

The BA337E-SS is an intrinsically safe rate totaliser housed in a rugged stainless steel enclosure. The intrinsic safety certification and the rugged enclosure allow the BA337E-SS to be safely installed in an Ex e, Ex p or Ex t panel enclosure without invalidating the panel enclosures certification. The intrinsically safe totaliser may also be installed in any uncertified panel enclosure located in Zone 0, 1 or 2 and is particularly suitable for marine environments or where the front of the instrument is likely to be impacted. The rate totaliser is easy to use and can be configured on-site to operate with flowmeters having a wide variety of pulse outputs. A slide-in scale card simplifies identification.

The main application of the BA337E-SS is to process the pulse output from a hazardous area flowmeter such as a turbine meter and simultaneously display the rate and total flow in engineering units within the hazardous area. The BA337E-SS will compensate for flowmeter non-linearity using up to sixteen flowmeter K-factors which can be entered on-site.

The display has high contrast and a wide viewing angle enabling the rate totaliser to be read in most lighting conditions over a wide temperature range. Rate of flow may be displayed in almost any units of measurement per second, minute or hour. Total flow may be shown in the same or in different units and the total display may be reset using the front panel push buttons or an external contact closure.

International intrinsic safety certification allows the BA337E-SS rate totaliser to be installed worldwide. When configured to operate with a flowmeter 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 totaliser 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 BA337E-SS rate totaliser. 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 rate totaliser 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 rate or total 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 BA337E-SS display show the status of both alarm outputs.

Other models in the range include the BA337E which is functionally identical to the BA337E-SS in a Noryl enclosure. If a larger display is required, the BA338E offers similar features in a Noryl 144 x 72mm enclosure.

# BA337E-SS

## Rugged one input rate totaliser

*Intrinsically safe gas and dust certified for use in an Ex e, Ex p or Ex t panel enclosure or in harsh hazardous areas*

- ◆ 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/ba337e-ss](http://www.beka.co.uk/ba337e-ss)



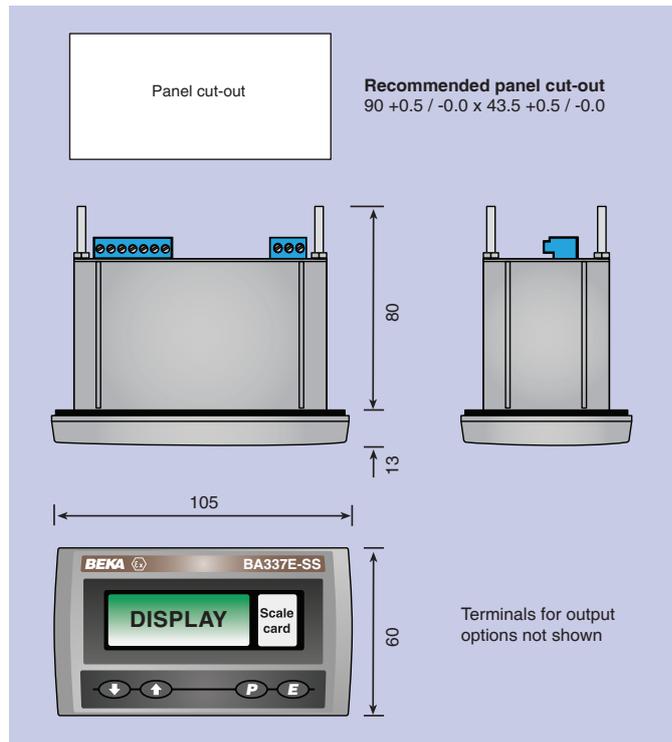
# BEKA associates



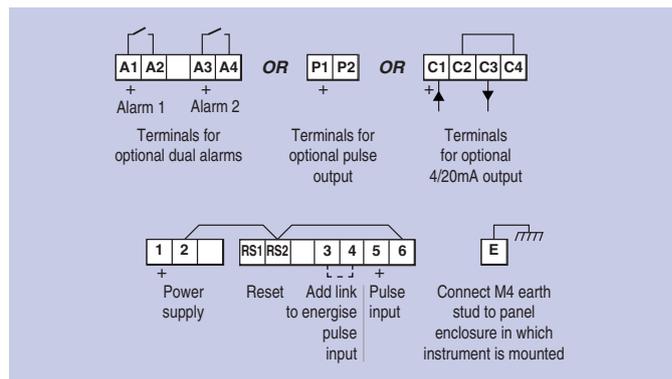
## SPECIFICATION

<b>Power supply</b>		
Voltage	10 to 28V from a Zener barrier or galvanic isolator	
Current	16mA max plus 22.5mA for optional backlight	
<b>Input</b>	<b>Lower</b>	<b>Upper</b>
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
<b>Frequency</b>		
Switch contact	150Hz typical	} Depends upon pulse width and debounce setting.
Other inputs	100kHz max	
All inputs	0.01Hz min	
<b>Display</b>		
Type	Liquid crystal	
Zero blanking	Blanked apart from 0 in front of decimal point	
Total $\phi$	8 digits 9mm high	
Decimal point	1 of 7 positions or absent	
Rate $\phi$	6 digits 6mm high	
Decimal point	1 of 4 positions or absent	
$\phi$ Rate & Total can be shown on either 6 or 8 digit display		
Grand total	Maximum count 10 <sup>16</sup>	
<b>Remote reset</b>	Contact closure with resistance less than 10kΩ	
<b>Configurable functions</b>		
Rate scale factor	Adjustable between 0.0001 and 99999 pulses/unit vol.	
Flowmeter K-factor	Up to 16 K-factors may be entered	
Lineariser	Rate may be displayed per second, minute or hour	
Rate timebase	Adjustable digital filter	
Rate display filter	Adjustable between 0.0001 and 99999	
Total scale factor		
<b>Intrinsic safety</b>		
<b>International IECEx</b>		
Code	Ex ia IIC T5 Ga Ex ia IIIC T80°C Db -40°C ≤ Ta ≤ +60°C † <a href="#">IECEx ITS 16.0004X</a>	
Cert. No.		
<b>Europe ATEX and UKEX</b>		
Code	Group II Category 1G Ex ia IIC T5 Ga Group II Category 2D Ex ia IIIC T80°C Db -40°C ≤ Ta ≤ +60°C † <a href="#">ITS16ATEX28408X</a> & <a href="#">ITS21UKEX0098X</a>	
Cert. No.s		
<b>ETL &amp; cETL</b>		
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 † <a href="#">4008610</a>	
ETL Control No.		
<b>China CCC</b>	As IECEx - <a href="#">see certificate</a>	
<b>India CCOE/PESO</b>	As ATEX - <a href="#">see certificate</a>	
<b>Nonincendive USA &amp; Canada ETL &amp; cETL</b>		
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 <a href="#">4008610</a>	
ETL Control No.		
† +70°C when <b>not</b> relying upon the certified impact and ingress protection provided by the front of the BA337E-SS enclosure to maintain the certification of the panel enclosure in which the BA337E-SS is mounted.		
<b>Environmental</b>		
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		
Ingress	Front IP66, rear IP20	
Material	BS 3146-2:1977 ANC4B (316)	
EMC	Complies with EU and UK Directives	
<b>Mechanical</b>		
Terminals	Screw clamp for 0.5 to 1.5mm <sup>2</sup> cable, removable terminal blocks.	
Weight	0.85kg	
<b>Accessories</b>		
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 rate totaliser. 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	
Source	Totaliser input: synchronous pulse output, 5kHz max or Least significant digit of total display output: 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	
Ron		
Roff		
I max		

## DIMENSIONS (mm)



## TERMINAL CONNECTIONS



4/20mA output  
Voltage drop

Isolated current sink  
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	<b>Please specify</b> BA337E-SS
Input	Type *
Rate scale factor	XXXXX *
	If linearisation is required, up to 16 rate scale factors may be entered for different flow rates.
Rate timebase	Seconds, minutes or hours *
Total scale factor	XXXXX *
<b>Accessories</b>	<b>Please specify if required</b>
Display backlight	Backlight
Scale card	Legend required
	No charge if ordered with totaliser.
Tag	Legend required
Rear cover and sealing kit	BA495
One of following three output options:	
Pulse output	Direct retransmission or scaled
or 4/20mA output	4/20mA output
or Dual alarms	Alarms

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