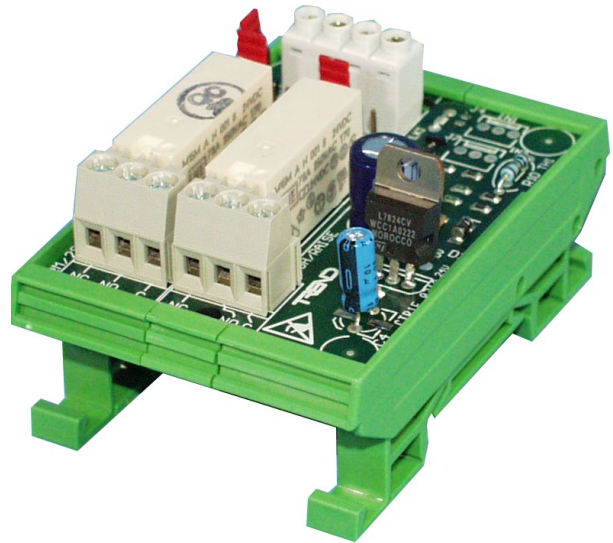


2RM/24VAC Two Relay Module (24 Vac/dc)



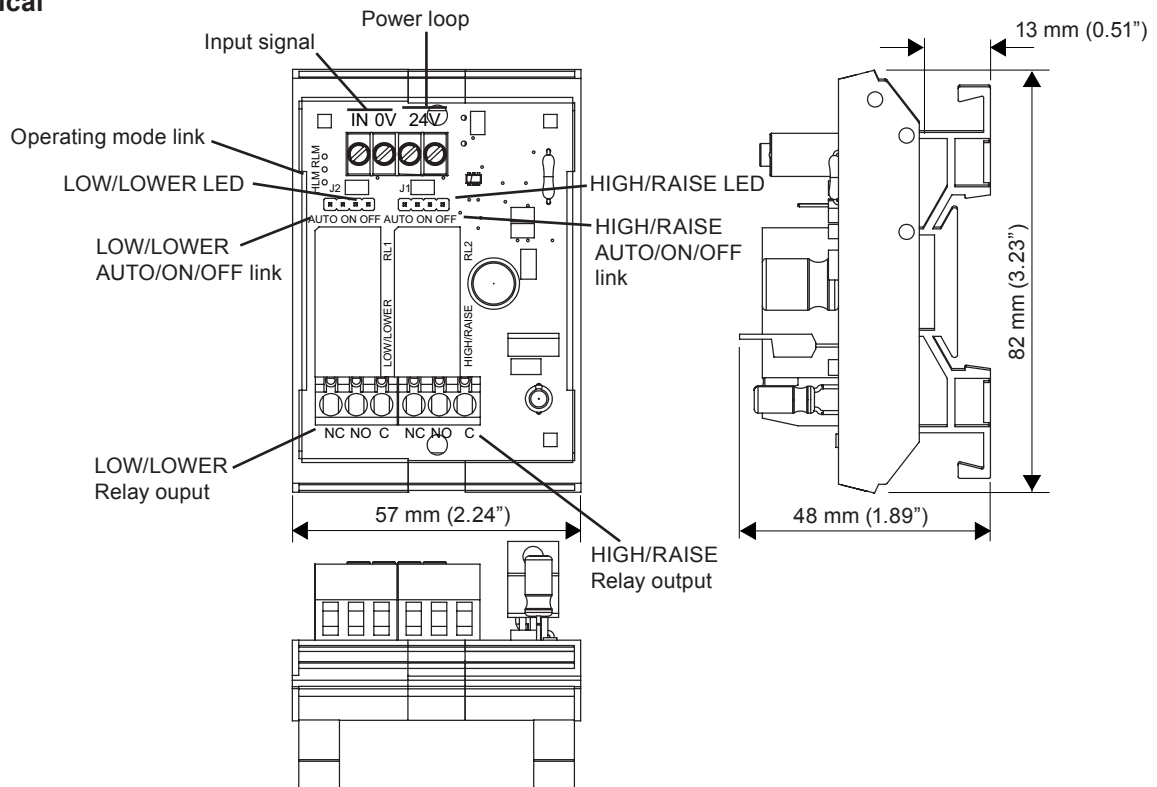
Description

The Two Relay Module (2RM) converts an analogue output of an IQ controller to two stages of relay output, and acts as an interface between the controller and heating and ventilating equipment. It may be configured as a high/low or a raise/lower relay module by link selection. There are manual override links for each relay to aid commissioning. Field wiring is facilitated by rising cage clamp type output terminals, and a power supply loop terminal aids wiring to additional modules.

Features

- High/Low or Raise/Lower link selectable.
- AUTO/ON/OFF Manual override links.
- LED status indication.
- Standard DIN rail mounting.
- Rising cage clamp terminals
- 24 Vac/dc input power supply

Physical



FUNCTIONALITY

Operating Mode: The 2RM converts an analogue voltage output of a IQ controller to two stages of relay output. It may be configured for high/low or raise/lower operation by link selection. In the High/Low mode (HLM) the relays switch in sequence and in the Raise/Lower mode (RLM) the relays switch either to raise or lower; the sequences are shown in the tables below:

HLM	LOW	HIGH
0V	OFF	OFF
5V (2.4)	ON	OFF
10V (8.3)	ON	ON

RLM	LOWER	RAISE
0V	OFF	OFF
4V (2.4)	ON	OFF
7V (6)	OFF	OFF
10V (8.3)	OFF	ON

Note that the voltage levels shown in the switching tables are approximate values - exact switching points are lower and may vary slightly from unit to unit. Typical threshold values are shown in brackets

Strategy:

It is recommended to use SET (software tool) for configuring the controller. SET is supplied with 2RM strategy blocks for IQ1, IQ2, and IQ3 controllers. These can be used as they are or as examples.

There are 3 strategy blocks:

- HLM mode using analogue driver/analogue channel
- RLM mode using analogue driver/analogue channel
- RLM mode using R/L driver/analogue channel

These strategies are designed to apply the correct voltage to the 2RM module for the required action.

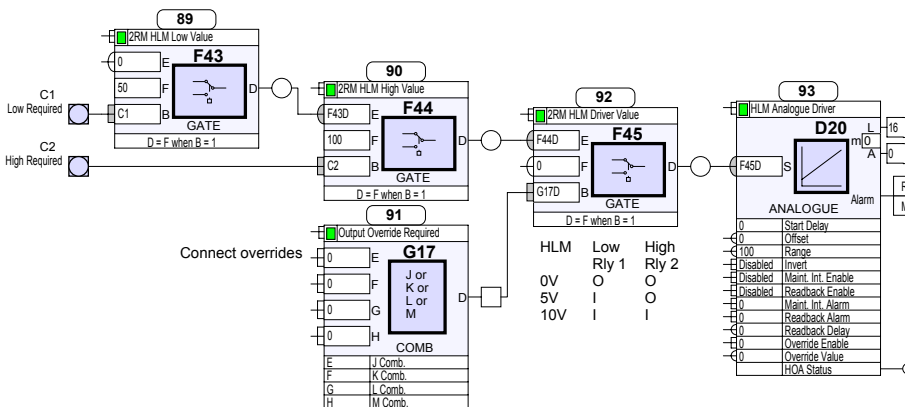
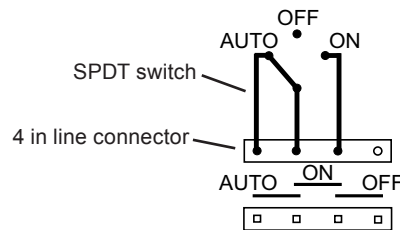
Mounting: The 2RM is designed to be mounted on a standard DIN rail.

Power connection: The relay's power connection is made to 24 Vdc (e.g IQ's auxiliary output supply) or 24 Vac supply (isolated or earthed, grounded, to IQ earth, ground) using the 0V and 24 V connectors.

AUTO/ON/OFF: For commissioning purposes each relay may be switched ON or OFF using it's AUTO/ON/OFF link. The relay operation may be checked by monitoring it's LED. Each AUTO/ON/OFF link can be replaced with a SPDT switch.

Note that feeds switched from other relays on the same module or interlocks with other relays will not necessarily be operative when using manual overrides. It is the system designer's responsibility to ensure that adequate interlock protection is built into the design.

Connectors: 1 part screw terminals for 0.5 to 2.5mm² cross sectional area (14 to 20 AWG) cable are used for inputs, outputs, and power connection. The output terminals are rising cage clamp type. Each AUTO/ON/OFF link can be replaced by a 4 in line connector for connection of a switch.



The above is an example strategy block; this strategy drives the 2RM in HLM mode via an analogue driver and analogue channel.

INSTALLATION

The 2RM must be mounted within a secondary/protective enclosure, conforming to EN61010-1, close to the IQ controller. The procedure involves:

Mounting the 2RM in position
Setting HLM/RLM links
Setting AUTO/ON/OFF links
Setting IQ analogue output channel for voltage

Wiring the 2RM to controller
Wiring the 2RM to the HVAC equipment
Connecting the 24 V input power supply
Checking relay operation

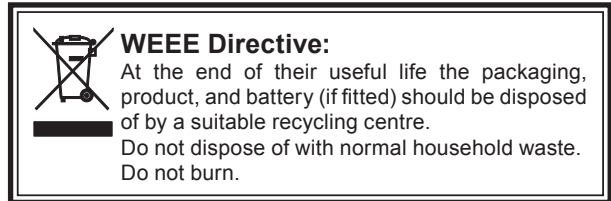
The installation procedure is covered in the 2RM/24VAC Installation Instructions (TG200640).

DISPOSAL

COSHH (Control of Substances Hazardous to Health - UK Government Regulations 2002) ASSESSMENT FOR DISPOSAL OF 2RM/24VAC. No parts are affected.

RECYCLING. 

All plastic and metal parts are recyclable. The printed circuit board may be sent to any PCB recovery contractor to recover some of the components for any metals such as gold and silver.



ORDER CODES

2RM/24VAC

:1 off 2RM module for DIN rail mounting.

SPECIFICATIONS

Electrical

Input power supply voltage	:24 Vdc or 24 Vac \pm 20%
Input power supply current	
24 Vac	:73 mA (37 mA for single relay)
24 Vdc	:33 mA (17 mA for single relay)
Input signal	:0 to 10 Vdc (10 mA max). See operating voltage levels in text above
Relays	
Switching	:2 single pole changeover.
Contacts	:5 A @ 240 Vac (Cos ϕ \geq 0.4) 5A @ 30 Vdc (resistive) 2 A @ 24 Vdc (inductive, T \leq 30ms). NOTE: To meet safety requirements, relays being used must all be switching either low voltage or mains and not a mixture of voltages. If switching mains, they must all switch the same phase and polarity. Arc suppression circuit (RC) recommended for inductive loads, see TG200208. The UL rating applies to loads of up to 30 V.
Operating modes	:linkable High/Low or Raise/Lower.
Manual override	:linkable AUTO/ON/OFF.
LED	:Single LED for each relay. ON when energised

IQ Configuration

It is recommended to use SET (software tool) for configuring the controller. SET is supplied with 2RM strategy blocks for IQ1, IQ2, IQ3 and IQ4 controllers. These can be used as they are or as examples- see text above for details

Mechanical

Dimensions	:82 mm (3.23") x 57 mm (2.24") x 48 mm (1.89").
Connections	:Single part with rising cage clamp terminals for 0.5 to 2.5 mm ² cross section area (20 to 14 AWG) cable. Use copper cable only.
DIN rail	:Top hat profile DIN46277-3, EN50022, BS5584:1978

Environmental

Safety	:EN61010-1:2001.
UL	:The 2RM is UL rated as 'UL916 listed accessory to open energy management equipment'.
Ambient limits	
Storage	:-10 °C (14 °F) to +70 °C (158 °F)
Operating	:-10 °C (14 °F) to +50 °C (122 °F)
Humidity	:0 to 90 %RH non-condensing
Altitude	:<2000m (6562 ft)

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