

The BA334ND is an externally powered, Type nL certified rate totaliser with separate rate and total displays which will operate from a switch contact, voltage pulse, magnetic pick-off, open collector or a proximity detector input. A novel adaptive measuring technique plus an adjustable digital filter ensure that optimum rate display stability and step response can be achieved over a wide input frequency range.

Main application of the BA334ND is to process the pulse output from a flowmeter in a Zone 2 hazardous area and to display the rate of flow and the total flow in the same or different engineering units. The instrument may be used with any flowmeter having a pulse output proportional to flow rate, such as a turbine flow meter. When fitted with optional alarms, the instrument can perform simple flow batching applications. Optional pulse and 4/20mA outputs enable the rate totaliser to operate remote counters and analogue instruments.

Control and programming of the BA334ND is performed via four pushbuttons which are protected from damage and tampering behind a sealed cover. For applications requiring frequent adjustment, the instrument can be supplied with a robust external membrane keypad. All the programme functions are contained in easy to understand menus which may be protected by a user definable security code. To simplify calibration the rate and total scaling factors employ floating decimal points.

A Declaration of Conformity confirms that the BA334ND complies with the requirements for Group II, Category 3G equipment defined in the ATEX

Explosive Atmospheres Directive 94/9/EC. This allows the instrument to be installed in Zone 2 without the need for Zener barriers or galvanic isolators, thus providing a cost effective alternative to intrinsically safe or flameproof instruments.

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. A separate terminal compartment allows the BA334ND 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.

Backlighting is available as an option to improve display readability when the BA334ND is installed in a poorly illuminated area. High efficiency amber LEDs provide an even glow to enhance display contrast. The backlight is a separate Type nL circuit and may be powered from the safe area without a Zener barrier or galvanic isolator.

Optional alarms provide two galvanically isolated solid state outputs which may be independently programmed for high or low operation on either the rate or total displays. Almost any low voltage certified Type nL load, such as a solenoid valve or sounder, may be controlled.

The optional 4/20mA output is isolated and may be programmed to produce an analogue output proportional to any part of the rate display, thus making the BA334ND an effective hazardous area pulse to 4/20mA converter.

BA334ND

Externally powered pulse input rate totaliser

Type nL certified for use with pulse output flowmeters in Zone 2

- Magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse input
- Separate rate and total displays
- Group II, Category 3G ATEX certification
- IP66 enclosure for surface or pipe mounting
- Optional:

Display backlight Alarms Pulse and 4/20mA outputs External keypad

♦ 3 year guarantee



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SPECIFICATION

Power supply Current

Voltage 10 to 30V dc

12mA max., plus proximity detector current

when used.

Input

Switch contact

Closed Less than 100Ω Greater than 1kΩ Open Proximity detector 2-wire NAMUR 40mV peak to peak typical

Magnetic pick-off Voltage pulse

Less than 1V Low

High Greater than 3V: 30V max

Open collector

Less than 2kQ Closed Greater than $10k\Omega$ Open

Frequency

Switch contact 0.01Hz to 100Hz Other inputs 0.01Hz to 5kHz max

Display

Liquid crystal Type 6 digits 9.5mm high Rate-1 of 5 positions or absent Decimal point Total~ 8 digits 14mm high Decimal point 1 of 7 positions or absent Grand total Max count 1016

~Rate or total can be shown on either display

Remote reset Contact closure with resistance less than $1k\Omega$.

Programmable functions

Total dividing scale factor Adjustable between 0.001 & 99999999 Rate dividing scale factor Adjustable between 0.001 & 99999999 Rate timebase Rate may be displayed per second, minute

or hour.

Rate display filter Adjustable digital filter

Type nL certification

ATEX Declaration of Conformity

Code Group II, Category 3G, Ex nL IIC T5

-20 to +60°C Tamb Location Zone 2

Cert. No. BEKA01ATEX0012

Environmental

Operating temperature -20 to 60°C Storage temp -40° to 85°C

Enclosure IP66 see ITS test report C87IV0383A **EMC** In accordance with EU Directive 2004/108/EC. Immunity Less than 1% of rate span error at 10V/m Emissions Undetectable above background noise.

Class B equipment

Mechanical

Terminals Screw clamp for 0.5 to 2.5mm2 cables.

Weight 1.6kg

Accessories

lin

Display backlight LED backlight

Vin 18 to 30V dc May be dimmed by reducing

voltage below 18V. 40mA typical

Alarms Two independent alarms each of which may

be programmed for high or low operation with

NC or NO output.

Outputs Isolated solid state switch Less than $5\Omega + 0.6V$ On Greater than 180kΩ Off

Re-transmitted pulse Isolated pulse sink Width Adjustable 0.5 to 50ms Less than $60\Omega +3V$ On Off Greater than $1M\Omega$ 30V dc: 10mA Rating

4/20mA output Isolated current sink

Voltage drop 5V max

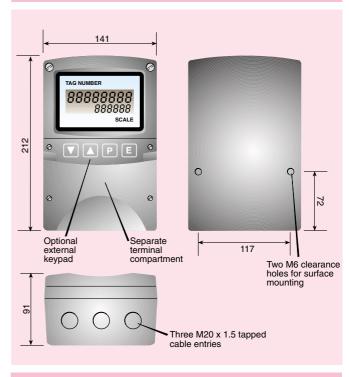
External keypad Membrane keypad enables instrument to be

adjusted without removing the control cover.

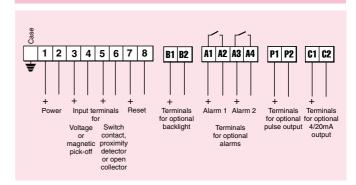
Scale legend Units of measurement marked onto display

escutcheon.

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Tag number or applicational information Tag legend

marked onto display escutcheon.

Stainless legend plate Stainless steel plate secured to side of the

instrument, engraved with tagging or applicational information.

2 kits are available BA392D and BA393. * Pipe mounting kit

TO ORDER

please specify BA334ND Model number Input Type Rate scaling factor XXXXXXX # Total scaling factor XXXXXXX #

Rate timebase Seconds, minutes or hours #

Accessories Display backlight

Alarms

Re-transmitted pulse output 4/20mA output External keypad Escutcheon marking

Scale Tag Stainless legend plate Pipe mounting kit

please specify Backlight Alarms Pulse output 4/20mA output External keypad

Scale legend required Tag legend required Legend required BA392D or BA393

If calibration information is not supplied, instrument will be set for open collector input with rate timebase of seconds, rate scaling factor of 1 and total scaling factor of 1.

^{*} See accessory datasheet for details