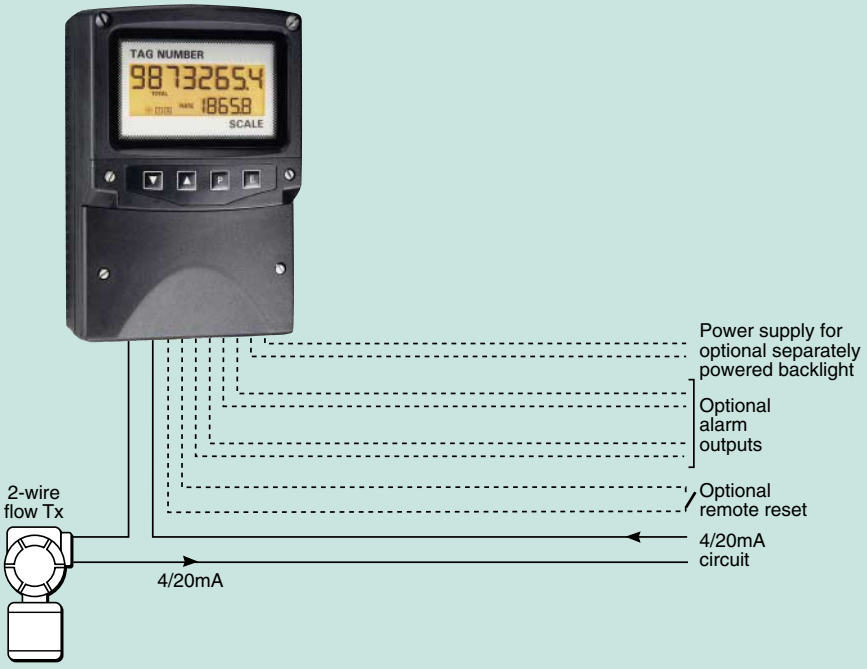
BA554D

2-wire 4/20mA rate totaliser

General purpose for use with 4/20mA flowmeters



Shown with optional separately powered backlight and external keypad

The BA554D is a field mounting, loop-powered rate totaliser with separate rate and total displays. When connected in series with a 4/20mA flow transmitter, the instrument will display the rate of flow in engineering units and the total flow in the same or different units. The BA554D only introduces a 1V drop which allows it to be installed in series with almost any 4/20mA loop without the need for an additional power supply. If the 4/20mA loop is disconnected, the displayed total and all programme parameters will be stored in permanent memory, and will be automatically recovered when the 4/20mA current is restored.

Main application of the BA554D 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. When used with a differential flowmeter, a root extracting function may be selected to linearise the input so that both the flow rate and the total flow are displayed in linear engineering units. When fitted with optional alarms, the BA554D can detect low or high flow rates and can perform simple flow batching operations.

Control and programming of the BA554D is performed via four push-buttons which are protected from tampering behind a sealed cover. For applications requiring frequent adjustment, the instrument can be supplied with an external membrane keypad. All the programme functions are contained in easy to understand menus which may be protected by a user definable security code. To simplify calibration the total scaling factor employs a floating decimal point.

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.

Backlighting is available as an option to improve readability when the BA554D is installed in a poorly illuminated area. High efficiency amber LEDs provide an even glow to enhance display contrast.

The enclosure, which is moulded in glass reinforced polyester (GRP), has stainless steel fittings, silicone gaskets and an armoured glass window. Its robust construction provides IP66 protection. A separate terminal compartment allows the BA554D to be installed and terminated without exposing the display electronics. To further simplify field wiring and subsequent inspection, the terminal cable entries and clamping screws are forward facing. Additional terminals are provided which may be used to link the return 4/20mA conductor and cable screens.

- **Loop powered only 1V drop**
- **Separate rate and total displays**
- **IP66 enclosure for surface or pipe mounting**
- **Root extractor**
- **Optional:**
  - **Alarms**
  - **Backlight**
  - **External keypad**
- **3 year guarantee**

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SPECIFICATION

Input

Current	4 to 20mA
Voltage	Less than 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	Less than 0.05% of span rejection 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

Environmental

Operating temperature	-20 to 60˚C
Storage temp	-40˚ to 85˚C
Enclosure	IP66 see ITS test report C87IV0383A
EMC	In accordance with EU Directive 89/336/EEC.
Immunity	Less than 1% of rate span error for 10V/m.
Emissions	Undetectable above background noise. Class B equipment

Mechanical

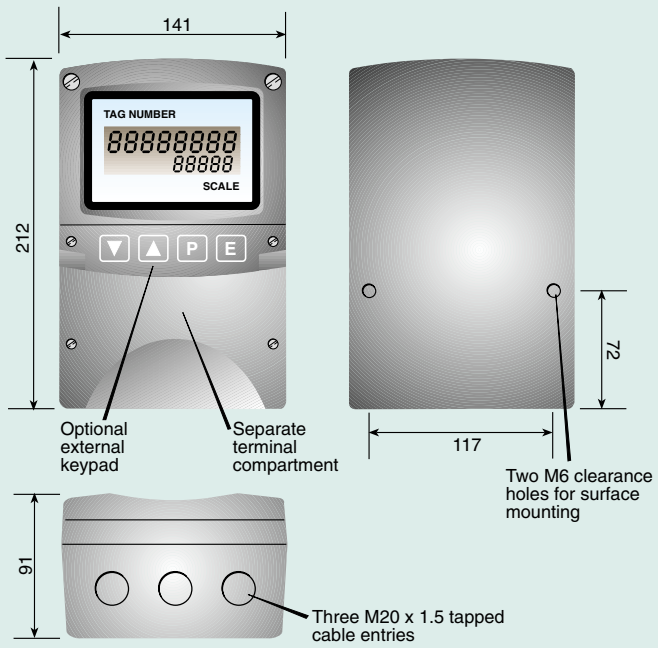
Terminals	Screw clamp for 0.5 to 2.5mm² cables.
Weight	1.6kg

Accessories

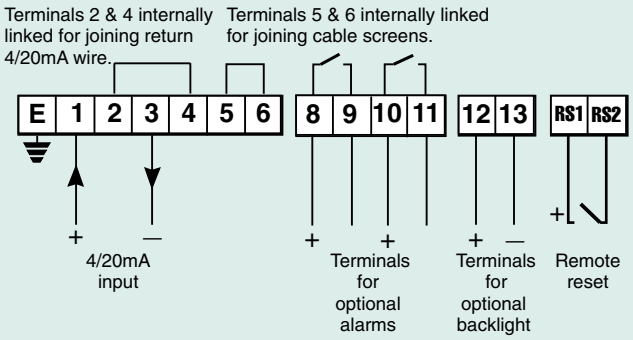
Separately powered backlight	LED backlight
Vin	18 to 30V dc. May be dimmed by reducing voltage below 18V
Iin	40mA typical
Alarms	Two independent alarms each of which may be programmed for high or low operation on either the rate or total display with a NC or NO output.
Outputs	Isolated solid state switch
On	Less than 5Ω +0.6V
Off	Greater than 180kΩ
Rating	30V dc; 250mA
External keypad	Membrane keypad enables instrument to be adjusted without removing the control cover.
Scale legend	Units of measurement marked onto display escutcheon. *
Tag legend	Tag number or applicational information marked on display escutcheon. *
Stainless legend plate	Stainless steel plate secured to front of instrument, etched with tagging or applicational information. *
Pipe mounting kit	2 kits are available BA392D and BA393.*

** See accessory datasheet for details*

DIMENSIONS (mm)



TERMINAL CONNECTIONS



HOW TO ORDER

	please specify
Model number	BA554D
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
External keypad	External keypad
Escutcheon marking	
Scale	Scale legend required
Tag	Tag legend required
Stainless legend plate	Legend required
Pipe mounting kit	BA392D or BA393

 # 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