



Room temperature
controller type ALT24/
SUPER

Accessories

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



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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)

Function

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.

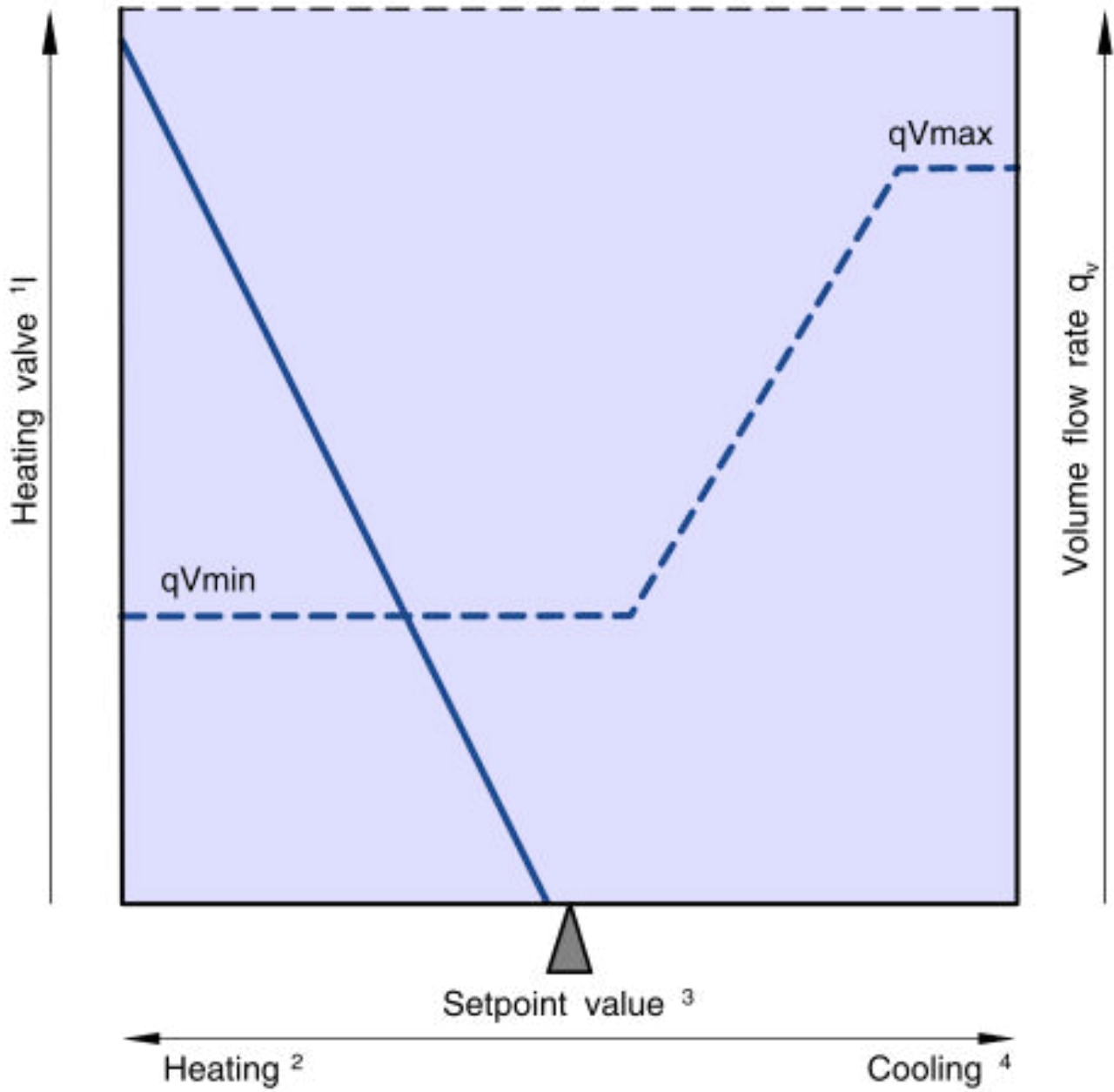
Changeover

Changeover from cooling to heating or from heating to cooling.

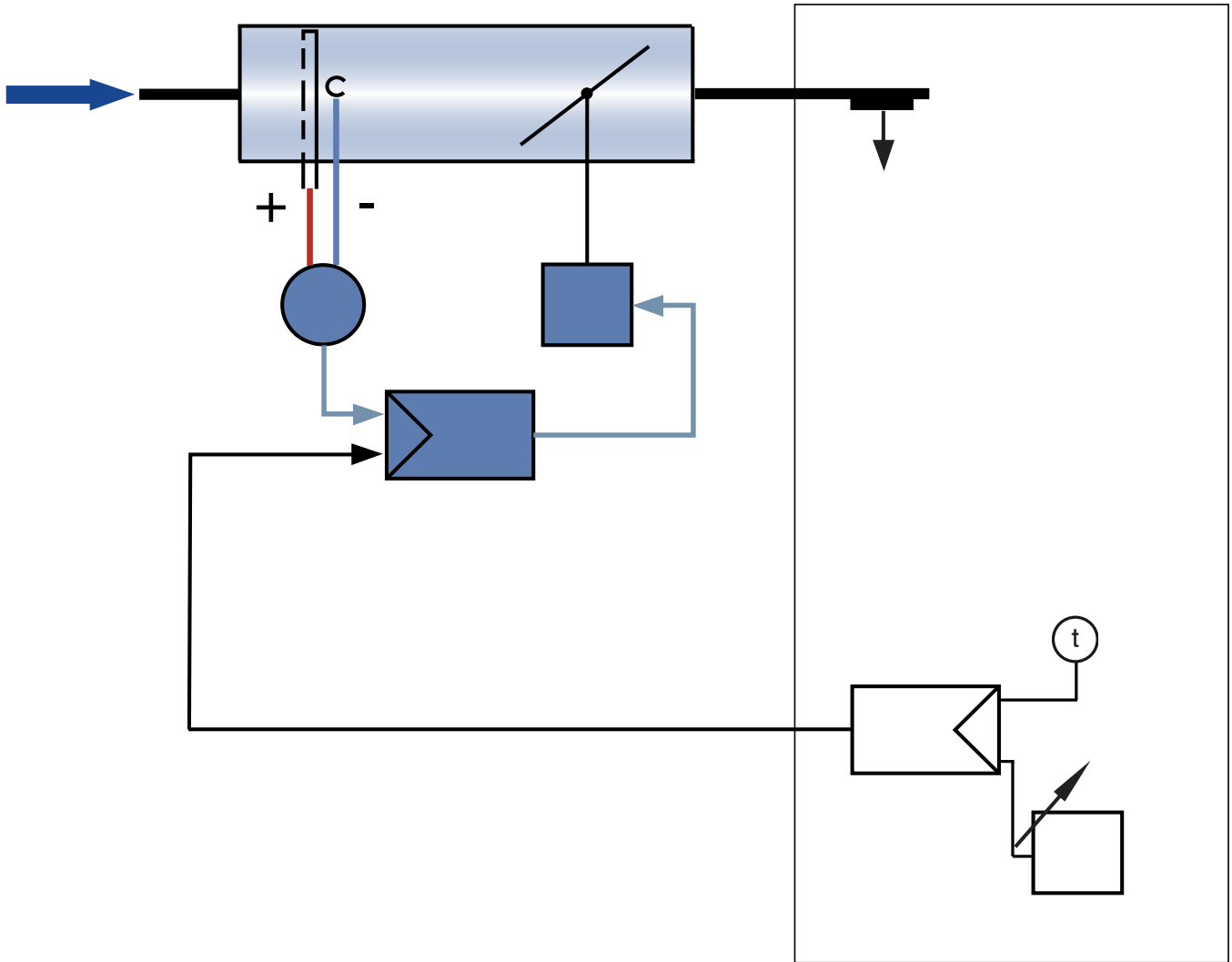
Boost

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



Technical data

Room temperature controller CR24-B1

Supply voltage	24 V AC \pm 20%, 50/60 Hz
Power rating	3 VA
External temperature sensor	Type NTC, 5 k Ω , 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 \times H \times T)	84 \times 99 \times 32 mm
Weight	0.105 kg

Room temperature controller CR24-B2

Supply voltage	24 V AC \pm 20%, 50/60 Hz
Power rating	3 VA
External temperature sensor	Type NTC, 5 k Ω , 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 \times H \times T)	84 \times 99 \times 32 mm
Weight	0.105 kg

Room temperature controller CR24-B3

Supply voltage	24 V AC \pm 20%, 50/60 Hz
Power rating	3 VA
External temperature sensor	Type NTC, 5 k Ω , 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 \times H \times T)	84 \times 99 \times 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 k Ω 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 \times H \times T)	92 \times 80 \times 22 mm
Weight	0.136 kg

Specification text

This specification text describes the general characteristics of the product. Texts for variants can be generated with our Easy Product Finder design program.

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



Order code

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

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



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

Application

- Room temperature controller CR24-B2 with two outputs, for single room applications
- Cooling and heating mode
- Analogue output 0 – 10 V DC for the control of VAV terminal units with Easy, Compact or Universal controllers
- 3-point output heating mode

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
- 3-point output for controlling a heating valve
- 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

Application

- Room temperature controller CR24-B3 with three outputs, for single room applications
- Cooling and heating mode
- Analogue output 0 – 10 V DC for the control of VAV terminal units with Easy, Compact or Universal controllers
- Analogue output 0 – 10 V DC cooling or heating mode (changeover)
- 3-point output heating mode

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 output 0 – 10 V DC for controlling a water valve
- 3-point output for controlling a heating valve
- 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

Application

- Room temperature controller type ALT24/SUPER with two outputs, for single room applications
- Cooling and heating mode
- Analogue output 0 – 10 V DC for the control of VAV terminal units with Easy, Compact or Universal controllers (cooling mode)
- Analogue output 0 – 10 V DC for controlling the reheating

Parts and characteristics

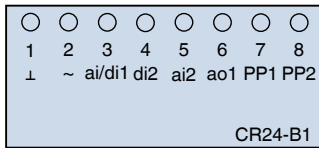
- Attractive unit for wall mounting, white
- Setpoint value adjuster
- Operating mode push button
- Integrated temperature sensor
- Analogue input for external temperature sensor
- Display for temperature and status as well as parameterisation
- Analogue output 0 – 10 V DC for variable volume flow control
- Analogue output 0 – 10 V DC for controlling a heating valve

Commissioning

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

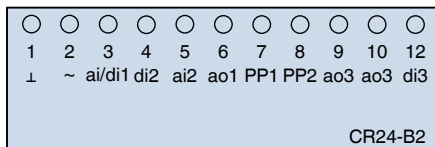
Wiring

RC/B1, Terminal connections

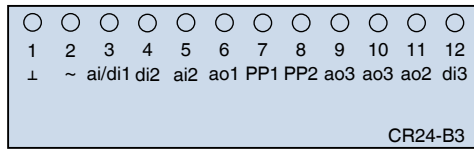


- 1 ⊥: Neutral
- 2 ~: Supply voltage
- 3 ai/di1: External temperature sensor or energy-saving mode
- 4 di2: Standby/Changeover
- 5 ai2: External setpoint changes
- 6 ao1: Volume flow controller
- 7 PP1: Diagnosis connection 1
- 8 PP2: Diagnosis connection 2

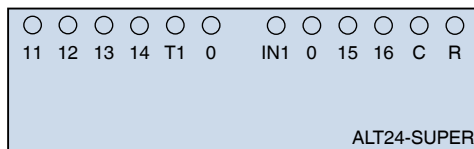
RC/B2, Terminal connections



- 1 ⊥: Neutral
- 2 ~: Supply voltage
- 3 ai/di1: External temperature sensor or energy-saving mode
- 4 di2: Standby
- 5 ai2: External setpoint changes
- 6 ao1: Volume flow controller
- 7 PP1: Diagnosis connection 1
- 8 PP2: Diagnosis connection 2
- 9,10 ao3: Heating valve (3-point)
- 12 di3: Maximum volume flow rate

RC/B3, Terminal connections

- 1 ⊥: Neutral
- 2 ~: Supply voltage
- 3 ai/di1: External temperature sensor or energy-saving mode
- 4 di2: Standby
- 5 ai2: External setpoint changes
- 6 ao1: Volume flow controller
- 7 PP1: Diagnosis connection 1
- 8 PP2: Diagnosis connection 2
- 9,10 ao3: Heating valve (3-point)
- 11 ao2: Heating/cooling valve (0 –10 V DC)
- 12 di3: Maximum volume flow rate/changeover or dew point

RC/M1, Terminal connections

- R : Neutral
 - C ~: Supply voltage
 - 11-14: Digital outputs
 - T1: Digital/analogue input
 - 0: Ground for T1
 - IN1: Digital/analogue input
 - 0: Ground for IN1
 - 15-16: Digital/analogue outputs
- Note:
Outputs 15-16 = digital/analogue switchover via jumper