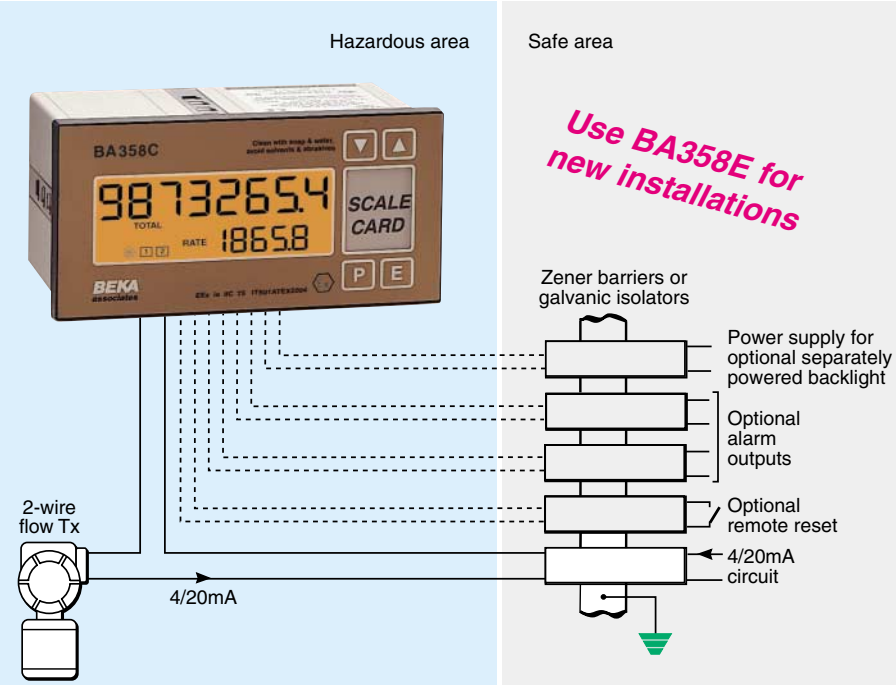

Shown with optional separately powered backlight

BA358C

2-wire 4/20mA rate totaliser

Intrinsically safe for use with 4/20mA flowmeters in all gas hazardous areas

- **Loop powered only 1.1V drop**
- **Separate rate and total displays**
- **Intrinsically safe ATEX certification**
- **144 x 72mm DIN enclosure with IP65 front**
- **Root extractor**
- **Optional:**
  Alarms
  Backlight
- **3 year guarantee**

The BA358C is a loop-powered, intrinsically safe, panel mounting rate totaliser with separate rate and total displays. When connected in series with a 4/20mA flow transmitter, the BA358C will display the rate of flow in engineering units and total flow in the same or different units. The BA358C only introduces a 1.1V drop which allows it to be installed into almost any 4/20mA loop. If the 4/20mA loop is disconnected, the displayed total and all programme parameters are stored in permanent memory and are automatically recovered when the 4/20mA current is restored.

Main application of the BA358C is to integrate the 4/20mA output from a flow transmitter and to display the total flow in engineering units. The flow rate is shown on a smaller display, although the function of the two displays may be reversed. A selectable root extractor enables the output from a differential flow transmitter to be displayed in linear units. When fitted with optional alarms, the BA358C can detect low or high flow rates and can perform simple flow batching operations.

Intrinsic safety certification to the ATEX Directive allows installation throughout Europe. The 4/20mA input terminals comply with the requirements for *simple apparatus* enabling the BA358C to be connected in series with most certified intrinsically safe circuits without the need for an additional system certificate. This, together with the low voltage drop makes the BA358C very easy to apply.

Control and programming is performed via the front panel tactile push-buttons which 'click' when operated. All the programme functions are contained in easy to understand menus which may be protected by a user definable security code. Display scaling factors employ floating decimal points to simplify calibration.

The front panel is a robust, easy to clean Noryl moulding sealed with a non-reflective, scratch resistant polyester membrane. A captive neoprene gasket provides an IP65 seal between the enclosure and the panel.

An internal calibrator simulates 4 and 20mA input currents so that the instrument may be quickly calibrated without the need for test equipment or disconnection from the 4/20mA loop.

Optional alarms provide two galvanically isolated solid state outputs which may be independently programmed for high or low operation on either the rate or total displays. Each output is certified as a separate intrinsically safe circuit and complies with the requirements for *simple apparatus*. Almost any certified intrinsically safe load such as a solenoid valve or sounder may be controlled by these outputs.

Backlighting is available as an option to improve readability when the BA358C is installed in a poorly illuminated area. High efficiency amber LEDs provide an even glow to enhance display contrast. The backlight is powered by a separate Zener barrier or galvanic isolator and does not affect certification of the 4/20mA loop.

BEKA associates

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SPECIFICATION

Input

Current	4 to 20mA
Voltage	Less than 1.1V at 20˚C
Overrange	±200mA will not cause damage.

Display

Type	Liquid crystal
Rate~	5 digits 9.5mm high
Span	Adjustable between 0 & 20000 for a 4 to 20mA input.
Zero	Adjustable between 0 & 20000 with 4mA input.
Decimal point	1 of 4 positions or absent
Timebase	Per second, minute or hour
Overrange	4 least significant digits are blanked.
Total~	8 digits 14mm high
Scaling factor	Adjustable between 0.0001 & 65535
Decimal point	1 of 7 positions or absent
Grand total	Max count 10^{16}

~Rate and total can be shown on either display

Accuracy

Rate display at 20°C	
Linear	±0.02% of span ±1 digit
Root extracting	±16µA at input ±1 digit
Temperature effect	
Zero	Less than 25ppm/˚C
Span	Less than 50ppm/°C
Series mode rejection	Less than 0.05% of span error for 1mA pk to pk 50Hz or 60Hz signal.
Total display	Updated every second

Remote total reset Contact closure with resistance less than 1kΩ

Intrinsic safety

Europe ATEX	
Code	Group II Category 1G Ex ia IIC T5
Certificate number	ITS00ATEX2010
Output parameters	
Uo	1.1V] Complies with
Io	70mA dc] requirements for
Po	22mW] *Simple Apparatus*
Ceq	20nF
Leq	10µH

Installation: The BA358C may be connected to any certified intrinsically safe circuit whose output parameters do not exceed:

Uo	30V
Io	200mA
Po	0.85W

Environmental

Operating temperature	-20 to 60°C (Certified for use at -40°C)
Storage temp	-40˚ to 85˚C
Enclosure	Front IP65; rear IP20
EMC	In accordance with EU Directive 2004/108/EC.
Immunity	Less than 1% of rate span error for 10V/m.
Emissions	Undetectable above background noise. Class B equipment

Mechanical

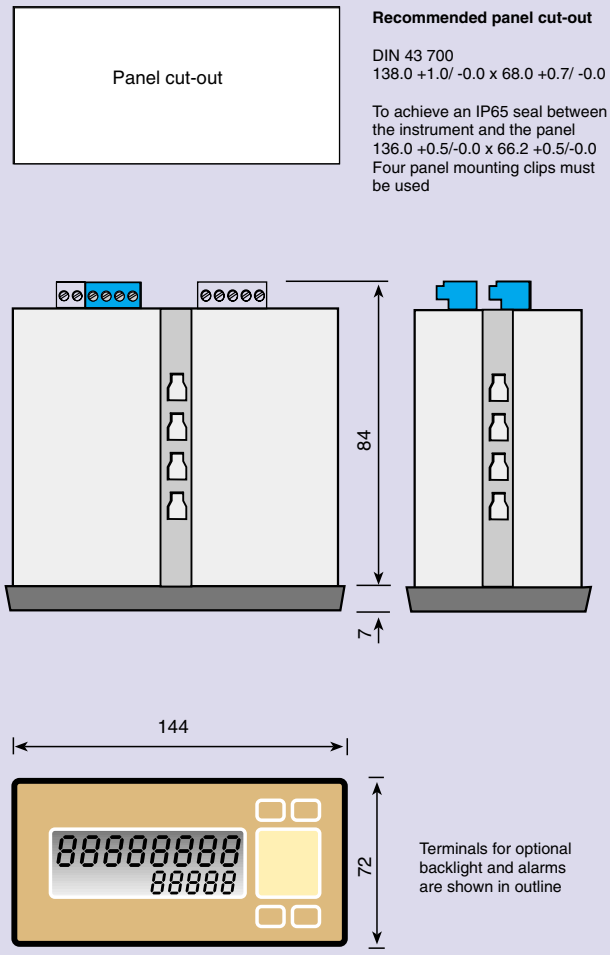
Terminals	Screw clamp for 0.5 to 1.5mm² cables. Terminal blocks removable.
Weight	0.5kg

Accessories

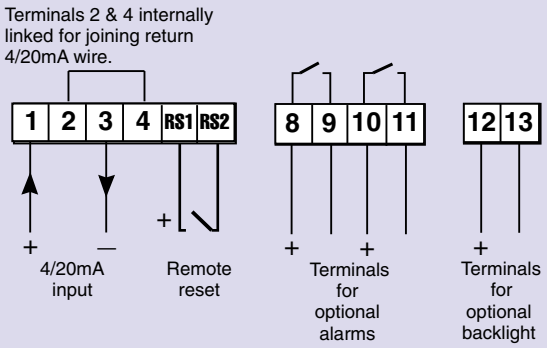
Separately powered backlight	Orange: powered from 28V 300Ω Zener barrier or galvanic isolator.
Alarms	Two independent alarms each of which may be programmed for high or low operation on either the rate or total display with a NC or NO output.
Outputs	Isolated solid state switch
On	Less than 5Ω +0.6V
Off	Greater than 180kΩ
	Certified as *simple apparatus*
Typeset scale card	Blank scale card fitted to each instrument, can be supplied typeset with units of measurement. *
Tag number	Thermally printed number or applicational information on rear of instrument. *

** See accessory datasheet for details*

DIMENSIONS (mm)



TERMINAL CONNECTIONS



HOW TO ORDER

	please specify
Model number	BA358C
Rate display at 4mA	XXXXX] Include position
Rate display at 20mA	XXXXX] of decimal point #
Rate timebase	Seconds, minutes or hours
Total scale factor	(Units of rate display)÷(Units of total display)#

Accessories	**please specify**
Display backlight	Separately powered backlight
Alarms	Alarms
Scale card	Legend required
Tag number	Legend required

 # If calibration information is not supplied, instrument will be set to display rate of 0.00 to 100.00 with a timebase of seconds and a total scale factor of 1