

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, Ex n 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 nonlinearity 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.

Zone 2 certification and a larger display are available in other models within the range. The BA337NE has the same features as the BA337E-SS, but is Ex nA and Ex tc certified allowing installation in Zones 2 or 22 without Zener barriers or galvanic isolators.

The BA338E offers similar features as the BA337E-SS in a 144 x 72mm Noryl enclosure with a larger display.

BA337E-SS

Rugged one input rate totaliser

Intrinsically safe gas and dust certified for use in an Ex e, Ex n, 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



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 \emptyset	8 digits 9mm high	
Decimal point	1 of 7 positions or absent	
Rate \emptyset	6 digits 6mm high	
Decimal point	1 of 4 positions or absent	
\emptyset 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		
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		
Intrinsic safety		
Europe ATEX		
Code	Group II Category 1G Ex ia IIC T5 Ga Group II Category 1D Ex ia IIC T80°C Da -40°C ≤ Ta ≤ +60°C ‡ ITS16ATEX28408X	
Cert. No.		
International IECEx		
Code	Ex ia IIC T5 Ga Ex ia IIC 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 IIC T80°C Da (USA) Ex ia IIC T5 Ga (Canada) Ex ia IIC 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	
ETL Control No.	4008610	

‡ +70°C when **not** 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.

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	
Ingress	Front IP66, rear IP20
Material	BS 3146-2:1977 ANC4B (316)
EMC	Complies with 2014/30/EU

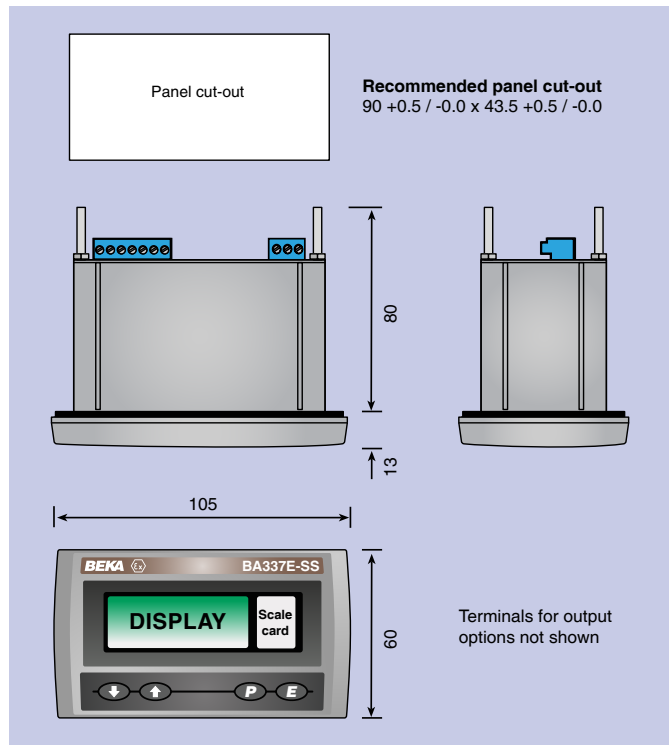
Mechanical	
Terminals	Screw clamp for 0.5 to 1.5mm ² cable, removable terminal blocks.
Weight	0.85kg

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. #

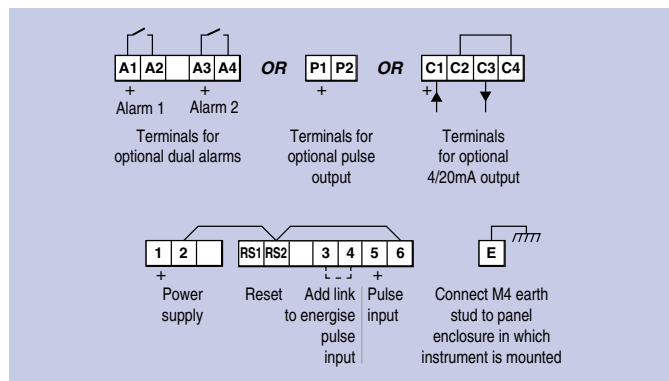
One of the following three output accessories may be factory fitted to each rate totaliser. All have isolated outputs which have been certified as separate intrinsically safe circuits and comply with the requirements for *simple apparatus*.

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
Ron	51Ω + 3V max
Roff	1MΩ min
I max	10mA

DIMENSIONS (mm)



TERMINAL CONNECTIONS



4/20mA output	Isolated current sink
Voltage drop	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	Isolated single pole, voltage free solid state switch
Ron	5Ω + 0.7V max
Roff	1MΩ min

See accessory datasheet for details

HOW TO ORDER

Model number	Please specify BA337E-SS
Input	Type * XXXXX *
Rate scale factor	If linearisation is required, up to 16 rate scale factors may be entered for different flow rates. Seconds, minutes or hours * XXXXX *
Rate timebase	
Total scale factor	
Accessories	Please specify if required
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.