA pk to pk 50Hz signal
Intrinsic safety	
Europe (BASEEFA)	
Standard	BS5501:Part 7:1977:EN50.020
Code	EEx ia IIC T4
Certificate No.	BAS Ex832399
Output parameters	
U _{max} : out	1.2V
I _{max} : out	75mA
W _{max} : out	20mW
Ce _q	15nF
Le _q	2µH
Location	Zone 0, 1 or 2
Installation	The BA304B may be connected to any certified intrinsically safe circuit whose output parameters do not exceed: I _{max} : out 215mA W _{max} : out 1.1W See certificate and AG300 for full details
Australia (SA)	
Standard	AS1829-1981
Code	Ex ia IIC T4
Certificate No.	Ex 1083
USA (FM)	
Standard	3610 Entity
Code	CL I, II, III, Div. 1, GP. A, B, C, D, E, F & G
File No.	OQ2A9 AX
Standard	3611 Non-incendive
Code	CL I, II, III, Div. 2, GP. A, B, C, D, F & G
File No.	OQ2A9 AX
Environmental	
Operating temperature	-20 to +60°C
Humidity	To 95% @ 40°C
Enclosure	IP66 Copy of ERA test report 5046/228 available
Mechanical	
Terminals	Screw clamp for 0.5 to 2.5mm cables
Weight	
Aluminium enclosure	1.3kg
GRP enclosure	1kg
Accessories	
Engraved scale plate	Removable blank stainless steel plate fitted to each indicator. can be supplied engraved with units of measurement. See accessory datasheet for details of legend sizes
Engraved tag plate	Removable blank stainless steel plate fitted to each indicator. can be supplied engraved with tagging information. See accessory datasheet for details of legend sizes
Pipe mounting kits	Mounts indicator onto any vertical or horizontal pipe, see accessory datasheet for dimensions: BA391 zinc plated using worm drive hose clips BA392 stainless steel using worm drive hose clips BA393 heavy duty stainless steel using 'V' bolt
Panel mounting kit	BA394 mounts indicator into a panel aperture

DIMENSIONS (mm)



Terminal Connections



Terminals 2 & 4 internally linked for joining return 4/20mA wire
Terminals 5 & 6 internally linked for joining cable screens
Right hand terminal unused in GRP version; connected to case in aluminium version

HOW TO ORDER: please specify

Model number	BA304B
Enclosure type	Aluminium or GRP
Display reading at 4mA at 20mA	XXXX include position of decimal point XXXX if required, and sign if negative*
Accessory items:	
Engraved scale plate	Specify legend required (Note: blank scale plate supplied if engraving is not requested)
Engraved tag plate	Specify legend required (Note: blank tag plate supplied if engraving is not requested)
Pipe mounting kit	Specify type and pipe diameter BA391, BA392 or BA393
Panel mounting kit	Specify BA394
Example:	
Model number	BA304B
Enclosure type	GRP
Display at 4mA	-100
Display at 20mA	900
Scale plate	kg
Tag plate	WI-089
Pipe mounting kit	BA391 for 50mm dia pipe

*Will be set to display 00.0 at 4mA and 100.0 at 20mA if calibration information is not supplied