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DATA SHEET

TRC-H-3R2T

Produal

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TRC-H-3R2T - Touchscreen room controller



TRC-H-3R2T room controllers are designed for climate control in room spaces with modern sharp slim line 3.5" colour touchscreen interface. The controllers have up to two heating and cooling control stages, fan speed control, optional CO_2 level control and humidity control. The units can be used in various climate control applications, such as fan coil units, chilled ceiling and zone heating/cooling systems.

The TRC-H-3R2T controllers have three relay outputs (230 V, 4 A res.) for fan, two triac outputs (24 Vac, max. inrush 1 A), two external sensor inputs and a digital input. The devices are available with both Modbus RTU and BACnet MS/TP communication.

The controller can be equipped with several options. For example, the CE option enables the light, blinds and boost control.

Technical specifications

Property	Value
Supply	24 Vac (50/60 Hz, 22...28 V), < 200 mA / 24 Vdc (22...28 V), < 80 mA
Internal temperature measurement	
Range	0...50 °C (32...122 °F)
Accuracy (25 °C / 77 °F)	±0.5 °C (0.9 °F)
CO_2 measurement (CO2 models)	
Range	0...5000 ppm
Accuracy (25 °C / 77 °F)	±50 ppm + 3 % from reading
Calibration	Automatic
Warm-up time	< 20 seconds
Non-linearity	< 1 % FS
Time constant	2 min
Humidity measurement (RH models)	
Range	0…100 %rH
Accuracy (25 °C / 77 °F)	typ. ±2 %rH (20...80 %rH)
Outputs	

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Property	Value
Relay outputs	3 x 230 Vac, 4 A (res.) / 1.3 A (inductive) or 3 x 115 Vac, 4 A (res.) / 2.2 A (inductive), motor load AC3 186 W
Triac outputs	2 x 24 Vac, max. inrush 1 A (switching to 0 V). Requires 24 Vac power supply.
Inputs	
Analogue inputs	2 x external NTC 10 sensor (RI1 & RI2). Resistive inputs can also act as potential free contacts. AI option: 2 x 0..10 Vdc inputs (replaces RI1 & RI2).
Digital inputs	1 x digital input, potential free contact, impedance <1 kΩ
Communication (MOD models)	Modbus RTU
Bus speed	9600*/19200/38400/57600/76800 bit/s
Parity	none*/odd/even
Stop bits	1 or 2
Unit load	1/2 UL
Communication (BAC models)	BACnet MS/TP
Bus speed	9600*/19200/38400/57600/76800 bit/s
Parity	none*/odd/even
Stop bits	1 or 2
Unit load	1/2 UL
Display	3.5" backlit touchscreen, 320 x 480 pixels, 255K colours
Appliance class (IEC 60664-1)	III
Operating conditions	
Temperature	0...50 °C (32...122 °F)
Humidity	0...95 %rH (non-condensing)
Storage conditions	
Temperature	-30...70 °C (-22...158 °F)
Humidity	0...95 %rH (non-condensing)
Wiring terminals (power supply and relay outputs)	
Wire type	Solid and stranded wire
Wire size	Solid: 0.14...2.5 mm^2, stranded: 0.14...1.50 mm^2 / 26...14 AWG (UL)
Rising clamp size	2.4 x 1.6 mm
Wiring terminals (communication, inputs and analogue outputs)	Tilted terminals
Wire type	Solid and stranded wire
Wire size	0.14...1.5 mm^2 / 26...14 AWG (UL)
Rising clamp size	2.4 x 1.8 mm
Housing	
Protection class	IP20
Materials	Polycarbonate plastics, self extinguishing
Mounting	On a flush mounting box (60 mm hole distance)
Dimensions (w x h x d)	88 x 112 x 43 mm
Weight	220 g
	* = factory setting

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Wiring

WARNING: Device wiring and commissioning can only be carried out by qualified professionals. Always make the device wirings in de-energised electricity network.

WARNING: This product is appliance class III product according to IEC 60664-1. The product may only be connected to SELV (safety extra low voltage) electricity network.

WARNING: Fuse at load supply (normally 6 A, 10 A, 16 A) does not always limit the relay output load current to 4 A. The relay maximum load is 1000 VA (250 V x 4 A res.). Maximum inductive load is 2.2 A.

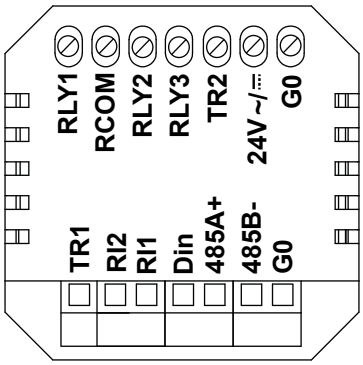
CAUTION: The product may only be connected to overvoltage category I or II electricity network according to IEC 60664-1. Use external overvoltage protection if the device is connected to the overvoltage category III electricity network.

CAUTION: The used cables must have minimum of 230 Vac insulation for SELV wiring, if the mounting box includes also 230 Vac voltage wirings.

CAUTION: Use single stranded wires or use wire end sleeves if multi stranded wires are used.

CAUTION: Don't connect fan motors in parallel. One product can control only one fan motor.

CAUTION: The relay connection wiring cross sections must be adapted to the overload protection conditions (max. 6 A). The wirings must always comply with local regulations.



RLY1	Relay output 1, 230 V / 4 A (res.), fan speed 1
RCOM	Relay outputs, common **WARNING:** Add an external fuse to relay common connector. Use a time-lag fuse (max 6 A) that is in accordance with the standard IEC 60127-2. The product doesn't have an internal fuse for the relays.
RLY2	Relay output 2, 230 V / 4 A (res.), fan speed 2
RLY3	Relay output 3, 230 V / 4 A (res.), fan speed 3
TR2	Triac output 1, 24 Vac, max. inrush 1 A (switching to 0 V), configurable (the default function is cooling) **Important:** The maximum wire length is 30 m.
24V	Supply, 24 Vac/dc
G0	0 V, common
TR1	Triac output 1, 24 Vac, max. inrush 1 A (switching to 0 V), configurable (the default function is heating) **Important:** The maximum wire length is 30 m.
RI2	External temperature sensor input 2, NTC 10 (0...10 Vdc with AI option)
RI1	External temperature sensor input 1, NTC 10 (0...10 Vdc with AI option)

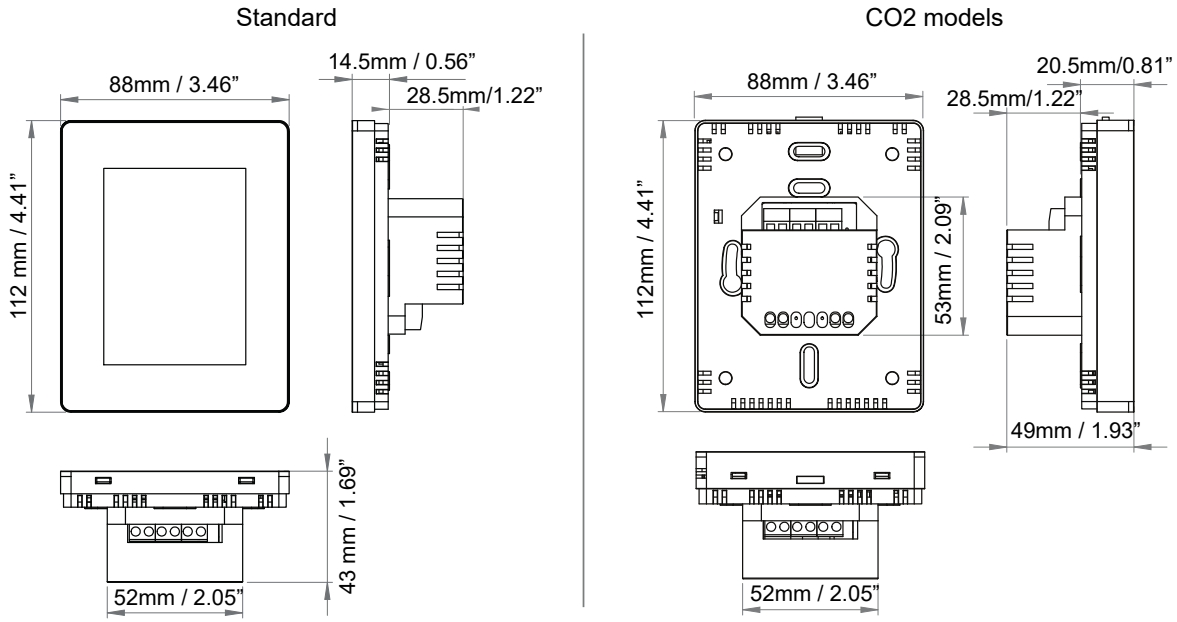
Important: The maximum wire length is 3 m.

Din	Digital input, potential free contact
485A+	Modbus RTU / BACnet MS/TP, RS-485
485B-	**Note:** The bus is not galvanically isolated.
G0	0 V, common

Ordering information

			Type	0	1	2	3	4	5	6
0	Touchscreen room controller			6001	H		2			
1	Device type	Room controller	TRC-H-3R2T		H					
2	Communication	Modbus	-MOD			M				
		Bacnet	-BAC			B				
3	Power supply	24 Vac/dc	-24				2			
4	Additional measurements	No additional measurements						0		
		Relative humidity	-RH					1		
		CO_2	-CO2					2		
		Relative humidity and CO_2	-RH-CO2					3		
5	Advanced options	No advanced options							0	
		2 x 0...10 Vdc input (replaces RI1 & RI2)	-AI						1	
		Control extension	-CE						2	
		2 x 0...10 Vdc input and control extension	-AI-CE						3	
6	Body colour	White (RAL 9010)	-W							W
		Black (RAL 8022)	-B							B

Dimensions



Supported standards and directives

Standard	Description
2014/30/EU	Electromagnetic Compatibility (EMC).
2014/35/EU	Low Voltage Directive (LVD).
2011/65/EU	Restriction of Hazardous Substances (RoHS2) Directive.

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Standard	Description
EN 61000-6-1:2019	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments.
EN 61000-6-3:2021	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments.
EN 60730-1:2016	Automatic electrical controls - Part 1: General requirements.

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