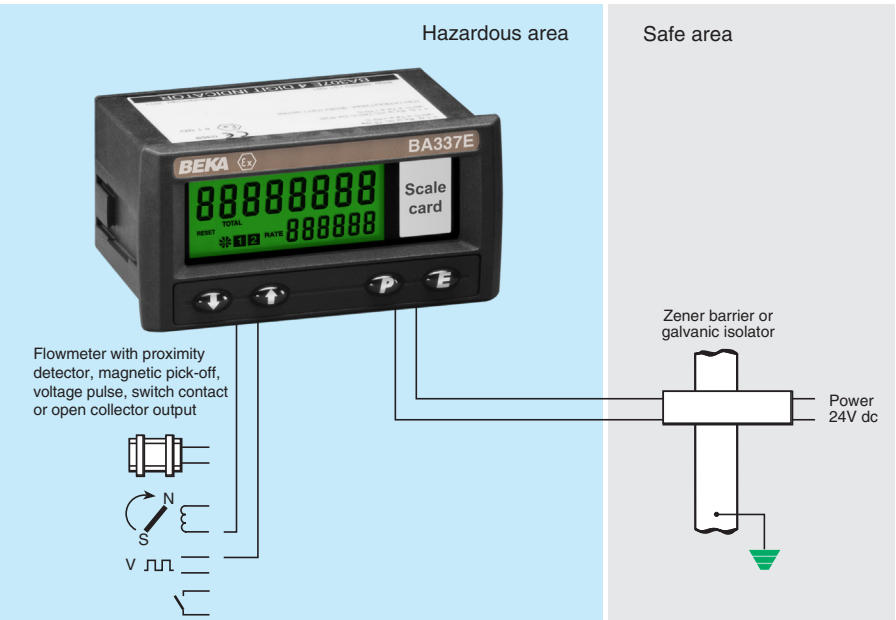

Shown with optional backlight

The BA337E is a third generation intrinsically safe rate totaliser that has similar functions as the BA338E, but is housed in a smaller 96 x 48mm DIN enclosure. The totaliser is easy to use and can be configured on-site to operate with flowmeters having a magnetic pick-off, switch contact, proximity detector, open collector or a voltage pulse output. A slide-in scale card simplifies identification and international intrinsic safety certification permits worldwide installation.

The main application of the BA337E 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 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.

IP66 front panel protection with a neoprene gasket to seal the joint between the totaliser and the instrument panel allows the BA337E to be installed in areas that will be washed down. To simplify installation and maintenance, the totaliser has removable terminal blocks enabling panel wiring to be completed before the instrument is installed.

International intrinsic safety certification allows the BA337E 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 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.

An 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 display show the status of both alarm outputs.

Rugged versions and a larger display are available in other models within the range. The BA337E-SS is identical to the BA337E except that it is housed in a rugged stainless steel enclosure with a 10mm thick window that may be installed in an Ex e or Ex p panel enclosure without invalidating the enclosure's certification.

If a larger display is required, the BA338E offers similar features as the BA337E in a 144 x 72mm enclosure.

BA337E

One input rate totaliser

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.**
- **Lineariser**
- **Optional:**
  Backlight
  dual alarms
  or 4/20mA output
  or pulse output
- **3 year guarantee**

www.beka.co.uk/ba337e

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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 10^{16}
Remote reset	Contact closure with resistance less than 10kΩ

Configurable functions

Rate scale factor	Adjustable between 0.0001 and
Flowmeter K-factor	99999 pulses/unit vol.
Linearisers	Up to 16 K-factors may be entered
Rate timebase	Rate may be displayed per second, minute or hour
Rate display filter	Adjustable digital filter
Total scale factor	Adjustable between 0.0001 and 99999

Intrinsic safety

International IECEx

Code	Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C
Cert. No.	IECEx ITS 16.0004X

Europe ATEX and UKEX

Code	Group II Category 1G Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C
Cert. No.s	ITS16ATEX28408X ITS21UKEX0098X

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
ETL Control No.	4008610

China CCC	As IECEx - see certificate
India CCOE/PESO	As ATEX - see certificate

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 EU and UK Directives

Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm² cable, removable terminal blocks.
Weight	0.15kg

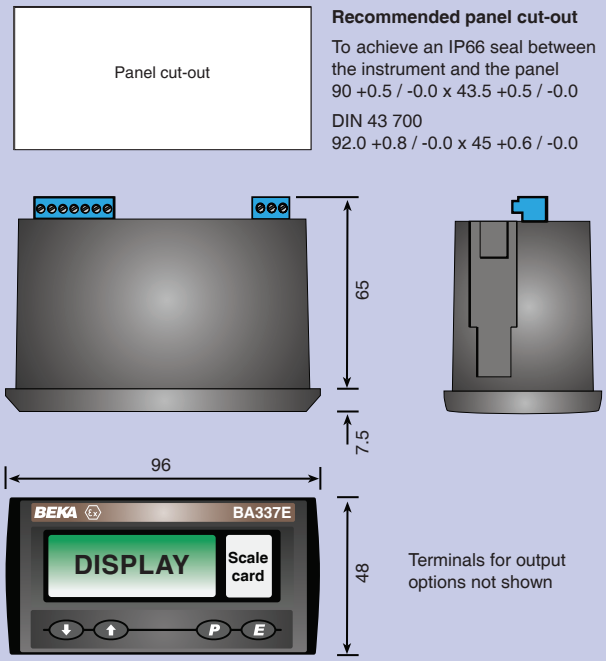
Accessories

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. #

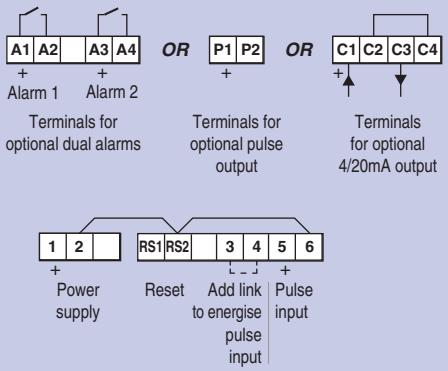
One of the following three output accessories may be factory fitted to each rate totaliser. All have isolated outputs which have been certified as separate intrinsically safe circuits and comply with the requirements for *simple apparatus*.

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
4/20mA output	Isolated current sink
Voltage drop	5 to 28V

DIMENSIONS (mm)



TERMINAL CONNECTIONS



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	IMΩ min

 # See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	BA337E
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 *

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.*