



# DIN Rail Mount Indicators

## RM4-QC Totaliser/Ratemeter/Position - A & B quadrature pulse input

### Description

The RM4-QC is a quadrature pulse input DIN rail mounted process unit which can function as an indicator/ alarm/ controller/ transmitter/ computer interface.

The instrument can function as a ratemeter or totaliser with the option of toggling (via the  or  or a remote switch input) between rate and total display. All setup and scaling and is carried out via the instruments pushbuttons.

The quadrature input allows rate direction indication i.e. negative or positive rate for clockwise/ anti-clockwise and addition/ subtraction from the total depending on the direction.

Applications include flow rate and total in litres/sec or litres/hr (+ total litres), RPM (+ total revs), bottles/min (+ total bottles). Versatile separate rate and total scaling to allow display combinations such as rate in mm/sec. and total in metres.

Two alarm relays are provided as standard which can be independently programmed to operate on the rate or the total. In addition to normal total alarm operation a special "pass" mode allows the relays to be configured to activate for a programmable time on multiples of a total e.g the a relay can be programmed to close for 0.5 seconds every time the total reaches a multiple of 1000.

Combinations of optional outputs including extra relays, analog retransmission or serial communications (ASCII or Modbus protocol) can also be provided. The RM4-QC has a programmable display brightness function. The programmable digital filter improves stability by smoothing out short term interference.

An external input is configurable to perform one of various functions e.g. Two level brightness switching, peak hold, display hold, max/min memory, rate/total display toggle, security lockout, and reset (zero).

Electrical isolation between power supply, input voltage/ current and retransmission eliminates grounding and common mode voltage problems.



### Features

- Rate/Total display toggle via pushbuttons
- Totaliser memory retained for at least 40 days with no power
- Pushbutton calibration and setup and scaling
- 240V, 110V, 48V, 42V, 32V, 24VAC or 12 to 48VDC operation (factory configured)
- Digital filter, improves stability
- Two alarm/control relay outputs (5A)
- Inbuilt transmitter supply, 5V or 24VDC (unreg, common ground)
- Remote inputs for reset or to perform special functions e.g. display hold, peak hold, reset (zero), rate/total display toggle
- Programmable **P** button function, may be used for high/low memory, reset or preset
- Selectable display update rate 1, 2, 4, 8, 16 or 32 per sec
- 5 digit LED display and relay/alarm status LEDs
- Isolation between input signal, output and supply
- Programmable display brightness
- Auto dim feature conserves power
- 2 year guarantee

### Options

- Isolated analog output single or two independent outputs 4-20mA, 0-1V or 0-10V
- 16 bit analog retransmission + 3rd setpoint relay
- Isolated & regulated 12VDC @ 50mA or 24VDC @ 25mA (link selectable)
- Isolated RS232, RS422 or RS485 serial comms, ASCII or Modbus RTU protocol
- Combined analog 4-20mA and RS485 serial outputs



RM4QC-3.2-0

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# Specifications

## Technical Specifications

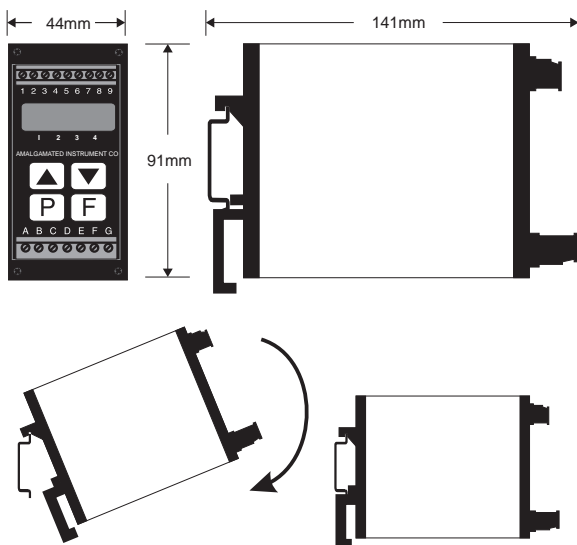
**Input:** Quadrature encoder A & B inputs  
**Max input freq:** 100kHz  
**Max input Voltage:** 24VDC signal pulses  
**Display update freq:** Selectable - 1, 2, 4, 8, 16 or 32 per sec  
**Input impedance:** 100Ω (5V input) or 10kΩ (>5V input)  
**Memory Retention:** Total memory for at least 40 days with power removed  
**Display reset:** Remote reset via "Reset" terminal, front panel **P** button or "remote input" if programmed  
**Microprocessor:** MC68HC11 CMOS  
**Ambient temp:** -10°C to 60°C  
**Humidity:** 5% to 95% non condensing  
**Display:** LED 5 digit 7.6mm and alarm annunciator LEDs  
**Power supply:** 240V, 110V, 48V, 42V, 32V, 24VAC or 12 to 48VDC (factory configured)  
**Power usage:** AC supply 6 VA max, DC supply, <6W (depends on load & options)  
**Output (standard):** 2 x relays, form A  
 Rated 5A resistive 240VAC  
 24VDC unregulated transmitter supply (common ground) **25mA max**  
 Programmable N.O. or N.C.  
**Relay action:**

## Output Options

**Third relay :** Rated 0.5A resistive at 30VAC or DC, form C if no other options fitted (otherwise form A)  
**Fourth relay:** Rated 0.5A resistive at 30VAC or DC, form A  
**Retransmission:** Analog 4 to 20mA, 0 to 1V or 0 to 10V link selectable (single or dual channel versions)  
 16 bit single channel available  
 Serial RS232, RS485 or RS422 choice of ASCII or Modbus RTU protocols  
**DC voltage out:** Isolated 24V at 25mA or 12VDC at 50mA (link selectable)

## Physical Characteristics

**Case size:** 44mm x 91mm x 141mm  
**Connections:** Plug in screw terminals  
 2.5mm<sup>2</sup> wire)  
**Weight:** 500g basic model, 550g with option card



# RM4-QC Order Codes

**RM4-QC** - [ ] - [ ] - [ ]

## Power Supplies

**RM4-QC** - [XXX] - [ ] - [ ]

240VAC .....	240
110VAC .....	110
48VAC .....	48
42VAC .....	42
32VAC .....	32
24VAC .....	24
12 to 48VDC .....	DC

## Display Type

**RM4-QC** - [ ] - [5E] - [ ]

## Options

**RM4-QC** - [ ] - [ ] - [XXX]

ANALOG (4-20mA, 0-1V or 0-10V selectable) .....	A
DUAL ANALOG (4-20mA, 0-1V or 0-10V selectable) .....	AA
RS232 .....	232
RS485 .....	485
RS422 .....	422
DC VOLTAGE OUTPUT 24V (±12V) .....	E
THIRD RELAY .....	R
THIRD & FOURTH RELAYS .....	RR
ANALOG (16 BIT) PLUS 3RD RELAY .....	AHR
3RD RELAY PLUS 24V (±12VDC) OUTPUT .....	RE
3RD RELAY PLUS ANALOG (12 BIT) .....	AR
ANALOG (12 BIT) PLUS 24V (±12VDC) OUTPUT .....	AE
ANALOG (12 BIT) PLUS RS485 .....	A485

## Common optional output connections

<b>Third relay + analog retransmission</b>
1 Relay 3
2 Relay 3
3 Analog retransmission +
4 Analog retransmission -
<b>Transmitter supply + analog retransmission</b>
1 Transmitter supply 12/24VDC +
2 Transmitter supply GND
3 Analog retransmission +
4 Analog retransmission -
<b>Third relay only (Form C)</b>
1 Not used
2 Relay 3 N/C
3 Relay 3 N/O
4 Relay 3 COM
<b>Third and fourth relays</b>
1 Relay 4
2 Relay 4
3 Relay 3
4 Relay 3
<b>Serial communications</b>
1 RS232 Tx or RS485/RS422 A
2 RS232 Tx or RS485/RS422 B
3 RS232/RS485 GND or RS422A
4 RS422 B

