



RM4-CO Process Unit DIN Rail Mounted

Conductivity/ppm/Resistivity Functions as: Display/Alarm/Controller/ Transmitter/PLC & Computer Interface

Description

Model RM4-CO is a DIN rail mounted process unit which can function as an indicator/alarm/controller/transmitter/computer interface.

Flexible calibration and programming functions allow easy setup and calibration. All function settings and calibration scaling is carried out via the instruments pushbuttons. Cell constants are programmable, allowing the instrument to be used with a wide range of cells.

The display may be programmed to indicate conductivity in mS/cm, uS/m, mS/m or uS/cm, resistivity in MΩ or ppm. For ppm measurement a known conductivity to ppm conversion factor for the solution must be entered. A temperature sensor input is provided for automatic temperature compensation. The temperature may also be viewed on the display (display toggle is via the front  and  pushbuttons).

Two alarm relays are provided as standard. Each alarm can be configured to operate from the main measurement (conductivity, resistivity or ppm) or temperature when a temperature sensor is used. Combinations of optional outputs including extra relays, analog retransmission (including dual analog to allow temperature retransmission in addition to the main reading) or serial communications (ASCII or Modbus RTU protocol) can also be provided. The optional analog output can be configured for retransmission or PI control.

The RM4 has a programmable display brightness function. To reduce power consumption in normal use the display can be programmed to automatically dim or blank after a set time.

A hydrogen ion compensation function is provided to allow accurate measurement of low conductivity, high resistance solutions such as ultra pure water and boiler water.

The programmable digital filter improves stability by smoothing out short term interference. Electrical isolation between power supply, input signals and retransmission eliminates grounding and common mode voltage problems.



Features

- Conductivity, Resistivity or ppm display
- Pushbutton calibration and setup
- 5 digit LED display and relay/alarm status indication
- Programmable **P** button for max/min display toggle
- Isolation between input signal, output and supply
- Powered by 240V, 110V, 48V, 42V, 32V, 24VAC, 12 to 48V DC or 50 to 110V DC (supply type is factory configured)
- Digital filter, improves stability
- Two alarm/control relay outputs (5A) standard
- Programmable display brightness reduces power consumption and controls glare in low brightness areas
- Auto dim feature conserves power
- Rugged aluminium DIN rail mount housing
- 2 year guarantee

Options

- Isolated analog output single or two independent outputs 4-20mA, 0-1V or 0-10V (first output configurable as retransmission or PI control)
- Additional relays in combination with analog or transmitter supply outputs
- Isolated & regulated 12VDC @ 50mA or 24VDC @ 25mA (link selectable)
- Isolated RS232, RS422 or RS485 serial comms. with choice of ASCII or Modbus RTU protocol
- Combined analog 4-20mA and RS485 serial outputs

SPECIFICATIONS

Specifications are subject to change without notice

TECHNICAL SPECIFICATIONS

Input : Conductivity cell (K=0.01, 0.05, 0.1, 0.5, 1.0, 2.0, 5.0, 10, 20, 50 or 100 selectable)

Temperature input : 100Ω RTD (Pt100), 1000Ω RTD (Pt1000), LM335 or UUB25J1 temperature sensor or manual compensation

Measuring range: 0.00 to full display range uS/cm, uS/m, mS/cm or mS/m or ppm or MΩ (up to 18MΩ) and -40 to 120°C

Accuracy: 1% of full scale

Sample rate: 1 sample every 2 seconds

A/D converter: 20,000 count Dual Slope integrating

Microprocessor: MC68HC11 HCMOS

Ambient Temp: -10 to 60°C

Humidity: 5 to 95% non condensing

Display: LED 5 digit 7.6mm + alarm annunciator LEDs

Power Supply: AC 240V, 110V, 48V, 42V, 32V, 24V, 12 to 48V DC or 50 to 110V DC factory configured)

Power Consumption: AC supply 6VA max, DC supply less than 6W (depends on load and options)

Output (standard): 2 x relays, form A rated 5A resistive 240VAC

Relay Action: Programmable N.O. or N.C.

OUTPUT OPTIONS (see order code for valid combinations)

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

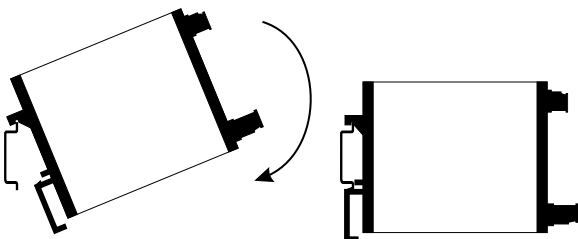
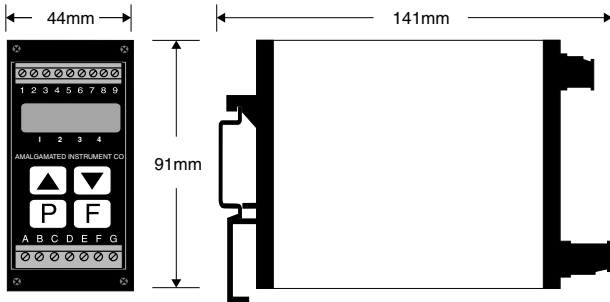
Switched voltage: 24VDC output (common to input ground but isolated from supply) to be used for open collector or solid state relay driver

Transmitter supply: Isolated & regulated 12VDC @ 50mA or 24VDC @ 25mA (link selectable)

Analog retransmission: Isolated 4-20mA. 0-1V or 0-10V link selectable. 12 bit or 16 bit resolution versions available. Dual 12 bit outputs also available. 4-20mA will drive up to 1KΩ load.

Serial communications: Isolated RS232, RS485 or RS422 factory configured (ASCII or Modbus RTU)

DIMENSIONS AND INSTALLATION DETAILS



PHYSICAL CHARACTERISTICS

Case size: 44mm x 91mm x 120mm behind face of panel

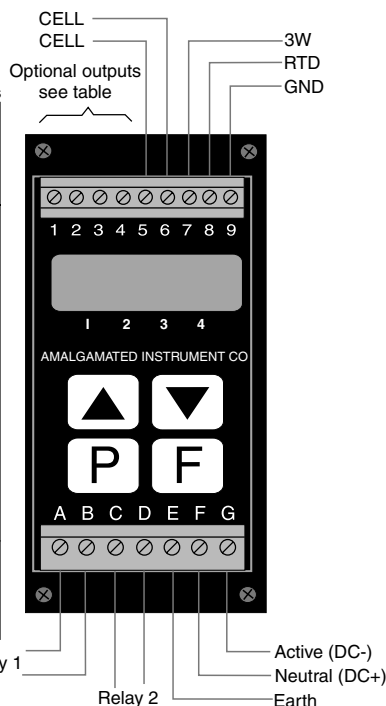
Connections: Plug in screw terminals. Max. 2.5mm² wire (relays and supply), 1.5mm² wire for input and options

Weight: 500 gms basic model, 550 gms with option card

ELECTRICAL CONNECTIONS

Common optional output connections

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



ORDER CODE

RM4-CO- [] [] [] - 5 [] E - [] [] [] []

POWER SUPPLY

RM4-CO- [] [] [] - 5 [] E	
240 VAC	[2] [4] [0]
110 VAC	[1] [1] [0]
48 VAC	[4] [8]
42 VAC	[4] [2]
32 VAC	[3] [2]
24 VAC	[2] [4]
12 to 48 VDC	[D] [C]
50 to 110 VDC	[D] [C] [H]

DISPLAY TYPE (ALL MODELS ARE TYPE 5E)

RM4-CO- [] [] [] - 5 [] E - [] [] [] []

5 DIGIT LED + KEYPAD + STATUS LEDs [5] [E]

OUTPUT OPTIONS

THIRD RELAY	[R]
THIRD AND FOURTH RELAY	[R] [R]
THIRD AND FOURTH SETPOINTS 24VDC	[S] [S]
ANALOG RETRANSMISSION (12 BIT)	[A]
DUAL ANALOG RETRANSMISSION (12 BIT)	[A] [A]
ANALOG RETRANSMISSION PLUS	
TRANSMITTER SUPPLY	[A] [E]
TRANSMITTER SUPPLY	[E]
ANALOG RETRANSMISSION (12 BIT)	
PLUS 3RD RELAY	[A] [R]
RS232 COMMUNICATIONS - ISOLATED	[2] [3] [2]
RS422 COMMUNICATIONS - ISOLATED	[4] [2] [2]
RS485 COMMUNICATIONS - ISOLATED	[4] [8] [5]
ANALOG RETRANSMISSION (12 BIT)	
PLUS RS485 COMMUNICATIONS	[A] [4] [8] [5]