

SPEED CONTROLLER CDT1 E



CONTENT

| | |
|---|----|
| Use | 3 |
| Delivery set | 3 |
| Technical data | 3 |
| Basic characteristics and operating logic | 4 |
| Mounting and setup | 5 |
| Adjustment | 8 |
| Motor type | 8 |
| Thermal fuse replacement | 8 |
| Maintenance | 9 |
| Troubles and troubleshooting | 9 |
| Transportation and storage rules | 10 |
| Safety precautions and warnings | 11 |
| Manufacturer's warranty | 11 |
| Warranty card | 12 |

2

USE

The industrial single-phase **CDT1 E** speed controller, hereinafter referred as the product, is used in ventilation and air conditioning systems for turning on/off and speed control of the single-phase voltage-controlled fan motors by smooth voltage control.

DELIVERY SET

| | |
|--------------------|---------------|
| ■ Speed controller | 1 item |
| ■ User's manual | 1 item |
| ■ Packing box | 1 item |

TECHNICAL DATA

| Type | CDT1 E0.5 | CDT1 E1.5 | CDT1 E2.5 | CDT1 E4.0 |
|-----------------------------------|---|-----------|-----------|-----------|
| Power supply voltage, V/Hz | 230/50 | | | |
| Fan motor operating voltage, V/Hz | 230/50 | | | |
| Min. load current [A] | 0.1 | 0.15 | 0.25 | 0.4 |
| Max. load current [A] | 0.5 | 1.5 | 2.5 | 4.0 |
| Rated fuse current [A] | 0.63 | 1.5 | 2.5 | 4.0 |
| Input terminal, mm ² | screw terminal block 0.5...0.75 | | | |
| Maximum ambient temperature, °C | +35 | | | |
| Overall dimensions, mm | 82x82x65 (outer mounting) 82x82x56 (wall surface mounting) | | | |
| Weight [kg] | 0.23 | 0.24 | 0.29 | 0.36 |
| Ingress protection rating | IP44 (wall flush mounting) IP54 (wall surface mounting) | | | |

3

MOUNTING AND SETUP

WARNING

After transportation or storage of the product at temperatures below zero keep the product at rated operating temperatures at least 2 hours.

The speed controller is designed for indoor application and vertical mounting inside a junction box. Perform visual inspection of the speed controller and check the speed controller for possible casing damages if required.

Wall flush mounting (IP44)

For connection of the speed controller to power mains:

- Cut off power supply.
 - Remove the control knob.
 - Detach the fasteners and remove the cover.
 - Remove the fasteners that fix the controller to the junction box and remove the speed controller.
 - Route the connecting wires to the junction box.
 - Connect the speed controller following the wiring diagram. Connect the external wires to the speed controller with screw terminals.
 - Mount the speed controller inside the junction box in such a way that the terminal block is located downwards.
 - Install the junction box inside the wall with the connection terminals downwards.
 - Provide power supply and turn the speed controller on.
 - Adjust the minimum fan speed in the end position of the control knob.
 - Turn the speed controller off.
 - Turn the speed controller to the minimum speed which ensures smooth running of the impeller at minimum speed.
 - Put the cover.
 - Install the control knob.
 - Rotate the control knob to position off.
- The system is operable.

5

BASIC CHARACTERISTICS AND OPERATING LOGIC

The product has the following features:

- Regulated output terminal connected to the fan motor.
- Non-regulated output terminal 230 V for connection of extra equipment. The contact opens when the rotation knob is set in zero position.
- A set of quick-response ceramic thermal fuses and a spare fuse.

The speed controller is enclosed in a plastic casing.

The speed controller has a control knob with a light indicator for indication of the controller operation status.

To turn the controller on press the control knob. Speed control is regulated from minimum rotation speed that ensures stable smooth running up to the maximum value. The minimum speed value is with the potentiometer on the speed controller circuit board.

Several fans may be controlled by one speed controller if their total current does not exceed the maximum permissible controller current.

The speed controller is equipped with extra terminal (230 V) for connection and control of external equipment.

The speed controller is equipped with a thermal fuse in compliance with the controller type (refer to the table) to prevent excessive overcurrent.

The speed controller is equipped with a transient filter.

⚠ - Connect the speed controller to power mains through the automatic circuit breaker.

4

Wall surface mounting (IP54)

For connection of the speed controller to power mains:

- Cut off power supply.
 - Fix the casing to the wall, route and fix the cables.
 - Remove the control knob.
 - Detach the fasteners and remove the cover.
 - Route the connecting cables to the mounting box.
 - Connect the speed controller in compliance with the wiring diagram. Connect the external wires to the speed controller with screw terminals.
 - Fix the internal part of the speed controller inside the junction box with screws.
 - Provide power supply and turn the speed controller on.
 - Adjust the minimum fan speed in the end position of the control knob.
 - Turn the speed controller off.
 - Turn the speed controller to the minimum speed which ensures smooth running of the impeller at minimum speed.
 - Put the cover.
 - Install the control knob.
 - Rotate the control knob to position off.
 - Drill a 5 mm hole to enable condensate drainage in case of wall surface mounting if required.
- The system is operable.

WARNING! The speed control range is limited with the fan technical data.

6

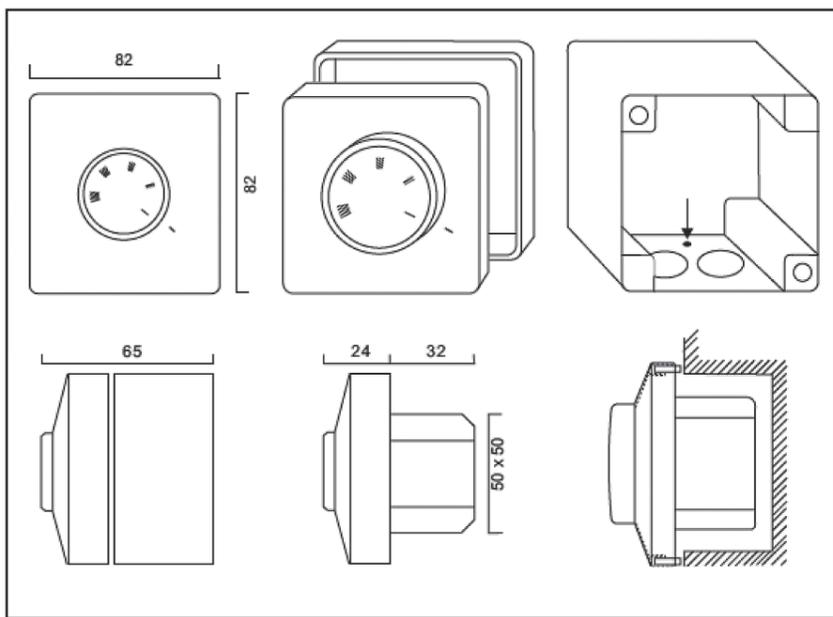


Fig. 1 Overall dimensions and mounting

ADJUSTMENT

⚠ Warning!

- The speed controller is designed to prevent motor stop in case of voltage steps. The speed controller is restarted automatically after power failure.
- Extra electrical connections, for example, connection of a damper or any other external equipment must be performed separately.

MOTOR TYPE

- The speed controller is compatible exclusively with fan voltage controlled motors with a controllable speed range.
- The motor must be equipped with overheating protection.

THERMAL FUSE REPLACEMENT

- Reset the control knob to the start position by rotating it to the end position and then pull it.
- Remove the cover.
- Remove the thermal fuse holder with a screwdriver.
- Replace the thermal fuse.
- Assemble the product in reverse order.
- Use only recommended industrial thermal fuses with high interrupting capacity.
- The use of inappropriate thermal fuses is not covered with warranty.



Disconnect the product from power supply prior to all internal operation as setup and adjustment.

7

8

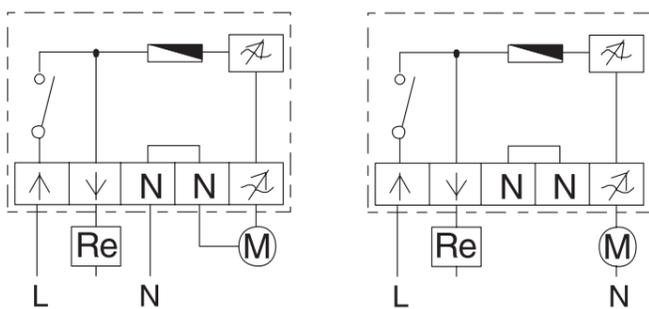


Fig. 2. Wiring diagram

MAINTENANCE

The product is maintenance-free under rated conditions.

- If the product is slightly soiled clean it with a dry or wet cloth.
- Remove slight contaminations with a dry or wet cloth.
- In case of higher contaminations use a mild detergent solution.
- Disconnect the product from power supply prior to maintenance operations!
- Protect the product from water ingress inside! In case of water ingress inside of the product connection to power supply is allowed only after complete drying of the product.
- Clean the product regularly from dust and fluff, etc.
- Make sure the external connections to the screw terminals are fixed properly.

TROUBLES AND TROUBLESHOOTING

In case of any faults please check the following conditions:

- Check the input voltage to be in consistence with the required electric parameters.
- Check connection to power supply.
- Check the connected fan motor for full operability.
- Check the thermal fuse for full operability.
- Check correct minimum speed adjustments.

9

DO NOT:

- Do not operate the product if you feel smoke or burning insulation smell, in case of high noise or vibration, damaged or cracked casing or damaged wires.
- Do not cover the product with objects, put any devices or items on it, block the openings or insert foreign objects inside.
- Do not operate the product in a explosive or chemically active environment that may damage metals or cable insulation, in an environment subjected to liquid ingress or spraying and in open spaces.
- Do not connect the product to the fan motors with current consumption above the maximum load current of the product.
- Do not connect output terminals of the product directly power mains.

WARNING!

The manufacturer is not responsible for any mechanical or physical damages resulting from violence of this manual's requirements, the product misuse or gross mechanical effect.

WARNING!

Make sure that the acceptance certificate for the product includes filled date of manufacture, approval mark and the name of the trade company.

TRANSPORTATION AND STORAGE RULES

Keep the product in the original product packing during transportation. The product is suitable for transportation with any vehicle. Store the supplied products in the original packing in a ventilated room at the temperatures between -40 °C and +35 °C and the relative humidity not more than 80 %. The product is not designed for storage in a medium containing dust, acid and alkali vapours or other corrosive substances.

10

SAFETY PRECAUTIONS AND WARNINGS

- ⚠ The speed control range is limited by the fan motor electric parameters.
 - The fan motor must be Triac controllable.
 - Consider the fan electric parameters while decreasing the fan speed.
 - All the controlled speed range must be within the operating range to prevent possible malfunction of the fan.
- ⚠ The speed controller and connected to it equipment are the sources of electric shock hazard. Only qualified and trained electricians are allowed for its connection and operation. The speed controller is related to electric equipment up to 1000 V. Disconnect the product from power mains prior to all operations requiring access to its internals.
- ⚠ The speed controller is compatible only with single-phase motors.
- ⚠ The total current consumption of the electric devices connected to the product must not exceed the maximum current of the speed controller, refer technical data. Avoid operating of the product with maximum load current.
- ⚠ Handle the speed controller with care. Do not hit it, avoid overloads, liquid and dirt exposure. In case of foreign object ingress on the circuit board disconnect the speed controller from power mains and withdraw the foreign objects.

MANUFACTURER'S WARRANTY

The warranty service life of the product is 12 months from the date of retail sale provided compliance with transport, storage, mounting and operation regulations.

The warranty does not cover mechanically damaged products.

If case of no confirmation of the sale date, the warranty period is calculated from the manufacturing date.

In case of failure due to faulty equipment during the warranty period the consumer has the right for free repair it. Replacements are offered by the Seller.

The manufacturing warranty does not cover any unauthorized modifications and misuse of the product.

11

No warranty service for the following cases:

- Non-observance of storage, transportation, installation, operation requirements set forth in the present user's manual.
- Failure to submit the original acceptance and sales certificate to confirm the control unit purchase.
- No warranty card.
- Repair of the unit by non-authorized services.
- Mechanical damages, chemical actions and ingress of foreign object.
- Damages resulted from accidents, natural disasters, war actions, public disorders or any other factors beyond control of the manufacturers.

Misuse of the product:

- Connection to power mains with the parameters other than those stated in present operation manual.
- Connection of electric loads with total current consumption exceeding the permissible load current stated in the user's manual.

WARRANTY CARD

Inspector stamp

Date of purchase _____

Name _____

Date _____

Signature _____



NOTES

12