

# SPEED CONTROLLER RS-..-PS



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## USE

The industrial single-phase **PS-...-PS** speed controller, hereinafter referred to 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	<b>1 item</b>
■ Operation manual	<b>1 item</b>
■ Packing box	<b>1 item</b>

## TECHNICAL DATA

Type	RS-0,5-PS	RS-1,5-PS	RS-2,5-PS	RS-4,0-PS
Min. load current [A]	0,1	0,15	0,25	0,4
Max. load current [A]	0,5	1,5	2,5	4,0
Fuses [A]	0,63	1,5	2,5	4,0
Weight [kg]	0,23	0,24	0,29	0,36

- Power voltage: **230V / 50 Hz;**
- Fan motor operating voltage: **230 V / 50 Hz;**
- Input terminal: screw terminal block **0.5...0.75 mm<sup>2</sup>;**
- Maximum ambient temperature: **+35°C;**
- Ingress protection rating: **IP44** (wall flush mounting);  
**IP54** (wall surface mounting).
- Overall dimension: **82x82x65 mm** (outer mounting);  
**82x82x56 mm** (wall surface mounting).

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## 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 product and check 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 fastenings 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 product 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 on at minimum speed and make sure the fan has smooth running at minimum speed.
- Put the cover.

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## BASIC CHARACTERISTICS AND OPERATING LOGIC

The product has:

- regulated output terminal connected to the fan motor;
- regulated output terminal connected to the fan motor;
- block of thermal fuses of quick response type, made of ceramics.

The speed controller casing is made of plastic.

The speed controller has a control knob with light indication of the controller operating 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 set by a variable trimming resistor 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.

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- Install the control knob.
- Rotate the control knob to position off.

The system is operable.

### Wall surface mounting (IP54)

To connect 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.
- Remove the fasteners and cover.
- Route the connecting cables to the mounting box.
- Connect the speed controller according to wiring diagram.
- Connect the external wires to the product 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 on at minimum speed and make sure the fan has smooth running at minimum speed.
- Put the cover.
- Install the control knob.
- Rotate the control knob to position off.
- Drill 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 by the fan operating features.

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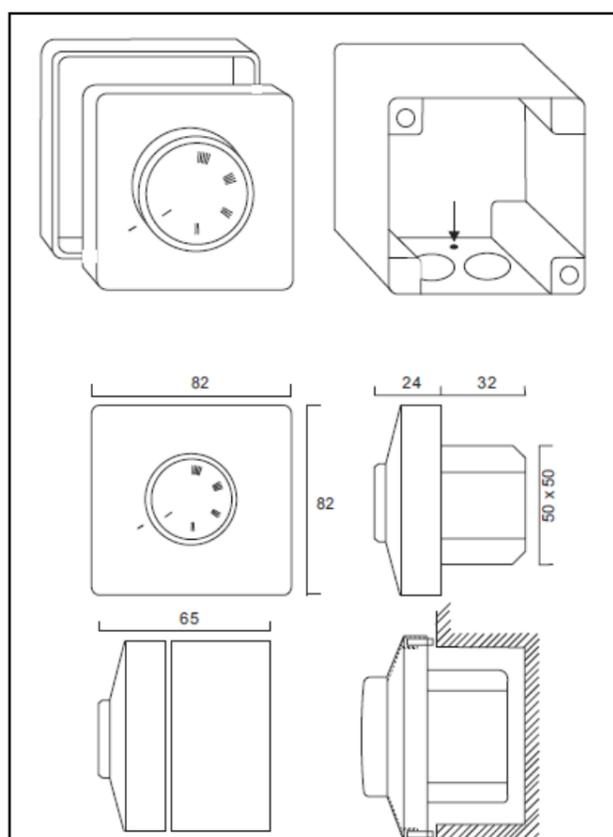


Fig. 1 Overall dimensions and mounting

## 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 for the smooth speed controllable fan motors.
- 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 manufacturing warranty is not valid in case of inappropriate thermal fuse types.



Disconnect the product from power mains prior to all internal operations.

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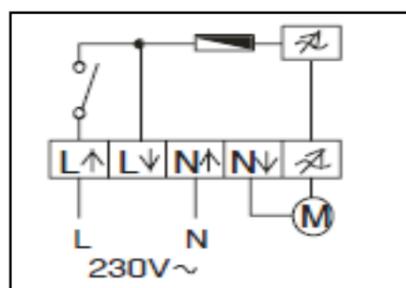


Fig. 2. Wiring diagram

## MAINTENANCE

The product is maintenance-free under rated conditions.

- If the product is slightly soiled clean it with a dry or wet cloth.
- If the product has significant pollutions it must be cleaned with a mild detergent solutions.
- All maintenance operations are allowed after the product is disconnected from power mains.
- Avoid water ingress inside the product while cleaning the product!
- Only a dry product may be connected to power mains!
- Clean the product regularly from dust and fluff, etc.
- Make sure the external connections to the screw terminals are fixed properly.

## POSSIBLE FAULTS AND FAULT HANDLING

In case of any faults please check the following conditions:

- Check the input voltage to be in consistence with the required parameters.
- Check connection to power mains and troubleshoot if required.
- Check the controlled fan motor operating status.
- Check the thermal fuse condition.
- Check minimum speed adjustments.

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## 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;
- ⊗ cover the product with objects, put any devices or items on it, block the openings or insert foreign objects inside;
- ⊗ 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;
- ⊗ connect the product to the fan motors with current consumption above the maximum load current of the product;
- ⊗ connect output terminals of the product to 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.

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## SAFETY PRECAUTIONS AND WARNINGS

- ⚠ The speed control range is limited by the fan motor electric parameters.
  - The fan motor must be Triac controllible.
  - 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.

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### 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:*
  - Connecting to power mains with the parameters other than those stated in present operation manual;
  - Connection of electric loads with total current consumption above the permissible current stated in the present operation manual.

## WARRANTY CARD

Inspector stamp \_\_\_\_\_ Date of manufacturing \_\_\_\_\_

Date of purchase \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_ Signature \_\_\_\_\_

## NOTES

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