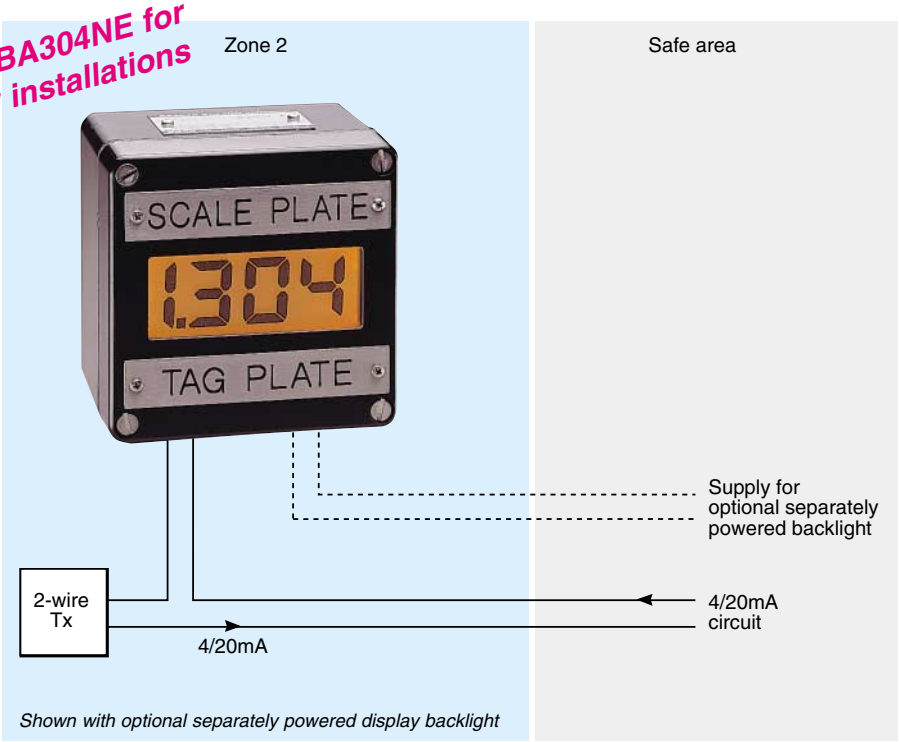
Use BA304NE for new installations



Shown with optional separately powered display backlight

BA304NC

2-wire 4/20mA 3½ digit indicator

Type nL certified for use in Zone 2 hazardous areas

- **Loop powered only 1V drop**
- **Type nL ATEX certification**
- **±1999 display 25.4mm high**
- **Optional: Backlight Root extractor**
- **IP66 GRP or aluminium enclosure**
- **3 year guarantee**

The BA304NC is a Type nL certified field mounting indicator which displays the current flowing in a 4/20mA process loop in engineering units. This indicator has a 25mm high 3½ digit liquid crystal display and is available in an IP66 aluminium or GRP enclosure.

For most new installations the BA304ND indicator, which has a separate terminal compartment and an extended range of accessories, should be used. The BA304NC has been retained for customers requiring an aluminium enclosure, or compatibility with earlier 'C' instruments.

Main application of the BA304NC is to display a measured variable or control signal in a Zone 2 hazardous process area. The zero and span of the display are independently adjustable so that the indicator can be calibrated to display any variable represented by a 4/20mA current, such as temperature, pressure, level or actuator position. When used with a differential flow transmitter an optional square root extractor allows the BA304NC to display flow in linear engineering units.

Separately powered backlighting is available as an option. The orange output enhances daylight contrast and enables the display to be read when the instrument is installed in a poorly illuminated area.

A Declaration of Conformity has been issued to confirm that the BA304NC complies with the requirements for Group II Category 3G equipment defined in the European ATEX Directive.94/9/EC. This allows the indicator to be installed in a Zone 2 hazardous areas without Zener barriers or galvanic isolators. For Zone 2 applications, Type 'n' protection offers a less expensive alternative than intrinsic safety or flameproof techniques.

Two types of enclosure are available, each has stainless steel fittings and a polycarbonate window and is sealed with a neoprene gasket. The sturdy glass reinforced polyester (GRP) enclosure is suitable for most industrial applications including off-shore and water treatment. For installation where solvents may be encountered, the epoxy painted aluminium enclosure provides maximum protection. Both the GRP and aluminium enclosures, which have been tested by ERA, provide IP66 protection as specified in BS5490. To simplify installation, the BA304NC is fitted with additional terminals which may be used to link the return 4/20mA conductor and the cable screen. The indicator assembly 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 an ISO9001 approved quality control system supported by a three year guarantee. The indicator is protected from reverse connection and overrange input current, and incorporates extensive radio frequency filtering to comply with the European EMC Directive.

BEKA associates

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SPECIFICATION

Input

Current	4 to 20mA
Voltage	Less than 1V at 20˚C Less than 1.1V at -20˚C
Overrange	±200mA will not cause damage

Display

Type	3½ digit (-1999 to 1999) Liquid crystal 25mm high
Span	Adjustable between 000 & 1999 for a 4 to 20mA input.
Zero	Adjustable between ±1000 with 4mA input.
Decimal point	1 of 3 positions or absent
Polarity	Automatic minus sign
Direction	Display may increase or decrease with increasing current. Factory set option.
Reading rate	2.5 per second
Overrange	3 least significant digits are blanked

Accuracy

At 20˚C	±1 digit
Temperature effect on:	
Zero	Typ ±0.05 digit ±100ppm/˚C Max ±0.1 digit ±200ppm/˚C
Span	Typ ±50ppm; max ±100ppm/˚C
Series mode rejection	Typ 1 digit error for 1mA pk to pk 50Hz signal.

Type n certification

ATEX Declaration of Conformity

Code	Group II, Category 3G, Ex nL IIC T5
Tamb	-40 to +60˚C
Standard	EN 60079-15:2005
Location	Zone 2
Cert. No.	BEKA03ATEX0015
Installation	The BA304NC may be connected in series with most 4/20mA Zone 2 circuits providing maximum current in normal operation is less than 40mA. See Declaration of Conformity and instruction manual for full installation details.

Environmental

Operating temperature	-20 to +60˚C (Certified for use at -40˚C)
Storage temperature	-40 to +85˚C
Humidity	To 95% at 40˚C
Enclosure	IP66 see ERA test report 5046/228
EMC	In accordance with EU Directive 2004/108/EC, full report available.
Immunity	Less than 2% of span error for 10V/m field strength between 27MHz & 1 GHz.
Emissions	Undetectable above background noise. Class B equipment

Mechanical

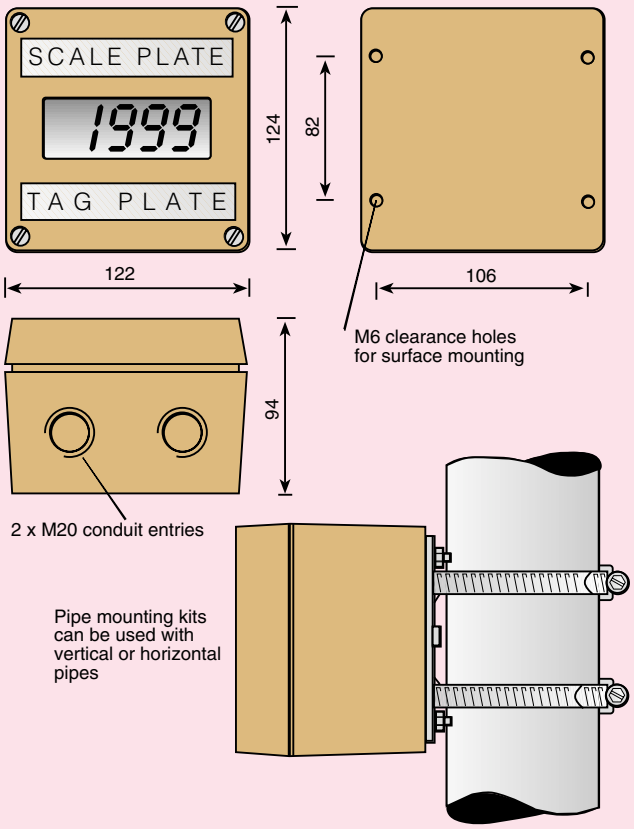
Terminals	Screw clamp for 0.5 to 2.5mm² cables
Weight	GRP enclosure 1kg Aluminium enclosure 1.3kg

Accessories

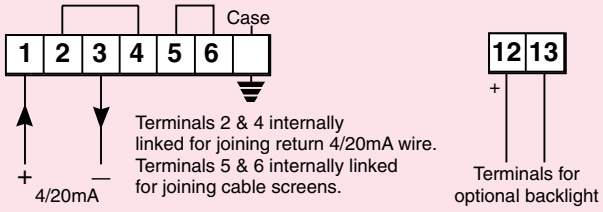
Separately powered backlight	LED backlight powered from 18 to 30V dc supply
Root extractor	
Accuracy	±16µA at input ±1 digit for inputs between 4.16 and 20mA (10 to 100% of flow)
Clip-off	Selectable by internal plug-in link, operates at 4.04mA input (5% of flow).
Etched scale plate	Removable blank stainless steel plate fitted to each indicator, can be supplied etched with units of measurement.*
Etched tag plate	Removable blank stainless steel plate fitted to each indicator, can be supplied etched with tagging information. *
Pipe mounting kit	2 kits are available BA392C and BA393*
Panel mounting kit	BA394 mounts BA304NC into a panel aperture*

**See accessory datasheet for details.*

DIMENSIONS (mm)



TERMINAL CONNECTIONS



HOW TO ORDER

	Please specify
Model number	BA304NC
Display at 4mA	XXXX ⎫ Include position of decimal point
at 20mA	XXXX ⎭ & sign if display is negative#

Accessories	**Please specify if required**
Display backlight	Separately powered backlight
Root extractor	Root extractor
Scale plate	Legend
Tag plate	Legend
Pipe mounting kit	BA392C or BA393
Panel mounting kit	BA394

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