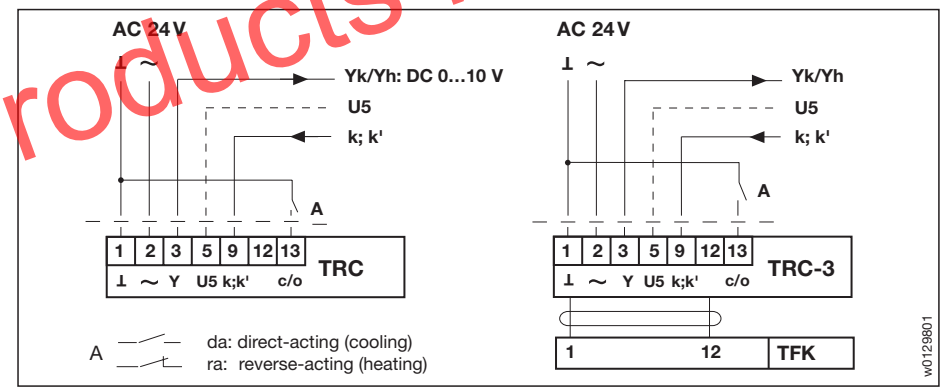
Room temperature controller TRC

In-room temperature controller with heating or cooling output (DC 0…10 V), da/ra changeover

Wiring diagram



Technical data

Nominal voltage	AC 24 V 50/60 Hz		
Nominal voltage range	AC 19.2…28.8 V		
Power consumption	0.5 W		
For wire sizing	1.3 VA		
Connection	screw terminals (2 ×1.5 mm²)		
Temperature sensor	NTC (0…40 °C) on p.c.b. or external sensor TFK (TRC-3)		
Output signal Yk/Yh	DC 0…10 V		
Operating range, heating/cooling	DC 1.5…9.5 V		
Output current	max. 1 mA		
Setting ranges	setpoint, internal XK: 21 °C ± 5 K setpoint, external ΔXK: ± 3 K (slide potentiometer) dead band Xe: −1…+5 K (factory preset: 2 K)		
Mode selector	Automatic Night (unassigned) Continuous Ventilation (max. Yk)		
Proportional band xp	heating: 1.5 K (fixed) cooling: 1.0 K (fixed)		
Action changeover – Direct-acting (cooling) – Reverse-acting (heating)	 Terminals 1–13 link: "open" Terminals 1–13 link: "closed"		
Control input k/k'	k: DC −10…0…+10 V	k': AC 24 V	
Power consumption k/k'	k: DC 0…10 V k': AC 24 V	1.5 mW 40 mW	(0.35 mA) (1.7 mA)
Degree of protection	IP 30		
Ambient temperature range	0…+40 °C operating; −20…+70 °C storage		
Ambient humidity	20…90%		
EMC	CE according to 89/336 EEC and 92/31 EEC		
Weight	70 g		

Application

The TRC room temperature controller is intended for the individual control of room air temperature in heating, ventilating and air-conditioning systems (HVAC). The temperature sensor is incorporated into the controller itself, although an external sensor can be connected if required.
The controller provides appropriate operating control for the modulating actuators of control or mixing dampers and air-volume controllers. A floating contact is provided for changeover from direct-acting output to reverse-acting output and vice versa.
A selector switch allows the user to choose from four alternative operating modes whichever suits him best for the room. A slide-type potentiometer is provided to allow local correction of the temperature setpoint (±3 °C) according to individual needs.
The controller also has an input for summer compensation and central operating control.

Mode of operation

The TRC controller employs a proportional characteristic with fixed, preset proportional bands. It compares the actual value with the setpoint and, if there is a discrepancy be-tween the two, generates a continuous proportional control signal to correct it. The type of action depends on the status of the changeover input. There is an adjustable dead band Xe between the heating and cooling functions. The setting potentiometers for setpoint and dead band are housed inside the controller itself.
By means of an external override signal (DC −10…0… +10 V) it is possible to enlarge the dead band when necessary (for summer compensation) or to shift the cooling and heating setpoints by 10 K and 6 K respectively. This is consistent with ensuring minimum power consumption and monitoring of limit values.

Mode selector

Removing the housing cover gives access to the selector switch which allows the operating mode to be altered as necessary. The selector can also be disengaged completely if required.

Dimensions