

# RM4-TMR Timer

## Process Unit. DIN Rail Mounted

### Functions as: Display/Alarm/Controller/Transmitter/ PLC & Computer Interface

#### Description

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

All function selections are setup via the instruments pushbuttons. Reset can be via external pushbutton or via the instruments **P** button.

The RM4-TMR is a highly visible and versatile indicator for applications including "hours run", "time on belt" etc. User selectable display formats available are:

Seconds e.g. **2346.4**

Minutes:Seconds e.g. **238.53**

Minutes e.g. **8472**

Hours:Mins e.g. **1422**

Hours:Mins.Secs. e.g. **324.22**

Hours e.g. **2464**

Days e.g. **364**

Days:Hours e.g. **07.11**

The RM4-TMR accepts contact closure or control voltage inputs. The instrument may be used in stopwatch (start, stop, reset inputs) or elapsed time mode (start & reset inputs) and may be set for up or down timing. A "scaled period" mode of operation allows the display to be scaled i.e. multiplied or divided by a factor.

An "inverse period" mode allows the display to measure inverse time quantities such as velocity.

Two alarm relays are provided as standard. Combinations of optional outputs including extra relays, analog retransmission or serial comms. (ASCII or Modbus RTU protocol) can also be provided.

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 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, reset (zero).



#### Features

- Period, scaled period or reciprocal scaled period display modes.
- Stopwatch or elapsed timer operation.
- Pushbutton calibration and setup
- Easy scaling - no test gear needed
- 240V, 110V, 48V, 42V, 32V, 24V AC, 12 to 48V DC or 50 to 110V DC operation (factory configured)
- Two alarm/control relay outputs (5A)
- Remote input perform a selected special functions e.g. display hold, peak hold, high memory, low memory, brightness level switching, reset (zero), setpoint only access or security lockout
- Programmable **P** button function, may be used for high/low memory, reset or preset
- 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 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: Contact closure or 5V control voltage

Impedance: 10kΩ

Operation modes: Elapsed time, stopwatch, up or down timer with user selectable ranges of seconds, minutes:seconds, minutes, hours:minutes, hours:min:secs, hours, days:hours or days.

Resolution: To 0.01 seconds.

Memory Retention: Battery backed totaliser memory

Display reset: Remote reset via "Reset" terminal or via front panel **P** button or "Remote input", if programmed

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 operation (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  
5V or 24V unregulated transmitter supply (common gnd) **25mA max**  
Programmable N.O. or N.C.

Relay Action:

**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

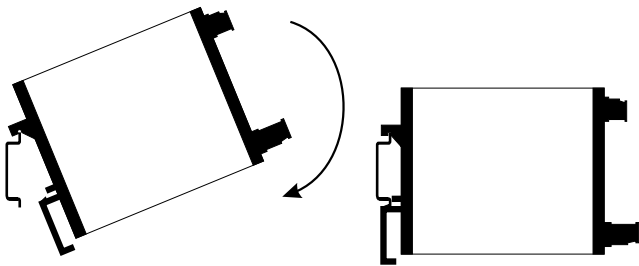
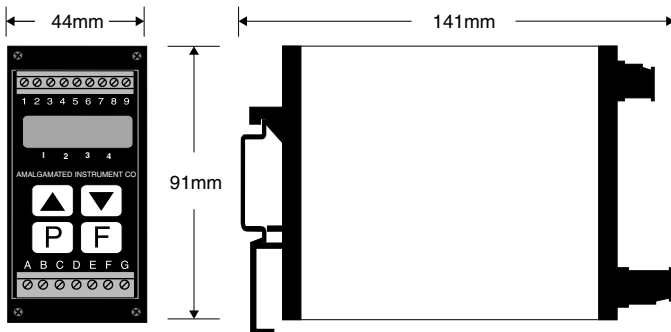
Transmitter supply: Isolated & regulated 12VDC @ 50mA or 24VDC @ 25mA (link selectable)

Switched voltage: Non isolated 24VDC output to be used for open collector or solid state relay driver

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

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

## DIMENSIONS AND INSTALLATION DETAILS



## PHYSICAL CHARACTERISTICS

Case size: 44mm x 91mm x 141mm

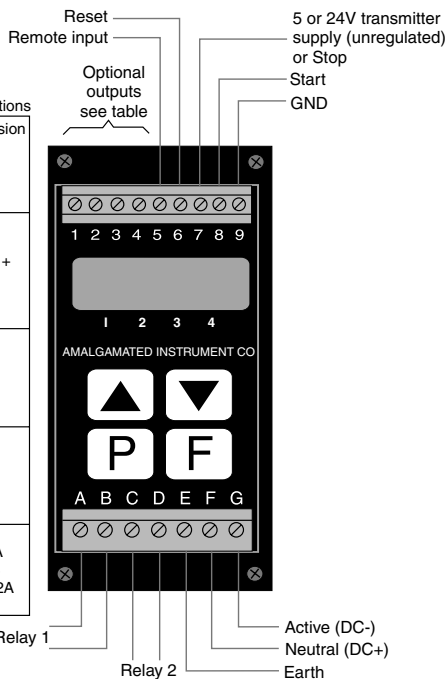
Connections: Plug in screw terminals. Max 2.5mm<sup>2</sup> wire (relays and supply), 1.5mm<sup>2</sup> wire for input and options.

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 RS422A
	4 RS422 B



## ORDER CODE

<b>RM4-TMR-</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>POWER SUPPLY</b>													
<b>RM4-TMR-</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
240 VAC												<input type="checkbox"/>	<input type="checkbox"/>
110 VAC												<input type="checkbox"/>	<input type="checkbox"/>
48 VAC												<input type="checkbox"/>	<input type="checkbox"/>
42 VAC												<input type="checkbox"/>	<input type="checkbox"/>
32 VAC												<input type="checkbox"/>	<input type="checkbox"/>
24 VAC												<input type="checkbox"/>	<input type="checkbox"/>
12 to 48 VDC												<input type="checkbox"/>	<input type="checkbox"/>
50 to 110 VDC												<input type="checkbox"/>	<input type="checkbox"/>
<b>DISPLAY TYPE (ALL MODELS ARE TYPE 5E)</b>													
<b>RM4-TMR-</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 DIGIT LED + KEYPAD + STATUS LEDs												<input type="checkbox"/>	<input type="checkbox"/>
<b>OUTPUT OPTIONS</b>													
THIRD RELAY												<input type="checkbox"/>	<input type="checkbox"/>
THIRD AND FOURTH RELAY												<input type="checkbox"/>	<input type="checkbox"/>
THIRD RELAY PLUS TRANSMITTER SUPPLY												<input type="checkbox"/>	<input type="checkbox"/>
TRANSMITTER SUPPLY												<input type="checkbox"/>	<input type="checkbox"/>
THIRD AND FOURTH SETPOINTS 24VDC												<input type="checkbox"/>	<input type="checkbox"/>
ANALOG RETRANSMISSION (12 BIT)												<input type="checkbox"/>	<input type="checkbox"/>
DUAL ANALOG RETRANSMISSION (12 BIT)												<input type="checkbox"/>	<input type="checkbox"/>
ANALOG PLUS TRANSMITTER SUPPLY												<input type="checkbox"/>	<input type="checkbox"/>
ANALOG (12 BIT) PLUS 3RD RELAY												<input type="checkbox"/>	<input type="checkbox"/>
ANALOG (16 BIT) PLUS 3RD RELAY												<input type="checkbox"/>	<input type="checkbox"/>
RS232 COMMUNICATIONS - ISOLATED												<input type="checkbox"/>	<input type="checkbox"/>
RS422 COMMUNICATIONS - ISOLATED												<input type="checkbox"/>	<input type="checkbox"/>
RS485 COMMUNICATIONS - ISOLATED												<input type="checkbox"/>	<input type="checkbox"/>
ANALOG RETRANSMISSION (12 BIT) PLUS RS485 COMMUNICATIONS												<input type="checkbox"/>	<input type="checkbox"/>