

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 push-buttons 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



BEKA associates

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SPECIFICATION

Power supply

Voltage	10 to 30V dc
Current	12mA max., plus proximity detector current when used.

Input

Switch contact	
Closed	Less than 100Ω
Open	Greater than 1kΩ
Proximity detector	2-wire NAMUR
Magnetic pick-off	40mV peak to peak typical
Voltage pulse	
Low	Less than 1V
High	Greater than 3V; 30V max
Open collector	
Closed	Less than 2kΩ
Open	Greater than 10kΩ
Frequency	
Switch contact	0.01Hz to 100Hz
Other inputs	0.01Hz to 5kHz max

Display

Type	Liquid crystal
Rate~	6 digits 9.5mm high
Decimal point	1 of 5 positions or absent
Total~	8 digits 14mm high
Decimal point	1 of 7 positions or absent
Grand total	Max count 10 ¹⁶

~Rate or total can be shown on either display

Remote reset

Contact closure with resistance less than 1kΩ.

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
Tamb	-20 to +60°C
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

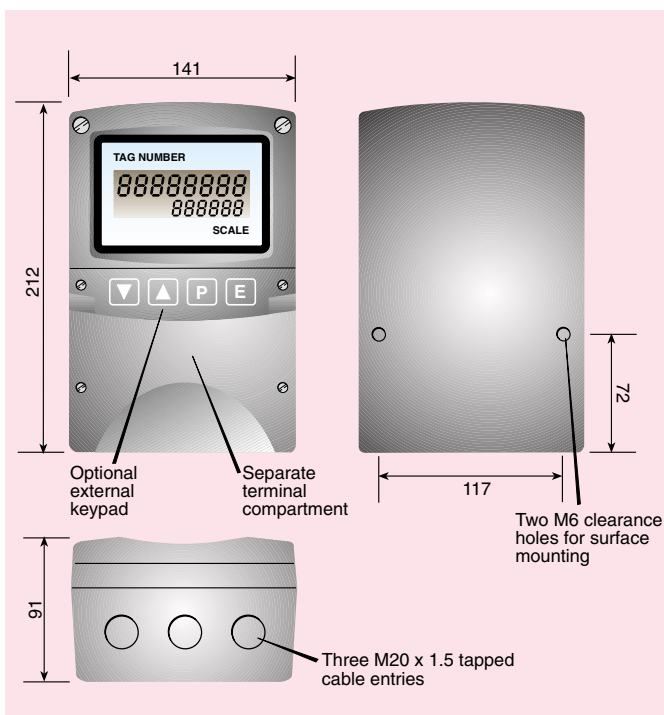
Mechanical

Terminals	Screw clamp for 0.5 to 2.5mm ² cables.
Weight	1.6kg

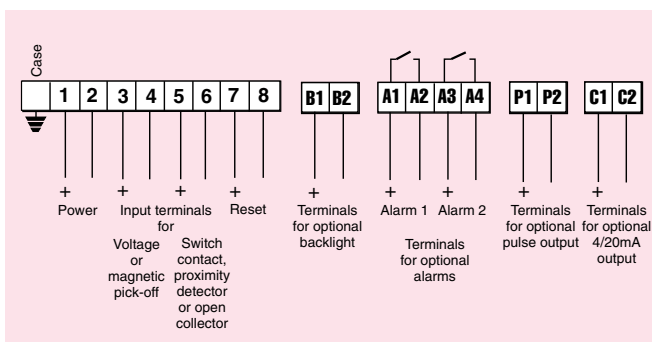
Accessories

Display backlight	LED backlight
Vin	18 to 30V dc May be dimmed by reducing voltage below 18V.
Iin	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
On	Less than 5Ω +0.6V
Off	Greater than 180kΩ
Re-transmitted pulse	Isolated pulse sink
Width	Adjustable 0.5 to 50ms
On	Less than 60Ω +3V
Off	Greater than 1MΩ
Rating	30V dc: 10mA
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 legend

Tag number or applicational information marked onto display escutcheon. *

Stainless legend plate

Stainless steel plate secured to side of the instrument, engraved with tagging or applicational information. *

Pipe mounting kit

2 kits are available BA392D and BA393. *

* See accessory datasheet for details

HOW TO ORDER

Model number	BA334ND
Input	Type
Rate scaling factor	XXXXXXXX #
Total scaling factor	XXXXXXXX #
Rate timebase	Seconds, minutes or hours #

Accessories

Display backlight	Backlight
Alarms	Alarms
Re-transmitted pulse output	Pulse output
4/20mA output	4/20mA output
External keypad	External keypad
Escutcheon marking	
Scale	Scale legend required
Tag	Tag legend required
Stainless legend plate	Legend required
Pipe mounting kit	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.

