

The **BA367E-SS** is an intrinsically safe counter housed in a rugged stainless steel enclosure. The intrinsic safety certification and the rugged enclosure allow the BA367E-SS to be safely installed in an Ex e, Ex n, Ex p or Ex t panel enclosure without invalidating the panel enclosure's certification. The intrinsically safe counter may also be installed in any uncertified panel enclosure located in Zones 0, 1 or 2 and is particularly suitable for marine environments or where the front of the instrument is likely to be impacted. A slide-in scale card simplifies identification and international intrinsic safety certification permits worldwide installation.

Main application of the BA367E-SS 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 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 silicone gasket to seal the joint between the counter and the instrument panel, allows the BA367E-SS to be installed in areas that will be washed down. To simplify installation and maintenance, the counter has removable terminal blocks enabling panel wiring to be completed before the instrument is installed.

International intrinsic safety certification allows the BA367E-SS 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-SS counter. All are isolated and have been certified as separate intrinsically safe circuits complying with the requirements for *simple apparatus*.

Optional isolated pulse output synchronously retransmits the counter input pulse to other instruments or a pulse when the least significant digit of the total display is incremented. When transmitting a pulse representing the total count the output pulse frequency may be divided and the output pulse width may be defined.

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-SS display show the status of both alarm outputs.

Zone 2 certification and a larger display are available in other models within the range. The BA367E which is identical to the BA367E-SS but is housed in a Noryl enclosure. The BA367NE is also identical to the BA367E-SS but has Ex nA and Ex tC certification allowing installation in Zone 2 or Zone 22 without Zener barriers or galvanic isolators.

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

BA367E-SS

Rugged one input counter

Intrinsically safe gas & dust certified for use in an Ex e, Ex n, Ex p or Ex t panel enclosure or in harsh hazardous area

- ◆ **Configurable input:**
magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ **Separate rate and total displays.**
- ◆ **Intrinsically safe**
- ◆ **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/ba367e-ss



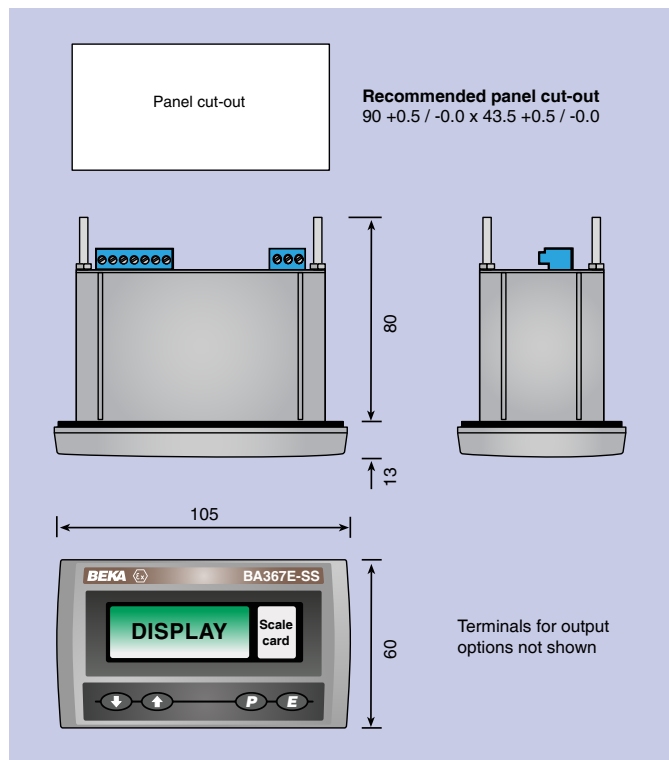
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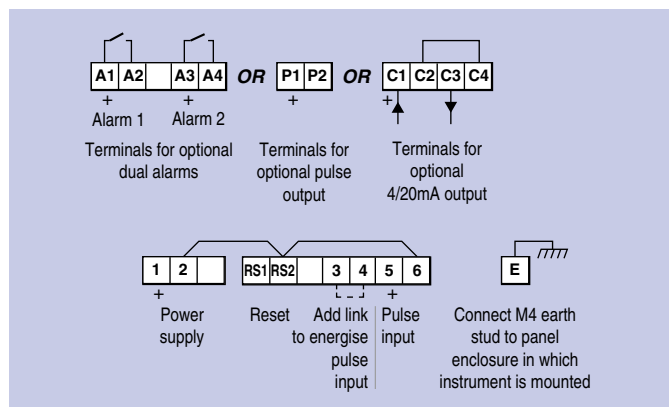
SPECIFICATION

Power supply		10 to 28V from a Zener barrier or galvanic isolator 16mA max plus 22.5mA for optional backlight.
Input		
Switch contact	Lower 100Ω	Upper switching thresholds 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 10 ¹⁶	
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 Group II Category 1D Ex ia IIIC T80°C Da -40°C ≤ Ta ≤ +60°C ‡ ITS16ATEX28408X	
Cert. No.		
International IECEx Code	Ex ia IIC T5 Ga Ex ia IIIC T80°C Da -40°C ≤ Ta ≤ +60°C ‡ IECEx ITS 16.0004X	
Cert. No.		
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) Zone 20 AEx ia IIIC T80°C Da (USA) Ex ia IIC T5 Ga (Canada) Ex ia IIIC T80°C Da (Canada) -40°C ≤ Ta ≤ 60°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 4008610
ETL Control No.		
‡ +70°C when not relying upon the certified impact and ingress protection provided by the front of the BA367E-SS enclosure to maintain the certification of the panel enclosure in which the BA367E-SS is mounted.		
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	Front IP66, rear IP20	
Ingress	BS 3146-2:1977 ANC4B (316)	
Material	Complies with 2014/30/EU	
EMC		
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 purchase. #	
Tag legend	Specified tag number or application laser etched 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 <i>simple apparatus</i> .		
Pulse 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. 51Ω + 3V max 1MΩ min 10mA
Source & output		
Ron		
Roff		
I max		

DIMENSIONS (mm)



TERMINAL CONNECTIONS



4/20mA output

Source
Voltage

Isolated current sink.
Rate or total
5 to 28V

Dual alarms

Outputs
Ron
Roff

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

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

See accessory datasheet for details

HOW TO ORDER

Model number	Please specify BA367E-SS
Input	Type *
Total scale factor	XXXXX *
Rate scale factor	XXXXX *
Rate timebase	Seconds, minutes or hours*
Accessories	Please specify if required
Display backlight	Backlight
Scale card	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	Pulse output
or 4/20mA output	4/20mA output
or Dual alarms	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.