

RTS-1-400
RTSD-1-400



Electric temperature controller

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This user's manual is a main operating document intended for technical, maintenance, and operating staff.

The manual contains information about purpose, technical details, operating principle, design, and installation of the RTS(D)-1-400 unit and all its modifications.

Technical and maintenance staff must have theoretical and practical training in the field of ventilation systems and should be able to work in accordance with workplace safety rules as well as construction norms and standards applicable in the territory of the country.

SAFETY REQUIREMENTS

This unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the unit by a person responsible for their safety. Children should be supervised to ensure that they do not play with the unit.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Cleaning and user maintenance shall not be made by children without supervision.

Children shall not play with the appliance.

Connection to the mains must be made through a disconnecting device, which is integrated into the fixed wiring system in accordance with the wiring rules for design of electrical units, and has a contact separation in all poles that allows for full disconnection under overvoltage category III conditions.

Ensure that the unit is switched off from the supply mains before removing the guard.

All operations described in this manual must be performed by qualified personnel only, properly trained and qualified to install, make electrical connections and maintain ventilation units.

Do not attempt to install the product, connect it to the mains, or perform maintenance yourself. This is unsafe and impossible without special knowledge.

Disconnect the power supply prior to any operations with the unit.

All user's manual requirements as well as the provisions of all the applicable local and national construction, electrical, and technical norms and standards must be observed when installing and operating the unit.

Disconnect the unit from the power supply prior to any connection, servicing, maintenance, and repair operations.

Only qualified electricians with a work permit for electrical units up to 1000 V are allowed for installation. The present user's manual should be carefully read before beginning works.

Check the unit for any visible damage of the impeller, the casing, and the grille before starting installation. The casing internals must be free of any foreign objects that can damage the impeller blades.

While mounting the unit, avoid compression of the casing! Deformation of the casing may result in motor jam and excessive noise.

Misuse of the unit and any unauthorised modifications are not allowed.

Do not expose the unit to adverse atmospheric agents (rain, sun, etc.).

Transported air must not contain any dust or other solid impurities, sticky substances, or fibrous materials.

Do not use the unit in a hazardous or explosive environment containing spirits, gasoline, insecticides, etc.

Do not close or block the intake or extract vents in order to ensure the efficient air flow.

Do not sit on the unit and do not put objects on it.

The information in this user's manual was correct at the time of the document's preparation.

The Company reserves the right to modify the technical characteristics, design, or configuration of its products at any time in order to incorporate the latest technological developments.

Never touch the unit with wet or damp hands.

Never touch the unit when barefoot.

BEFORE INSTALLING ADDITIONAL EXTERNAL DEVICES, READ THE RELEVANT USER MANUALS.



THE PRODUCT MUST BE DISPOSED SEPARATELY AT THE END OF ITS SERVICE LIFE.

DO NOT DISPOSE THE UNIT AS UNSORTED DOMESTIC WASTE.

PURPOSE

The temperature controller is designed to control the temperature of ventilation, heating and air conditioning systems. Can be used to control fans and dampers of fan coil units, air heating units with three-speed fans. Allows for automatic change of heating/cooling intensity.

The temperature controller is not designed for standalone operation.

It is rated for continuous operation.

DELIVERY SET

NAME	NUMBER
Temperature controller	1 pc.
Remote control (only for the RTSD-1-400 model)	1 pc.
User's manual	1 pc.
Packing	1 pc.

TECHNICAL DATA

Unit voltage	220 V, 50 (60) Hz
Maximum current	3 A
Temperature setting range	+5 °C ... +37 °C
Electric shock protection class	II
Protection degree against dust and moisture	IP21
Ambient air temperature	+1°C ... +40°C
Overall dimensions [mm]	86x86x15

DESIGN

- Display **1**
- Power button **2**
- Mode selection button (COOLING, HEATING) **3**
- Fan speed selection button (HIGH, MEDIUM, LOW, AUTO) **4**
- Button to switch to "night" mode **5**
- Increasing setpoint temperature **6**
- Decreasing setpoint temperature **7**
- IR receiver **8** (for RTSD-1-400 model)

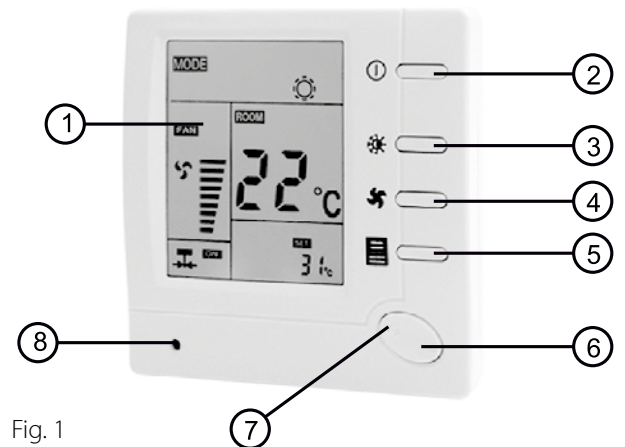


Fig. 1

Display (Fig. 2):
 indicates that the temperature controller is in night mode **9**
 indicates that the temperature controller is in cooling mode **10**
 indicates the room temperature or the setpoint temperature **11**
 indicates the setpoint temperature or the room temperature **12**
 indicates whether the damper with an actuator is switched on or off **13**
 indicates fan speed selection 14
 indicates operation of the temperature controller in heating mode **15**

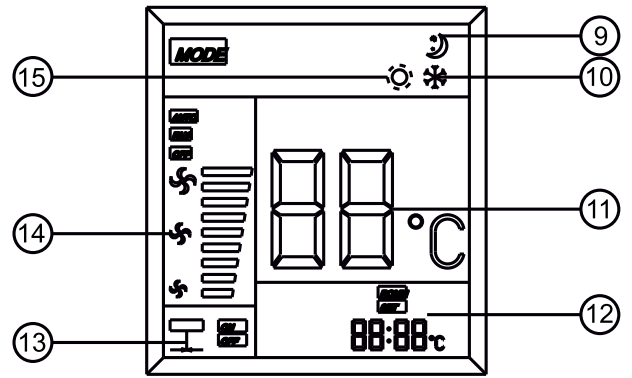


Fig. 2

INSTALLATION AND CONNECTION

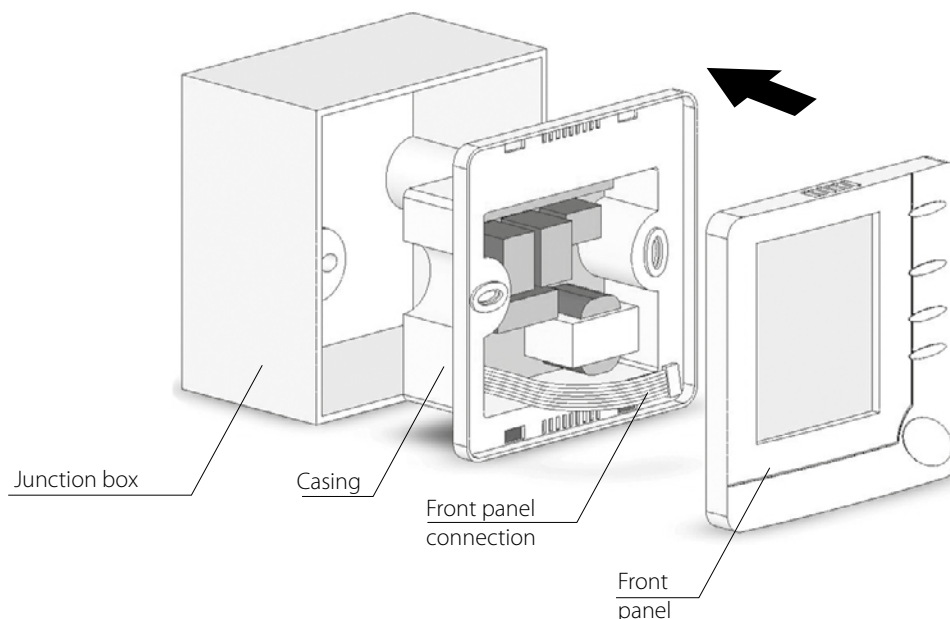


CUT OFF POWER SUPPLY BEFORE ANY OPERATIONS ARE PERFORMED.

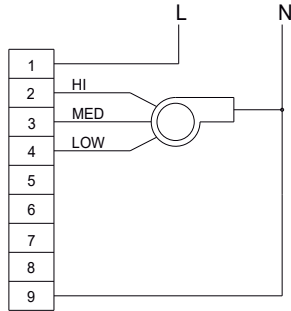


**DO NOT LAY THE CABLE IN CLOSE PROXIMITY TO THE CONTROL PANEL CABLE!
 WHILE ROUTING THE CONTROL PANEL CABLE DO NOT COIL THE EXTRA LENGTH.**

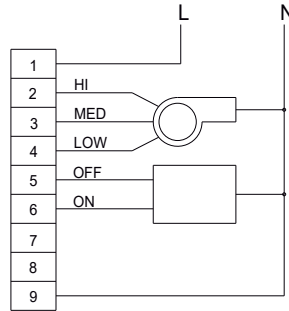
1. Fix the junction box to the wall.
2. Remove the packaging material from the temperature controller. Carefully detach the front control panel from the casing. Using excessive force can cause a breakdown of the temperature controller.
3. Connect the wires to the terminals of the temperature controller according to the wiring diagram.
4. Insert the casing into the junction box 86x86 mm.
5. With the help of two mounting screws, fix the casing of the temperature controller to the junction box.
6. With the help of a level, adjust the position of the temperature controller casing, then tighten the fastening screws (levelling effects only the appearance and has no influence on operation of the temperature controller).
7. Install the front panel on the casing of the temperature controller by pressing it until it clicks.



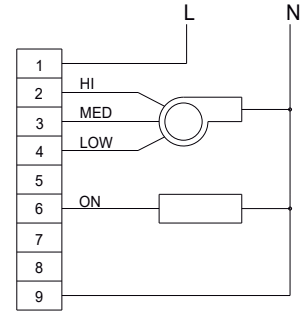
Wiring diagrams



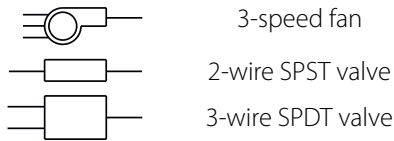
Ventilation with heating and cooling



Ventilation with heating and cooling
3-wire system of SPDT valves



Ventilation with heating and cooling
2-wire system of SPST valves



OPERATION ALGORITHM

Switch on the temperature controller by pressing the power button (2). Press the fan speed selection button. The display will show one of the characters (14 in Fig. 2) or AUTO. This means that the fan will rotate at HI (high), MED (medium), LOW or AUTO (automatic mode) speed. If AUTO mode is selected, the fan speed will vary according to the difference between the actual room temperature and the set temperature. If the room temperature is more than 3 degrees above the set temperature when cooling or more than 3 degrees below the set temperature when heating, the fan will run at its highest speed. If the room temperature is 2-3 degrees higher than the set temperature for cooling or 2-3 degrees lower than the set temperature for heating, the fan will run at medium speed. If the room temperature is 0-1 degrees above the set temperature when cooling or 0-2 degrees below the set temperature when heating, the fan will run at low speed.

Heating system operation.

Set the heating operation with the mode button (15 in Fig. 2). Press "+" to increase the control temperature value. If the room temperature is lower than the set temperature, the heating system will start. Press "-" to decrease the control temperature value. If the room temperature is higher than the set temperature, the heating system will stop.

Operation of the cooling system.

Set the cooling operation with the mode button (10 in Fig. 2). Press "-" to decrease the control temperature value. If the room temperature is higher than the set temperature, the cooling system will start.

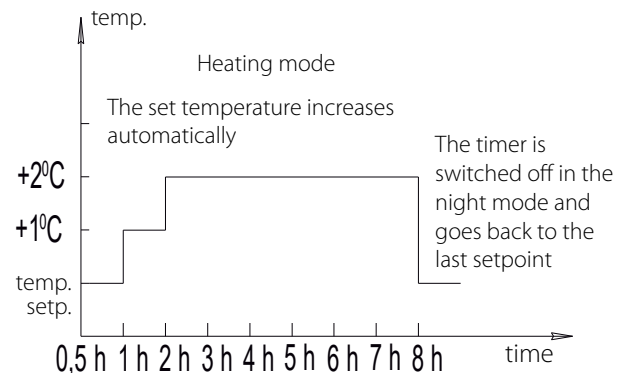
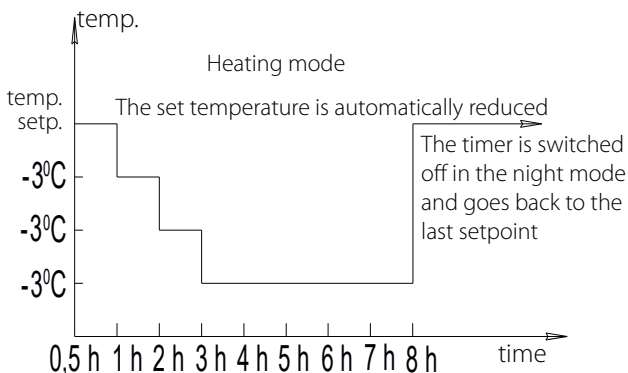
Press "+" to increase the control temperature value. If the room temperature is lower than the set temperature, the cooling system will stop.

Operation in the night mode.

Press the button to switch to the night mode (5 in Fig. 1). The night mode symbol (9 in Fig.2) appears. This mode will be active for 8 hours and the temperature controller will control heating or cooling according to the schedule below. Press the night mode button again, the corresponding symbol will disappear, which means that the night mode is cancelled.

Features of the night mode operation

The temperature controller is set to the cooling mode: For a gradual change in temperature, one hour after setting the night mode, the set temperature will automatically rise by 1 degree, and 2 hours later, the set temperature will rise by 2 degrees and will be held at this level



for 8 hours until the timer is switched off. When the timer is switched off, the setpoint will be restored to its original level automatically. The temperature controller is set to the heating mode: To obtain a better temperature variation smoothly, 30 minutes after setting the night mode, the set point temperature will automatically decrease by 1 degree, and one hour later, it will decrease by 2 degrees. After 2 more hours, the set temperature will decrease by 3 degrees and this temperature will be maintained until the timer is switched off, which is 8 hours. When the timer is switched off, the set point will automatically return to its initial state.

ADJUSTMENT OF CONTROL MODES

Setting the control modes allows you to set certain operating characteristics of the temperature controller for the automatic mode, according to your requirements. Switch off the temperature controller by pressing the power button then press and hold the night mode button (5, Fig.1) for at least 4 seconds until the display switches on. This means that you have entered the first menu control mode setting item. There are a total of 4 of these items, which are shown on the display accordingly. The relevant menu item is selected by pressing the button (5). In each menu item, use the "+" or "-" button to change the settings. To exit the menu and return to normal operation, switch off the temperature controller by pressing the power button and switch it on again.

If no button is pressed within 20 seconds, the temperature controller will switch off.

Menu item 1: Temperature accuracy. The display will show "Temp adjust". The default value is 0, it is blinking in the configuration menu. Any value from "-3" to "+3" may be selected. You can set the room temperature in the display up to 3 degrees above or below.

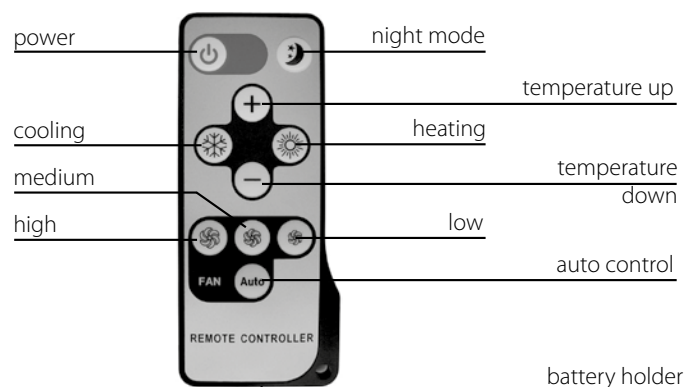
Menu item 2: Entering the upper limit of the temperature setting. The display shows 37°C, which is the maximum default value set by the manufacturer. Use the "+" and "-" buttons to set the maximum limit. It can be set between 26°C and 37°C.

Menu item 3: Entering the lower limit of the temperature setting. The display shows 5°C, which is the minimum default value set by the manufacturer. Use the "+" and "-" buttons to set the minimum limit. It can be set between 5°C and 24°C.

Menu item 4: Fan control. The display shows "ON", which is the default value set by the manufacturer. Use the "+" and "-" buttons to select between "ON" and "OFF". If "ON" is selected, the temperature controller will switch the fan on at the set speed and will not stop until the mode selection button or fan speed selection button is pressed. When selecting "OFF", if the set temperature is lower than the room temperature when heating or the set temperature when cooling is higher than the room temperature, the temperature controller will stop the fan and will remain in this mode until the mode selection button is pressed.

Remote control

To operate the temperature controller using the remote control, point the remote control towards the front panel of the controller at a distance of no more than 4 m. In the process of long-term use, the battery of the remote control may discharge. If this occurs, the battery needs to be replaced. To do this, remove the battery holder from the bottom of the remote control and replace the battery assuring correct polarity.



STORAGE AND TRANSPORTATION REGULATIONS

- Store the unit in the manufacturer's original packaging box in a dry closed ventilated premise with temperature range from +5 °C to + 40 °C and relative humidity up to 70 %.
- Storage environment must not contain aggressive vapors and chemical mixtures provoking corrosion, insulation, and sealing deformation.
- Use suitable hoist machinery for handling and storage operations to prevent possible damage to the unit.
- Follow the handling requirements applicable for the particular type of cargo.
- The unit can be carried in the original packaging by any mode of transport provided proper protection against precipitation and mechanical damage. The unit must be transported only in the working position.
- Avoid sharp blows, scratches, or rough handling during loading and unloading.
- Prior to the initial power-up after transportation at low temperatures, allow the unit to warm up at operating temperature for at least 3-4 hours.

MANUFACTURER'S WARRANTY

The product is in compliance with EU norms and standards on low voltage guidelines and electromagnetic compatibility. We hereby declare that the product complies with the provisions of Electromagnetic Compatibility (EMC) Directive 2014/30/EU of the European Parliament and of the Council, Low Voltage Directive (LVD) 2014/35/EU of the European Parliament and of the Council and CE-marking Council Directive 93/68/EEC. This certificate is issued following test carried out on samples of the product referred to above.

The manufacturer hereby warrants normal operation of the unit for 24 months after the retail sale date provided the user's observance of the transportation, storage, installation, and operation regulations. Should any malfunctions occur in the course of the unit operation through the Manufacturer's fault during the guaranteed period of operation, the user is entitled to get all the faults eliminated by the manufacturer by means of warranty repair at the factory free of charge. The warranty repair includes work specific to elimination of faults in the unit operation to ensure its intended use by the user within the guaranteed period of operation. The faults are eliminated by means of replacement or repair of the unit components or a specific part of such unit component.

The warranty repair does not include:

- routine technical maintenance
- unit installation/dismantling
- unit setup

To benefit from warranty repair, the user must provide the unit, the user's manual with the purchase date stamp, and the payment paperwork certifying the purchase. The unit model must comply with the one stated in the user's manual. Contact the Seller for warranty service.

The manufacturer's warranty does not apply to the following cases:

- User's failure to submit the unit with the entire delivery package as stated in the user's manual including submission with missing component parts previously dismantled by the user.
- Mismatch of the unit model and the brand name with the information stated on the unit packaging and in the user's manual.
- User's failure to ensure timely technical maintenance of the unit.
- External damage to the unit casing (excluding external modifications as required for installation) and internal components caused by the user.
- Redesign or engineering changes to the unit.
- Replacement and use of any assemblies, parts and components not approved by the manufacturer.
- Unit misuse.
- Violation of the unit installation regulations by the user.
- Violation of the unit control regulations by the user.
- Unit connection to power mains with a voltage different from the one stated in the user's manual.
- Unit breakdown due to voltage surges in power mains.
- Discretionary repair of the unit by the user.
- Unit repair by any persons without the manufacturer's authorization.
- Expiration of the unit warranty period.
- Violation of the unit transportation regulations by the user.
- Violation of the unit storage regulations by the user.
- Wrongful actions against the unit committed by third parties.
- Unit breakdown due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, blockades).
- Missing seals if provided by the user's manual.
- Failure to submit the user's manual with the unit purchase date stamp.
- Missing payment paperwork certifying the unit purchase.



FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE UNIT



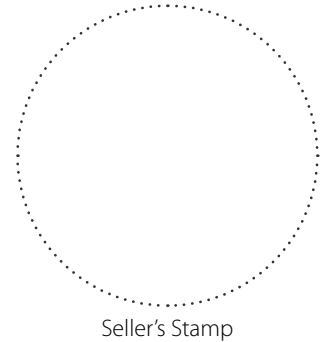
USER'S WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP

CERTIFICATE OF ACCEPTANCE

Unit Type	Electric temperature controller
Model	
Serial Number	
Manufacture Date	
Quality Inspector's Stamp	

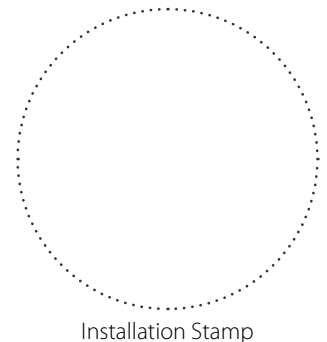
SELLER INFORMATION

Seller	
Address	
Phone Number	
E-mail	
Purchase Date	
This is to certify acceptance of the complete unit delivery with the user's manual. The warranty terms are acknowledged and accepted.	
Customer's Signature	



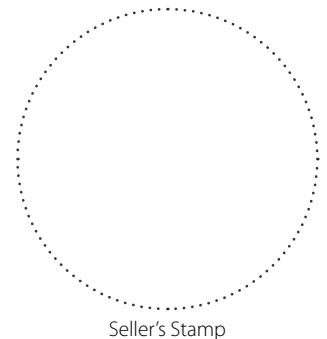
INSTALLATION CERTIFICATE

The _____ unit is installed pursuant to the requirements stated in the present user's manual.	
Company name	
Address	
Phone Number	
Installation Technician's Full Name	
Installation Date:	Signature:
The unit has been installed in accordance with the provisions of all the applicable local and national construction, electrical and technical codes and standards. The unit operates normally as intended by the manufacturer.	
Signature:	



WARRANTY CARD

Unit Type	Electric temperature controller
Model	
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	





VENTS

