



The **BA384G** is a two input, field mounting, intrinsically safe rate totaliser that can simultaneously display the total flow and rate of flow of either flowmeter, or the sum or difference of the two. The BA384G is easy to use and each input can be individually configured on-site to operate with flowmeters having a variety of pulse outputs. A slide-in scale card simplifies identification and international certification permits worldwide installation.

**The main application** of the BA384G is to process the pulse output from two hazardous area flowmeters, and to calculate and display the sum or difference of the two within a hazardous area. Rate and total can be simultaneously displayed in the same or different engineering units. The BA384G will compensate for the nonlinearity of each flowmeter using up to sixteen flowmeter K-factors which can easily be entered for each flowmeter on-site.

**The large 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. Rates of flow may be displayed in almost any units of measurement per second, minute or hour. Total flows may be shown in the same or in different units and the total displays may be reset using the front panel push buttons or an external contact closure.

**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.

**The isolated open collector pulse output** may be configured to synchronously retransmit either pulse input, or a scaled pulse when the least significant digit of the total display is incremented.

**IP66 protection** is provided by the robust GRP enclosure which has stainless steel fittings, a silicone gasket and an 8mm thick armoured glass window. Ingress and impact protection have been independently assessed by Intertek.

**International intrinsic safety certification** allows the BA384G rate totaliser to be installed in gas and dust hazardous area 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.

**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.

**Optional 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 galvanic isolator. Both may be independently configured as a rate or a total alarm. Annunciators on the BA384G display show the status of both alarm outputs.

# BA384G

## two input rate totaliser

*Intrinsically safe for use in gas & dust hazardous areas*

- ◆ **Configurable input:** magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ **Separate displays**
- ◆ **Intrinsically safe**
- ◆ **IP66 GRP enclosure**
- ◆ **Linearisers**
- ◆ **Isolated pulse output**
- ◆ **Simple on-site scale card installation.**
- ◆ **Optional:**  
Backlight  
Dual alarms  
4/20mA output
- ◆ **3 year guarantee**

[www.beka.co.uk/ba384g](http://www.beka.co.uk/ba384g)



# BEKA

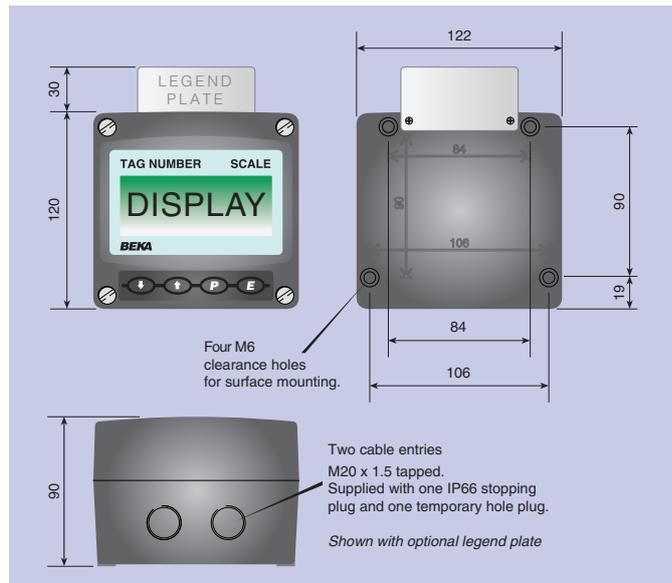
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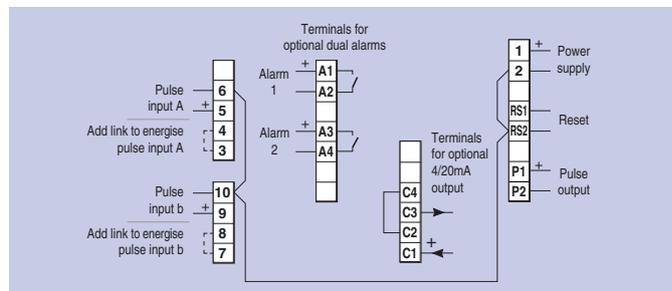
## SPECIFICATION

<b>Power supply</b>		
Voltage	10 to 28V from a Zener barrier or galvanic isolator	
Current	16mA max plus 16mA for optional backlight	
<b>Input</b>	<b>Lower</b>	<b>Upper</b> 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
<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 #	8 digits 18mm high	
Decimal point	1 of 7 positions or absent	
Rate #	6 digits 12mm high	
Decimal point	1 of 5 positions or absent	
# 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>Pulse output</b>	Isolated open collector	
Frequency	5kHz max, synchronous with input pulse, or when least significant digit of total display is incremented. Divisible with selectable width.	
	1, 10, 100, 1000 or 10000	
Divisible by	0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms	
Pulse width	51Ω + 3V max	
Ron	1MΩ min	
Roff	10mA	
I max		
<b>Configurable functions</b>		
Each input individually configurable		
Input function	Input A + b or Input A – b	
Flowmeter K-factor	Adjustable between 0.0001 and 99999 pulses/unit vol	
Lineariser	16 K-factors may be entered	
Total scale factor	Adjustable between 0.0001 and 99999	
Rate timebase	Rate may be displayed per second, minute or hour	
Rate scale factor	Adjustable between 0.0001 and 99999	
Rate display filter	Adjustable digital filter	
<b>Intrinsic safety</b>		
<b>International IECEx</b>		
Code	Ex ia IIC T5 Ga -40 ≤ Ta ≤ 70°C Ex ia IIIC T80°C Db -40 ≤ 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 -40 ≤ Ta ≤ 70°C Group II Category 2D Ex ia IIIC T80°C Db -40 ≤ 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 Class II Div 1 Gp E, F, G Class III Class I Zone 0 AEx ia IIC T5 Ga Zone 20 AEx ia IIIC T80°C Da Ex ia IIC T5 Ga Ex ia IIIC T80°C Da -40°C ≤ Ta ≤ 70°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 Ex ia IIC T5 Ga -40 ≤ Ta ≤ 70°C <a href="#">4008610</a>	
ETL Control No.		
<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		
Material	GRP	
Ingress	IP66	
EMC	Complies with EU and UK Directives	
<b>Mechanical</b>		
Terminals	Screw clamp for 0.5 to 1.5mm <sup>2</sup>	
Weight	1.1kg	
<b>Accessories</b>		
Backlight	Green LED internally powered	
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.	

## DIMENSIONS (mm)



## TERMINAL CONNECTIONS



Outputs	Isolated single pole, voltage free solid state switch 5Ω + 0.7V max 1MΩ min
Ron	
Roff	
Scale card	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 laser engraved with tag number or application information attached to rear of the instrument, visible from the front. #
Pipe mounting kit	BA393G 316 stainless steel #
Panel mounting kits	BA394G 316 stainless steel not sealing # BA494G GRP sealing #
# See accessory datasheet for details	

## HOW TO ORDER

Model number	BA384G
Input function	Input A + b or Input A – b *
Input	Type *
Flowmeter K-factor	XXXXX for both inputs * If linearisation is required, up to 16 K-factors may be specified at different flow rates.
Total scale factor	XXXXX *
Rate timebase	Seconds, minutes or hours*
Rate scale factor	XXXXX *
<b>Accessories</b>	<b>Please specify if required</b>
Display backlight	Backlight
4/20mA output	4/20mA output
Dual alarms	Alarms
Scale card marking	Legend required Legend required No charge if ordered with totaliser
Units	
Tag	
Stainless legend plate	Legend required
Pipe mounting kit	BA393G
Panel mounting kit	BA394G or BA494G

\* Totaliser 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.