

The **BA324ND** is a Type nL certified field mounting indicator housed in a robust IP66 GRP enclosure incorporating a separate terminal compartment and dedicated access to the instrument controls. Retaining all the features of earlier models, this third generation indicator provides improved display visibility, plus simplified installation and calibration.

**BA324ND displays** the current flowing in a 4/20mA loop in accurate engineering units. The instrument is loop powered but only introduces a 1V drop allowing it to be installed in series with almost any 4/20mA loop.

**Main application** of the BA324ND 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 may be calibrated to display any variable represented by a 4/20mA current, such as temperature, pressure, or level. When used with a differential flow transmitter a square root function enables the BA324ND to display flow in linear engineering units.

**The enclosure**, which is moulded in glass reinforced polyester (GRP), has stainless steel fittings, silicone gaskets and an armoured glass window. Its robust construction provides IP66 protection which has been independently assessed by ITS - report available. 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 the clamping screws are both forward facing. Additional terminals are provided which may be used to link the return 4/20mA conductor and the cable screen.

**Calibration** and programming of the instrument is performed via four push-buttons protected from damage and tampering behind a sealed cover. For applications requiring frequent adjustment, the indicator can be supplied with a robust external membrane key-pad. All the calibration functions are contained in easy to understand menus which may be protected by a user definable security code.

An internal calibrator simulates 4 and 20mA input currents so that the instrument may be calibrated without the need for test equipment

or disconnection from the 4/20mA loop. Although not providing independent verification, this is an effective way to quickly check performance or to recalibrate.

**A Declaration of Conformity** confirms that the BA324ND complies with the requirements for Group II Category 3G equipment defined in the ATEX Directive 94/9/EC. This allows the indicator to be installed in Zone 2 hazardous areas without Zener barriers or galvanic isolators. For Zone 2 applications the BA324ND offers a less expensive alternative to intrinsic safety or flameproof instrumentation.

**Two alternative backlight options** are available. The loop powered backlight produces green background illumination enabling the display to be read at night and in poor lighting conditions. It does not require an additional power supply or field wiring, but the indicator voltage drop is increased. The separately powered backlight provides a bright orange output to enhance daylight viewing, but it requires an additional power supply and field wiring.

**Optional alarms** provide two galvanically isolated solid state outputs which may be independently programmed for high or low operation with normally open or closed outputs.

**Units of measurement** and the instrument application or tag number can be economically marked onto the display escutcheon prior to despatch or after installation on-site. Alternatively, for customers who prefer an etched stainless steel label, the indicator can be supplied with a custom etched stainless steel legend plate mounted on the front of the instrument.

**Reliability is ensured** by an ISO9001 approved quality control system supported by a three year guarantee. The BA324ND is protected from reverse connection and over-range input currents and incorporates extensive radio frequency filtering to comply with the European EMC Directive. 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.

# BA324ND

**2-wire 4/20mA  
4½ digit indicator**

*Type nL certified for use in  
Zone 2 hazardous areas*

- ◆ **Loop powered only 1V drop**
- ◆ **Type nL ATEX certification**
- ◆ **±19999 display 20mm high**
- ◆ **IP66 GRP enclosure with separate terminal compartment**
- ◆ **Optional:**
  - Loop powered backlight**
  - Separately powered backlight**
  - Alarms**
  - Lineariser**
  - Tare function**
  - External push-buttons**
- ◆ **3 year guarantee**



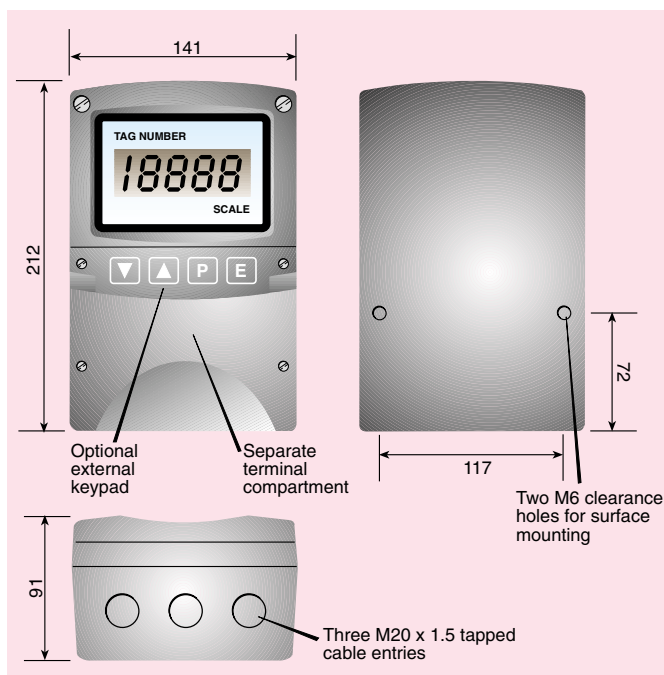
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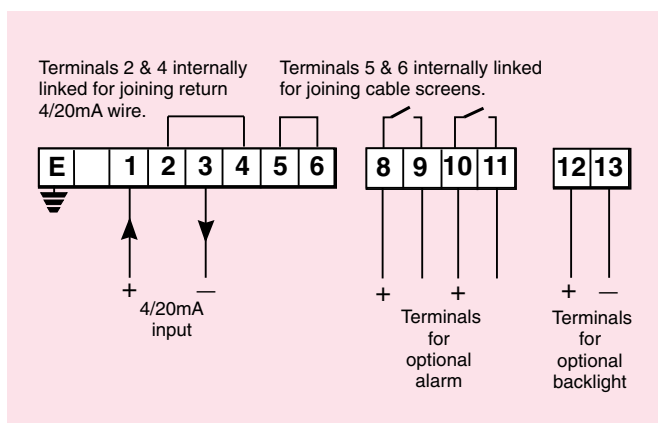
## SPECIFICATION

<b>Input</b>	
Current	4 to 20mA
Voltage	Less than 1V at 20°C Less than 1.1V at -20°C
Overrange	±200mA will not cause damage
<b>Display</b>	
Type	Liquid crystal 20mm high 4½ digit (-19999 to 19999)
Zero	Adjustable between ±19999 with 4mA input.
Span	Adjustable between ±19999 for a 4 to 20mA input.
Decimal point	1 of 4 positions or absent
Polarity	Automatic minus sign
Direction	Display may increase or decrease with increasing current. Factory set option.
Reading rate	2 per second
Over & underrange	4 least significant digits are blanked
<b>Push-buttons</b> (In operating mode)	
▼ Down button	Shows display with 4mA input
▲ Up button	Shows display with 20mA input
'P' button	Displays input current in mA, or as a percentage of span. Has modified function when optional alarms or Tare function are fitted.
<b>Accuracy</b>	
At 20°C	Linear: ±0.02% of span ±1 digit Root extracting: ±16µA at input ±1 digit
Temp. effect	
Zero	Less than 25ppm/°C
Span	Less than 50ppm/°C
Series mode	Less than 0.05% of span error for 1mA pk to pk 50Hz or 60Hz signal.
<b>Type nL certification</b>	
<b>ATEX Declaration of Conformity</b>	
Code	Group II, Category 3G, Ex nL IIC T5
Tamb	-20 to +60°C
Location	Zone 2
Cert. No.	BEKA00ATEX0010
Installation	The BA324ND may be connected in series with any 4/20mA circuit providing maximum current in normal operation is less than 30mA.
<b>Environmental</b>	
Operating temp	-20 to +60°C
Storage temp	-40 to +85°C
Humidity	To 95% at 40°C
Enclosure	IP66 ITS test report C971V0383A available
EMC	In accordance with EU Directive 2004/108/EC, full report available.
Immunity	Less than 1% of span error for 10V/m field strength between 27MHz and 1GHz.
Emissions	Undetectable above background noise Class B equipment
<b>Mechanical</b>	
Terminals	Screw clamps for 0.5 to 1.5mm <sup>2</sup> cables
Weight	1.6kg
<b>Accessories</b>	
Loop powered backlight	Green; powered from 4/20mA current. Voltage drop of indicator plus backlight less than 5V.
Separately powered backlight	Orange; powered from 18 to 30V dc supply.
Alarms	Two independent alarms each of which may be programmed for high or low operation with NC or NO output.
Outputs	Isolated single pole solid state switch On less than 5Ω + 0.6V Off greater than 180kΩ
Lineariser	Provides 16 fully adjustable straight lines which may be positioned to compensate for almost any non-linear variable.
Tare function	Primarily intended for weighing applications. Sets indicator display to zero when 'P' push-button is operated.
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 applicational information marked onto display escutcheon.*
Stainless legend plate	Stainless steel plate secured to terminal cover, etched with tagging or applicational information.*
Pipe mounting kit	2 kits are available BA392D and BA393*

\*See accessory datasheet for details

## HOW TO ORDER

<b>Model number</b>	<b>BA324ND</b>
Display at 4mA	XXXX ] Include position of decimal
Display at 20mA	XXXX ] point & sign if negative #
<b>Accessories</b>	<b>Please specify if required</b>
Display backlight	Loop powered backlight or Separately powered backlight
Alarms	Alarms
Tare function	Tare
Lineariser	Lineariser
External keypad	External keypad
<b>Escutcheon marking</b>	
Scale	Scale legend
Tag	Tag legend
Stainless legend plate	Legend
Pipe mounting kit	BA392D or BA393

# Will be set to display 0.00 at 4mA and 100.00 with linear display and resolution of 1 digit if calibration information is not supplied