RCN420-B Room controller

Application

The RCN420-B is a BACnet-capable room controller for energy-efficient temperature, air quality and humidity control.

It can be used with customer-specific solutions (can be freely configured) for up to 4 room control circuits.

The RCN420-B is controlled using additionally connectible room control modules.

Suitable for installation in closed housing or switch cabinets.

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Änderungen vorbehalten - Contents subject to change - Sous réserve de modifications - Reservado el derecho a modificación - Wijzigingen voorbehouden - Con riserva di modifiche - Innehåll som skall ändras - Změny vyhrazeny - Zmiany zastrzeżone - Возможны изменения - A változtatások jogát fenntartjuk - 保留未经通知而改动的权力

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Important Information Regarding Product Safety

Safety Instructions

This data sheet contains information on installing and commissioning the product "RCN420-B". Each person who carries out work on this product must have read and understood this data sheet. If you have any questions that are not resolved by this data sheet, you can obtain further information from the supplier or manufacturer.

If the product is not used in accordance with this data sheet, the protection provided will be impaired.

Applicable regulations must be observed when installing and using the device. Within the EU, these include regulations regarding occupational safety and accident prevention as well as those from the VDE (Association for Electrical, Electronic & Information Technologies). If the device is used in other countries, it is the responsibility of the system installer or operator to comply with local regulations.

Mounting, installation and commissioning work on the devices may only be carried out by qualified technicians. Qualified technicians are persons who are familiar with the described product and who can assess given tasks and recognize possible dangers due to technical training, knowledge and experience as well as knowledge of the appropriate regulations.

Legend

WARNING

Indicates a hazard of medium risk which can result in death or severe bodily injury if it is not avoided.

CAUTION

Indicates a hazard of low risk which can result in minor or medium bodily injury if it is not avoided.

CAUTION

Indicates a hazard of medium risk which can result in material damage or malfunctions if it is not avoided.

NOTE

Indicates additional information that can simplify the work with the product for you.

Notes on Disposal

For disposal, the product is considered waste from electrical and electronic equipment (electronic waste) and must not be disposed of as household waste. Special treatment for specific components may be legally binding or ecologically sensible. The local and currently applicable legislation must be observed.

Item

RCN420-B	Room controller for decentralized installation in false floors or ceilings. Can be used for energy-efficient temperature, air quality and humidity control with standard applications or freely configurable with up to 4 room control circuits.

Technical Data

Nominal voltage	AC 110 to 230 V ±10 %; 50/60 Hz; 21 VA	
Fuse	Time-delay power fuse T 1.25 A	
Inputs and outputs	5 binary outputs	Floating relay contact max. 5(3) A; AC 250 V
	2 binary inputs (P9 and P10)	
	8 universal inputs/outputs (P1 to P8) that can be independently configured as:	
	- Binary output - Binary input - Analog output	Transistor outputs DC 24 V, max. 40 mA Contact input (floating) DC 0(2) to 10 V; max. 2.5 mA
	- Analog input	
Interfaces	■ Ethernet RJ45 Data backup; web server communication; BACnet® in accordance with DIN EN ISO 16484-5; 10/100 Mbps ■ 1 CAN bus; F bus; 2000 m; 20 kBd Power supply (internal, uncontrolled) for fieldbus module DC 12 V; 6 W	
Displays	Backlit graphic display, LED "messages" for malfunction messages and "manual" LED for configurable messages	
Operation	**[Set]** selection knob; **[Select]** button for accessing the context menu and **[Esc]** button Additional keys: "Info" button, "Messages" button, freely programmable button	
Power failuredata backup	10 years, battery-buffered clock module Battery: CR1225 (Renata)	
Overvoltage category	III	
Rated impulse voltage	4000 V	
Level of contamination	2	
How it works	Type 1	
Degree of protection	IP20 (when installed)	
Ambient temperature	0 to 50 °C 0 to 45 °C when installed in intermediate ceiling See installation notes on page 7.	
Ambient humidity	During operation: 20 to 80 % r.h., non-condensing; Out of operation: 5 to 90 % r.h., non-condensing	
Installation	Top hat rail TH 35x7.5 in closed housing This device is inteded for installation in a wall-mounted enclosure or switch cabinet with protection class I or II.	
Dimensions	WxHxD mm 143.5 x 90 x 67	
Weight	Approx. 0.345 kg	

Sensor types

Type	Value range and unit
0..10 V	0..100 %
KP10	-50..150 °C
NTC10K	-35..100 °C
NTC10KPRE	-35..100 °C
Resistor (potentiometer)	0..10 kΩ

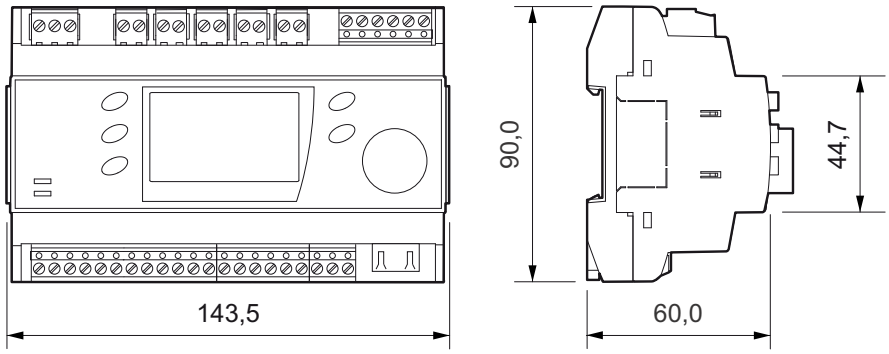
NOTE

You can find more information on the sensor types in the “Temperature Sensor Tables” product description (1.10-90.100-01).

Accessories (not included in delivery)

Z180	Housing for wall mounting ■ Installation space: one row, 324 mm (18 HP, IP65), 1 RCN420-B, 4 HP free for example	

Dimensions



Connectible module

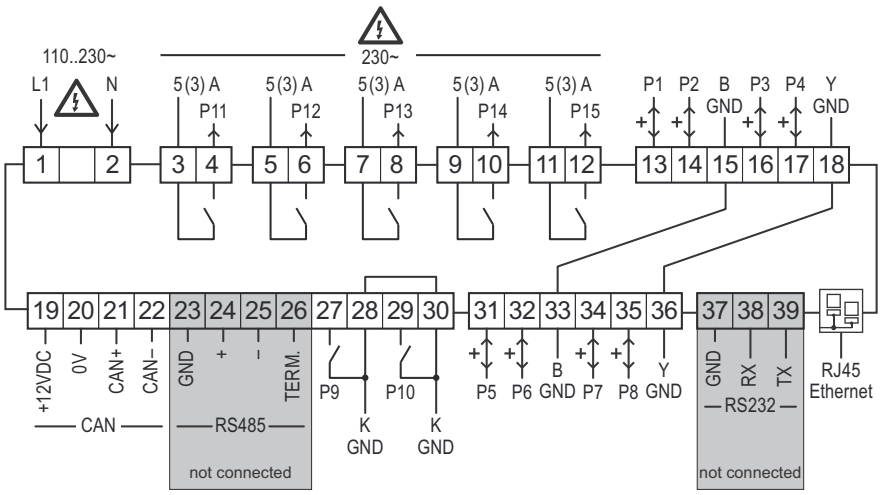
You can connect up to four room control modules to the RCN420-B.

Room control modules

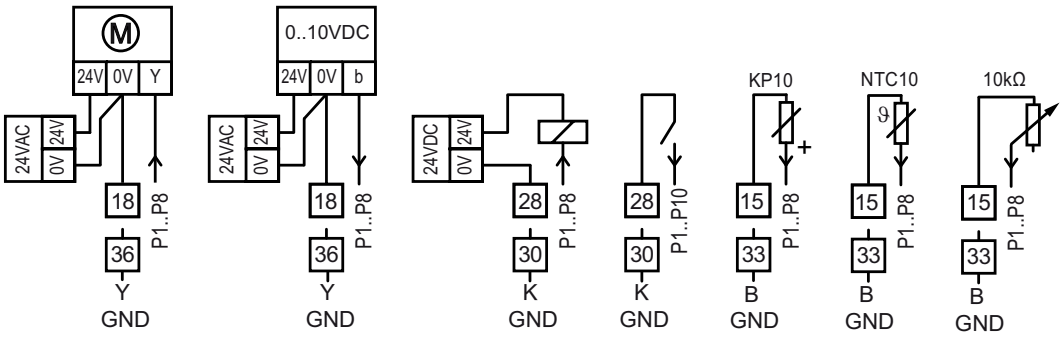
- RBW201-C
- RBW202-C
- RBW204-C
- RBW205-C
- RBW301-C
- RBW302-C
- RBW304-C
- RBW305-C

Connection

Terminal assignment RCN420-B



Wiring diagram for sensors and actuators



CAUTION

The GND wiring specified in the wiring diagram (Y GND, K GND, B GND) must be observed. Incorrect GND wiring may lead to errors in measurement.

CAUTION

Ensure that no third persons can access your data during data transfer.

Only use secure solutions when connecting to public networks (VPN).

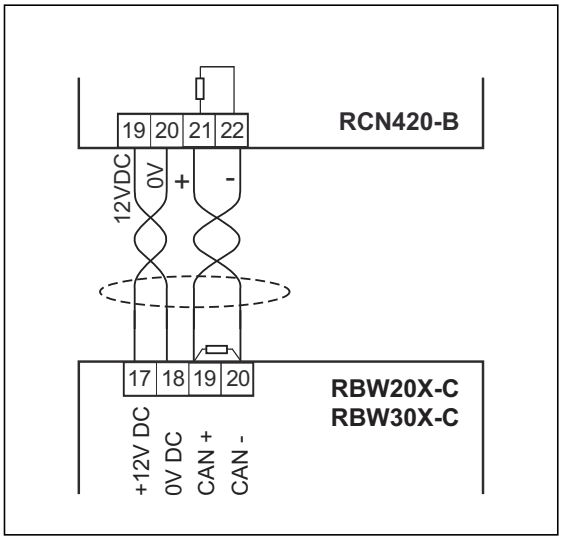
CAUTION

Use secure passwords to protect your data, devices and plants from unauthorized access. A secure password consists of lowercase and uppercase letters, numbers and special characters. It must also be long enough.

Change the passwords directly after transfer of the plant, commissioning of the device or importing software. Change the passwords at regular intervals. Use different passwords.

You are responsible for the security of your data and/or plant.

Wiring diagram for room control modules



Bus operating panels

In the simplest case, the room controllers can be supplied with power from the RCN420-B.

To connect the fieldbus, use at least one cable of the type JY(St)Y 2x2x0.8 Lg: Two x two leads stranded into a pair, plastic insulation and an electrostatic shield with a lead diameter of at least 0.8 mm. Use a stranded pair of leads for the data lines (+ and -) and another stranded pair of leads for the ground connection 0 V and DC 12 V.

When connecting the fieldbus, use daisy chain topology (series connection) only. Do not use star or ring topologies.

At the start and end of the fieldbus, install a terminating resistor of about 180 Ω between the two data connections (+ and -).

- The RCN420-B has an integrated 180 Ω resistor.
- Two terminating resistors are included with the room controller.
- The maximum cable length for the fieldbus is 2000 m.

CAUTION

Deviating terminating resistor wiring can result in faulty data transmission.

Mounting

WARNING

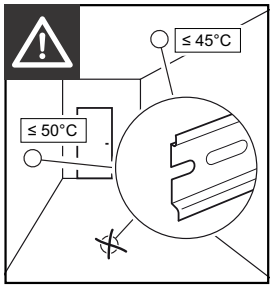
Danger of death by electrocution.

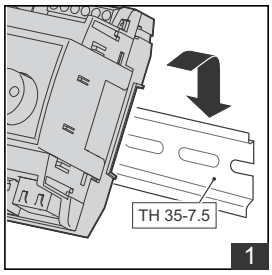
Mount or remove only when power is switched off.

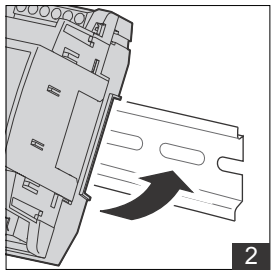
CAUTION

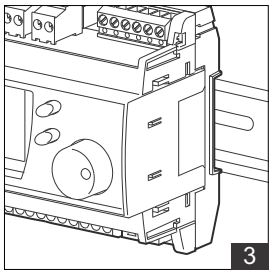
If the RCN420-B is installed in false ceilings, the maximum permitted ambient temperature is only 45 °C.

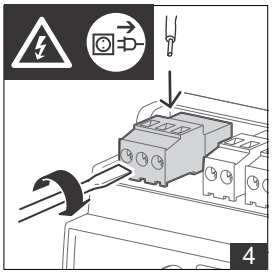
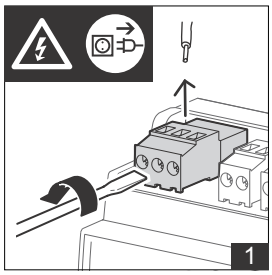
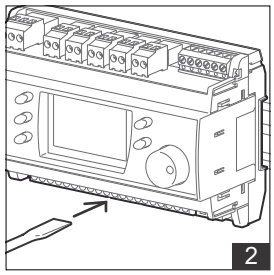
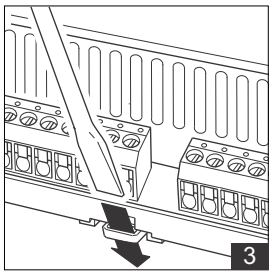
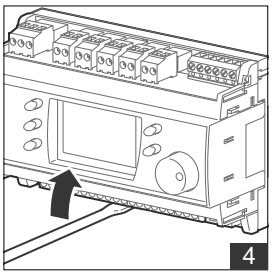
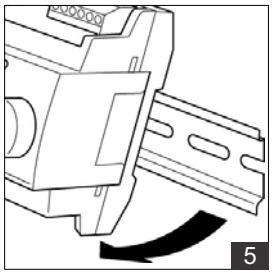
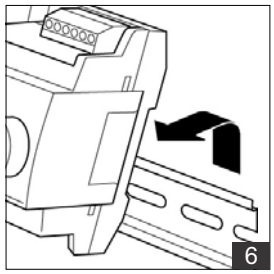
Installation in floor boxes or similar systems is not permitted.











Removal