The BA338C is an externally powered, intrinsically safe rate totaliser with separate rate and total displays which will operate from a switch contact, voltage pulse, magnetic pick-off, open collector or a proximity detector input. A novel adaptive measuring technique plus an adjustable digital filter ensure that optimum rate display stability and step response can be achieved over a wide input frequency range.

Main application of the BA338C is to process the pulse output from a hazardous area flowmeter, and to display the rate of flow and the total flow in the same or different engineering units. The instrument may be used with any flowmeter having a pulse output proportional to flow rate, such as a turbine flow meter. When fitted with optional alarms, the instrument can perform simple flow batching applications. Optional pulse and 4/20mA outputs enable the rate totaliser to operate remote counters and analogue instruments.

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.

ATEX intrinsic safety certification permits installation in all gas hazardous areas throughout Europe. The voltage input terminals 3 & 4 comply with the requirements for simple apparatus allowing direct connection to most certified magnetic pick-offs and voltage pulse sources. FM intrinsic safety and nonincendive approvals allow the BA338C to be used in the USA.

Backlighting is available as an option to improve readability when the BA338C is installed in a poorly illuminated area. High efficiency amber LEDs provide an even glow to enhance display contrast.

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 hazardous area certified load such as a solenoid valve or sounder may be controlled by these outputs.

The optional 4/20mA output is isolated and complies with the requirements for intrinsic safety simple apparatus allowing connection to a wide range of Zener barriers and galvanic isolators. It may be programmed to produce an analogue output proportional to any part of the rate display, thus making the BA338C an effective hazardous area pulse to 4/20mA converter.

BA338C
Externally powered pulse input rate totaliser
Intrinsically safe for use with pulse output flowmeters in all gas hazardous areas

- Magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse input.
- Separate rate and total displays.
- Intrinsically safe ATEX & FM certification.
- 144 x 72 DIN enclosure with IP65 front.
- Optional: Display backlight
- Alarms
- Pulse and 4/20mA outputs.
- 3 year guarantee

www.beka.co.uk/BA338C

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SPECIFICATION

**Power supply**
- Voltage: The BA338C must be powered via a Zener barrier or galvanic isolator. DC power input required. 10 V min between terminals 1 and 2.
- Current: 12 mA max., plus proximiton detector currents when used.

**Input**
- Switch contact: Less than 10 0Ω.
- Open: Greater than 1 kΩ.
- Proximity detector: 2-wire NAMUR.
- Magnetic pick-off: 40 mV peak to peak typical.
- Voltage pulse: Low: Less than 1 V. High: Greater than 3 V; 30 V max.
- Open collector: Closed: Less than 2 kΩ. Open: Greater than 10 kΩ.
- Frequency: Switch contact: 0.01 Hz to 100 Hz. Other outputs: 0.01 Hz to 50 Hz max.

**Display**
- Type: Liquid crystal.
- Rate: 6 digits 9.5 mm high.
- Total: 8 digits 14 mm high.
- Decimal point: 1 of 5 positions or absent.
- Grand total: Max count 10^16.

**Remote reset**
- Contact closure with resistance less than 1 kΩ.

**Programmable functions**
- Total dividing scale factor: Adjustable between 0.001 & 99999999.
- Rate dividing scale factor: Adjustable between 0.001 & 99999999.
- Rate timebase: Rate may be displayed per second, minute, or hour.
- Rate display filter: Adjustable digital filter.

**Intrinsic safety**
- **Europe ATEX**
  - Code: Group II, Category 1G, Ex ia IIC T5
  - Certificate number: ITS01ATEX2002
  - Location: Zone 0, 1 or 2
- **USA FM**
  - Standard: 3610 Entity
    - Code: CL I; Div 1; GP A, B, C & D
    - T4: 60°C
  - File No: 3022309
  - Standard: 3611 Nonincendive
    - Code: CL I; Div 2; GP A, B, C & D
    - T4: 60°C
  - File No: 3022309
- **Greenhouse**
- **Inland**

**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 at 10 V/m.
- Emissions: Undetectable above background noise.
- Class B equipment.

**Mechanical**
- Terminals: Screw clamp for 0.5 to 1.5 mm² cables.
- Weight: 0.6 kg.

**Accessories**
- Alarms: Two independent alarms each of which may be programmed for high or low operation with NC or NO output.
- Outputs: Isolated solid state switch.
  - On: Less than 50 ± 0.6 V.
  - Off: Greater than 180 kΩ.
- Display backlight: LED backlight powered from 28 V 93 mA Zener barrier or galvanic isolator.
- Re-transmitted pulse: Isolated, certified as simple apparatus.
- 4/20 mA output: Isolated current sink, certified as simple apparatus.
- Voltage drop: 5 V max.
- 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.

**DIMENSIONS (mm)**

**TERMINAL CONNECTIONS**

**HOW TO ORDER**

- **Model number**
- **Type**
- **Input**
- **Rate scaling factor**
- **Total scaling factor**
- **Rate timebase**
- **Deaths, minutes or hours #**
- **Accessories**
- **Type**
- **Pulse output**
- **Legend required**
- **Legend required**

*See accessory datasheet for details.*

# If calibration information is not supplied, instrument will be set for open collector input with rate timebase of seconds, rate scaling factor of 1 and total scaling factor of 1.