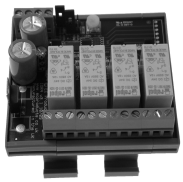
Four Relay Module IOR4

Description

This IO module is used with DDCs to convert an analogue control output to a binary, raise/lower, staged or sequenced relay output. LEDs indicate correct operation and low current draw from 0-10Vdc controller means that the IOR4 can work successfully with most BEMs controllers.



Features

- DIN Rail mounting
- Relay status and fault finding LEDs indication
- Link selectable binary, raise/lower, staged, sequenced
- On/Off/Auto links for ease of commissioning

"Designed and manufactured by E. C. Products Limited"

Technical Specification

Input signal:	0-10Vdc 1mA min. into 22kΩ impedance
Output contacts:	8A at 230Vac (resistive load)
Power supply:	24Vac ±15% @ 50Hz or 24Vdc +15%/-6%, 90mA max.
Hysteresis:	±0.2Vdc about switching points (±0.1Vdc in binary)
Operating modes:	Binary, raise/lower, Staged, Sequenced
LED indication:	see description under LED Status
Manual override:	On/Off/Auto jumper selectable
Electrical terminals:	Rising cage connectors for 0.5-2.5mm² wire
Operating temp.:	-10°C to +40°C RH 0-80% non-condensing
Dimensions:	H52mm x W82mm x D77mm

Order Code

IOR4 Four 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)

Switching sequences

Binary (BIN) 0-10V:

Nominal	Relay1	Relay2	Relay3	Relay4
0.313Vdc	OFF	OFF	OFF	OFF
0.938Vdc	ON	OFF	OFF	OFF
1.563Vdc	OFF	ON	OFF	OFF
2.188Vdc	ON	ON	OFF	OFF
2.813Vdc	OFF	OFF	ON	OFF
3.438Vdc	ON	OFF	ON	OFF
4.063Vdc	OFF	ON	ON	OFF
4.688Vdc	ON	ON	ON	OFF
5.313Vdc	OFF	OFF	OFF	ON
5.938Vdc	ON	OFF	OFF	ON
6.563Vdc	OFF	ON	OFF	ON
7.188Vdc	ON	ON	OFF	ON
7.813Vdc	OFF	OFF	ON	ON
8.438Vdc	ON	OFF	ON	ON
9.063Vdc	OFF	ON	ON	ON
9.688Vdc	ON	ON	ON	ON

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Switching Sequences (continued)

Sequenced (SEQ) 0-10V:

Nominal	Relay1	Relay2	Relay3	Relay4
1Vdc	OFF	OFF	OFF	OFF
3Vdc	ON	OFF	OFF	OFF
5Vdc	OFF	ON	OFF	OFF
7Vdc	OFF	OFF	ON	OFF
9Vdc	OFF	OFF	OFF	ON

Staged (STG) 0-10V:

Nominal	Relay1	Relay2	Relay3	Relay4
1Vdc	OFF	OFF	OFF	OFF
3Vdc	ON	OFF	OFF	OFF
5Vdc	ON	ON	OFF	OFF
7Vdc	ON	ON	ON	OFF
9Vdc	ON	ON	ON	ON

Installation

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

1. Disconnect power before carrying out any work on the IOR4.
2. Maximum cable is 2.5mm², 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. Relays can be activated in a certain delay time from 200ms to 25s (Proportional to the value of potentiometer VR from 0 to 10)

Jumper Settings

Wiring