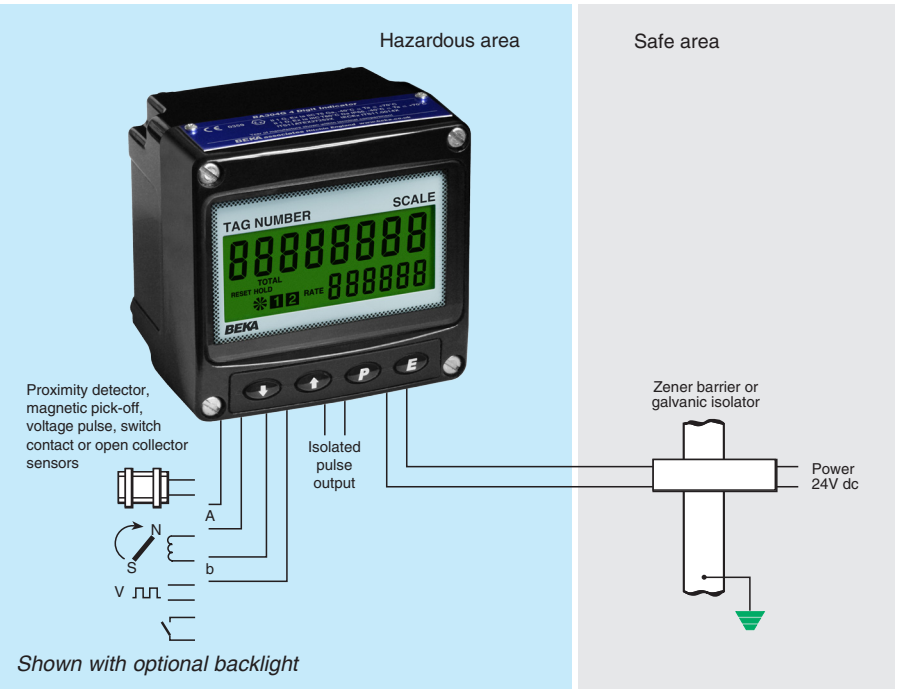


Shown with optional backlight

BA384G

two input rate totaliser

Intrinsically safe for use in all 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**

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.

Other field mounting rate totalisers include the BA384E which has the same functions as the BA384G, but incorporates a separate terminal compartment.

BEKA associates

Sales & Support Distributor:-Stockshed Limited. Stoneycroft House,
Mud Lane, Eversley. Hampshire. RG27 0QS. U.K. Tel. (0118) 9734955
e-mail info@stockshed.com

SPECIFICATION

Power supply

Voltage	10 to 28V from a Zener barrier or galvanic isolator
Current	16mA max plus 16mA 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*
Other inputs	100kHz max	*and debounce setting.*
All inputs	0.01Hz min	

Display

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^{16}

Remote reset Contact closure with resistance less than 10kΩ

Pulse output 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
I max	10mA

Configurable functions

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
Linearisers	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

Intrinsic safety

Europe ATEX

Code	Group II Category 1G Ex ia IIC T5 Ga -40 ≤ Ta ≤ 70°C Group II Category 1D Ex ia IIIC T80°C Da -40 ≤ Ta ≤ 60°C
Cert. No.	ITS16ATEX28408X

International IECEx

Code	Ex ia IIC T5 Ga -40 ≤ Ta ≤ 70°C Ex ia IIIC T80°C Da -40 ≤ Ta ≤ 60°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	USA & Canada
	Class I Zone 0 AEx ia IIC T5 Ga Zone 20 AEx ia IIIC T80°C Da	USA
	Ex ia IIC T5 Ga Ex ia IIIC T80°C Da -40°C ≤ Ta ≤ 70°C	Canada

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 2014/30/EU

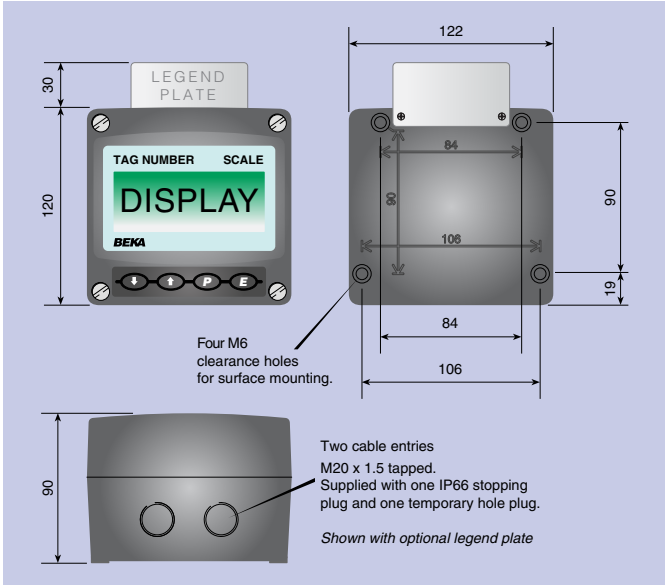
Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm²
Weight	1.1kg

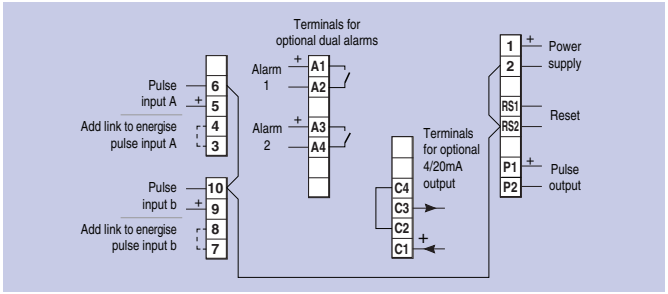
Accessories

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
Ron	5Ω + 0.7V max
Roff	IMΩ min
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

	Please specify for each input
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 *

Accessories	**Please specify if required**
Display backlight	Backlight
4/20mA output	4/20mA output
Dual alarms	Alarms
Scale card marking	
Units	Legend required
Tag	Legend required *No charge if ordered with totaliser*
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.*