DIN Rail Mount Indicators
RM4-PH pH or ORP (Redox) electrode input

Description

The RM4-PH accepts its input from any conventional pH electrode or pH unity gain amplifier or ORP (Redox) electrode and a temperature sensor input is provided for temperature compensation . The RM4-PH has a useful uncalibrate mode that returns the calibration back to that of an ideal electrode. This feature is useful when the electrode is replaced and "on the spot" recalibration is inconvenient.

All function settings and calibration scaling is carried out via the instrument's pushbuttons.

Two alarm relays are provided as standard. The alarm relays can be set to operate as either standard alarm relays (from pH, ORP or temperature reading) or PI control (pulse width or frequency) operation.

Combinations of optional outputs including extra relays, analog retransmission or serial communications (ASCII or Modbus RTU protocol) can also be provided. The optional analog output can be configured for retransmission or PI control. A dual analog option allows both pH and temperature to be retransmitted as separate signals.

The RM4 has a programmable display brightness function, this allows the unit to be operated with low display brightness to reduce the instrument power consumption and to improve readability in darker areas.

The programmable digital filter improves stability by smoothing out short term interference in many applications this can allow stable readings from cables of up to 15metres in length.

An external input is configurable to perform one of various functions e.g. Two level brightness switching, peak hold, display hold, max/min memory, setpoint only access or security lockout.

Electrical isolation between power supply, input signals and retransmission eliminates grounding and common mode voltage problems. This isolation feature makes the RM4 ideal for interfacing to PLCs, computers and other data acquisition equipment.

Features

- Pushbutton calibration and setup
- Automatic temperature compensation
- Display can be toggled to show temperature when the temperature sensor input is used
- Isolation between input signals, output, power supply
- Rugged construction
- Remote input to perform special functions e.g. max/min, peak/display hold, security lockout
- 5 digit LED display and relay/alarm status indication
- 240V, 110V, 48V, 42V, 32V, 24V AC or 12 to 48V DC (factory configured)
- Digital filter, improves stability
- Two alarm/control relay outputs (5A) standard configurable for pH/ORP and temperature alarm or PI (pulse width or frequency) control
- 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
- 16 bit analog retransmission plus 3rd setpoint relay
- 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

RM4PH-3.3-0

Specifications

Technical Specifications

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Input types:	pH electrode where $E_o = 7$ or from electronic buffer amplifier or standard platinum Redox electrode
Temperature input:	Pt100, Pt1000 3kΩ Balco or LM335 temperature sensor or manual input
Input Impedance:	$> 10^{10} \Omega$
Accuracy:	0.2% of full scale (pH and ORP)
Sample rate:	1 sample per second
ADC resolution:	1 in 20,000
Conversion:	Dual Slope ADC
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
Relay action:	Programmable N.O. or N.C.
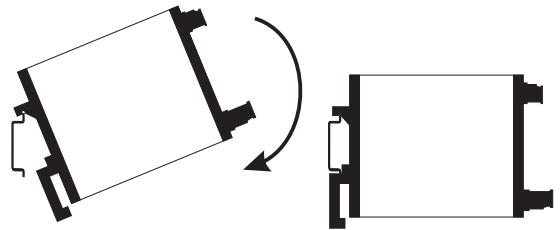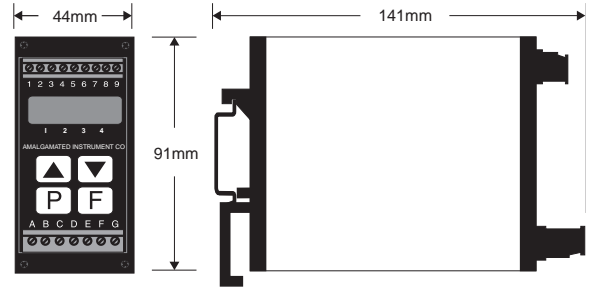
Output Options - see below for full list

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^2 wire)
Weight:	500g basic model, 550g with option card
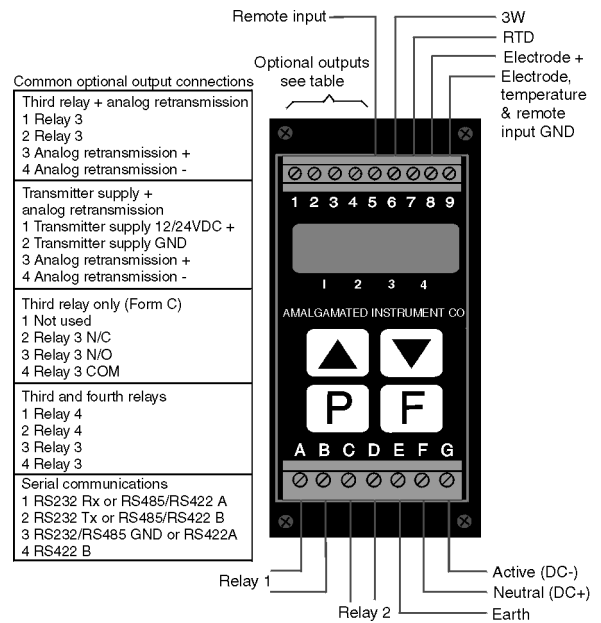
RM4-PH Order codes
The last section is for optional outputs, if required. (Note: only one of the optional outputs below can be fitted).

RM4-PH- [ ] - [5E] - [ ]

Power supply
240	240VAC
110	110VAC
48	48VAC
42	42VAC
32	32VAC
24	24VAC
DC	12-48VDC isolated

Display type
5E	5 digit 7.6mm red led with front pushbuttons & annunciators

Optional outputs
R	3rd setpoint relay (form C) - rated 0.5A/32VAC or DC
RR	3rd & 4th setpoint relays (form A) - rated 0.5A/32VAC or DC
RE	3rd setpoint relay (form C) - rated 0.5A/32VAC or DC and 12 or 24V isolated regulated transmitter supply
E	12 or 24V isolated regulated transmitter supply
SS	3rd and 4th setpoints, transistor 24VDC output or open collector NPN
A	Analog retransmission (12 bit 4-20mA, 0-1V or 0-10V) isolated
AA	Dual analog retransmission (12 bit 4-20mA, 0-1V or 0-10V individually isolated)
AE	Analog retransmission (12 bit 4-20mA, 0-1 or 0-10V) plus 12 or 24V regulated transmitter supply
AR	Analog retransmission (12 bit 4-20mA, 0-1 or 0-10V) plus 3rd setpoint relay (form A)
AHR	Analog retransmission (16 bit 4-20mA, 0-1 or 0-10V) plus 3rd setpoint relay (form A)
232	RS232 serial communications output - isolated
422	RS422 serial communications output - isolated full duplex (4 wire)
485	RS485 serial communications output - isolated half duplex (2 wire)
A485	Analog retransmission (12 bit 4-20mA, 0-1 or 0-10V) plus RS485 serial communications