

The **BA364E** is a two input, field mounting, intrinsically safe counter which can display the sum or difference of the two pulse inputs, or the count direction of Input A may be controlled by input b. The output from a quadrature encoder can also be decoded to show speed and direction of movement. The counter is easy to use and each input can be independently configured on-site to operate with a magnetic pick-off, switch contact, proximity detector, open collector or a sensor with a voltage pulse output. International intrinsic safety certification permits worldwide installation.

Any display application requiring the sum or difference of pulse outputs from two sensors can be performed by the BA364E, such as counting the number of strokes performed by two reciprocating pumps and displaying total volume and rate of pumping in engineering units. The counter's quadrature decoder also enables the position of a shaft or a cable to be displayed together with its speed and direction of movement.

International intrinsic safety certification allows the BA364E counter to be installed in gas hazardous areas 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.

The large display has high contrast and a wide viewing angle. Green backlighting enhances daylight viewing enabling the counter to be read at night or when installed in a poorly illuminated area. The total display may be shown in almost any engineering units and may be reset using the front panel push buttons or an external contact closure. Rate may be displayed in the same or different units of measurement per second, minute or hour.

IP66 protection is provided by the robust GRP enclosure which has stainless steel fittings, silicone gaskets and a 4mm thick armoured glass window. Ingress and impact protection have been independently assessed by Intertek. A separate terminal compartment allows connection of field wiring without exposing the instrument's electronics.

Isolated pulse and 4/20mA outputs which comply with the requirements for *simple apparatus* are included. The pulse output can synchronously retransmit either of the pulse inputs, or a scaled pulse when the least significant digit of the total display is incremented. The 4/20mA output may be configured to produce an output proportional to any part of the rate or total display.

An optional isolated 4/20mA current sink output, which has been certified as a separate intrinsically safe circuit complying with the requirements for *simple apparatus*, may be configured to produce an output proportional to any part of the rate or total display.

Dual alarms with galvanically isolated solid state outputs can switch hazardous area loads such as a sounder or solenoid valve, or safe area loads via a Zener barrier or isolator. Both may be independently configured as a rate or a total alarm monitoring either input, or the sum or difference of the two inputs. Annunciators on the BA364E display show the status of both alarm outputs.

The escutcheon which shows the counters units of measurement and tag information can be changed on-site. New instruments are fitted with a printed escutcheon showing customer specified marking. If this information is not supplied a blank escutcheon is fitted which can easily be marked on-site. An optional laser engraved stainless steel legend plate secured to the front of the instrument is also available.

The compact BA364G has the same functions as the BA364E without a separate terminal compartment.

BA364E

two input counter

Intrinsically safe for use in all gas hazardous areas

- ◆ **Configurable input:** magnetic pick-off, switch contact, proximity detector, open collector, voltage pulse or quadrature decoder.
- ◆ **Separate displays with backlight**
- ◆ **Intrinsically safe**
- ◆ **IP66 GRP enclosure with separate terminal compartment**
- ◆ **Isolated dual alarms, pulse and 4/20mA outputs.**
- ◆ **3 year guarantee**

www.beka.co.uk/ba364e



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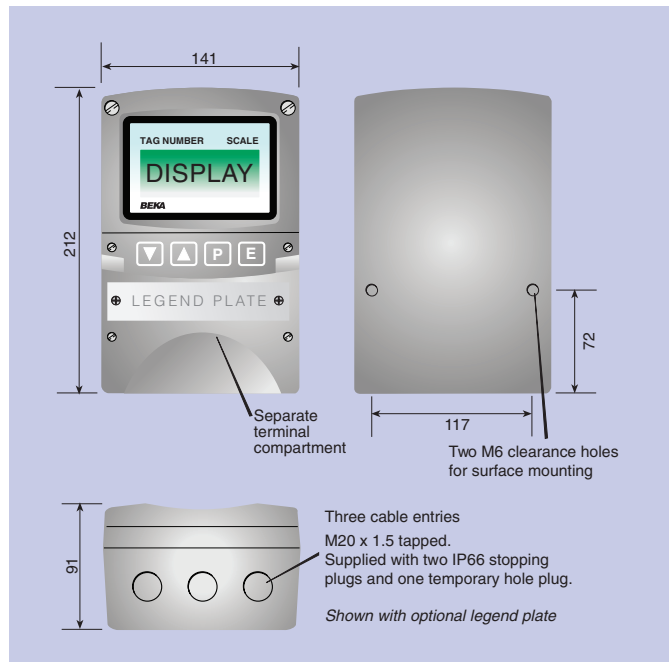
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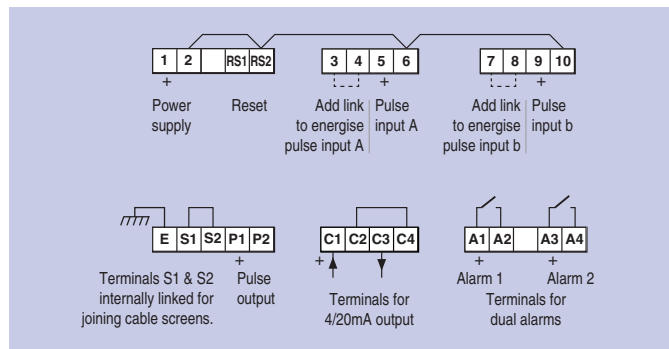
SPECIFICATION

Power supply	
Voltage	10 to 28V from a Zener barrier or galvanic isolator
Current	32mA
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
Other inputs	100kHz max
All inputs	0.01Hz min
} <i>Depends upon pulse width and debounce setting.</i>	
Display	
Type	Liquid crystal
Backlight	Green LED internally powered
Zero blanking	Blanked apart from 0 in front of decimal point
Total #	8 digits 18mm high
Decimal point	1 of 5 positions or absent
Rate #	6 digits 12mm 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	
Input function	Each input individually configurable Input A + b: Input A – b: Input A direction controlled by input b or quadrature encoder input (Inputs 90° out of phase).
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
Pulse output	
	Isolated open collector, certified as a separate intrinsically safe circuit complying with the requirements for <i>simple apparatus</i> .
Source and output	Either input can be synchronously retransmitted, 5kHz max. or Least significant digit of total display pulse 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	
4/20mA output	
Voltage drop	Isolated current sink. Configurable to represent any part of the rate or total display. 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
Intrinsic safety	
Europe ATEX and UK UKCA	
Code	Group II Category 1G Ex ia IIC T5 Ga -40 ≤ Ta ≤ 70°C
Cert. No.s	ITS16ATEX28408X ITS21UKEX0098X
International IECEx	
Code	Ex ia IIC T5 Ga -40 ≤ Ta ≤ 70°C
Cert. No.	IECEx ITS 16.0004X
ETL & cETL	
Code	Class I Div 1 Gp A, B, C, D T5 Class II Div 1 Gp E, F, G Class III Class I Zone 0 AEx ia IIC T5 Ga } USA & Canada Zone 20 AEx ia IIIC T80°C Da } 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 Ex ia IIC T5 Ga -40 ≤ 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	
Material	GRP
Ingress	IP66
EMC	Complies with EU and UK Directives

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Mechanical	
Terminals	Screw clamp for 0.5 to 1.5mm ²
Weight	1.7kg
Accessories	
Escutcheon	Blank card fitted to all instruments. Can be supplied printed with specified units of measurement and tag information for no additional charge at time of purchase. #
Legend plate	316 stainless steel plate secured to the front of the instrument, laser engraved with tag number or application information. #
Pipe mounting kit	BA392D or BA393 #
# See accessory datasheet for details	

HOW TO ORDER

Model number	Please specify for each input BA364E
Input function	Input A + b: Input A – b: Input A direction controlled by input b or quadrature encoder input *
Input	Type *
Total scale factor	XXXXX *
Rate scale factor	XXXXX *
Rate timebase	Seconds, minutes or hours*
Accessories	Please specify if required
Escutcheon marking	Legend required
Units	Legend required
Tag	No charge if ordered with counter
Stainless legend plate	Legend required
Pipe mounting kit	BA392D or BA393

* Counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for Input A + b, open collector inputs with rate and total scaling factors of 1.0 and a timebase of seconds with direct pulse retransmission. Can easily be reconfigured on-site.