

RM4 Serial Input Process Units

DIN Rail Mounted

Models for RS232, RS485, RS422 or serial current loop

Functions as:

Display/Alarm/Signal Converter/
PLC & Computer Interface

Description

These models are serial input DIN rail meters which will accept a factory configured input of either RS232, RS485, RS422 or serial current loop in either ASCII or Modbus RTU protocol. The RM4-RS can function as an indicator/alarm/serial to analog converter/serial to serial converter/PLC or computer interface.

The serial baud rate, parity, data bits and other parameters are easily set up by the user using "on display" easy to follow messages. An RS485 or RS422 arithmetic operation mode allows the RM4 to poll up to eight external AIC instruments and perform arithmetic operations on the result using a versatile formula.

The instrument can poll up to eight external AIC instruments with automatic or manual display scrolling showing 3 digits plus channel number.

An alpha character feature allows certain alpha characters to be displayed. This feature is ideal for displaying special messages (e.g. **OPEN**, **CLOSE** etc.). The RM4 is also capable of transmitting a polling command of up to eight characters in length to request data from other instruments.

Two alarm relays are provided as standard. Optional output combinations including extra relays, isolated analog retransmission (4-20mA, 0-1V or 0-10VDC) or isolated serial comms. can also be provided. The serial communications options allows the instruments to retransmit as a RS232 or RS485 or RS422 signal in ASCII or Modbus RTU protocol.

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. To reduce power consumption in normal use the display can be programmed to automatically dim or blank after a set time. The display brightness will be restored if an alarm relay is activated or any of the front buttons is pushed.

An external input (not available with RS422) is configurable to perform one of various functions e.g. Two level brightness switching, peak hold, display hold, max/min memory, setpoint only access, security lockout or zero.

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



Features

- RS232, RS485, RS422 or serial current loop input (ASCII or Modbus RTU protocol)
- Pushbutton programming
- Rugged construction
- 240V, 110V, 48V, 42V, 32V, 24VAC, 12 to 48V DC or 50 to 110V DC operation (supply type is factory configured)
- Arithmetic capability from up to eight sources
- Polling from up to eight external sources
- Optional retransmission provides analog output, 4-20, 0-1V or 0-10V or serial output (RS232, RS485 or RS422 in ASCII or Modbus RTU)
- Programmable baud rate, parity, decimal point and data bits (7 or 8)
- Programmable terminating characters, skip characters and alpha enable
- Two alarm/control relay outputs (5A)
- Remote input to perform special functions e.g. display hold, peak hold, high memory, low memory, brightness level switching, zero, setpoint only access or full security lockout of functions (not available with RS422)
- 5 digit LED display and relay/alarm status LEDs
- Isolation between input signal, output and supply
- 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 12 bit analog output single or two independent outputs 4-20mA, 0-1V or 0-10V
- 16 bit analog retransmission + 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

SPECIFICATIONS

Specifications are subject to change without notice

TECHNICAL SPECIFICATIONS

Input Types: Models available for RS232, RS485, RS422 or serial current loop

Baud rate: 300, 600, 1200, 2400, 4800, 9600, 19200 or 38400 baud

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: 240V, 110V, 48V, 42V, 32V, 24VAC
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 & 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)

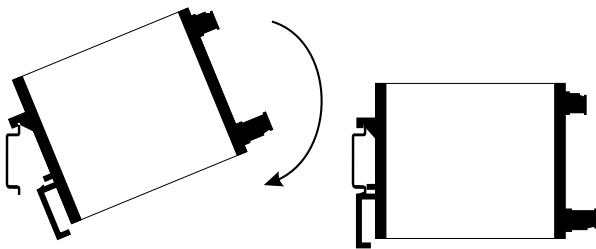
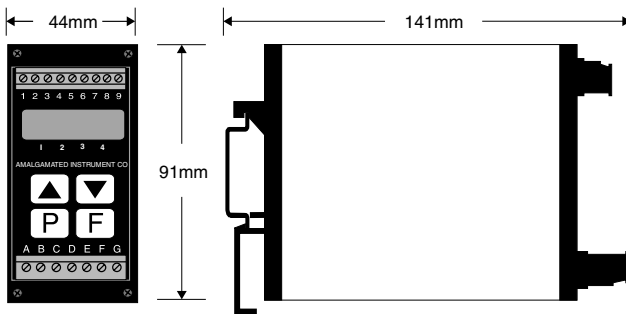
Third relay: Rated 0.5A resistive at 30VAC or DC, form C if no other options fitted, otherwise form A

Fourth relay: Rated 0.5A resistive at 30VAC or DC, form A

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

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

DIMENSIONS AND INSTALLATION DETAILS



Analog retransmission: Isolated 4-20mA. 0-1V or 0-10V link selectable. 12 bit (single or dual channel) or 16 bit (single channel) resolution versions available

Serial communications: Isolated RS232, RS485 or RS422 factory configured

PHYSICAL CHARACTERISTICS

Case size: 44mm x 91mm x 141mm

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

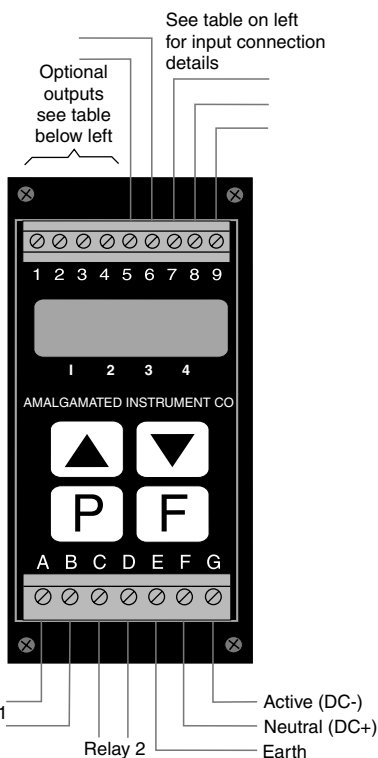
Weight: 500 gms basic model, 550 gms with option card

ELECTRICAL CONNECTIONS

Input connection details	
RS232	RS485
5 Remote input	5 Remote input
6 Not used	6 Not used
7 Tx (data out)	7 RS484 B
8 Rx (data in)	8 RS485 A
9 GND	9 GND
RS422	Current loop
5 Tx B (out)	5 Remote input
6 Tx A (out)	6 not used
7 Rx B (in)	7 Current loop -
8 Rx A (in)	8 Current loop +
9 GND	9 GND

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 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 RS422A	4 RS422 B



ORDER CODE

RM4- - - 5 E -

INPUT TYPE

RM4-

RS232	<input type="text"/> <input type="text"/> <input type="text"/>
RS485	<input type="text"/> <input type="text"/> <input type="text"/>
RS422	<input type="text"/> <input type="text"/> <input type="text"/>
SERIAL CURRENT LOOP	<input type="text"/> <input type="text"/>

POWER SUPPLY

RM4- - - 5 E

240 VAC	<input type="text"/> <input type="text"/> <input type="text"/>
110 VAC	<input type="text"/> <input type="text"/> <input type="text"/>
48 VAC	<input type="text"/> <input type="text"/> <input type="text"/>
42 VAC	<input type="text"/> <input type="text"/> <input type="text"/>
32 VAC	<input type="text"/> <input type="text"/> <input type="text"/>
24 VAC	<input type="text"/> <input type="text"/> <input type="text"/>
12 to 48 VDC	<input type="text"/> <input type="text"/>
50 to 110 VDC	<input type="text"/> <input type="text"/> <input type="text"/>

DISPLAY TYPE (ALL MODELS ARE TYPE 5E)

RM4- - - 5 E

5 DIGIT LED + KEYPAD + STATUS LEDs

OUTPUT OPTIONS

THIRD RELAY (FORM A)	<input type="text"/>
THIRD AND FOURTH RELAY	<input type="text"/> <input type="text"/>
THIRD RELAY PLUS TRANSMITTER SUPPLY	<input type="text"/> <input type="text"/>
TRANSMITTER SUPPLY	<input type="text"/>
THIRD AND FOURTH SETPOINTS 24VDC	<input type="text"/> <input type="text"/>
ANALOG RETRANSMISSION (12 BIT)	<input type="text"/>
DUAL ANALOG RETRANSMISSION (12 BIT)	<input type="text"/> <input type="text"/>
ANALOG PLUS TRANSMITTER SUPPLY	<input type="text"/> <input type="text"/>
ANALOG (12 BIT) PLUS 3RD RELAY	<input type="text"/> <input type="text"/>
ANALOG (16 BIT) PLUS 3RD RELAY	<input type="text"/> <input type="text"/> <input type="text"/>
RS232 COMMUNICATIONS - ISOLATED	<input type="text"/> <input type="text"/> <input type="text"/>
RS422 COMMUNICATIONS - ISOLATED	<input type="text"/> <input type="text"/> <input type="text"/>
RS485 COMMUNICATIONS - ISOLATED	<input type="text"/> <input type="text"/> <input type="text"/>
ANALOG RETRANSMISSION (12 BIT)	<input type="text"/>
PLUS RS485 COMMUNICATIONS	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>