

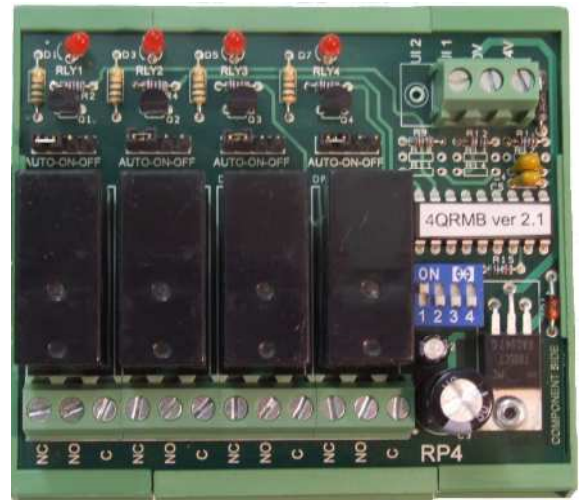
MOD4QRM Four Relay Sequencing Module

Description

The MOD 4 QRM is intended for use with Direct Digital Controllers and Analogue Ramp Output Controllers to convert an Analogue Output signal to 4 stages of relay Output. Full sequencing of 3 and 4 stage or 2 x two stage loads can be implemented either in auto or manual modes.

The MOD 4 QRM is constructed on a Epoxy Glass Laminate and housed in an industry standard 80mm DIN Rail Mounting. Generous 2.5mm² terminals are provided for the field interconnections.

The MOD 4 QRM Module is CE rated and is RoHS compliant.



Applications

Applications include the switching via Relay contacts of any Plant up to a 10Amp resistive load.

Switching of electric heater banks, 2, 3 and 4 stage compressor racks or boilers.

To provide Local Manual Control of the Plant in case of controller failure.

Local Manual Control of the Plant will also enable pre-commissioning and testing.

To provide a Local LED indication of Output Status.

To provide isolation of the controller from the Harsh Plant Environment, protecting the Controller.

The inputs require only 1mA @ 0 to 10V DC to switch which allows controllers with limited output capability to operate correctly.

Features

Expands controllers output capacity.

Microprocessor based, power fail restart timer.

Differential and timers in all operation modes eliminates relay bounce.

Unique input verification for seamless output with no dead spots.

Auto/On/Off jumper for plant checkout and override.

Universal AC or DC Supply, LED status indication

A remote Auto/On/Off Switch is available.

Design for DIN rail mounting, Rising cage terminals

Flame retardant Polyamide DIN mounting.



Specifications

Input Signal: 0 to 10V DC @ 1mA Max. Differential 150mV all modes.
 0 to 20mA or 4 to 20mA available on request.
 A digital input to trigger the sequence change is available on request.

Output Contacts: 10 Amp @ 230V AC Resistive.

Power Supply: 24V DC @ 80mA or 24V AC @ 2 VA (+/-15%) S.P.D.T.

LED Indication: ON when relay energised.

Output States: Jumper selectable AUTO/ON/OFF.
 Auto, controlled by input. On, always on. Off, always off.

Electrical connections: Rising cage terminals for 0,5 to 2,5mm² cable.
 Ambient Conditions: -10 to 50°C 0 to 80% RH non-condensing.
 Dimensions: 80 x 79 x 52mm.
 Weight 144g
 I.P. Rating: IP00.
 Mounting Flame retardant green Polyamide 66 UL 94V0 moulding.
 To suit 35mm top hat din rail.

Operating Modes

Operating modes can be fixed in Manual Mode or Sequenced in Auto Mode. To move the next sequence set the control input to 0 Volts for 30 Seconds minimum and re-apply the control input.

Three Stage Control, Sequence 1

Input	2.4V	4.8V	7.2V	9.6V
Rly 1	OFF	ON	ON	ON
Rly 2	OFF	ON	ON	ON
Rly 3	OFF	OFF	OFF	ON

Three Stage Control, Sequence 2

Input	2.4V	4.8V	7.2V	9.6V
Rly 2	OFF	ON	ON	ON
Rly 3	OFF	ON	ON	ON
Rly 1	OFF	OFF	OFF	ON

Three Stage Control, Sequence 3

Input	2.4V	4.8V	7.2V	9.6V
Rly 3	OFF	ON	ON	ON
Rly 1	OFF	ON	ON	ON
Rly 2	OFF	OFF	OFF	ON

Four Stage Control, Sequence 1

Input	1.2V	2.4V	4.8V	7.2V	9.6V
Rly 1	OFF	ON	ON	ON	ON
Rly 2	OFF	OFF	ON	ON	ON
Rly 3	OFF	OFF	OFF	ON	ON
Rly 4	OFF	OFF	OFF	OFF	ON

Four Stage Control, Sequence 2

Input	1.2V	2.4V	4.8V	7.2V	9.6V
Rly 2	OFF	ON	ON	ON	ON
Rly 3	OFF	OFF	ON	ON	ON
Rly 4	OFF	OFF	OFF	ON	ON
Rly 1	OFF	OFF	OFF	OFF	ON

Four Stage Control, Sequence 3

Input	1.2V	2.4V	4.8V	7.2V	9.6V
Rly 3	OFF	ON	ON	ON	ON
Rly 4	OFF	OFF	ON	ON	ON
Rly 1	OFF	OFF	OFF	ON	ON
Rly 2	OFF	OFF	OFF	OFF	ON

Four Stage Control, Sequence 4

Input	1.2V	2.4V	4.8V	7.2V	9.6V
Rly 4	OFF	ON	ON	ON	ON
Rly 1	OFF	OFF	ON	ON	ON
Rly 2	OFF	OFF	OFF	ON	ON
Rly 3	OFF	OFF	OFF	OFF	ON

MOD4QRM Continued

2 x Two Stage Load Lo-Hi Sequence 1

Load	Input	1.2V	2.4V	4.8V	7.2V	9.6V
1 Low	Rly 1	OFF	ON	ON	ON	ON
1 High	Rly 2	OFF	OFF	ON	ON	ON
2 Low	Rly 3	OFF	OFF	OFF	ON	ON
2 High	Rly 4	OFF	OFF	OFF	OFF	ON

2 x Two Stage Load Lo-Hi Sequence 2

Load	Input	1.2V	2.4V	4.8V	7.2V	9.6V
2 Low	Rly 3	OFF	ON	ON	ON	ON
2 High	Rly 4	OFF	OFF	ON	ON	ON
1 Low	Rly 1	OFF	OFF	OFF	ON	ON
1 High	Rly 2	OFF	OFF	OFF	OFF	ON

2 x Two Stage Load Lo-Lo Sequence 1

Load	Input	1.2V	2.4V	4.8V	7.2V	9.6V
1 Low	Rly 1	OFF	ON	ON	ON	ON
2 Low	Rly 3	OFF	OFF	ON	ON	ON
1 High	Rly 2	OFF	OFF	OFF	ON	ON
2 High	Rly 4	OFF	OFF	OFF	OFF	ON

2 x Two Stage Load Lo-Lo Sequence 2

Load	Input	1.2V	2.4V	4.8V	7.2V	9.6V
1 High	Rly 2	OFF	ON	ON	ON	ON
2 High	Rly 4	OFF	OFF	ON	ON	ON
1 Low	Rly 1	OFF	OFF	OFF	ON	ON
2 Low	Rly 3	OFF	OFF	OFF	OFF	ON

DIP Switch Settings

SW1	SW2	SW3	SW4	MODE	SEQUENCE
OFF	OFF	OFF	OFF	Auto 3 Stage	123-231-321
OFF	OFF	OFF	ON	Auto 4 Stage	1234-2341-3412-4123
OFF	OFF	ON	OFF	Auto Lo-Hi Lo-Hi	12,45,34,12
OFF	OFF	ON	ON	Auto Lo-Lo Lo-Lo	12,34-24,13
OFF	ON	OFF	OFF	Auto Lo-Hi Lo-Lo	12,34-34,12-12,34-31,42
OFF	ON	OFF	ON	Manual 3 Stage	123
OFF	ON	ON	OFF	Manual 3 Stage	231
OFF	ON	ON	ON	Manual 3 Stage	321
ON	OFF	OFF	OFF	Manual 4 Stage	1234
ON	OFF	OFF	ON	Manual 4 Stage	2341
ON	OFF	ON	OFF	Manual 4 Stage	3412
ON	OFF	ON	ON	Manual 4 Stage	4123
ON	ON	OFF	OFF	Manual Lo-Hi	12,34
ON	ON	OFF	ON	Manual Lo-Hi	34,12
ON	ON	ON	OFF	Manual Lo-Lo	13,24
ON	ON	ON	ON	Manual Lo-Lo	31,42

See also the MOD 4 QRM Installation Sheet for wiring detail.

Page 3 of 3

Watchtower Trading reserves the right to update this product, revise and update this publication including information hereof without obligation to notify any person of such updates, revisions or changes.

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