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DATA SHEET

RTX-D

Produal

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RTX-D touchscreen room transmitter



The RTX-D transmitters are very versatile room transmitters that can be equipped with several measurements. All transmitters are equipped with temperature measurement and 2.8" multicolour touchscreen display. You can use the touchscreen for viewing measurement information, adjusting setpoints and using VAV forcing function. The following options are also available:

- Humidity measurement (-RH models)
- CO_2 concentration measurement (-CO2 models)
- VOC (Volatile Organic Compounds) measurement (-VOC models)
- Occupancy detection (-PIR models)
- Relay output (-R models)
- Modbus RTU communication (-MOD models)
- BACnet MS/TP communication (-BAC models)

These transmitters are easy to install and configure. They have two multifunctional inputs and four multifunctional outputs for several different functions. You can configure the outputs, for example, as measurement outputs or control outputs.

The built-in P/PI controller can be used to control, for example, heating, cooling or VAV applications. The control output can be controlled either according to a one measurement value or according to the maximum selection of all values. You can select the measurements that are used for the maximum selection control.

You can commission these transmitters using the MyProdual smartphone application and the MyTool Connect dongle. You can also configure all settings via bus in -MOD models and some settings in -BAC models.

Technical specifications

Property	Value
Supply	24 Vac (22…26 V) / 24 Vdc (22…39 V)
Power consumption	
Maximum power consumption with all options	< 3.2 VA
Average power consumption	< 1 VA
	Note: Use the touchscreen energy saving features to minimise the device energy consumption.

Property	Value
Temperature measurement	* factory setting
Range	0...50 °C
Accuracy (2σ)	±0.3 °C (at 20...25 °C) **Note:** To achieve this accuracy, eliminate all the error factors that can affect the measurement. See the user guide for more information about the correct installation.
Accuracy (1σ), -VOC and -R models	±0.5 °C (at 25 °C)
Time constant	60...3600 s, *120 s
CO_2 measurement (-CO2 models)	* factory setting
Range	0...5000 ppm (default output scale is 0...2000 ppm)
Accuracy (15...35 °C / 0...80 %rH)	With ABC calibration: typ. (2σ) ±40 ppm +2 % from reading, max. (3σ) ±50 ppm +2 % from reading **Note:** To achieve this accuracy, the device must complete the self-calibration procedure three times (three weeks).
Time constant	60...3600 s, *120 s
Humidity measurement (-RH models)	* factory setting
Range	0...100 %rH
Accuracy (30...75 %rH)	Typ. (2σ) ±2 %rH at 20...25 °C, max. (3σ) ±3 %rH
Time constant	60...3600 s, *120 s
VOC measurement (-VOC models)	* factory setting
Range	• CO_2 equivalent: 0...32767 ppm • TVOC (ppb): 0...32767 ppb • TVOC (µg/m³): 0...32767 µg/m³ (conversion from ppb to µg/m³ is calculated using isobutylene's molecular weight) • IAQ index: 1...5 (UBA rating)
Accuracy (25 °C / 50 %rH)	Typ. <12 % from reading, max. <18 % **Note:** The device achieves its final accuracy after it has been powered for 24 hours. The sensor uses a start-up algorithm, which allows you to use the output signals after 1 hour of operation. The device executes the start-up algorithm after you turn on the power supply for the first time.
Time constant	60...3600 s, *120 s
Occupancy detection (-PIR models)	
Sensor	PIR
Area	Up to 5 m with angle of 70°
Multifunctional inputs	
Input 1	Digital / resistance / 0...10 Vdc / NTC 10 / PT 1000
Input 2	Digital / resistance / NTC 10
Controller	
Controller type	P/PI

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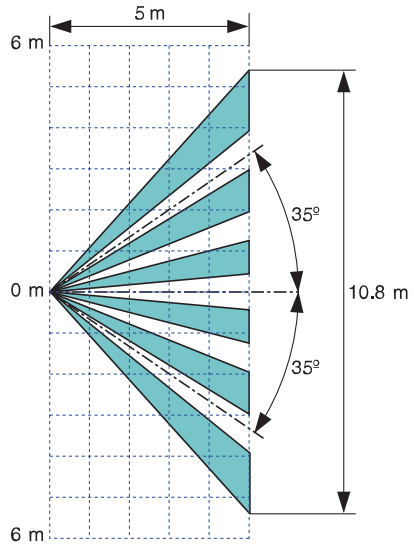
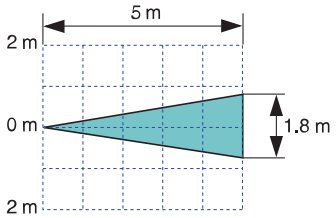
Property	Value
Control functions	Heating and cooling according to temperature, humidification and dehumidification according to relative humidity (-RH models), and ventilation according to CO_2 (-CO2 models) or VOC (-VOC models) level. Maximum selection control is also available and the cooling control can utilize the dew point function if -RH model is used together with an external temperature sensor that is attached to the cooling pipe.
Outputs	* factory setting
Multifunctional outputs (4 pcs)	
Range	0...10 V*, 2 mA (freely scalable within this range) or digital (e.g. 0/10 Vdc)
Accuracy	±0.1 % from full scale
Relay output (-R models)	Change-over, 24 Vac/dc, 1 A res.
Communication	* factory setting
Modbus (-MOD models)	
Protocol	Modbus RTU
Interface	RS-485
Bus speed	9600*/14400/19200/38400/56000/57600/76800/115200 bit/s
Data bits	8
Parity	none*/odd/even
Stop bits	1* or 2
Unit load	1/8 UL
Address range	1*...247
Bus termination	Using a jumper
BACnet (-BAC models)	
Protocol	BACnet MS/TP
Interface	RS-485
Bus speed	9600*/14400/19200/38400/56000/57600/76800/115200 bit/s
Data bits	8
Parity	none*/odd/even
Stop bits	1* or 2
Unit load	1/8 UL
Bus termination	Using a jumper
Display	2.8" multicolour touchscreen display
Wiring terminals	
Type	Tilted screw terminals
Wire	0.2...0.75 mm^2 (24...18 AWG)
Stripping length	5 mm
Tightening torque	0.4 Nm

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Property	Value
Commissioning tool	MyTool Connect dongle with MyProdual application GET IT ON Google Play Available on the App Store
Appliance class (IEC 60664-1)	III
Operating conditions	
Ambient temperature	0...60 °C
Ambient temperature (-R models)	0...50 °C
Ambient humidity	0...95 %rH (non-condensing)
Storage conditions	
Temperature	10...35 °C
Humidity	20...60 %rH (non-condensing)
Housing	
Protection class	IP30
Materials	ABS plastic
Mounting	On the wall surface or on a flush mounting box (60 mm hole distance). A surface mounting box is also available.
Colour	
White models	RAL9016
Black models	RAL9011
Dimensions (w x h x d)	
Product dimensions	99 x 99 x 27 mm (-PIR models: 99 x 99 x 29 mm)
Package dimensions	100 x 100 x 36 mm
Weight	
Product weight	140 g (model with all options)
Package weight	10 g
Warranty	5 years
CE UKCA	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.
Company certificates	
Quality management	ISO 9001
Environmental management	ISO 14001

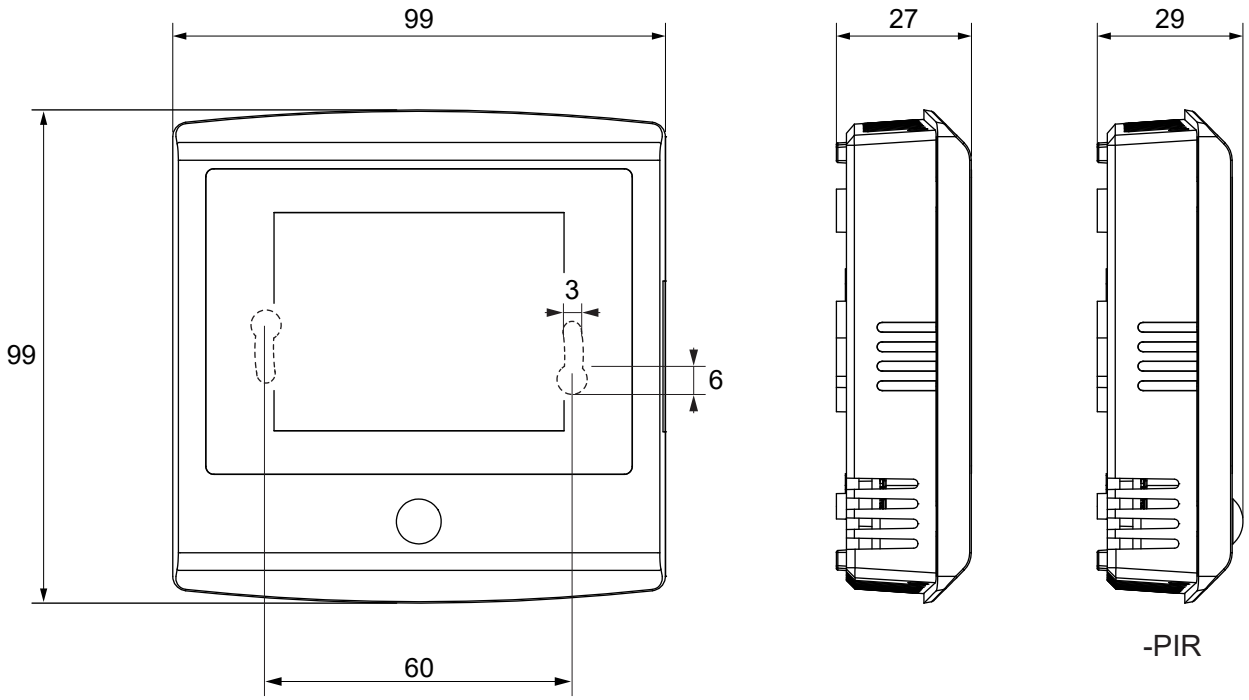
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Detection area (PIR models)

Horizontal	Vertical
	

Dimensions

All dimensions are in millimeters (mm).



-PIR

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.

WARNING: Protect the external power sources and power wiring with a fuse or circuit breaker. The maximum rating for the external circuit breaker is 16 A.

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WARNING: Use an external power source that can provide at least 170 VA / 170 W to ensure proper operation of the device's internal fusing in case of a failure condition. If the power source cannot fulfill this requirement, the system's total power consumption should be less than 15 W also in the failure condition.

WARNING: Connect this device to SELV (separated extra low voltage) electricity network only. This device is appliance class III product according to IEC 60664-1.

WARNING: Protect the relay port with an external slow blow fuse with maximum current rating of 1 A. Alternatively, you can limit the power consumption of the connected external circuitry to less than 15 W in both normal operation and failure condition. The relay port is not protected internally against overload.

WARNING: Only connect the relay port to SELV (separated extra low voltage) circuitry.

WARNING: The maximum loop resistance of supply power wiring is 3 Ω.

CAUTION: Connect the device only to overvoltage category I, II or III electricity network according to IEC 60664-1.

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

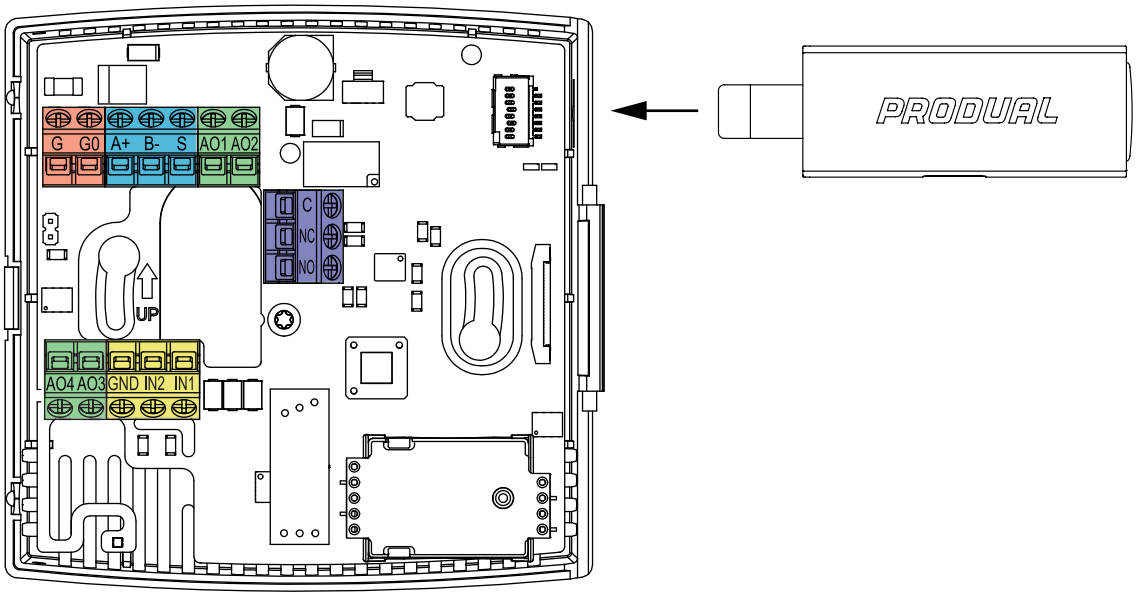
1. Open the cover.
   Cover opens from the left side. The hinge of the cover is on the right side of the housing.

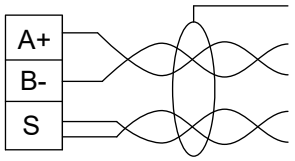
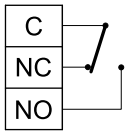
   Important: Do not remove the cover. The cover opening angle is 135°.

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2. Connect the wires to the screw terminal block according to the table below.

Important: Do not use wire end sleeves.



G	Supply, 24 Vac/dc, < 3.2 VA	
G0	0 V	
A+ *B-* *S*		Modbus RTU, RS-485 (-MOD models). BACnet MS/TP, RS-485 (-BAC models). **Note:** You can use the S connector only to chain the cable shielding.
AO1	Voltage output 1, 0...10 Vdc, < 2 mA (freely scalable within this range).	
AO2	Voltage output 2, 0...10 Vdc, < 2 mA (freely scalable within this range).	
C *NC* *NO*		Relay output, 24 Vac/dc, 1 A res. (-R models).
AO4	Voltage output 4, 0...10 Vdc, < 2 mA (freely scalable within this range).	
AO3	Voltage output 3, 0...10 Vdc, < 2 mA (freely scalable within this range).	
GND	Ground.	
IN2	Input 2, digital / resistance / NTC 10.	
IN1	Input 1, digital / resistance / 0...10 Vdc / NTC 10 / PT 1000.	

The nominal tightening torque for wiring terminal screws is 0.4 Nm.

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

CAUTION: Make sure that all covers are closed before you connect the supply voltage to the device. Do not open the covers when the supply voltage is connected.

3. Make sure that the cables or wires do not touch the display or get in between the cover and housing.
4. Close the cover.

Make sure that all device functions operate correctly after the wiring is complete and the power supply is on.

Ordering information

You can use the ordering guide below to generate ordering information for products you would like to order. For example, the ordering information for a black room transmitter with a display, CO_2 measurement and occupancy detection is as follows:

Product type: RTXB-CO2-D-PIR
Product number: 53012BDP00

			Type	0	1	2	3	4	5	6
0	Room transmitter			5301			D			0
1	Device type	Room transmitter with temperature measurement	RTX		1					
		Room transmitter with temperature and CO_2 measurement	RTX-CO2		2					
2	Body colour	White (RAL9016)				W				
		Black (RAL9011)	B			B				
3	Display	Touchscreen display	-D				D			
4	Additional measurements	No additional measurements						0		
		Relative humidity	-RH					H		
		VOC	-VOC					V		
		Occupancy	-PIR					P		
		Relative humidity and occupancy	-RH-PIR					6		
		Relative humidity, VOC and occupancy	-RH-VOC-PIR					7		
		Relative humidity and VOC	-RH-VOC					8		
		VOC and occupancy	-VOC-PIR					9		
5	Additional options	No additional options							0	
		Modbus RTU	-MOD						M	
		BACnet MS/TP	-BAC						B	
		Relay output	-R						R	
		Modbus RTU and relay output	-MOD-R						1	
		BACnet MS/TP and relay output	-BAC-R						2	
6	Reserved									0

The following accessories are also available for these devices.

Type	Product number	
SMB-RX	9000570	Surface mounting box, white
SMB-RXB	9000571	Surface mounting box, black

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