

The **BA367E** is a one input intrinsically safe counter with one input that has similar functions as the two input BA368E, but is housed in a smaller 96 x 48mm DIN enclosure. The counter is easy to use and can be configured on-site to operate with magnetic pick-off, switch contact, proximity detector, open collector or a voltage pulse sensor. A slide-in scale card simplifies identification and international intrinsic safety certification permits worldwide installation.

Main application of the BA367E is to count the number of pulses received from a hazardous area sensor such as a 2-wire proximity detector and simultaneously display the rate and total number in engineering units within the hazardous area.

The display has high contrast and a wide viewing angle enabling the counter to be read in most lighting conditions over a wide temperature range. The total number of pulses may be scaled and displayed in almost any units to represent the engineering variable being counted. The total display may be reset using the front panel push buttons or an external contact closure. The pulse rate may be shown in the same or different units per second, minute or hour.

IP66 front panel protection with a neoprene gasket to seal the joint between the counter and the instrument panel, allows the BA367E to be installed in areas that will be washed down. To simplify installation and maintenance, the counter has removable terminal blocks allowing panel wiring to be completed before the instrument is installed.

International intrinsic safety certification allows the BA367E counter to be installed worldwide. When configured to operate with a sensor having a voltage or magnetic pick-off output, the input terminals comply with the requirements for *simple apparatus* reducing system design and documentation.

Display backlighting which is internally powered from the counter 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 BA367E counter. All are isolated and have been certified as separate intrinsically safe circuits complying with the requirements for *simple apparatus*.

Optional isolated pulse output will synchronously retransmit the counter input pulse, or a pulse when the least significant digit of the total display is incremented.

Optional isolated 4/20mA output may be configured to produce an analogue output proportional to any part of the total or rate display,

Optional dual alarms can switch hazardous area loads such as a sounder or solenoid valve, or safe area loads via a Zener barrier or isolator. The two galvanically isolated, solid state voltage free outputs may be independently conditioned as rate or total alarms with normally open or closed outputs. Annunciators on the BA367E display show the status of both alarm outputs.

Rugged versions and a two input counter are available in other models within the range. The BA367E-SS is identical to the BA367E except that it is housed in a rugged stainless steel enclosure with a 10mm thick window that may be installed in an Ex e, Ex n, Ex p or Ex t panel enclosure without invalidating the enclosure's certification. The BA367NE has Ex nA certification allowing installation in Zone 2 or 22 without Zener barriers or galvanic isolators.

The BA368E is a two input counter with a larger display in a 144 x 72mm DIN enclosure.

BA367E

One input counter

Intrinsically safe for use in all gas hazardous areas

- ◆ **Configurable input:** magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ **Separate rate and total displays.**
- ◆ **Intrinsically safe**
- ◆ **96 x 48mm DIN enclosure with IP66 front protection.**
- ◆ **Optional:** Backlight dual alarms or 4/20mA output or pulse output
- ◆ **3 year guarantee**



BEKA associates

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SPECIFICATION

Power supply

Voltage	10 to 28V from a Zener barrier or galvanic isolator	
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	28V max
Voltage pulse (high)	3V	10V	28V max

Frequency

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

Display

Type	Liquid crystal
Zero blanking	Blanked apart from 0 in front of decimal point
Total ‡	8 digits 9mm high
Decimal point	1 of 7 positions or absent
Rate ‡	6 digits 6mm high
Decimal point	1 of 4 positions or absent

‡ Rate & Total can be shown on either 6 or 8 digit display

Grand total Maximum count 10¹⁶

Remote reset

Contact closure with resistance less than 10kΩ

Configurable functions

Total scale factor	Adjustable between 0.0001 and 99999
Rate scale factor	Adjustable between 0.0001 and 99999
Rate timebase	Rate may be displayed per second, minute or hour
Rate display filter	Adjustable digital filter

Intrinsic safety

Europe ATEX Code	Group II Category 1G Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C
Cert. No.	ITS16ATEX28408X
International IECEx Code	Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C
Cert. No.	IECEx ITS 16.0004X
ETL & cETL Code	Class I Div 1 Gp A, B, C, D T5 (USA & Canada) Class II Div 1 Gp E, F, G. Class III Div 1 (USA & Canada) Class I Zone 0 AEx ia IIC T5 Ga (USA) Ex ia IIC T5 Ga (Canada) -40°C ≤ Ta ≤ 70°C

Nonincendive USA & Canada ETL & cETL

Code	Class I Div 2 Gp A, B, C, D T5 Class II Div 2 Gp F, G. Class III Div 2 -40°C ≤ Ta ≤ 70°C
ETL Control No.	4008610

Environmental

Operating temp	-40 to +70°C display -20 to +70°C
Storage temp	-40 to +85°C
Humidity	to 95% at 40°C non condensing
Vibration	Report available
Enclosure	Noryl SE1GFN3. Front IP66, rear IP20
EMC	Complies with EMC Directive 2014/30/EU

Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm ² cable, removable terminal blocks.
Weight	0.15kg

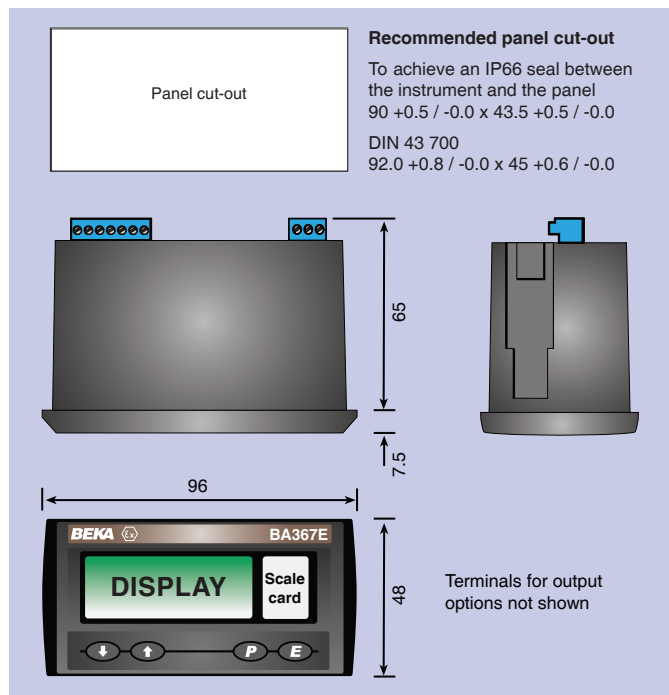
Accessories

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 purchase. #
Tag legend	Specified tag number or application printed onto rear of instrument. #
BA495 rear cover and sealing kit	Provides impact and IP66 protection for rear of instrument. #

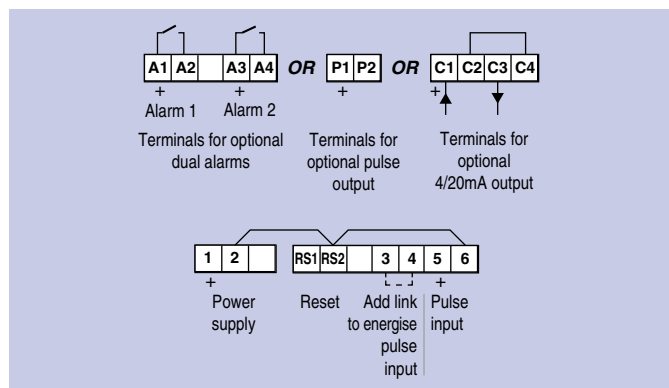
One of the following three output accessories may be factory fitted to each counter. All have isolated outputs which have been certified as separate intrinsically safe circuits and comply with the requirements for *simple apparatus*.

Pulse output Source & output	Isolated open collector Counter input: synchronous pulse output, 5kHz max or Least significant digit of total display divisible by: 1, 10, 100, 1000 or 10000. Pulse width definable as: 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

DIMENSIONS (mm)



TERMINAL CONNECTIONS



4/20mA output
Source
Voltage

Isolated current sink.
Rate or total
5 to 28V

Dual alarms

Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output.

Outputs
Ron
Roff

Isolated single pole, voltage free solid state switch
5Ω + 0.7V max
1MΩ min

See accessory datasheet for details

HOW TO ORDER

Model number
Input
Total scale factor
Rate scale factor
Rate timebase

Please specify

BA367E
Type *
XXXXX *
XXXXX *
Seconds, minutes or hours*

Accessories
Display backlight
Scale card

Please specify if required

Backlight
Legend required
No charge if ordered with counter.
Legend required
BA495

Tag
Rear cover and sealing kit

One of following three output options:

Pulse output
or 4/20mA output
or Dual alarms

Pulse output
4/20mA output
Alarms

* counter 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 total and rate scaling factors of 1.0 and a timebase of seconds. Can easily be reconfigured on-site.