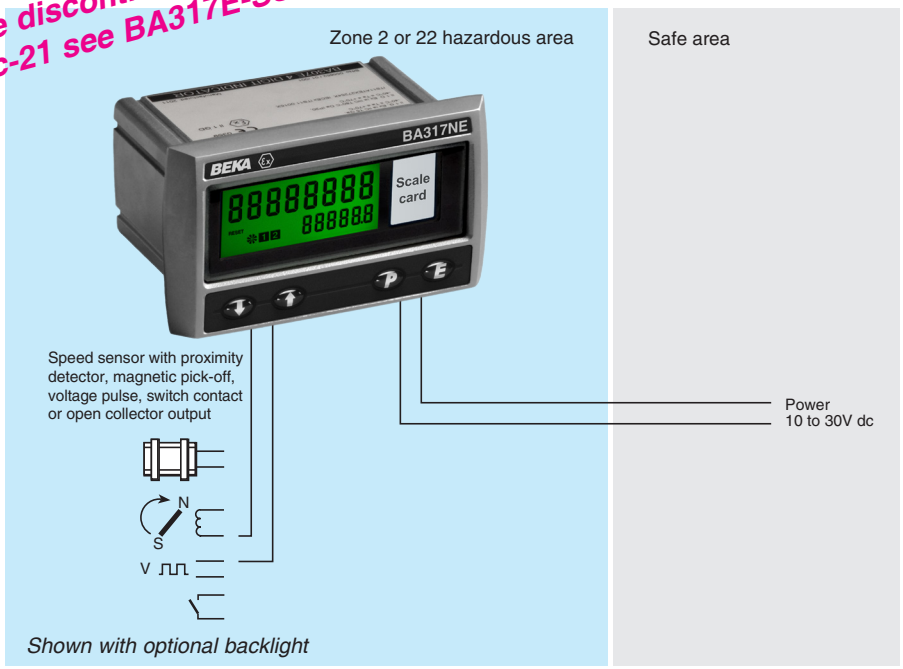
To be discontinued by 31-Dec-21 see BA317E-SS



Shown with optional backlight

BA317NE

Rugged Ex nA & Ex tc one input tachometer

Can be installed in Zones 2 or 22 without Zener barriers or galvanic isolators.

- **Configurable input: magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.**
- **Separate speed and run-time displays.**
- **Ex nA & Ex tc certified**
- **105 x 60mm rugged 316 stainless steel enclosure with IP66 front protection.**
- **Optional: Backlight dual alarms or 4/20mA output or pulse output**
- **3 year guarantee**

www.beka.co.uk/ba317ne

The BA317NE has a rugged stainless steel enclosure with Ex nA and Ex tc certification allowing it to be safely installed in an Ex n or Ex tc panel enclosure located in Zones 2 or 22, without the need for Zener barriers or galvanic isolators. The tachometer is easy to use and can be configured on-site to operate with a wide variety of speed sensors. A slide-in scale card simplifies identification.

Main application of the BA317NE is to measure and display rotational speed within a Zone 2 or 22 hazardous area. To assist with routine maintenance the BA317NE tachometer also includes a run-time clock that records the number of hours that the monitored machinery has been operating.

The display has high contrast and a wide viewing angle, allowing the tachometer to be read in most lighting conditions over a wide temperature range. Speed may be displayed in almost any units of measurement per second, minute or hour. Run-time is shown on the lower display in hours with a tenth of an hour resolution. If not required, the run-time display may be disabled.

IP66 front panel protection with a silicone gasket to seal the joint between the tachometer and the instrument panel allows the BA317NE to be installed in areas that will be washed down.

International Ex nA certification permits the BA317NE tachometer to be installed worldwide. When mounted in a panel enclosure complying with Ex n (non sparking) impact and ingress requirements, the enclosure and tachometer may be installed in a Zone 2 hazardous area without barriers or isolators. Certified Ex n or Ex e enclosures are often used. Similarly the BA317NE can be mounted in an Ex tc enclosure located in Zone 22. BEKA Application Guide AG310 provides Ex nA installation recommendations.

Display backlighting which is internally powered from the tachometer is available as a factory fitted option. It provides green background illumination enhancing daylight viewing and allowing the display to be easily read at night or when installed in a poorly illuminated area.

One of the following three optional outputs may be factory fitted to the BA317NE tachometer. All are isolated and have defined output parameters.

Optional isolated pulse output synchronously retransmits the tachometer input pulse to other instruments. The output pulse frequency may be divided and the pulse width may be defined.

Optional isolated 4/20mA output may be configured to produce an analogue output proportional to any part of the speed display.

Optional dual alarms which can switch suitably protected hazardous area loads such as an Ex e sounder or solenoid valve, or safe area loads. The two galvanically isolated, solid state voltage free outputs may be independently conditioned as speed or run-time alarms with normally open or closed outputs. Annunciators on the BA317NE display show the status of both alarm outputs.

Intrinsically safety models and instruments with larger displays are available within the range. The BA317E-SS has the same features as the BA317NE including a rugged stainless steel enclosure, but is certified intrinsically safe Ex ia.

The intrinsically safe BA317E offers similar features in a Noryl enclosure and the BA318E has similar features in a 144 x 72mm Noryl enclosure with a larger display.

BEKA associates

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Power supply

Voltage	10 to 30V dc
Current	16mA max plus 22.5mA for optional backlight

Input

	Lower	Upper switching thresholds
Switch contact	100Ω	1kΩ
Proximity detector (NAMUR)	1.2mA	2.1mA
Open collector	2kΩ	10kΩ
Magnetic pick-off	0	+40mV
Voltage pulse (low)	1V	3V 30V max
Voltage pulse (high)	3V	10V 30V max

Frequency

Switch contact	150Hz typical] *Depends upon pulse width*
Other inputs	100kHz max] *and debounce setting.*
All inputs	0.01Hz min

Display

Type	Liquid crystal
Zero blanking	Blanked apart from 0 in front of decimal point
Speed	8 digits 9mm high
Decimal point	1 of 7 positions or absent
Run-time	6 digits 6mm high 99999.9 hours max
Grand total run-time	5 x 10^6 hours max

Remote reset Contact closure with resistance less than 10kΩ

Configurable functions

Speed scale factor	Adjustable between 0.0001 and 99999 input pulses / revolution.
Speed timebase	Speed may be displayed per second, minute or hour.

Certification **Note:** Ex ic in codes refers to instrument push button contacts which are nonincendive

Europe ATEX	
Code	Group II Category 3G Ex nA ic IIC T5 Gc Group II Category 3D Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ +60°C
Cert. No.	ITS16ATEX48409X
International IECEx	
Code	Ex nA ic IIC T5 Gc Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ +60°C
Cert. No.	IECEx ITS 16.0005X
ETL & cETL	
Code	Class I Zone 2 AEx nA ic IIC T5 Gc (USA) Zone 22 AEx ic tc IIIC T80°C Dc (USA) Ex nA ic IIC T5 Gc (Canada) Ex n IIC T5 Gc (Canada) Ex ic tc IIIC T80°C Dc (Canada) -40°C ≤ Ta ≤ 60°C
ETL Control No.	4008610

Environmental

Operating temp	-40 to +60°C display -20 to +60°C
Storage temp	-40 to +85°C
Humidity	to 95% at 40°C non condensing
Vibration	Report available
Enclosure	
Ingress	Front IP66, rear IP20
Material	BS 3146-2:1977 ANC4B (316)
EMC	Complies with 2014/30/EU

Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm² cable, removable terminal blocks.
Weight	0.85kg

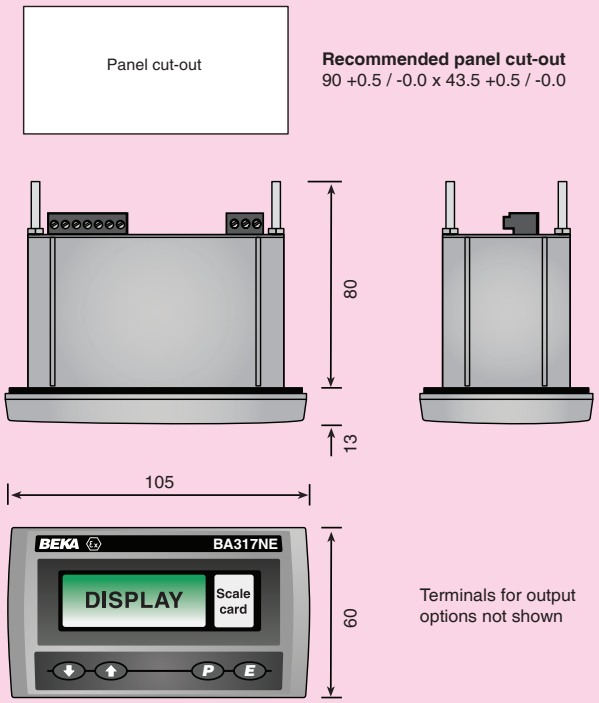
Accessories

Backlight	Green LED internally powered
Scale card	Blank card fitted to all instruments. Can be supplied typeset with specified units of measurement for no additional charge at time of tachometer purchase. ~
Tag legend	Specified tag number or application laser etched onto rear of instrument. ~

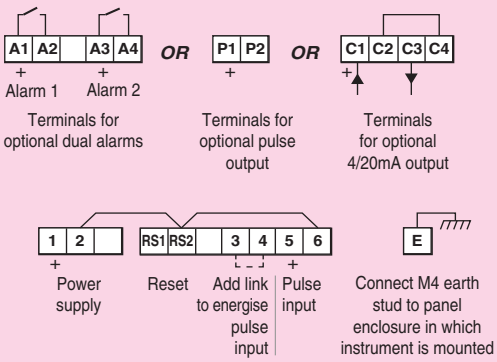
One of the following three output accessories may be factory fitted to each tachometer.

Pulse output	Isolated open collector
Frequency	5kHz max, synchronous with input pulse or divisible
Divisible by	1, 10, 100, 1000 or 10000
Pulse width	0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms
Ron	51Ω + 3V max
Roff	1MΩ min
I max	10mA
4/20mA output	Isolated current sink
Voltage drop	5 to 30V

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Alarms	Two alarms each of which may be independently configured as a speed or run-time, high or low alarm with a NO or NC output.
Outputs	Isolated single pole, voltage free solid state switch.
Ron	5Ω + 0.7V max
Roff	IMΩ min

~ See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	BA317NE
Input	Type *
Speed scale factor	XXXXX *
Speed timebase	Seconds, minutes or hours*
Accessories	**Please specify if required**
Display backlight	Backlight
Scale card	Legend required *No charge if ordered with tachometer.*
Tag	Legend required

One of following three output options:

	Pulse output	Direct retransmission or scaled*
or	4/20mA output	4/20mA output
or	Dual alarms	Alarms

* *Tachometer can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for open collector input with speed scaling factor of 1.0 and a timebase of minutes. Can easily be reconfigured on-site.*