TROX® TECHNIK
The art of handling air

ROOM TEMPERATURE CONTROLLER TYPE CR24-B1

ROOM TEMPERATURE CONTROLLER ETN-24-VAV-227-P

Room temperature controller type ALT24/SUPER

RC

FOR THE INDIVIDUAL TEMPERATURE CONTROL IN ROOMS

Reduced operating costs due to intelligent sensor technology

- Temperature range 10 – 45 °C
- For variable volume flow systems and 2-pipe or 4-pipe water applications
- with integral temperature sensor

Optional equipment

- Room occupant can select the operating type
- Remote control for RC/M1

General information

Application

- Room temperature controller for single room applications
- Ideally suited for the control of VAV terminal units using Easy, Compact, or Universal controllers
- Comfortable control of room temperature
- Low energy requirement due to demand-based operating modes
- Cooling and/or heating mode
- Device versions with different output sequences for various ventilation and air conditioning systems, including air-water systems.

Variants

- B1: Room temperature controller with one analogue output for cooling or heating (changeover mode)
- B2: Room temperature controller with two analogue outputs for cooling or heating (3 point)
- B3: Room temperature controller with three analogue outputs for cooling or heating (0 – 10 V DC and 3 point)
- M1: Room temperature controller with two analogue outputs for cooling or heating (0 – 10 V DC)

TECHNICAL INFORMATION

Function, Technical data, Specification text, Order code

Functional description

Room temperature controller and VAV terminal unit, including control components, form a functional unit that allows occupants to control the room temperature individually and at the lowest possible energy consumption. It also allows to control the water valves of hot water or chilled water systems.
The room temperature control is a closed loop control. The controller is fitted with a temperature sensor that measures the room temperature. The setpoint value can be a constant value or it can be changed by room occupants.
The controller compares the actual value with the setpoint value and alters the volume flow rate setpoint value and/or the valve settings accordingly.
The room temperature control is P control or PI control.
Maximum energy efficiency is achieved because of demand-based operating modes that can be activated by the room occupant or at a higher level.

Operating modes
Energy-saving mode
The room temperature is so that devices will not suffer, i.e. the setpoint temperature for heating is very low, and the setpoint temperature for cooling is very high, i.e. in a room with an open window.

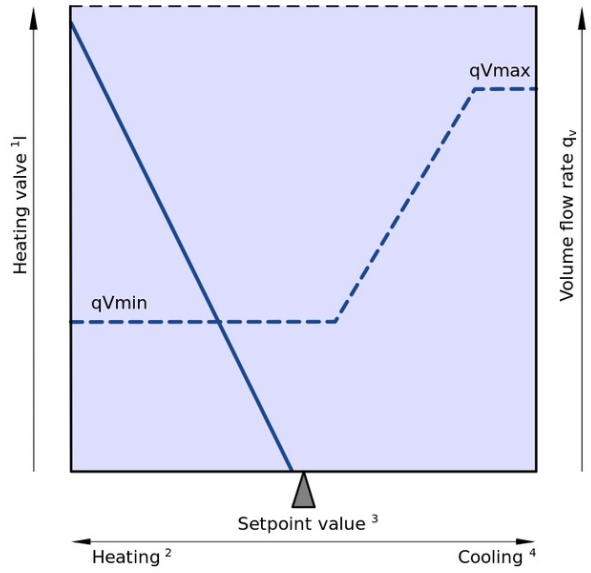
Stand-by mode
The setpoint temperature for heating is slightly reduced, and the setpoint temperature for cooling is slightly increased, e.g. for a room that is currently not used.

Frost
If the room temperature falls below 10 °C, the anti-freeze function is activated.

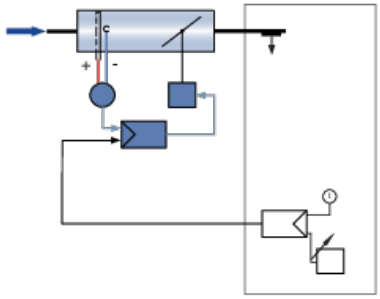
Changeover
Changeover from cooling to heating or from heating to cooling.

Boost
The room can be ventilated, heated, or cooled with maximum volume flow (q_{vmax}) at maximum output.

Control diagram with heating and cooling sequence



Single control



Room temperature controller CR24-B1

Supply voltage	24 V AC ± 20%, 50/60 Hz
Power rating	3 VA
External temperature sensor	Type NTC, 5 kΩ, 10 – 45 °C
External setpoint value changes	0 – 10 V DC corresponding to 0 – 10 K
Output for variable volume flow	0 – 10 V DC, max. 5 mA
IEC protection class	III (Protective extra-low voltage)
Protection level	IP 30
EC conformity	EMC according to 2004/108/EC
Dimensions (B × H × T)	84 × 99 × 32 mm
Weight	0.105 kg

Room temperature controller CR24-B2

Supply voltage	24 V AC ± 20%, 50/60 Hz
Power rating	3 VA
External temperature sensor	Type NTC, 5 kΩ, 10 – 45 °C
External setpoint value changes	0 – 10 V DC corresponding to 0 – 10 K
Output for variable volume flow	0 – 10 V DC, max. 5 mA
Output heating valve	3-point, 24 V AC, max. 0.5 A, 10 VA, optimised for actuators with a runtime of approx. 150 s
IEC protection class	III (Protective extra-low voltage)
Protection level	IP 30
EC conformity	EMC according to 2004/108/EC
Dimensions (B × H × T)	84 × 99 × 32 mm
Weight	0.105 kg

Room temperature controller CR24-B3

Supply voltage	24 V AC ± 20%, 50/60 Hz
Power rating	3 VA
External temperature sensor	Type NTC, 5 kΩ, 10 – 45 °C
External setpoint value changes	0 – 10 V DC corresponding to 0 – 10 K
Output for variable volume flow	0 – 10 V DC, max. 5 mA
Output for heating/cooling	0 – 10 V DC, max. 5 mA
Output heating valve	3-point, 24 V AC, max. 0.5 A, 10 VA, optimised for actuators with a runtime of approx. 150 s
IEC protection class	III (Protective extra-low voltage)
Protection level	IP 30
EC conformity	EMC according to 2004/108/EC
Dimensions (B × H × T)	84 × 99 × 32 mm
Weight	0.105 kg

Room temperature controller ALT24/SUPER

Supply voltage	24 V AC, 50/60 Hz
Power rating	1.2 VA
External temperature sensor	Thermistor NTC 50 kΩ at 25 °C
Outputs 11, 12, and 13	24 V AC, max. 2.6 A
Output 14	24 V AC, max. 1 A
Output 15 and 16 (via jumper)	24 V AC or 0 to 10 V DC, max. 5 mA
Inputs T1, IN (configurable)	U/I - D/I and 0 - 10 V
IEC protection class	III (Protective extra-low voltage)
Protection level	IP 30
EC conformity	2014/30/EU (EMC Directive) 2014/35/EU (Low Voltage Directive) 2011/65/EU (Rohs conformity)
Flammability	UL 94 V–0
Ambient temperature (operation / storage)	0 bis +50 °C / -10 bis +60 °C
Ambient air humidity (operation / storage)	80 % RH
Material	PC-ABS
Dimensions (B × H × T)	92 × 80 × 22 mm
Weight	0.136 kg

Specification text

Room temperature controller for the control of VAV terminal units Attractive unit for wall mounting, with a setpoint value adjuster and a push button to select the operating mode Integral temperature sensor (NTC) and input for external temperature measuring unit. Voltage output 0 – 10 V DC for connection to an electronic volume flow controller for cooling or heating and cooling in changeover mode.

Technical data

- Supply voltage: 24 V AC, 50/60 Hz
- Power rating: 3 VA
- External setpoint changes: 0 – 10 V DC
- Output for variable volume flow rate: 0 – 10 V DC

RC	–	B1
|		|
1		2

1 Type
RC Room temperature controller

2 Variant
B1 CR24-B1
B2 CR24-B2
B3 CR24-B3
M1 ALT24/SUPER
M2 Remote control for M1

Variants

Application

- Room temperature controller CR24-B1 with one output, for single room applications
- Cooling or heating mode (changeover)
- Analogue output 0 – 10 V DC for the control of VAV terminal units with Easy, Compact or Universal controllers

Parts and characteristics

- Attractive unit for wall mounting, signal white (RAL 9003)
- Integrated temperature sensor
- Setpoint value adjuster
- Operating mode push button
- Status indicator light
- Analogue output 0 – 10 V DC for variable volume flow control
- Analogue inputs 0 – 10 V DC for external temperature sensor and for external setpoint changes
- Digital inputs for energy-saving mode, standby operation or changeover
- Micro switch for configuration
- Communication port for adjustment devices

Commissioning

- Configure the control function using a micro switch
- Functional test

Room temperature controller Type CR24-B1

Room temperature controller CR24-B2

Room temperature controller CR24-B3

Room temperature controller ETN-24-VAV-227-P

Remote control for room temperature controller ETN-24-VAV-227-P

TROX® TECHNIK
The art of handling air