



## SPC Modulo v3

Installation, Operation and Maintenance Instructions

IOM 89 Issue 5



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# 1. General

The Modulo v3 is a wall mounted thermostat/ controller intended for use in conjunction with fan-assisted heaters equipped with EC/brushless DC motors which can accept a 0-10V DC signal to control their rotational speed. The controller requires a 24V DC power supply for operation; this would be typically supplied as part of the fan-assisted heater that the Modulo v3 is specified with.

The Modulo v3 is a proportional controller; the room setpoint is programmed into the controller

which then sends a signal back to the heater to control the rotational speed of the fan. As the room temperature approaches the setpoint temperature, the fan speed is reduced.

Optionally, a relay box can be supplied alongside the Modulo v3. Fitted inside the unit, this allows the control of an on/off valve to close the flow of hot water when setpoint temperature is reached.

Power Supply	24V DC +/-10%
Max. power consumption	0.6W
Ambient	0-60°C
Accuracy	+/-1°C
Resolution	0.1°C
Protection	IP20
Housing	White plastic 80mmx80mmx20mm
Mounting	Surface/flush
Compliance	LVD 2014/35/EU, EMC 2014/30/EU

Table 1. General data

## 2. Installation

### 2.1 Mounting

The Modulo v3 is suitable for surface or flush mounting and is supplied with a frame mounting kit.

An adaptor plate is included which allows the unit to be either directly mounted to the wall or fitted within a standard surface or flush mounted back box. In the illustration 3 is the front fascia plate incorporating the touch panel, 1 is the fascia frame and 2 the adaptor plate.

A clear, lockable, transparent, ventilated thermostat cover is available. This is optional and not part of the standard delivery but if used then the Modulo v3 must be mounted flush. This cover prevents unauthorised access to the thermostat/ controller setpoint.

The Modulo v3 should be wall mounted in a position within the room whereby a representative room temperature can be sensed. This should be approximately 1.5m above floor level and away from direct sunlight and/or heat sources.

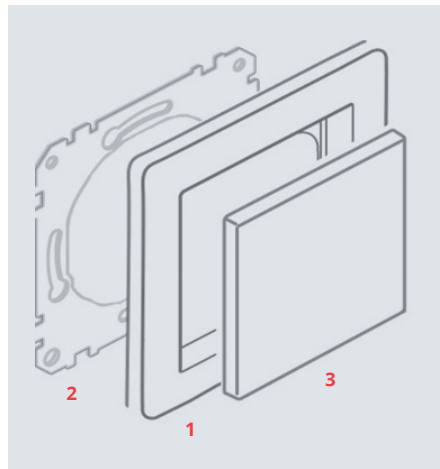


Figure 1. Front plate, frame and adaptor plate

## 2.2 Wiring

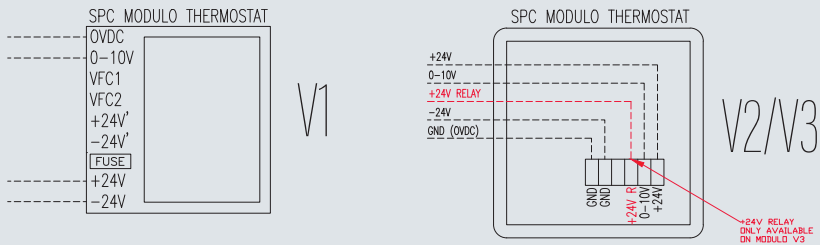
When used and supplied in conjunction with fan-assisted heaters the wiring diagram associated with the Modulo v3 unit will be supplied as part of the heater paperwork. A specific wiring diagram will be delivered with the unit identifying how the wiring must be made between the heater (including the power supply) and the remote mounted Modulo v3 controller. Wiring is made to and from the Modulo v3 via the green terminal blocks (including the power supply) and the remote mounted Modulo v3 controller. Wiring is made to and from the Modulo v3 via the green terminal blocks inside the unit (MUST follow information on relevant wiring diagram). The maximum current rating for the 24V power supply wiring is 25mA while the current associated 0-10V control signal from the Modulo v3 back to the fan motor in the heater will be below 10mA.

There is a relay box available as an optional accessory which allows the Modulo v3 to control a water valve so as to close the flow of hot water when the room setpoint temperature is reached. If this option is specified then the relay box will be pre-installed inside the heater and wired back to the Modulo v3. A special wiring diagram will be issued if this option is used and must be adhered to.



Figure 2. Underside of controller showing terminal blocks

### SPC Modulo thermostat conversion from v1 to v2/v3



**IMPORTANT**

When swapping/changing from Modulo v1 to Modulo v2/v3 you can use the exact same 4 wires used on Modulo v1 to wire up v2/v3. See above drawing showing where the 4 wires need to be wired on the terminal block on Modulo v2/v3.

The +24V relay wire to be used for a 2 port on/off 230VAC valve.

Scan the QR code or visit [www.spc-hvac.co.uk/products/modulo-controller/](http://www.spc-hvac.co.uk/products/modulo-controller/) for a detailed installation video.



## 3. Operation

The Modulo v3 is simple to operate and to set up. Settings are made by touching relevant parts of the fascia and a display and lights are included to assist.

When there is power to the Modulo v3 unit then a dim green light will be illuminated in the top

right hand corner of the fascia; the remainder of the front panel will not be illuminated. Pressing the green light awakens the unit and the current temperature is displayed in the main area of the screen. The green light turns white and additional lights appear (blue in the bottom left and red in the top right).

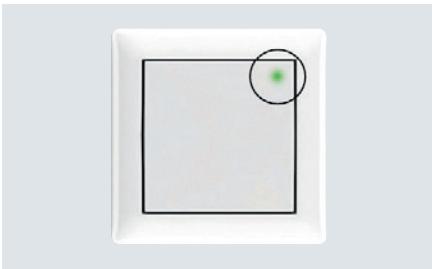


Figure 3. Standby light in top right hand corner.

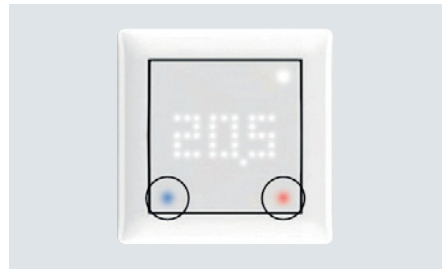


Figure 4. Temperature display and adjustment lights

The positions on the fascia of the blue and red lights allow the lowering/raising of the setpoint temperature (blue down, red up). Touching either of these areas displays the setpoint rather than sensed temperature.

The Modulo v3 has a built-in proportional range which extends 4°C below the set point temperature. Above the setpoint no signal (0V) is sent on the output wires, at 4°C below the setpoint temperature the controller sends a signal corresponding to the maximum setting for the

rotational speed of the fan, this corresponds to 8V. The signal reduces from 8V down to 2V as the setpoint temperature is approached and reduces to 0V when it is reached.

If the heater is fitted with an on/off water valve then the Modulo v3 can be supplied with a relay box to control this. The operation will be such as to close the water valve when the room setpoint temperature selected on the Modulo v3 is reached. Check order details and bespoke wiring for this option.

## 4. Maintenance/fault finding

The Modulo v3 is largely maintenance free and any cleaning should be limited to dusting with a dry cloth. Liquids, cleaners and solvents must not be used as there is limited protection against ingress.

There are a very small number of fault scenarios which are described below.

After been awoken to adjust or set temperatures the Modulo v3 will go back to sleep after a few seconds of inactivity and only the dim green light will remain illuminated. The unit can be readily woken by touching the green light.

If there is no green light on the screen then the Modulo v3 is not receiving any power and the power supply, which is likely to be inside the unit, should be checked; this should be delivering a 24V DC supply to the controller.

For any other issues which are preventing the correct operation of the controller please contact SPC.



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