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DATA SHEET

TRM-MOD-230

Produal

Distributed by AKRIBIS



Room thermostat

TRM-MOD-230



230 V | IP20

Modbus

CE UK CA

Product page

TRM room thermostat measures and controls room temperature. You can use it as a controller in many traditional HVAC applications, including 2- and 4-pipe fan coil applications, and air conditioning with heating and cooling functions.

This room thermostat has six relay outputs: three for 3-speed fan, two for valve control and one for a condensate pump or a heater. It also has one voltage output for an EC fan.

The TRM room thermostat has one resistive input and one dual-mode input. You can connect an external NTC 50 temperature sensor to the resistive input, for example, to measure return air temperature. The dual-mode input allows you to connect an external NTC 50 temperature sensor to the thermostat for heating/cooling changeover in a 2-pipe system. Alternatively, you can connect an occupancy sensor or a switch to the dual-mode input for switching the thermostat ON and OFF.

The room thermostat has a backlit, easy-to-read LCD display with 0.1 °C resolution. Users can easily adjust the temperature setpoint using the buttons adjacent to the display. The thermostat also has a built-in timer for switching the thermostat OFF.

This room thermostat has an RS-485 connection for Modbus RTU communication.

Commissioning the room thermostat is simple. You can select the basic configuration with DIP switches according to your application. You can configure other settings through the user interface or via Modbus communication.

This room thermostat can be flush mounted on the wall or installed directly into a HVAC unit. The thermostat is compatible with the 503 flush mounting boxes. Two 20 x 3.5 mm universal screws are included in the product package.

Technical specifications – Power supply

Power supply
110...230 Vac ±15 %, 50 Hz

Current consumption
0.1 A without load, max. 4.6 A with load (including supply voltage to external devices)

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Technical specifications – Measurements

Temperature measurement range
10...30 °C

Temperature measurement accuracy
±1 °C (25 °C)

Internal temperature sensor
50 kΩ NTC element

Beta value 25/85
3950 K (B25/50)

Nominal resistance
50 kΩ (25 °C)

Technical specifications – Product properties

Appliance class
II

Display
backlit LCD display

Display resolution
0.1 °C

Timer
0...10 h, 0 = inactive. Timer sets the thermostat to OFF after the selected time.

Materials
PC and ABS plastic

Flammability
UL94V-0

Housing colour
white

Warranty
2 years

Compliance information
Refer to the EU Declaration of Conformity or the UK Declaration of Conformity for compliance information. You can find the declarations on this product's page at www.produal.com.

Technical specifications – Inputs

Resistive input
1 x NTC 50 and 1 x NTC 50 / potential free digital input

Technical specifications – Outputs

Voltage output
0...10 Vdc

Relay output
3 x 230 Vac, 3A (3-speed fan), 2 x 230 Vac, 0.5 A (valve control), 1 x 230 Vac, 0.5 A (pump/heater)
Note: This room thermostat supplies power to external devices through its built-in relays.

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Technical specifications – Communication

Communication
Modbus RTU

Modbus RTU interface
RS-485

Modbus RTU bus speed
9600 bit/s

Modbus RTU addresses
1…99

Modbus RTU data bits
8

Modbus RTU parity
no parity

Modbus RTU stop bits
1

Modbus RTU unit load
UL 1/8

Technical specifications – Installation

Mounting
with screws on a 503 flush mounting box

Technical specifications – Wiring

Wiring terminals
screw terminals

Wire
0.5 mm² (20 AWG)

Technical specifications – Operation

Setpoint
10…30 °C, default 22 °C

Fan speed control
3-speed control using relays or 0...10 Vdc

User interface
buttons: ON/OFF, mode, fan speed, setpoint +/-

Technical specifications – Operating and storage conditions

IP protection class
IP20

Ambient temperature
0...50 °C

Ambient humidity
0...80 %rH

Storage temperature
-10...60 °C

Storage humidity
0...80 %rH (non-condensing)

Technical specifications – Dimensions

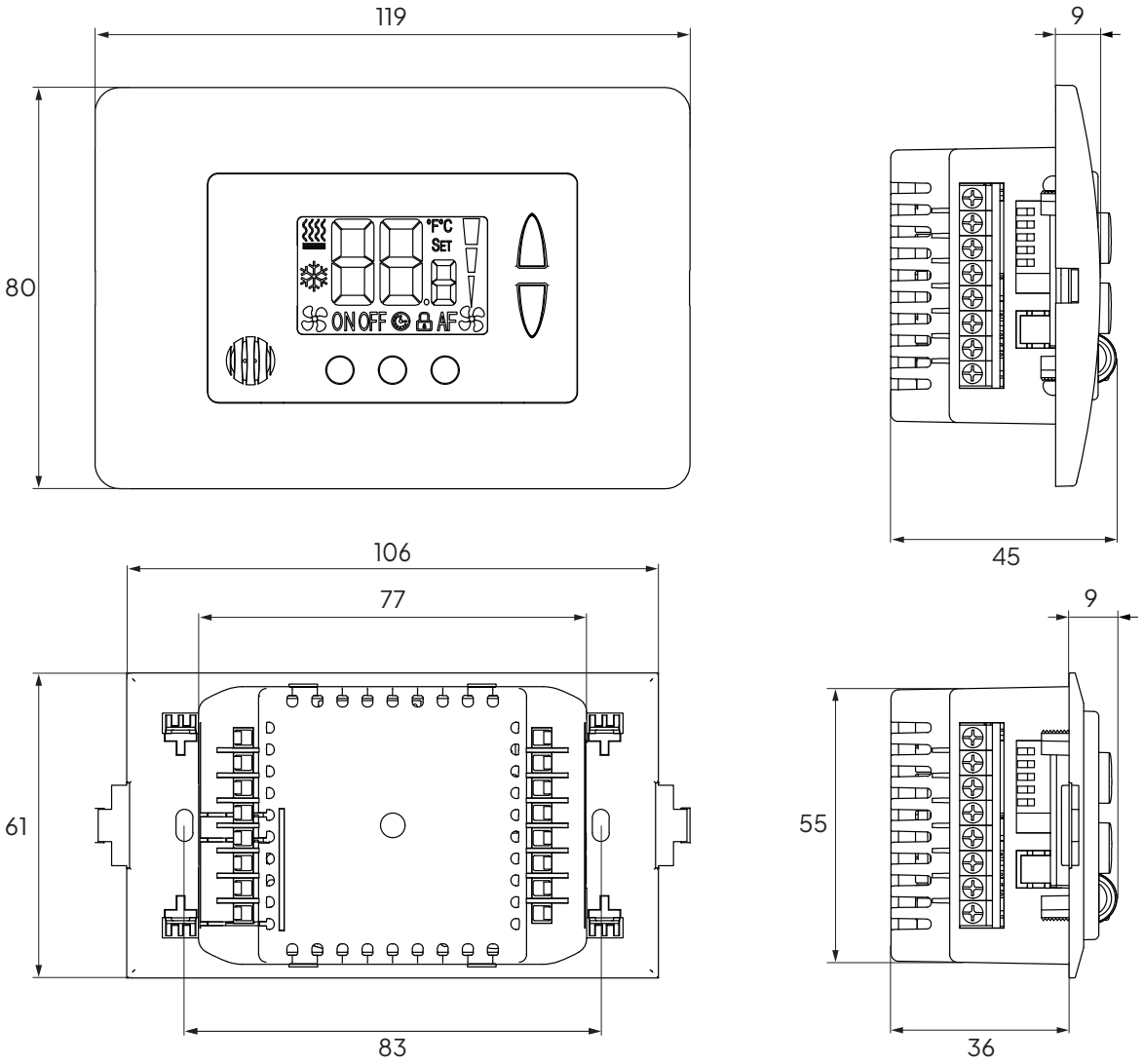
Product dimensions (w x h x d)
119 x 80 x 45 mm

Product weight
135 g

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Dimensions

All dimensions are in millimetres (mm).



Factory settings

Temperature setpoint
22 °C

Modbus RTU address
1

Wiring

Warning: Only connect wires and commission the device if you are qualified for electrical work and familiar with building automation products. Risk of electric shock and damage to the device.

Warning: Always commission the device in a de-energised electricity network. Risk of electric shock.

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Warning: Protect the external power sources and power wiring with a fuse or circuit breaker. The maximum rating for the external circuit breaker is 6 A.

Caution: Connect the device only to overvoltage category I, II or III electricity network according to EN 60730–1.

Caution: Use single-stranded wires if possible. If you use multi-stranded wires, always install wire end sleeves to the wires to prevent short circuits and ensure secure attachment.

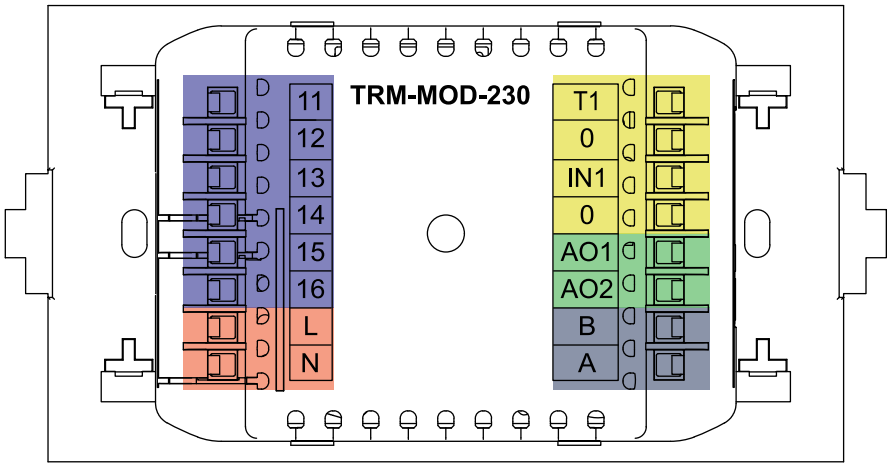
Important: This product cannot detect an abnormal condition of output port. External supervising (automated/human) can be necessary depending on the application where this product is used.

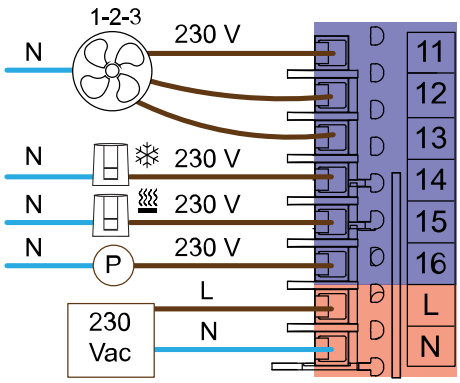
Important: For CE and UKCA compliance, use correctly grounded, shielded cable.

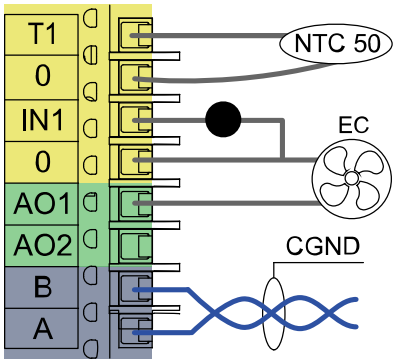
Important: Do not use excessive force when you tighten the wiring terminal screws.

1. Set the DIP switches into correct positions according to your application. They are located below the input wiring terminals.
2. In Modbus network, set DIP 1 to ON in the last device of the communication line to terminate the line with the built-in 120 Ω termination resistor.
3. Connect the wires according to the wiring diagram below. Separate wiring diagrams are provided for 4-pipe and 2-pipe fan coil applications.
4. Install the device to a flush mounting box and attach the cover plate before you connect the supply voltage to the device.

See the figure below for wiring terminal locations on the right and left side of the device.



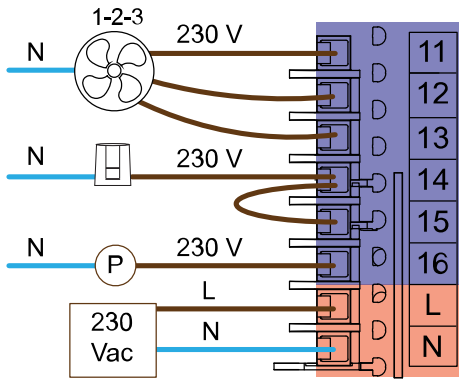


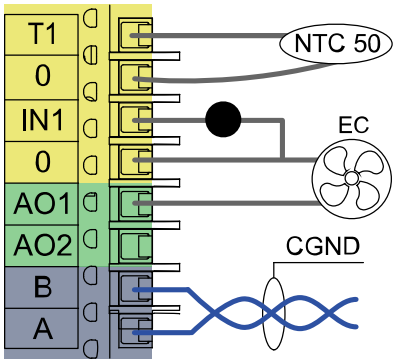


4-pipe system

11	Fan, high speed. Relay output 230 Vac, 3 A
12	Fan, medium speed. Relay output 230 Vac, 3 A
13	Fan, low speed. Relay output 230 Vac, 3 A
14	Cooling valve. Relay output 230 Vac, 0.5 A
15	Heating valve. Relay output 230 Vac, 0.5 A
16	Condensate pump or electric heater. Relay output 230 Vac, 0.5 A
L	Power supply, 230 Vac, 50 Hz
N	Power supply, 0 V
T1	Resistive input for external NTC 50 sensor
0	External sensor, 0 V
IN1	Dual-mode input for NTC 50 sensor, occupancy sensor or ON/OFF switch
0	Dual-mode input, 0 V
AO1	Analogue output, fan 0...10 V
AO2	Not in use
B-/A+	Modbus RTU, RS-485

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2-pipe system

11	Fan, high speed. Relay output 230 Vac, 3 A
12	Fan, medium speed. Relay output 230 Vac, 3 A
13	Fan, low speed. Relay output 230 Vac, 3 A
14	Valve control. Relay output 230 Vac, 0.5 A
15	Connect relay outputs 15 and 14 with a jump wire.
16	Condensate pump or electric heater. Relay output 230 Vac, 0.5 A
L	Power supply, 230 Vac, 50 Hz
N	Power supply, 0 V
T1	Resistive input for external NTC 50 sensor
0	External sensor, 0 V
IN1	Dual-mode input for NTC 50 sensor, occupancy sensor or ON/OFF switch
0	Dual-mode input, 0 V
AO1	Analogue output, fan 0...10 V
AO2	Not in use
B-/A+	Modbus RTU, RS-485

Ordering information

	Product name	Product number	
	TRM-MOD-230	1281010001	room thermostat, Modbus

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