

## IO-2RM-3P Raise/Lower Module

2RM-3P modules have been designed to convert 0..10Vdc control signal to raise/lower control of 3-point actuators. The module can be configured, using jumpers, for two variable and one fixed range per unit.

Applications include the control of raise lower valve or damper actuators, in conjunction with a BMS or stand alone proportional controller. The 2RM-3P is powered from 24Vac or 24Vdc, and is designed to fit onto DIN Rail.

### Features

- 0..10Vdc Input
- 2 x 230V SPCO Relays
- On/Off/Auto Override
- Fixed and Adjustable Time Settings
- LED Indication
- 24 Hour Reset
- DIN-Rail Mounting

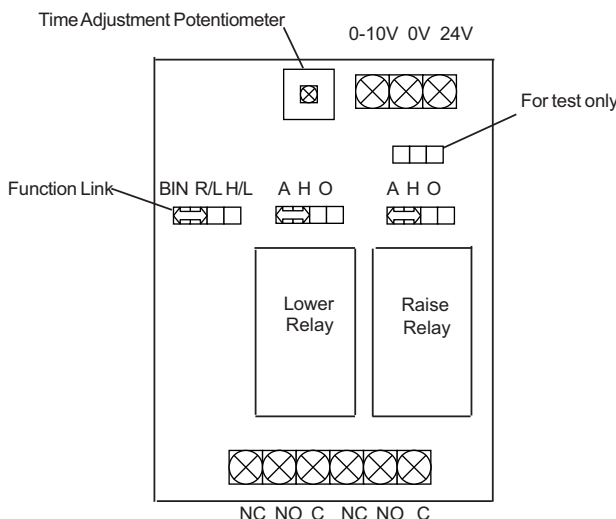


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Model Type	Model	Description
	<b>IO-2RM-3P</b>	Raise Lower Control Module
<b>Technical Data</b>	Power Supply	24Vac/dc, 70 mA AC, 50mA DC
	Output Contacts	2 x 12A @ 240Vac SPCO relays
	Manual Operation	Jumper Selectable (Auto/On/Off)
	Input Signal	0..10Vdc, 1mA max
	Operating Modes	Variable 1: 90 to 300 seconds cycle Fixed: 210 seconds cycle Variable 2: 30 to 150 seconds cycle
	LED Relay Indication	ON when relay energised
	Reset	Automatic 24 hour reset for 115% range
	Wiring Terminals	Rising Clamp 0.5..2.5mm <sup>2</sup> Cable
	Operating Temperature	0..50°C
	Dimensions	W46 x H83 x D45 mm

**Installation and Wiring Details**

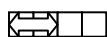
The diagram below illustrates the wiring connections.



**Operation Modes**

The 2RM-3P offers a choice of three Raise Lower operating cycle times selectable via jumpers on the function link.

**BIN R/L H/L**



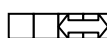
Adjustable Time Open to Close of between 90 to 300 seconds - adjusted via the time potentiometer

**BIN R/L H/L**



Time Open to Close of 210 seconds

**BIN R/L H/L**



Adjustable Time Open to Close of between 30 to 150 seconds - adjusted via the time potentiometer

**Setting Output Range**

Times of 30,90,150 and 300 seconds can be accurately set by setting the jumper for the required range and turning the time adjustment potentiometer to the minimum or maximum position as required. Intermediate values can be checked using a stop watch.

**Commissioning**

Two Links are provided as a commissioning aid ON-OFF-AUTO (H = ON, O = OFF, A = AUTO) one for each relay.

In the ON position, the appropriate relay will be energised regardless of the 0-10Vdc Input Voltage, likewise in the OFF position the relay will remain off. When the jumper is in the AUTO position, the relays will be energised in accordance with the mode of operation.

**Description of Operation**

These notes assume that the 2RM-3P is connected in such a manner that the Lower Relay closes the valve and the Raise Relay opens the valve depending on demand.

Example: In Fixed 210 second mode

On initial power up the Lower Relay closes for 241 seconds, driving the valve to a known position (i.e. fully closed) then the Raise Relay opens depending on demand. The operation of the 2RM-3P is directly proportional to the 0-10Vdc input signal, such that a 10V signal operates the unit for 3.5 minutes, a 5V signal operates the unit for 1.75 minutes and a 2.5V signal operates the 2RM-3P for 0.875 minutes, etc. Any change to the input signal will be actioned immediately. If there is no change in the Input Signal, the 2RM-3P remains quiescent with both relays open. The Lower Relay and the Raise Relay track the input voltage proportionally to time, rising voltage will cause the Raise Relay to open the valve and decreasing input voltage will cause the Lower Relay to close the valve. The 2RM-3P automatically resets, closing the Lower Relay for 241 seconds, 24 hours after initial power up, and thereafter every 24 hours, thus ensuring that deviations due to tolerances are kept to a minimum.

E.g. (See graph below) If the 2RM-3P receives a 5V Input after power on reset, the Raise Relay closes for 1.75 minutes and drives the valve to the half open position. If the input signal then drops to 2.5V, the Lower Relay will close for 0.875 minutes thus closing the valve to a quarter open position. If the input signal now rises to 5V, the Raise Relay will close for 0.875 minutes driving the valve back to the half open position. If the input signal now rises to 7.5V, the Raise Relay will close for a further 0.875 minutes causing the valve to open further, to the three quarter open position. Should the input

signal now drop to 0V, the Lower Relay will close for 2.625 minutes thus driving the valve to the fully closed position. The 2RM-3P tracks the input signal voltage with a 1% accuracy.

