



Features & Benefits

- Adjustable switching point of relay
- On/Off/Auto links for ease of commissioning
- 8A relay and 0-10Vdc output
- DIN Rail mounting
- Fault finding LED indication
- Relay status LED indication

Technical Overview

The IO-RM-A accepts a 0-10Vdc signal and provides a relay output with a adjustable switching threshold. The LED indicates that the relay is energised and Hand/Off/Auto jumpers ease commissioning.

The IO-RM-A is ideal for any application where the switching of plant is interlocked with modulation of the same, or a different item of plant. Using the IO-RM-A saves an output on the BMS controller.

Product Codes

IO-RM-A Adjustable relay module

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%, 65mA max.
LED indication:	Supply OK Supply voltage low Supply voltage high Relay Status Hi input voltage Incorrect input mode jumper selection Low input voltage (only in 2-10Vdc mode)
Manual override	On/Off/Auto jumper selectable
Electrical terminals	Rising cage connectors for 0.5-2.5mm ² cables
Ambient range:	
Temperature	-10 to +40°C
RH	0-80% non-condensing
Dimensions (H x W x H)	72 x 49.5 x 55
Country of origin	UK



Warning!

When installed, the output relay contacts may carry 240Vac. Special care must be taken to isolate the switched voltages prior to any work being undertaken.

WEEE Directive:

 At the end of the products useful life please dispose as per the local regulations. Do not dispose of with normal household waste. Do not burn.



The products referred to in this data sheet meet the requirements of EU 2014/30/EU and 2014/35/EU

LED Status (continued)

Mode Select Error:

If the mode select jumper is missing or there is an inconsistent setting (such as connecting 2 jumpers) then this is an error. The red LED does triple flashes:

*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_**

The relays are switched off.

Low Input:

If the input voltage goes below 1.5Vdc, $\pm 0.2Vdc$ hysteresis, when 2Vdc to 10Vdc input mode is selected then the red LED does double flashes:

*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_**

Potentiometer Setting Error

The on-pot should be set above the off-pot, if not the red LED does triple flashes:

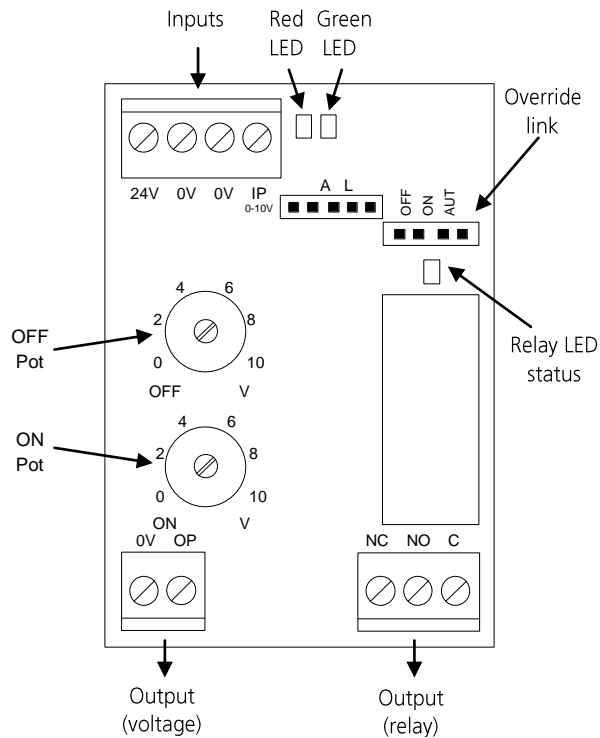
*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_**

The relay is switched off.

Connections & Jumper Settings

Inputs;
 24V 24Vac/dc
 0V 0V
 0V 0V
 IP 0(2) to 10Vdc

Outputs;
 Relay
 NC Normally closed
 NO Normally open
 C Common
 0V 0V
 OP 0 to 10Vdc



Override:

- On
- Off
- Auto

Potentiometer Locking:

- Un-locked
- Locked

Potentiometers

There are 2 pots, the on-pot and the off-pot. These divide the 0-10Vdc input into 3 bands. The off band, the hysteresis band and the on band. For example if the off-pot is set for 4Vdc and the on-pot is set to 6V then the off band is 0Vdc-4Vdc, the hysteresis band is 4Vdc-6Vdc and the on band is above 6Vdc

Once the input has settled, the relay is off on off band and on in the on band. In the hysteresis band the relay remains on whatever state it was in last.

If you are powering up the system with input voltage in the hysteresis band, the relay starts according to the nearest pot setting. For example, with the above settings, if the input voltage is 4.5Vdc at power-up the relay will be off, but with 5.5Vdc it will be on.

Potentiometer setting:

- With the jumper in the 'A' position you can adjust the pots to the required settings.
- 0 to 10Vdc scale is printed on the PCB to give approximate guidance; to set the pots accurately you should adjust them to test voltages.

Locking the potentiometers:

- Once the pots have been set you can lock them. This prevents the settings from drifting or being tampered with.
- To lock the pots move the jumper to 'L'.
- To unlock the pots move the jumper back to 'A'

Note

The on-pot should be set above the off-pot.

Tech Tip

Electrical Noise

By far the most common cause of electrical noise on a typical HVAC site is the contactor. Little, if any, electrical noise is produced when the contactor coil is energized, but significant noise is produced when the coil de-energizes, and may exceed 700Vac P-P. Typically, the contactor coil is switched by the C & N/O contacts of an IO-RM module relay.

Fitting an "RF snubber" across the contactor coil is a good way of greatly reducing the electrical noise pulse produced when the coil de-energizes. The ROXBURGH flying lead RC network type XEB1201 (Farnell part code 1187659) is a tried and trusted component for this purpose. Alternatively, a suitable MOV (metal oxide varistor) across the IO-RM C & N/O relay contacts will also help to prevent electrical noise being induced."