

TSHK 621...643: Fan-coil room-temperature controller, electromechanical

How energy efficiency is improved

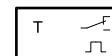
Enables controlling of HVAC components according to needs.

Features

- Variable room temperature as setpoint based on printed temperature scale
- Changeover from heating to cooling via switch or type of connection
- ON/OFF toggle switch for mains voltage, plus other slide switches for operating mode and fan, depending on the type
- More constant room temperature due to thermal feedback
- Suitable for wall mounting or fitting on recessed junction boxes
- Setpoint adjuster with mechanical min. and max. limitation of the setting range
- Two-point pulsed activation
- Individual unitary temperature control in residential and business rooms for activating, for example, electric heating systems, thermal actuators, or fans or cooling units in air-conditioning systems.



TSHK6**F00*



Technical data

Power supply		
Power supply ¹⁾		230 V~, approx. ±10%, 50...60 Hz
Parameters		
Setting range		5...30 °C
Proportional band		3 K
Hysteresis ²⁾		Approx. ±0.1...0.5 K
Shortest switching interval		Approx. 19 min (E = 0.5)
Time constant in still air		20 min
Dead time in still air		2 min
Time constant in moving air (0.2 m/s)		15 min
Dead time in moving air (0.2 m/s)		1 min
Ambient conditions		
Admissible ambient temperature		0...55 °C
Outputs		
Load		6(3) A, 230 V~
Fan load		6(3) A, 230 V~
Construction		
Weight		0.18 kg
Housing		Pure white (RAL 9010)
Housing material		Fire-retardant thermoplastic (fire classification UL94 HB)
Baseplate		Black thermoplastic with bimetallic sensor and contact snap mechanism with permanent magnet
Cable inlet		At rear
Screw terminals		For electrical wires of up to 2.5 mm ²
Standards and directives		
Type of protection		IP 30 (EN 60529)
Protection class		II (IEC 60730)
Energy class		I = 1 % acc. EU 811/2013, 2010/30/EU, 2009/125/EG

¹⁾ 10% more voltage results in: P-band = approx. 4 K, switching period = 15 min, actual-value reduction = approx. 0.5 K

²⁾ Devices with thermal feedback are pulsed by an in-built heating element. The control factor reduces as the temperature increases (i.e. the controller has proportional behaviour). A small temperature variation of ±0.1...0.5 K occurs as a result of pulsing, depending on the time constant of the room



Overview of types

Type	Operating mode
TSHK621F001	Heating/cooling; 2-pipe
TSHK642F001	Heating only/cooling only; 2-pipe
TSHK643F001	Heating/cooling; 4-pipe

	TSHK 621	TSHK 642	TSHK 643
Mains switch ON/OFF	•	•	•
Operating mode switch	☸	—	☸
Fan speeds	☸	☸	☸

Accessories

Type	Description
0362239001	Pure white intermediate cover plate, suitable for various recessed junction boxes

Description of operation

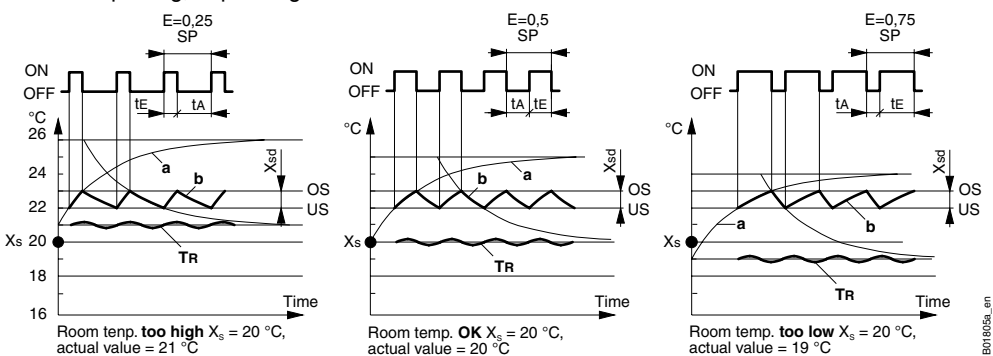
A bi-metallic strip snap mechanism expands depending on the temperature and activates an electrical switch. The coupling with a permanent magnet means that even if the temperature changes are very slow, a clear contact is made.

Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the “Description of operation” section. All related product regulations must also be adhered to. Changing or converting the product is not admissible.

Thermal feedback

The bi-metallic strip is thermally coupled with a built-in heating resistor. When the thermostat switches as the temperature decreases, the heating resistor is also switched on with the external heating. This causes the thermostat to be switched on and off even if the room temperature barely changes. The control factor (heating time to period) reduces as the room temperature increases (i.e. the controller has proportional behaviour). Only a small temperature variation of ±0.1...0.5 K occurs in the room as a result of pulsing, depending on the time constant of the room.



Key

X_s	Setpoint	t_E	Operating time
X_p	Proportional band	t_A	Duration of 'off' time
X_{Sd}	Switching difference	SP	Switching period ($t_E + t_A$)
T_R	Room temperature	E	Control factor (t_E/SP)
OS	Upper change-over point	a	Transient response of therm. feedback
US	Lower change-over point	b	Temperature at bi-metallic strip

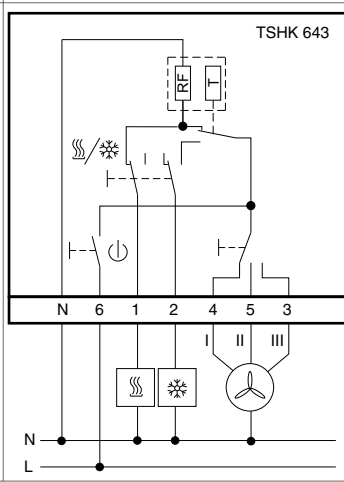
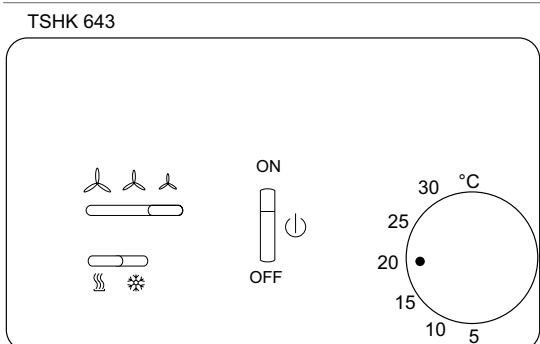
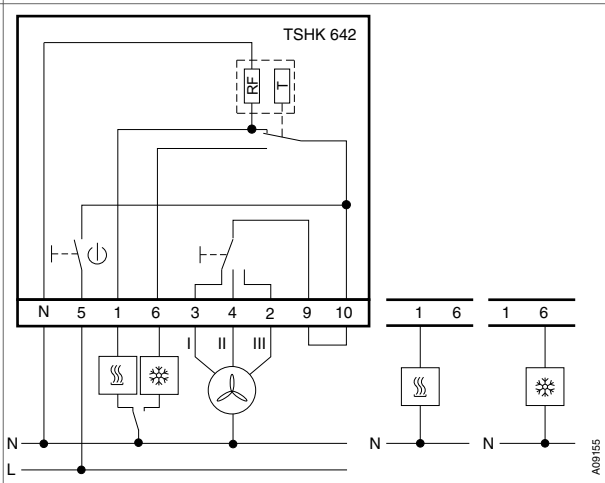
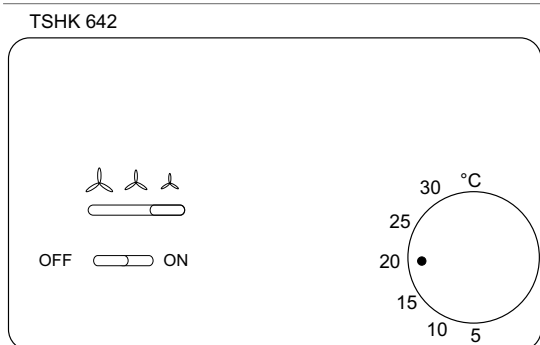
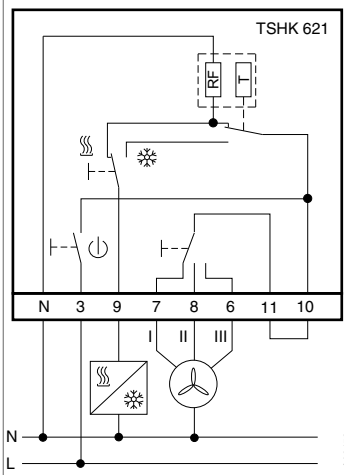
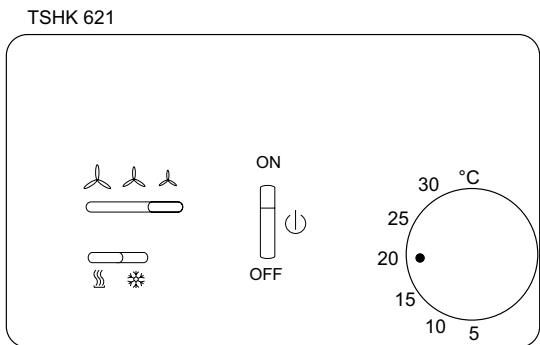
Engineering and fitting notes

The specified voltage tolerances are necessary because the output of the feedback heating resistor is significantly dependent on it. 10% excess voltage results in: 20% more power, P-band 4 K instead of 3 K, switching period 15 min instead of 19 min, reduction in room temperature 0.5 K. Fitting position: Horizontally on the wall. Avoid draughts and solar radiation. Fitting height approx. 1.5 m. The mechanical limitation of the setpoint adjuster enables individual corrections but prevents energy wastage through extreme settings.

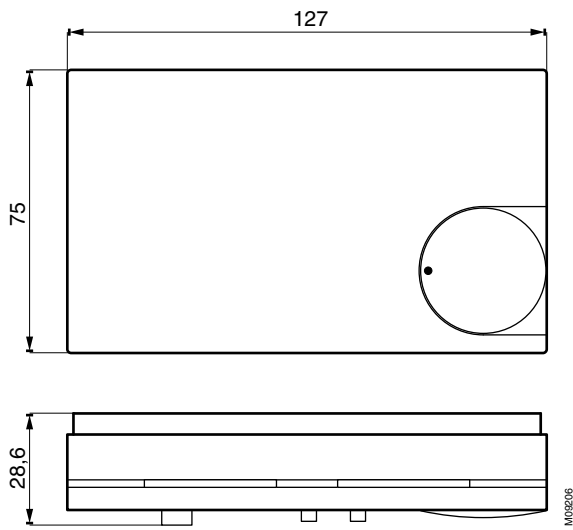
Disposal

When disposing of the product, observe the currently applicable local laws.
 More information on materials can be found in the Declaration on materials and the environment for this product.

Connection diagrams



Dimension drawing



Accessories

