

The BA354NE loop powered 4/20mA rate totaliser is a third generation field mounting instrument that is electrically and mechanically compatible with the earlier BA354ND, but it has a larger display, extended operating temperature and additional features such as a lineariser and bi-directional flow capabilities. Like its predecessor the BA354NE is housed in a robust IP66 GRP enclosure with a separate terminal compartment.

Main application of the BA354NE is to integrate the 4/20mA output from a hazardous area flow transmitter and display the flow rate and total flow in the same or different engineering units within Zone 2 or 22. When mounted in Zone 2 the BA354NE may be connected in series with the 4/20mA output from a flow transmitter installed in Zone 1 or 2 without the need for additional protection. Application Guide AG310, which may be downloaded from the BEKA website, describes how the BA354NE Ex nA rate totaliser may be directly connected to an Ex n, Ex e, Ex d or Ex p flow transmitter

The large display provides maximum contrast and has a very wide viewing angle, allowing the BA354NE totaliser to be easily read in most lighting conditions over a wide temperature range. An optional factory fitted backlight is available for applications in poorly illuminated areas. The 18mm high eight digit total display may be configured to show total flow in any units of measurement. The display may be reset to zero using a front panel push button or an external contact closure. The rate display may be calibrated to show flow in the same or in different engineering units to those used for the total display.

The robust GRP enclosure has stainless steel fittings, silicone gaskets and an armoured glass window providing IP66 protection. Ingress and impact protection have been independently assessed by Intertek. A separate terminal compartment allows the instrument 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 for linking the return 4/20mA conductor and the cable screens.

ATEX and IECEx non sparking Ex nA certification allows the BA354NE to be installed in a Zone 2 gas hazardous areas without the need for Zener barriers, galvanic isolators or a flameproof enclosure. For European and international Zone 2 applications the BA354NE offers a less expensive alternative to intrinsic safety and flameproof instrumentation.

Ex tc dust certification also allows the BA354NE to be installed in Zone 22 dust hazardous areas, again without the need for Zener barriers, galvanic isolators or a flameproof enclosure.

A backlight which may be loop or separately powered is available as a factory fitted option. It provides green background illumination allowing the display to be read at night or in poorly illuminated areas. When powered from the 4/20mA loop no additional field wiring is required but the indicator's voltage drop is increased. Powering from a separate supply produces a brighter backlight but requires additional field wiring.

Optional dual alarm outputs which can switch hazardous or safe area loads, such as sounders, beacons or solenoid valves, are available as a factory fitted option. The two galvanically isolated solid state outputs may be independently conditioned as high or low alarms with normally open or closed outputs. Annunciators on the display show the status of both alarm outputs.

Reliability is ensured by component conformal coating, protection from incorrect connection and radio frequency interference. The indicator has been subjected to extensive vibration testing and is supported by a three year guarantee.

BA354NE

2-wire 4/20mA rate totaliser

Type nA & tc certified for use in Zones 2 & 22 hazardous areas

- ◆ Loop powered only 1.2V drop
- ◆ Total display 8 digit 18mm high
Rate display 5 digit 12mm high
- ◆ Ex nA gas and Ex tc dust ATEX & IECEx certification.
- ◆ IP66 GRP enclosure with separate terminal compartment
- ◆ Uni-directional & bi-directional operation
- ◆ Root extractor and 16 segment lineariser
- ◆ Optional backlight & alarms
- ◆ 3 year guarantee



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SPECIFICATION

Input	
Current	4 to 20mA
Voltage	Less than 1.2V at 20°C Less than 1.3V at -20°C Less than 5V with optional loop powered backlight.
Overrange	±200mA or ±30V will not damage the instrument.
Display	
Type	Liquid crystal, multiplexed 2:1
Zero blanking	Blanked apart from 0 in front of decimal point.
Rate~	5 digits 12mm high.
Span	Adjustable between 0 & ±99999 for a 4/20mA input.
Zero	Adjustable between 0 & ±99999 with 4mA input.
Decimal point	1 of 4 positions or absent
Timebase	Per second, minute or hour
Total~	8 digits 18mm high
Scaling factor	Adjustable between 0.0001 & 99999
Decimal point	1 of 5 positions or absent
Grand total	Maximum count 10 ¹⁶

~ Rate & Total can be shown on either display

Push buttons	(Function in display mode)
▼	Shows rate display with 4mA input
▲	Shows rate display with 20mA input
'P'	Displays input in mA or a % of span, has a modified function when alarms are fitted.
'E'	Time since total display was reset

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

Certification	
Europe ATEX	
Code	Group II Category 3GD Ex nA ic IIC T5 Gc Ex tc IIIC 80°C Dc IP66 Ta = -40 to +70°C
Input parameters	100mA
li	ITS11ATEX47255
Cert. No.	
International IECEx	
Code	Ex nA ic IIC T5 Gc Ex tc IIIC 80°C Dc IP66 Tamb = -40 to 70°C
Cert. No.	IECEx ITS 11.0016

Environmental	
Operating temperature	-40 to +70°C
Display	-20 to +70°C
Storage temperature	-40 to +85°C
Humidity	to 95% at 40°C noncondensing
Vibration	Report available
Enclosure	IP66
EMC	Complies with EMC Directive 2004/108/EC

Mechanical	
Terminals	Screw clamp for 0.5 to 1.5mm ² cable
Weight	1.7kg

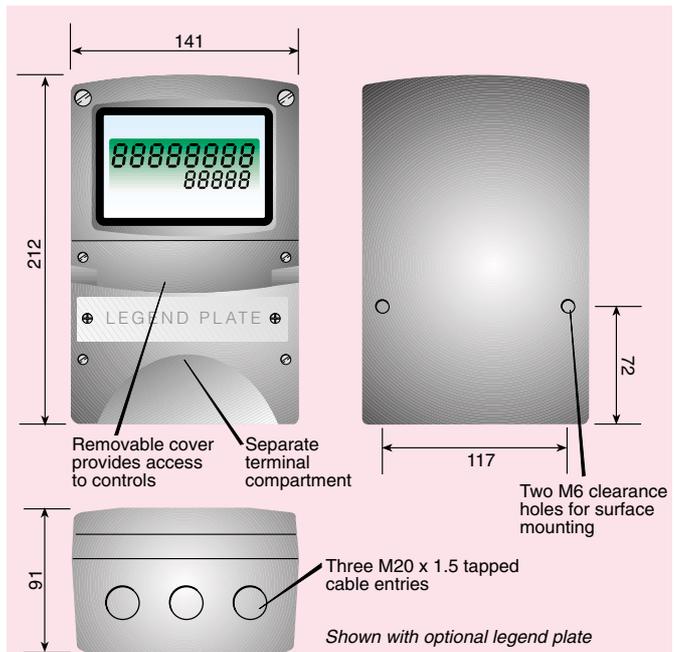
Accessories	
Backlight	Green, may be loop or separately powered
Loop powered	Input voltage increased to 5V
Separately powered.	10.5V min at 35mA

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.
Output	Isolated solid state switch
Ron	5Ω + 0.7V max
Roff	1MΩ min

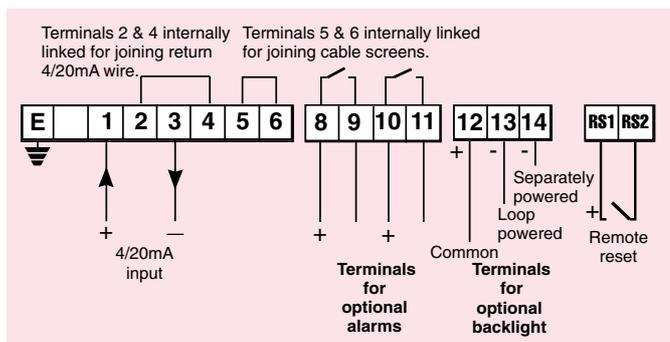
External keypad	Membrane keypad enables totaliser to be controlled without removing cover.
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Scale legend	Units of measurement marked onto display escutcheon.
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DIMENSIONS (mm)



TERMINAL CONNECTIONS



Tag legend	Tag number or application marked onto display escutcheon.
Stainless steel legend plate.	Stainless steel plate etched with tag number or application attached to front of the instrument. #
Pipe mounting kit	BA392D or BA393 #

See accessory datasheet for details

HOW TO ORDER

Model number	Please specify BA354NE
Display mode	Linear, root or lineariser*
Rate display at:	XXXXX } Include position of decimal point & sign XXXXX } if negative, plus intermediate points if XXXXX } linearisation is required.*
Rate timebase	Seconds, minutes or hours*
Total scale factor	(Units of rate display)÷(Units of total display)*
Accessories	Please specify if required
External keypad	External keypad
Display backlight	Backlight
Dual alarms	Alarms
Escutcheon marking	
Scale	Legend required
Tag	Legend required
Stainless legend plate	Legend required
Pipe mounting kit	BA393D or BA393

* If calibration information is not supplied the totaliser will be set to display a rate of 0.00 at 4mA and 100.00 at 20mA with a linear display, a timebase of seconds and a total scale factor of 1. Can easily be recalibrated on-site.