

# Two Relay Module with Stroke Time IOR2

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## Description

This IO module is used with DDCs to convert an analogue control output to a raise/lower, high/low or binary relay output pair. Typically it is used in such controls as valve and contacts changeover. It is such designed that every status is clearly indicated with LEDs to facilitate operation and commissioning.



## Features

- DIN rail mounting
- Relay status LEDs indication
- Link selectable raise/lower, hi/low or binary modes and time function
- On/Off/Auto links for ease of commissioning

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## Technical Specification

<b>Input Signal:</b>	0...10Vdc 1mA min. into 22kΩ impedance
<b>Output Contacts:</b>	8A @ 230Vac (resistive load)
<b>Power Supply:</b>	24Vac ±10% @ 50Hz or 24Vdc +15%/-6%, 65mA max.
<b>Hysteresis:</b>	±0.2Vdc about switching points
<b>Operating Modes:</b>	Hi/Lo, Raise/Lower, Binary
<b>LED Indication:</b>	See description under LED status
<b>Manual Override:</b>	On/Off/Auto jumper selectable
<b>Terminals:</b>	Rising clamp 0.5-2.5mm <sup>2</sup> cable
<b>Ambient:</b>	-10°C to +40°C, 0-80% RH non-condensing
<b>Dimensions:</b>	52mm(H) x 62mm(W) x 83mm approx

## Order Code

IOR2 Two Relay Module

## LED Status

The green LED indicates power supply connection:

Green LED is ON continuously indicates module powered correctly.

Green LED double flashes twice a second

(\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*\*) indicates low power supply (below about 21.2 V, condition clears at about 22V)

Green LED flashes 6 times a second (\*-\*-\*-\*-\*\*) indicates high power supply (above about 35Vdc or 28Vac) and the relays are off (except when forced ON by jumper settings) as excessive voltage might overload the voltage regulator.

The relays are also switched off for 2 seconds after power-up or any over 35V condition clears. This prevents the relays from switching on and off during power-up or power failure with an over voltage power supply.

The red LED indicates input voltage condition, normally the red LED is off:

Red LED is ON continuously indicates high input voltage (voltage exceeds 10.8V)

Red LED flashes 6 times a second (\*-\*-\*-\*-\*\*) indicates an unstable input voltage. The input voltage should settle on one 'voltage band'. Voltage is deemed to have settled after it has been within one band for 250ms. If it has not settled for 500ms it is deemed to be unstable.

Red LED does triple flashes (\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*\*) indicates a mode select error (a jumper missing or incorrectly placed)

## Installation

The IO module should only be installed by a qualified technician.

1. Disconnect power before carrying out any work on the IOR2.
2. Maximum cable is 2.5mm<sup>2</sup>, care must be taken not to over tighten terminals.
3. Strictly follow the wiring diagram below. Either 24VDC or 24VAC can be used.
4. The relay outputs are single Pole Change Over (SPCO) so they can be wired as Normally Open (NO) or Normally Closed (NC).
5. The 0-10Vdc signal input requires a minimum of 1mA to operate.
6. Except in RLT mode, relays can be activated in a certain delay time from 200ms to 25s (Proportional to the value of potentiometer VR from 0 to 10)

## RLT Mode DIP Switch Settings

DIP						VR(0--100S)	
1	2	3	4	n	N=n+1	Time	Max(S)
OFF	OFF	OFF	OFF	0	1	0--100S	100S
OFF	OFF	OFF	ON	1	2	0--200S	200S
OFF	OFF	ON	OFF	2	3	0--300S	300S
OFF	OFF	ON	ON	3	4	0--400S	400S
OFF	ON	OFF	OFF	4	5	0--500S	500S
OFF	ON	OFF	ON	5	6	0--600S	600S
OFF	ON	ON	OFF	6	7	0--700S	700S
OFF	ON	ON	ON	7	8	0--800S	800S
ON	OFF	OFF	OFF	8	9	0--900S	900S
ON	OFF	OFF	ON	9	10	0--1000S	1000S
ON	OFF	ON	OFF	10	11	0--1100S	1100S
ON	OFF	ON	ON	11	12	0--1200S	1200S
ON	ON	OFF	OFF	12	13	0--1300S	1300S
ON	ON	OFF	ON	13	14	0--1400S	1400S
ON	ON	ON	OFF	14	15	0--1500S	1500S
ON	ON	ON	ON	15	16	0--1600S	1600S

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## Switching sequences

High / Low (0-10V) :

Nominal	Relay1	Relay2
0Vdc	OFF	OFF
5.00Vdc	ON	OFF
10.00Vdc	ON	ON

Raise / Lower (0-10V) :

Nominal	Relay1	Relay2
0Vdc	OFF	OFF
4.00Vdc	ON	OFF
7.00Vdc	OFF	OFF
9.20Vdc	OFF	ON

Binary (0-10V) :

Nominal	Relay1	Relay2
0Vdc	OFF	OFF
4.00Vdc	ON	OFF
7.00Vdc	OFF	ON
9.20Vdc	ON	ON

## Jumper Settings



Binary



Raise/lower



High/Low



RL/T mode is used as a complement to Raise/Lower mode in which the stroke time is being calculated in proportion to the input voltage. The full time is decided by the DIP switch value and VR value.

**N.B.** Never set the VR value to below 1s

## Wiring

