

The **BA384NG** is a two input, field mounting, Ex nA and Ex tc certified 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 BA384NG 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.

**International Ex nA and Ex tc certification** allows the BA384NG rate totaliser to be installed in Zone 2 gas and Zone 22 dust hazardous areas worldwide. BEKA Application Guide AG310 contains Ex nA installation recommendations.

**The main application** of the BA384NG is to process the pulse output from two flowmeters and to calculate and display the sum or difference of the two within a Zone 2 or 22 hazardous area. Using the front panel push buttons, the display can be scrolled to show the rate and total output of either flowmeter separately. The BA384NG 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.

**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.

**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.

**Anisolated 4/20mA current sink output**, which is available as a factory fitted option, may be configured to produce an output proportional to any part of the rate or total display.

**Optional dual alarms** can switch hazardous or safe area loads such as a sounder or a solenoid valve. 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 BA384NG display show the status of both alarm outputs.

**Other rate totalisers** in this range include the single input BA334NG plus intrinsically safe, Ex n certified and general purpose models for field and panel mounting.

# BA384NG

## two input rate totaliser

*Can be installed in Zone 2 or 22 without Zener barriers or galvanic isolators*

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

[www.beka.co.uk/ba384ng](http://www.beka.co.uk/ba384ng)



# BEKA

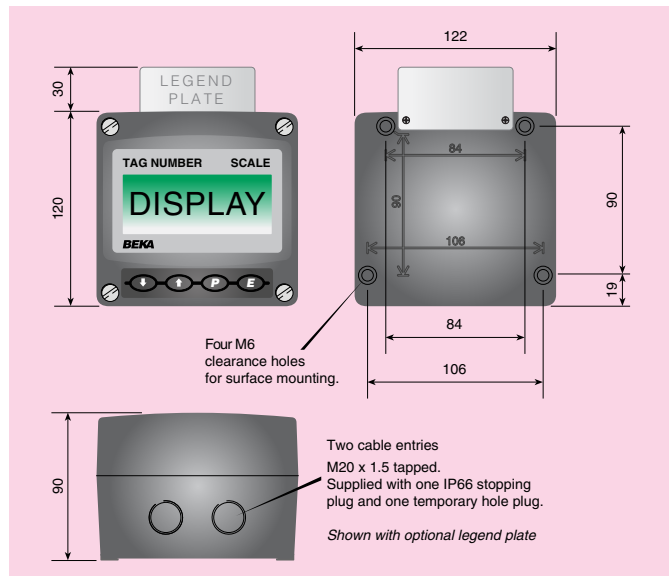
## associates

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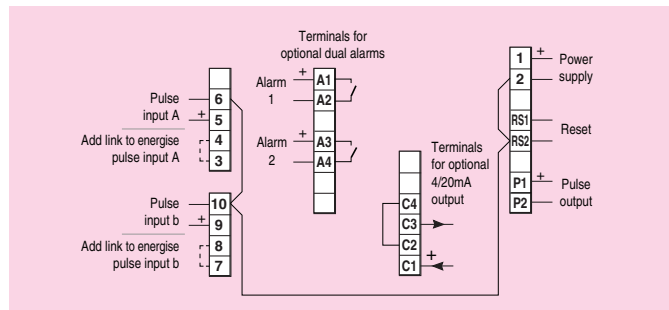
## SPECIFICATION

<b>Power supply</b>		
Voltage	10 to 30V	
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 30V max
Voltage pulse (high)	3V	10V 30V max
<b>Frequency</b>		
Switch contact	150Hz typical	
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	
<b>Total</b> ‡	8 digits 18mm high	
Decimal point	1 of 7 positions or absent	
<b>Rate</b> ‡	6 digits 12mm high	
Decimal point	1 of 5 positions or absent	
‡ Rate & Total can be shown on either 6 or 8 digit display		
<b>Grand total</b>	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.	
Divisible by	1, 10, 100, 1000 or 10000	
Pulse width	0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms	
Ron	51Ω + 3V max	
Roff	1MΩ min	
Ui	30V dc	
I max	10mA	
<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 for each input	
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>Certification</b>	<b>Note: Ex ic codes refer to instrument push button contacts which are nonincendive.</b>	
<b>Europe ATEX</b>	Code	
	Group II Category 3G Ex nA ic IIC T5 Gc	
	Group II Category 3D Ex ic tc IIIC T80°C Dc	
	-40 ≤ Ta ≤ 60°C	
	ITS16ATEX48409X	
	Cert. No.	
<b>International IECEx</b>	Code	
	Ex nA ic IIC T5 Gc	
	Ex ic tc IIIC T80°C Dc	
	-40 ≤ Ta ≤ 60°C	
	IECEx ITS 16.0005X	
	Cert. No.	
<b>ETL &amp; cETL</b>	Code	
	Class I Zone 2 AEx nA ic IIC T5 Gc	
	Zone 22 AEx ic tc IIIC T80°C Dc	
	Ex nA ic IIC T5 Gc	
	Ex n IIC T5 Gc	
	Ex ic tc IIIC T80°C Dc	
	Class III Div 2, Class II Div 2, Gp F, G	
	-40°C ≤ Ta ≤ 60°C	
	4008610	
	ETL Control No.	
<b>Environmental</b>		
Operating temp	-40 to +70°C display -20 to +70°C	
Certification temp	-40 to +60°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 2014/30/EU	
<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 30V	
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	
Ui	30V dc	
I max	10mA	

## DIMENSIONS (mm)



## TERMINAL CONNECTIONS



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 #

# See accessory datasheet for details

## HOW TO ORDER

Model number	BA384NG
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. XXXXX *
Total scale factor	XXXXX *
Rate scale factor	XXXXX *
Rate timebase	Seconds, minutes or hours*
<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
Units	Legend required
Tag	No charge if ordered with totaliser
Stainless legend plate	Legend required
Pipe mounting kit	BA393G
Panel mounting kit	BA394G

\* 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.