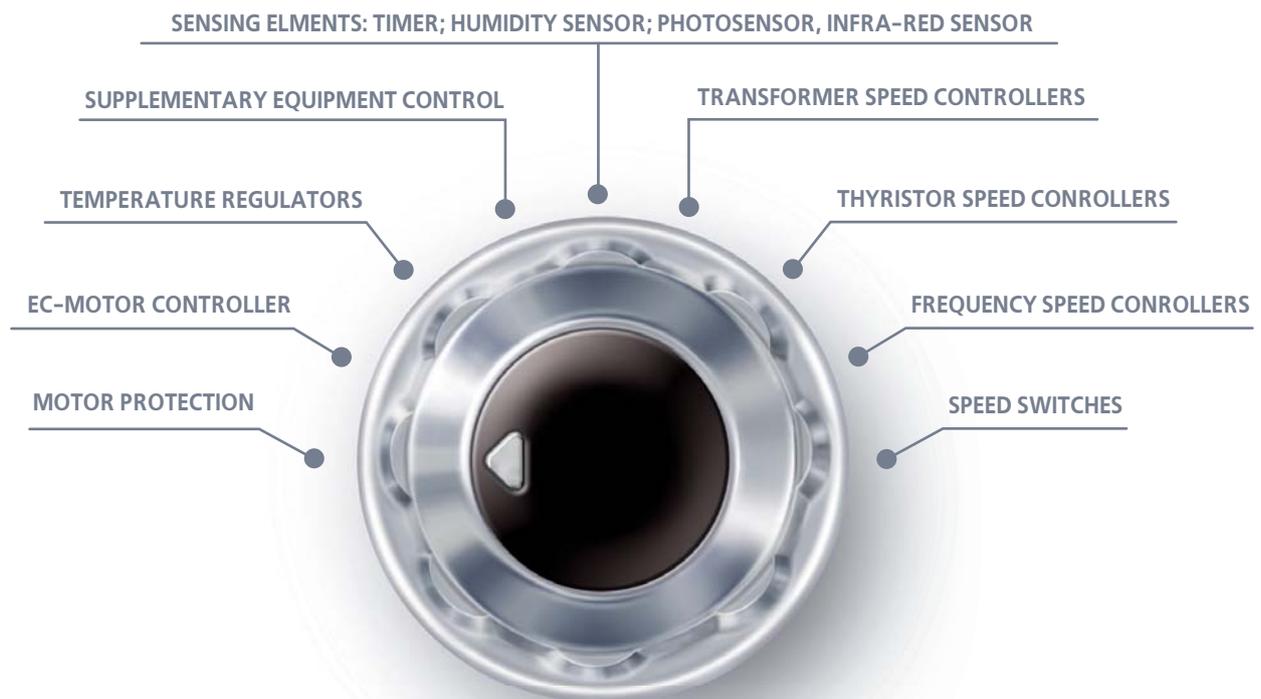


ELECTRICAL ACCESSORIES





Thyristor speed controller

page
310



Transformer speed controllers

page
314



Frequency speed controllers

page
319



Temperature regulators

page
320



Speed control switches

page
322



EC-motors regulators

page
324



Sensors

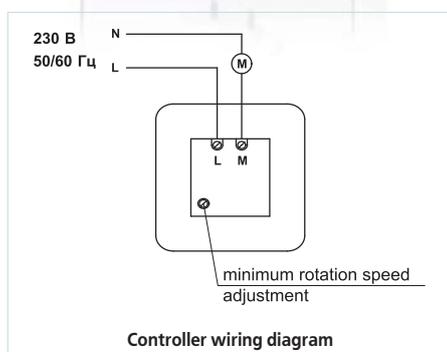
page
325

VENTS AUTOMATION FOR FAN CONTROL

Model		Phase	Current	Protection	Casing	Functions
Thyristor speed controller						
RS-1-300		1 phase	up to 1,5 A	IP40	Plastic casing for flush mounting	Smooth fan speed control with built-in switch.
RS-1-400			up to 1,8 A			
RS-1 N (V) RS-1,5 N (V) RS-2 N (V) RS-2,5 N (V)		1 phase	up to 1,0 A up to 1,5 A up to 2,0 A up to 2,5 A	IP44	Plastic casing for flush or surface mounting	Smooth fan speed control with built-in switch.
RS-0,5-PS RS-1,5-PS RS-2,5-PS RS-4,0-PS		1 phase	0,1 - 0,5 A 0,15 - 1,5 A 0,25 - 2,5 A 0,4 - 4,0 A	IP44	Plastic casing for flush or surface mounting	Smooth fan speed control with built-in switch, minimum speed setting.
RS-1,5-T RS-3,0-T RS-5,0-T RS-10,0-T		1 phase	0,2 - 1,5 A 0,3 - 3,0 A 0,5 - 5,0 A 1,0 - 10,0 A	IP54	Plastic casing for surface mounting	Smooth fan speed control with built-in switch, minimum speed setting.
RS-1,5-TA RS-3,0-TA RS-5,0-TA RS-10,0-TA		1 phase	0,2 - 1,5 A 0,3 - 3,0 A 0,5 - 5,0 A 1,0 - 10,0 A	IP54	Plastic casing for surface mounting	Smooth fan speed control. Control input 0-10 V or 4-20 mA, built-in switch, minimum speed setting.
transformer speed controllers						
RSA5E-2-P		1 phase	up to 2,0 A	IP54	Plastic casing for surface mounting	Step fan speed control. Overheating motor protection, thermostat and actuator driven air shutoff damper connections. Mechanical speed switching.
RSA5E-2-M RSA5E-3-M RSA5E-4-M RSA5E-12-M		1 phase	up to 2 A up to 3 A up to 4 A up to 12 A	IP21 IP44	Metal casing for surface mounting	Step fan speed control. Overheating motor protection, thermostat and actuator driven air shutoff damper connections. Mechanical speed switching.
RSA5E-1,5-T RSA5E-3,5-T RSA5E-5,0-T RSA5E-8,0-T RSA5E-10,0-T		1 phase	up to 1,5 A up to 3,5 A up to 5 A up to 8 A up to 10 A	IP54	Plastic casing for surface mounting	Step fan speed control. Overheating motor protection, thermostat and actuator driven air shutoff damper connections. Mechanical speed switching.
RSA5D-1,5-T RSA5D-3,5-T		3 phase	up to 1,5 A up to 3,5 A	IP44	Plastic casing for surface mounting	Step fan speed control. Overheating motor protection, thermostat and actuator driven air shutoff damper connections. Mechanical speed switching.
RSA5D-5-M RSA5D-8-M RSA5D-10-M RSA5D-12-M		3 phase	up to 5 A up to 8 A up to 10 A up to 12,0 A	IP44	Metal casing for surface mounting	Step fan speed control. Overheating motor protection, thermostat and actuator driven air shutoff damper connections. Mechanical speed switching.

Model		Phase	Current	Protection	Casing	Functions
Frequency speed controllers						
VFED-200-TA VFED-400-TA VFED-750-TA VFED-1100-TA VFED-1500-TA		3 phase	200 W / 1A 400 W / 2A 750 W / 3,5 A 1,1 kW / 5,5A 1,5 kW / 7,5 A	IP54	Plastic casing for surface mounting	Smooth speed control of three phase fan. Power supply 220V, motor overheating protection. Control input 0-10 V or 4-20 mA, series port RS232, remote LED display (ordered on request).
Temperature regulators						
RTS -1-400 RTSD -1-400		1 phase	up to 2,0 A	IP40	Plastic casing for flush mounting	Temperature mode control in ventilation, air conditioning and heating systems. Equipped with digital LED display. Automatic heating/cooling rate control.
RT-10		1 phase	up to 10 A	IP40	Plastic casing for surface mounting	Maintaining the set temperature level and control of ventilation, heating and air conditioning systems. Temperature control range from +10 up to +30°C.
Multi-speed fan switches						
P2-5,0 N (V) P3-5,0 N (V) P5-5,0 N (V)		1 phase	up to 5,0 A	IP40	Plastic casing for surface and flush mounting	2 speed step switching 3 speed step switching 5 speed step switching
P2-1-300 P3-1-300		1 phase	up to 5 A	IP40	Plastic casing for flush mounting	2 speed step switching 3 speed step switching
EC-motors controllers						
R-1/010		1 phase	up to 1,1 mA	IP40	Plastic casing for flush mounting	Smooth control of speed, temperature and other characteristics. 0-10V output is equipped with max. 3A built-in switch.
Sensors						
T-1,5N TH-1,5N TF-1,5N TP-1,5N		1 phase	up to 1,5 A	IP54	Plastic casing for surface mounting	Fan operation with running-out timer. Fan humidity-dependent operation. Fan operation with photo-sensor and running-out timer. Fan operation with infra-red sensor and running-out timer.

Speed controller
RS-1-300



■ Applications

Applied in ventilation systems for switching ON/OFF and speed controlling of single-phase power-controlled motors. Several fans can be operated synchronously in case their total consumption current does not exceed the maximum permissible current value.

■ Design and control

The controller casing is made of plastic. The controller is featured with high efficiency and control accuracy. Switching to the maximum speed is effected by

means of regulating the control knob. Regulating starts from the minimum to the maximum voltage value for the fan stable running. The minimum speed is set by means of the potentiometer at PCB.

■ Protection

The controller incorporates a thermal fuse for motor overload protection.

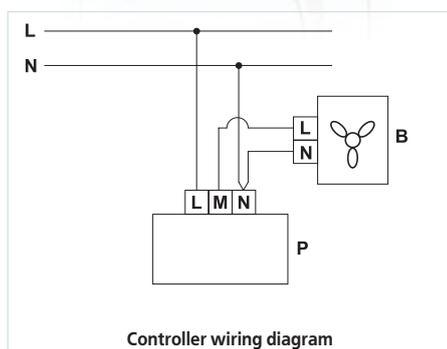
■ Mounting

The controller is designed for indoor mounting into standard round electric junction boxes.

Technical data:

	RS-1-300
Voltage, [V/50 Hz]	1~ 230
Rated current, [A]	1,5
Overall dimensions LxWxH [mm]	95x85x60
Maximum ambient temperature [°C]	40
Protection rating	IP 40
Mass [kg]	0,11

Speed controller
RS-1-400



■ Applications

Applied in ventilation systems for speed switching ON/OFF and speed control of the single-phase power-controlled motors. Several fans can be controlled synchronously in case their total current does not exceed the maximum permissible values for the controller current.

■ Design and control

The controller casing is made of plastic. The controller is featured with high efficiency and control accuracy. Switching to the maximum speed is effected by

means of regulating the control knob. Regulating starts from the minimum to the maximum voltage value for the fan stable running. The minimum speed is set by means of the potentiometer at PCB.

■ Protection

The controller incorporate a removable thermal fuse for motor overload protection and transient filter.

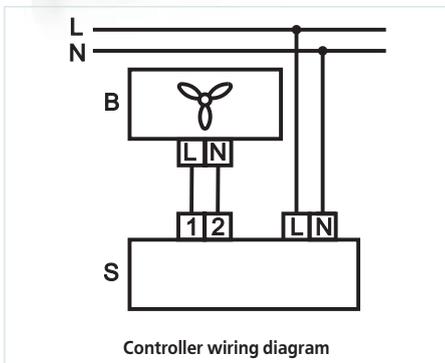
■ Mounting

The controller is designed for indoor mounting into standard round electric junction boxes.

Technical data:

	RS-1-400
Voltage, V/ 50/60 Hz	1~ 230
Rated current, [A]	1,8
Overall dimensions LxWxH [mm]	78x78x63
Maximum ambient temperature [°C]	35
Protection rating	IP 40
Mass [kg]	0,11

Speed controller RS-...N (V)



■ Applications

Applied in ventilation systems for speed switching ON/OFF and speed control of the single-phase power-controlled motors. Several fans can be controlled synchronously in case their total current does not exceed the maximum permissible values for the controller current.

■ Design and control

Controller has the plastic casing with the control knob, ON/OFF button and pilot light. The controller is featured with high efficiency and control accuracy. Regulation starts from the

minimum fan stable running voltage value to the maximum one. The minimum rotation speed is set by means of the potentiometer on the PCB.

■ Protection

Input circuit of the speed controller has a thermal fuse for overload protection. The controller is fitted with a transient filter.

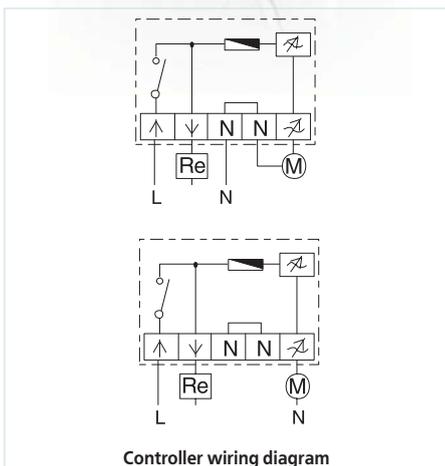
■ Mounting

The controller is designed for indoor wall mounting either on the wall (H modification) or through the wall (V modification).

Technical data:

	RS-1 N (V)	RS-1,5 N (V)	RS-2 N (V)	RS-2,5 N (V)
Voltage, [V/50 Hz]	1~ 230	1~ 230	1~ 230	1~ 230
Rated current, [A]	1,0	1,5	2,0	2,5
Overall dimensions LxWxH [mm]	162x80x70	162x80x70	162x80x70	162x80x70
Maximum ambient temperature [°C]	40	40	40	40
Protection rating	IP 44	IP 44	IP 44	IP 44
Mass [kg]	0,3	0,3	0,3	0,3

Speed controller RS...PS



■ Applications

Applied in ventilation systems for speed switching ON/OFF and speed control of single-phase power-controlled motors. Several fans can be controlled synchronously in case their total current does not exceed the maximum permissible value of the controller current.

■ Design and control

The controller casing is made of pastic. The control knob is equipped with the pilot light. The controller is featured with high efficiency and control accuracy. Switching is effected by means of pressing the control knob. Regulating starts from the minimum to the maximum voltage value for the fan stable running. The minimum speed is

set by means of the potentiometer at the PCB. The controller is equipped with extra 230 V terminal for connection and control of the external equipment.

■ Protection

Input circuit of the speed controller has a thermal fuse for overload protection. The controller is fitted with a transient filter.

■ Mounting

The universal design of the controller enables its mounting either on the wall (H modification) or through the wall (V modification), suitable for installation into standard round electric junction boxes.

Technical data:

	RS-0,5-PS	RS-1,5-PS	RS-2,5-PS	RS-4,0-PS
Voltage, V/ 50 Hz	1~ 230	1~ 230	1~ 230	1~ 230
Minimum current [A]	0,1	0,15	0,25	0,4
Maximum current [A]	0,5	1,5	2,5	4,0
Overall dimensions LxWxH [mm]	82x82x65	82x82x65	82x82x65	82x82x65
Maximum ambient temperature [°C]	35	35	35	35
Protection rating	IP 44	IP 44	IP 44	IP 44
Mass [kg]	0,23	0,24	0,29	0,36

RS-1-300
 RS-1-400
 RS-...N (V)
 RS-...PS
 SPEED CONTROLLERS

Speed controller
RS-...-T



■ **Applications**

Applied in ventilation systems for speed switching ON/OFF and speed control of single-phase power-controlled motors. Several fans can be controlled synchronously in case their total consumption current does not exceed the maximum permissible value of the controller current.

■ **Design and control**

The controller casing is made of flame-retardant thermoplastic and fitted with ON/OFF knob with pilot light. The controller is featured with high efficiency and control accuracy. Output power is controlled from 25 to 100% as a function of the control knob position. The minimum speed is set by means of the potentiometer at the PCB. The controller is

equipped with extra 230 V terminal for connection and controlling such external equipment as actuator-driven air dampers.

■ **Protection**

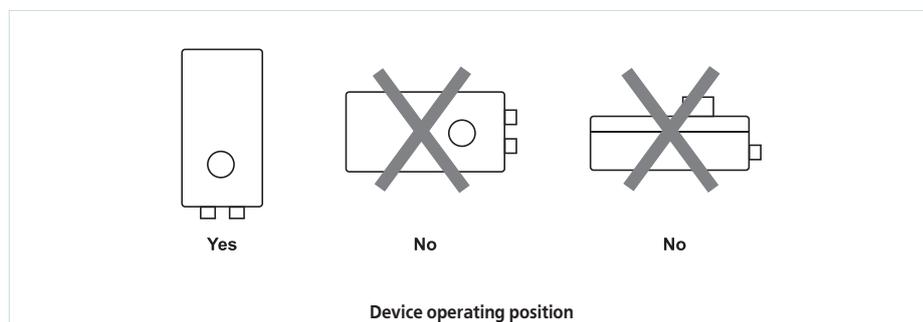
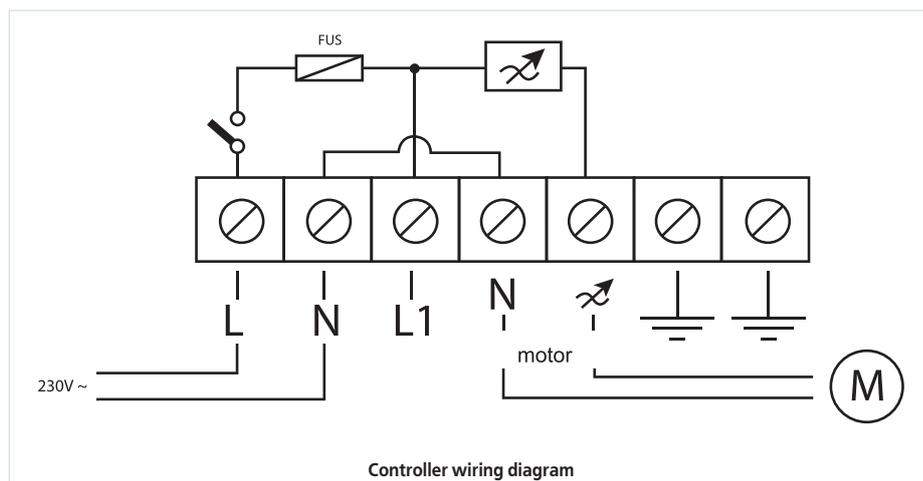
Input circuit of the speed controller has a thermal fuse for overload protection. The controller is fitted with a transient filter.

■ **Mounting**

The controller is designed for indoor mounting. Installation shall be performed with respect to the free air circulation for inner circuit cooling. The controller is for vertical installation. Do not install the controller above the heaters and in bad air convection areas.

Technical data:

	RS-1,5-T	RS-3,0-T	RS-5,0-T	RS-10,0-T
Voltage, [V/50 Hz]	1~ 230	1~ 230	1~ 230	1~ 230
Minimum current [A]	0,2	0,3	0,5	1,0
Maximum current [A]	1,5	3,0	5,0	10,0
Overall dimensions LxWxH [mm]	123x191x97	123x191x97	123x191x97	123x191x97
Maximum ambient temperature [°C]	+5...+40	+5...+40	+5...+40	+5...+40
Protection rating	IP 54	IP 54	IP 54	IP 54
Mass [kg]	0,3	0,3	0,3	0,3



Speed controller RS-...-TA



■ Applications

Applied in ventilation systems for switching ON/OFF and speed controlling of single-phase power-controlled motors. Several fans can be operated synchronously in case their total consumption current does not exceed the maximum permissible value of the controller current.

■ Design and control

The controller casing is made of flame-retardant thermoplastic and fitted with ON/OFF knob. Output power is controlled from 25 to 100% as a function of the control signal 0...10V or 4-20mA over the range set during the controller adjustment. The control signal type 0...10V or 4-20mA is selected with SW2 control switch located in the controller casing. Control can be performed by means of remote control panel, i.e., R-1/010

controller (page 324). The minimum speed is set by means of the potentiometer at PCB inside the controller. The controller is equipped with a supplementary 230V terminal for connection and control of such external equipment as actuator driven air dampers.

■ Protection

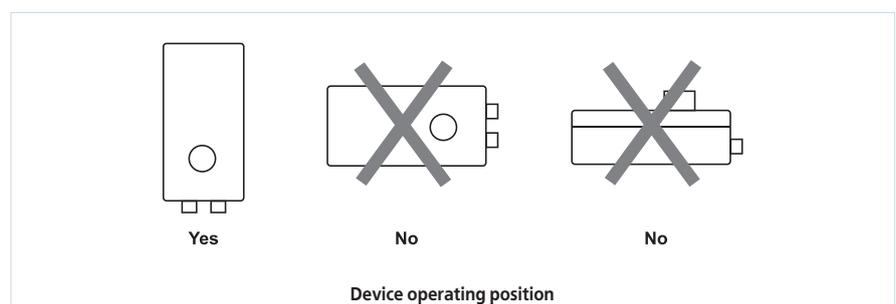
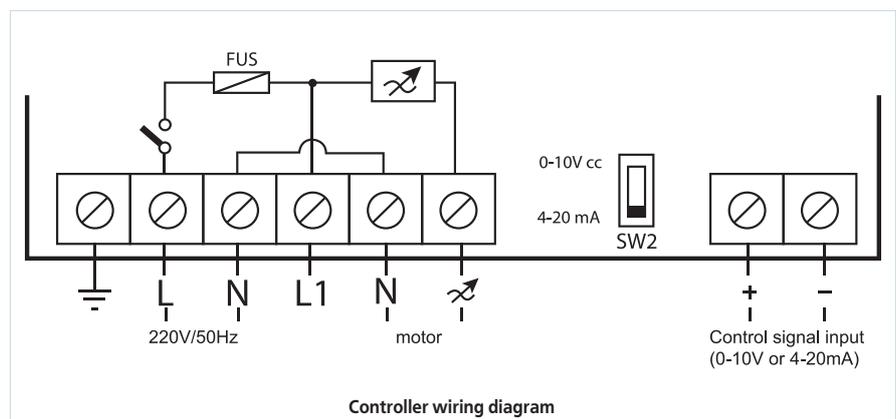
Input circuit of the speed controller has a thermal fuse for overload protection.

■ Mounting

The controller is designed for indoor mounting. Installation shall be performed with respect to the free air circulation for inner circuit cooling. The controller is for vertical installation. Do not install the controller above the heaters and in bad air convection areas.

Technical data:

	RS-1,5-TA	RS-3,0-TA	RS-5,0-TA	RS-10,0-TA
Voltage, [V/50 Hz]	1~ 230	1~ 230	1~ 230	1~ 230
Minimum current [A]	0,2	0,3	0,5	1,0
Maximum current [A]	1,5	3,0	5,0	10,0
Overall dimensions LxWxH [mm]	180x127x95	180x127x95	180x127x95	180x127x95
Maximum ambient temperature [°C]	+5...+40	+5...+40	+5...+40	+5...+40
Protection rating	IP 54	IP 54	IP 54	IP 54
Mass [kg]	0,3	0,3	0,3	0,3



Single-phase speed controller
RSA5E-2-P



Speed control enables not only selecting the comfortable ventilation mode for the periodically visited premises but reducing the energy consumption for the ventilation.

■ **Applications**

RSA5E-2-P series speed controller is applied for air capacity control of single-phase fans by means of step control of motor speed. The controller has five speeds. Speed is set by means of rotating the control knob at the casing front panel. Several fans can be controlled synchronously in case their total consumption current does not exceed the maximum permissible value of the controller current.

■ **Design**

The controller casing is made of flame-retardant thermoplastic. The controller has five speeds with the output power 110V-130V-160V-190V-230V and incorporates ON/OFF button with pilot light, the control knob for speed switching and the emergency operation LED indicator. The integral motor protection device is included which cuts the supply voltage to the fan if the thermal contact in the fan

motor is activated. After the temperature drops to the operating level the motor restarts.

The controller has the following supplementary functions:

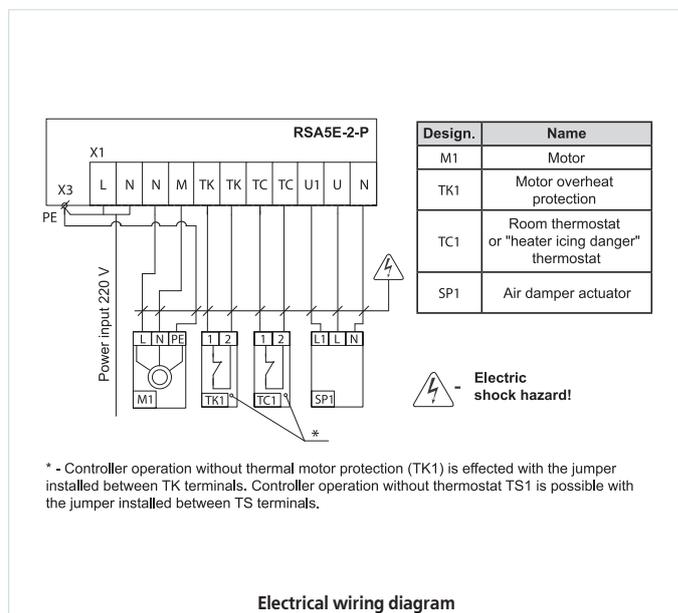
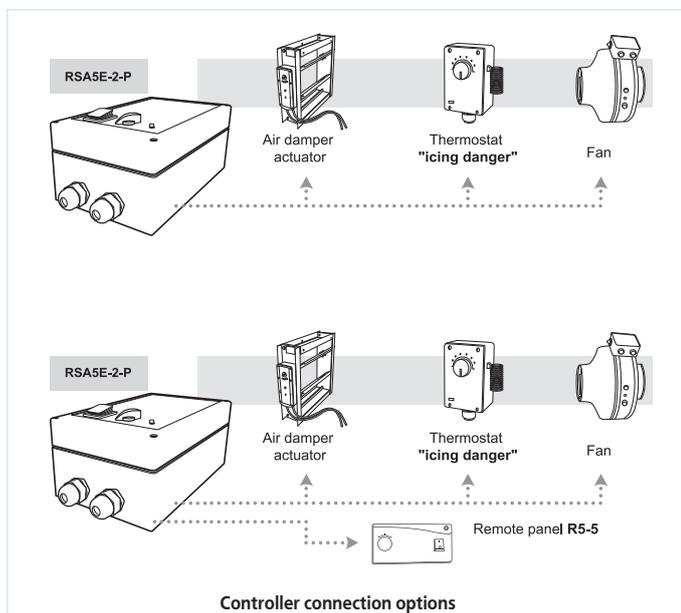
- terminals for connection to the room thermostat or to the thermostat for the icing protection. In case of the circuit breaking the power supply to the motor is disabled.
- terminals of 230 V, max. 2A for connection and controlling such external equipment actuator driven air damper.
- provision for remote speed control (refer the connection options).

■ **Mounting**

The controller is designed for indoor mounting. Installation shall be performed with respect to the free air recirculation for inner circuit cooling.

Technical data:

	RSA5E-2-P
Voltage, [V/50 Hz]	1~ 230
Rated current, [A]	2,0
Overall dimensions LxWxH [mm]	222x120x100
Maximum ambient temperature [°C]	40
Protection rating	IP 54
Mass [kg]	3,1



* - Controller operation without thermal motor protection (TK1) is effected with the jumper installed between TK terminals. Controller operation without thermostat TS1 is possible with the jumper installed between TS terminals.

Single phase speed controller RSA5E-...-M



Speed controls enables not only selecting the comfortable ventilation mode for the periodically visited premises but reducing the energy consumption for the ventilation.

■ Applications

RSA5E-...-M series speed controllers are applied for air capacity control of single-phase fans by means of step speed control. The controller has five speeds. Speed is set by means of rotating the control knob at the casing front panel. Several fans can be controlled synchronously in case their total consumption current does not exceed the maximum permissible value of the controller current.

■ Design and control

Casing is made of steel with polymeric coating. The controller has five speeds with the output power 110V-130V-160V-190V-230V (for RSA5E-12-M modification-80V-105V-130V-160V-230V). The controller incorporates ON/OFF button with pilot light, control knob for speed switching and controller emergency operation LED indicator.

■ Protection

The integral motor protection device is included which cuts the supply voltage to the fan if the thermal contact in the fan motor is activated. After the temperature drops to the operating level the motor restarts.

The controller has the following supplementary functions:

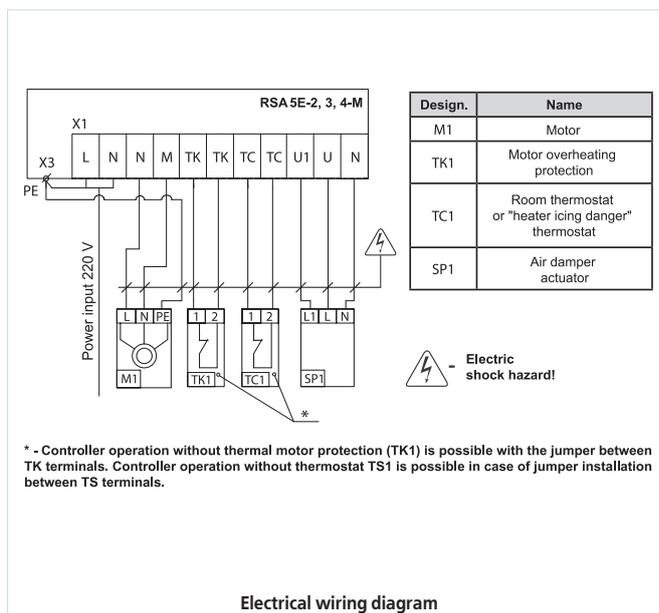
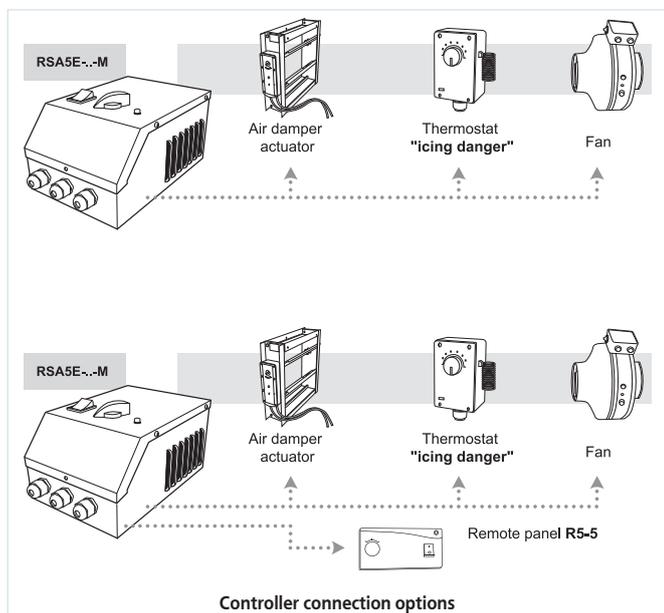
- terminals for connection to the room thermostat or to the icing protection thermostat. In case of the circuit breaking the power supply to the motor is cut.
- terminals of 230 V, max. 2A/3A/4A for connection and controlling such external equipment as actuator driven air damper.
- provision for remote speed control (refer the connection options).

■ Mounting

The controller is designed for indoor mounting. Installation shall be performed with respect to the free air circulation for inner circuit cooling.

Technical data:

	RSA5E-2-M	RSA5E-3-M	RSA5E-4-M	RSA5E-12-M
Voltage, [V/50 Hz]	1~ 230	1~ 230	1~ 230	1~ 230
Rated current, [A]	2,0	3,0	4,0	12,0
Overall dimensions LxWxH [mm]	226x144x120	241x164x138	241x184x132	325x250x245
Maximum ambient temperature [°C]	40	40	40	40
Protection rating	IP 21	IP 21	IP 21	IP 44
Mass [kg]	3,4	4,1	4,5	4,5



* - Controller operation without thermal motor protection (TK1) is possible with the jumper between TK terminals. Controller operation without thermostat TS1 is possible in case of jumper installation between TS terminals.

Single phase speed controller
RSA5E-...-T



■ **Applications**

RSA5E-...T series speed controllers are applied for air capacity control of single-phase fans by means of motor step speed control. The controllers have five speeds. Speed is set by means of rotating the control knob at the casing front panel to one of five available fixed positions. Several fans can be controlled synchronously in case their total consumption current does not exceed the maximum permissible value of the controller current.

■ **Design and control**

The controller casing is made of flame-retardant thermoplastic. The controller has five speeds with the output power 80V - 105V - 130V - 160V - 230V and incorporates ON/OFF pilot light for operation indication, control knob for speed switching and controller emergency operation LED indicator. The

integral motor protection device is included which cuts the supply voltage to the fan if the thermal contact in the fan motor is activated. After the temperature drops to the operating level the motor restarts.

The controller has the following supplementary functions:

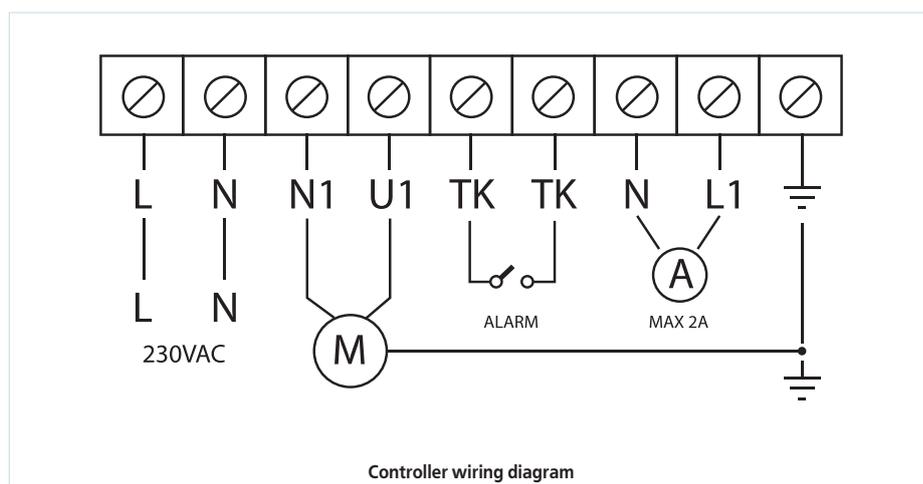
- terminals of 230 V, max. 2A for connection and controlling such external equipment as actuator driven air dampers.

■ **Mounting**

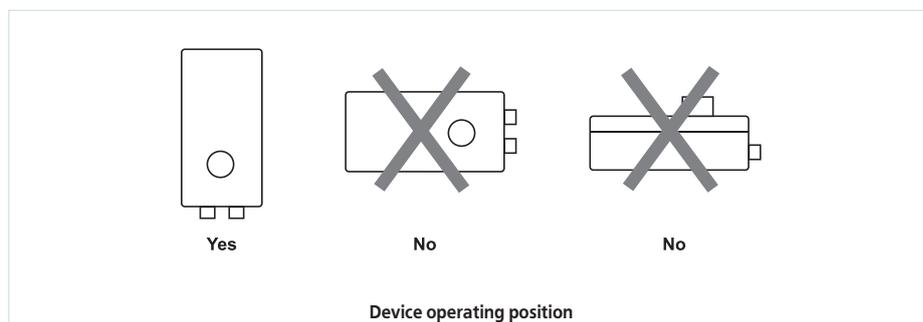
The controller is designed for indoor mounting. Installation shall be performed with respect to the free air recirculation for inner circuit cooling. The controller is for vertical installation. Do not install the controller above the heaters and in bad air convection areas.

Technical data:

	RSA5E-1,5-T	RSA5E-3,5-T	RSA5E-5,0-T	RSA5E-8,0-T	RSA5E-10,0-T
Voltage [V/50 Hz]	1~ 230	1~ 230	1~ 230	1~ 230	1~ 230
Rated current, [A]	1,5	3,5	5,0	8,0	10,0
Overall dimensions LxWxH [mm]	205x110x85	255x170x140	255x170x140	305x200x180	305x200x180
Maximum ambient temperature [°C]	+5...+35	+5...+35	+5...+35	+5...+35	+5...+35
Protection rating	IP 44				



Controller wiring diagram



Device operating position

Three-phase speed controller **RSA5D-...-T**



Applications

RSA5D-...T series speed controllers are applied for air capacity control of three-phase fans by means of step speed control. The controllers have five speeds. Speed is set by means of rotating the control knob at the casing front panel to one of five available fixed positions. Several fans can be controlled synchronously in case their total consumption current does not exceed the maximum permissible value of the controller current.

Design and control

The controller casing is made of flame-retardant thermoplastic. The controller has five speeds with the output power 90V - 150V - 200V - 280V - 400V and incorporates control speed knob, pilot light and controller emergency operation LED indicator.

The integral motor protection device is included which cuts the supply voltage to the fan if the thermal contact in the fan motor is activated. After the temperature drops to the operating level the motor restarts.

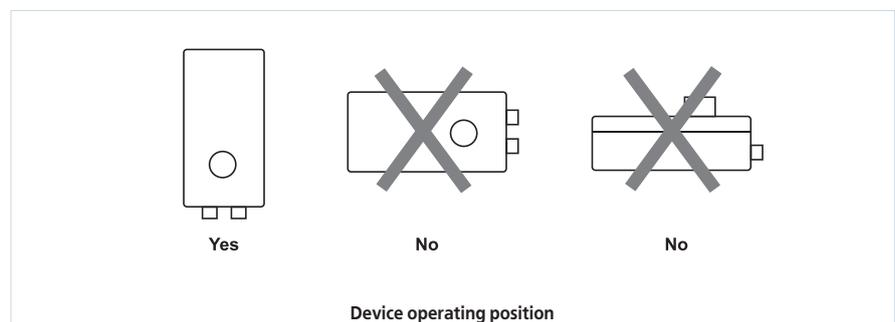
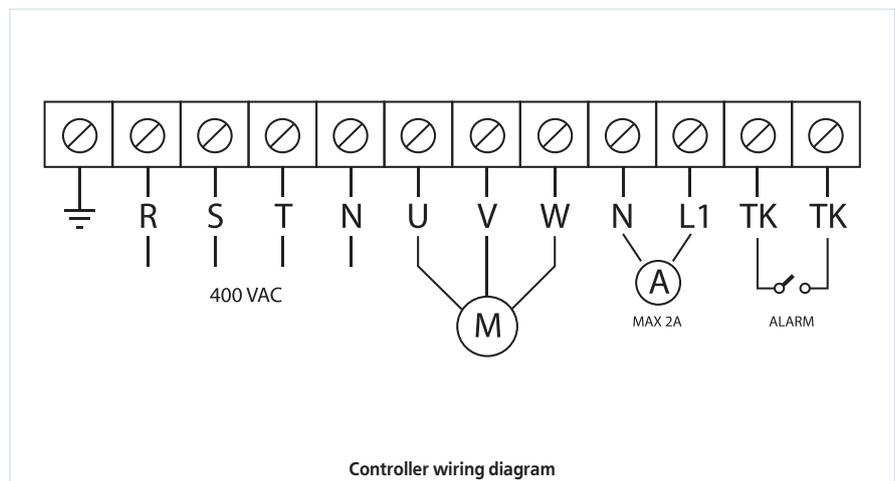
As supplementary functions the controller is fitted with terminals of 230 V, max. 2A for connection and controlling such external equipment as actuator driven air damper.

Mounting

The controller is designed for indoor mounting. Installation shall be performed with respect to the free air recirculation for inner circuit cooling. The controller is for vertical installation. Do not install the controller above the heaters and in bad air convection areas.

Technical data:

	RSA5D-1,5-T	RSA5D-3,5-T
Voltage, [V/ 50 Hz]	3~ 400	3~ 400
Rated current, [A]	1,5	3,5
Overall dimensions LxWxH [mm]	305x200x180	305x200x180
Maximum ambient temperature [°C]	+5...+35	+5...+35
Protection rating	IP 44	IP 44



Three-phase speed controller
RSA5D-...-M



■ **Applications**

RSA5D-...M series speed controllers are applied for air capacity control of three-phase fans by means of step control of motor speed. The controllers have five speeds. Speed is set by means of rotating the control knob at the casing front panel to one of five available fixed positions. Several fans can be controlled synchronously in case their total consumption current does not exceed the maximum permissible value of the controller current.

■ **Design and control**

The controller casing is made of flame-retardant thermoplastic. The controller has five speeds with the output power 90V - 150V - 200V - 280V - 400V and incorporates control speed knob, light indication for operation and pilot lamp to indicate the emergency

operation of the controller. The controller has built-in motor overheating protection which cuts power supply in case of exceeding the set temperature threshold. After the temperature drops to the operating level the motor restarts.

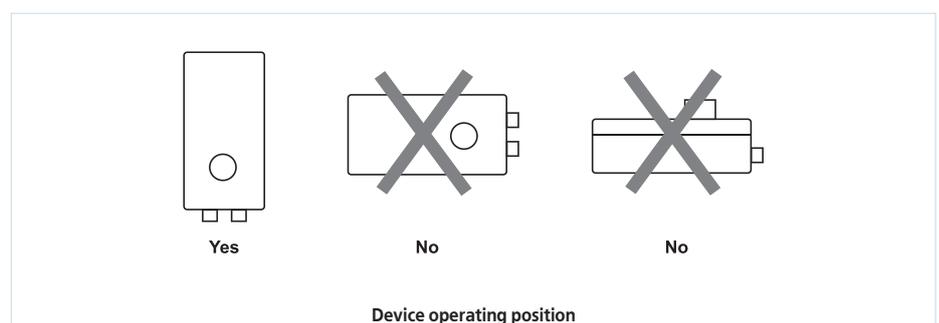
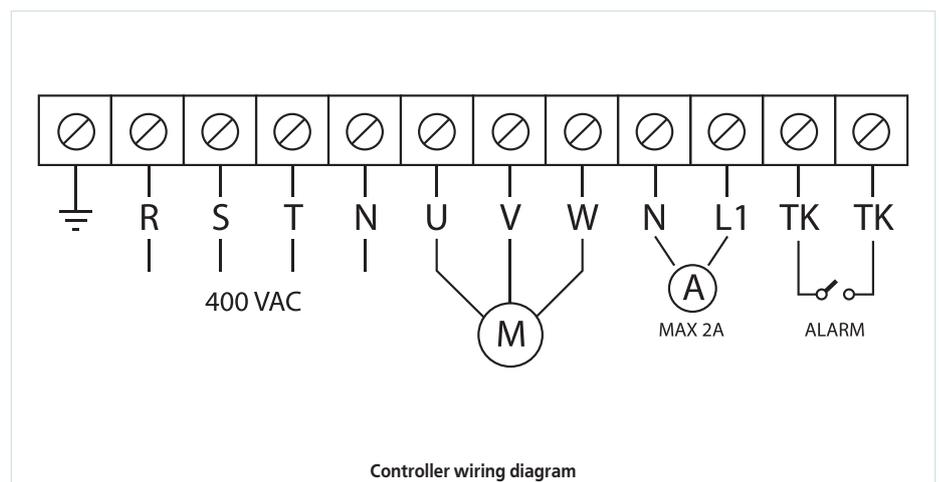
The controller is fitted with terminals of 230 V, max. 2A for connection and controlling such external equipment as actuator driven air damper.

■ **Mounting**

The controller is designed for indoor mounting. Installation shall be performed with respect to the free air recirculation for inner circuit cooling. The controller is for vertical installation. Do not install the controller above the heaters and in bad air convection areas.

Technical data:

	RSA5D-5,0-M	RSA5D-8,0-M	RSA5D-10,0-M	RSA5D-12,0-M
Voltage, [V/ 50 Hz]	3~ 400	3~ 400	3~ 400	3~ 400
Rated current, [A]	5,0	8,0	10,0	12,0
Overall dimensions LxWxH [mm]	325x250x245	325x250x245	425x300x250	425x300x250
Maximum ambient temperature [°C]	+5...+35	+5...+35	+5...+35	+5...+35
Protection rating	IP 44	IP 44	IP 44	IP 44



FREQUENCY SPEED CONTROLLER

**Frequency speed controller
VFED-...-TA**



Frequency speed controllers are the energy saving devices which ensure maximum utilization of actuator power with minimum energy consumption.

Applications

VFED-...-TA series controllers or inverters are designed for frequency control of three-phase asynchronous AC motors. Speed control is effected by means of variation of supplied voltage frequency. Applied for air capacity control of three-phase motors.

Design and control

The controller casing is made of flame-retardant thermoplastic. The assembly transforms voltage of 220V, 50Hz supply mains into output impulse voltage with the frequency 3Hz to 400 Hz. Motor rotor is powered with simple sinusoidal current and has the rotation speed as a function of the supplied

voltage frequency. Single-phase 220V, 50Hz power is supplied to the frequency controller inlet. Three-phase voltage with the frequency up to 400 Hz for asynchronous motor supply is generated at the controller outlet.

Control by means of external device

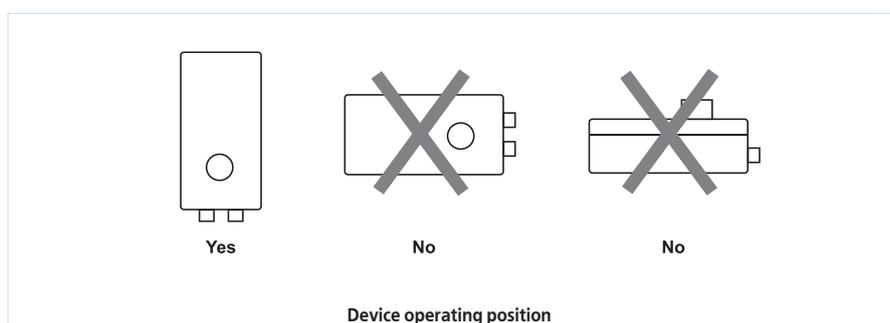
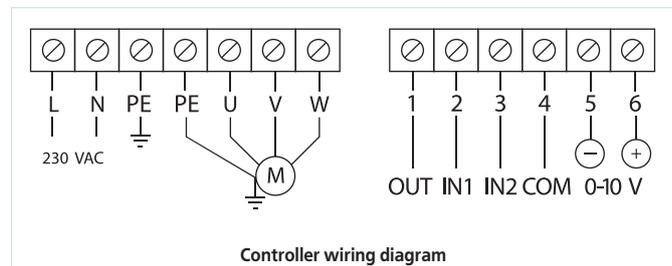
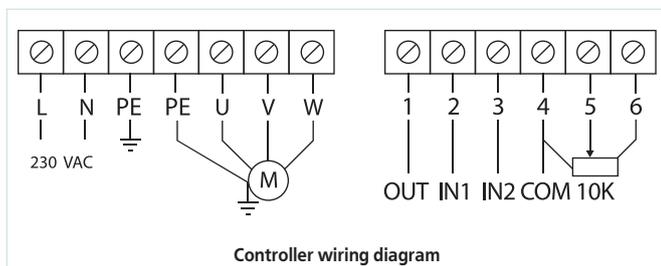
Power output variation as a function of the external control signal 0..10V or 4-20mA over the range set during the controller adjustment. The external device is connected through RS-232 serial port.

Mounting

The controller is designed for indoor mounting. Installation shall be performed with respect to the free air circulation for inner circuit cooling. The controller is for vertical installation. Do not install the controller above the heaters and in bad air convection areas.

Technical data:

	VFED-200-TA	VFED-400-TA	VFED-750-TA	VFED-1100-TA	VFED-1500-TA
Voltage supplied to the controller [V/50 Hz]	1~ 230	1~ 230	1~ 230	1~ 230	1~ 230
Voltage supplied from the controller to the electric motor, [V]	3~ 230	3~ 230	3~ 230	3~ 230	3~ 230
Frequency output supplied to the motor, [Hz]	from 3 to 400				
Maximum load current [A]	1,0	2,0	3,5	5,5	7,5
Maximum electric motor power [W]	200	400	750	1100	1500
Maximum ambient temperature [°C]	+5...+40	+5...+40	+5...+40	+5...+40	+5...+40
Protection rating	IP 54				



Temperature regulator
RTS -1- 400
RTSD -1- 400



■ **Applications**

Applied for temperature mode control in ventilation, heating and air conditioning systems. Can be applied for control of fans and fancoil valves, air heating units with 230V three speed fans. Automatic heating or cooling rate control.

■ **Design and control**

The temperature sensor is built into the plastic control panel casing. A digital light-up LCD display and control knobs are located at the control face panel. The display shows the current and set indoor air temperature, selected mode for cooling, heating or automatic mode as well as set motor speed. The rotation speed can be adjusted manually by means of control knob rotation. Provision is made for

automatic control of rotation speed (quick/medium/low) depending on the indoor temperature.

- The light-up display enables the regulator operation in bad light conditions
- Temperature maintaining within up to 1°C.
- saving settings at no power supply.
- RTSD-1-400 model is equipped with remote control panel.
- night duty operation (refer to operation mode for night duty below).

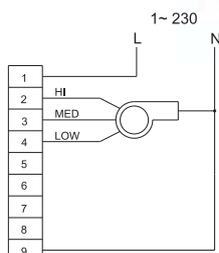
■ **Mounting**

Control panel is designed for indoor surface mounting. The recommended installation height is 1.5 m. Do not install the control panel close to windows, doors, heating or cooling devices.

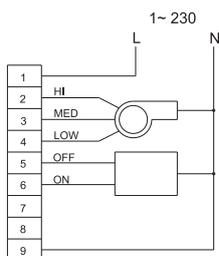
Technical data:

	RTS -1- 400	RTSD -1- 400
Voltage, V/ 50 Hz	1~ 230	1~ 230
Rated current, [A]	2,0	2,0
Number of selected speeds	3	3
Temperature adjustment range [°C]	+10...+30	+10...+30
Overall dimensions LxWxH [mm]	88x88x51	88x88x51
Maximum ambient temperature [°C]	40	40
Protection rating	IP 40	IP 40
Remote control panel	no	yes

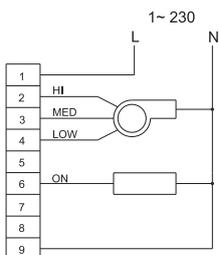
Controller connection options



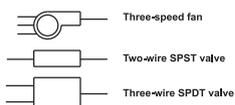
Ventilation with heating and cooling



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



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

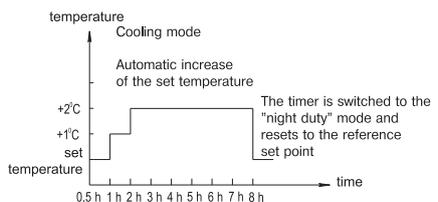
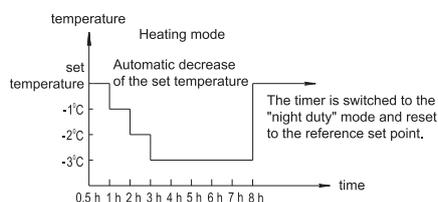


NIGHT DUTY OPERATION peculiarities

▶ **Operation of the temperature regulator in the heating mode:** in 30 minutes after switching to the night duty the indoor temperature goes automatically down by 1°C and in 1 hour the temperature goes down by 1°C more. One hour later the temperature goes down by 1°C more and will be kept at this level within 8 hours. After switching the timer off the temperature will be reset to the reference set level automatically.

▶ **Operation of the temperature regulator in cooling mode:** in 30 minutes after switching to the night duty the indoor temperature goes automatically up by 1°C and in 1 hour the temperature goes up by 1°C more and will be kept at that level up to 8 hours. After switching the timer off the temperature will be reset to the reference level automatically.

Night duty operation mode



Temperature regulator RT-10



■ Applications

Applied for control of the set indoor temperature as well as ventilation and air conditioning systems control.

■ Design and control

The casing is made of high-quality durable plastic. During the temperature increase or decrease with respect to the set value the thermostat opens or closes the contacts (the pattern is selected during

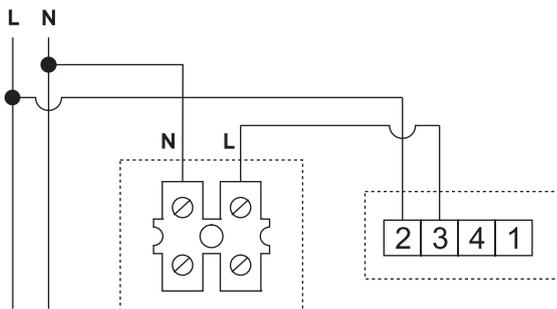
the connection. The temperature adjustment range is +10 up to +30°C.

■ Mounting

The temperature regulator is designed for indoor surface mounting. The recommended installation height is 1.5 m. Do not install the temperature regulator close to windows, doors, heating or cooling devices.

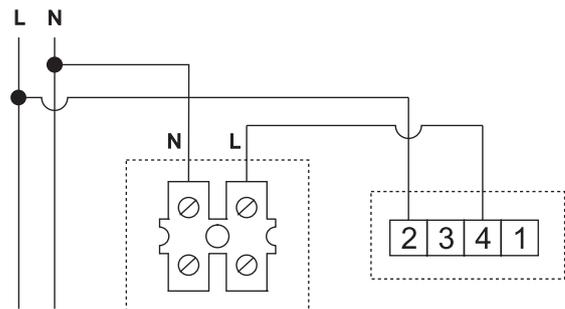
Technical data:

	RT-10
Voltage [V/50/60 Hz]	1~ 220-240
Overall dimensions LxWxH [mm]	84x84x35
Maximum ambient temperature [°C]	40
Protection rating	IP 40



The fan operates till reaching the temperature threshold level set in the temperature regulator

fig. 1



The fan starts operation after reaching the temperature threshold set in the temperature regulator

fig. 2

Temperature regulator connection options

Wiring diagram, fig. 1

- maximum current of active load no more 10A;
- maximum current of inductive load no more 3A.

Wiring diagram, fig. 2

- maximum current of active load no more 6A;
- maximum current of inductive load no more 2A.

Switch
P2-5,0 N(V)
P3-5,0 N(V)
P5-5,0 N(V)



■ **Applications**

Applied for speed ON/OFF switching and speed selection in the fans with multi-speed motors.

■ **Design and control**

The switch casing is made of plastic and fitted with ON/OFF knob with operating mode indicator light. The fan speeds can be switched directly or by

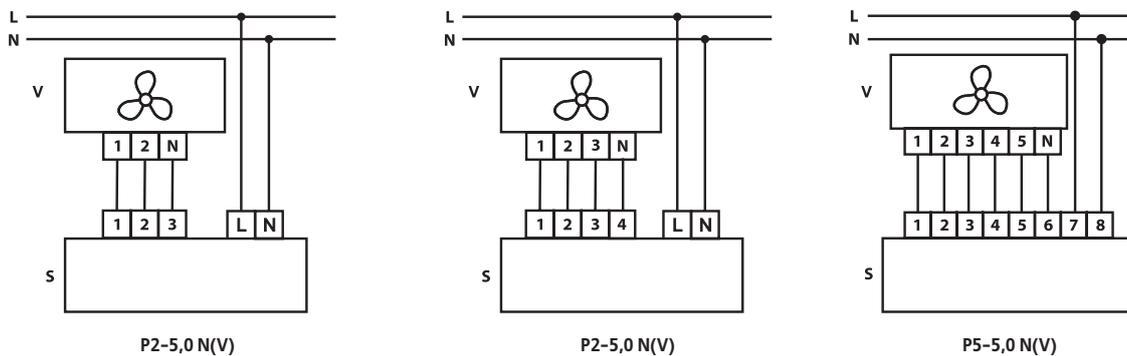
means of the remote panel for speed switching for multistage transformer speed controller as P5-5,0 for five-stage transformer speed controller.

■ **Mounting**

The universal design of the controller enables its indoor wall mounting either on the wall (H modification) or through the wall (V modification).

Technical data:

	P2-5,0	P3-5,0	P5-5,0
Voltage, [V/ 50 Hz]	1~ 230	1~ 230	1~ 230
Rated current, [A]	5,0	5,0	5,0
Number of selected speeds	2	3	5
Overall dimensions LxWxH [mm]	88x88x51	88x88x51	88x88x51
Maximum ambient temperature [°C]	40	40	40
Protection rating	IP 40	IP 40	IP 40
Mass [kg]	0,25	0,25	0,25



Switch connection options

Switch P2-1-300 P3-1-300



■ Applications

Applied for speed ON/OFF switching and speed select switching in the fans with multi-speed motors.

■ Design and control

The casing is made of plastic. Provision is made for the direct switching of the motor speeds (wiring

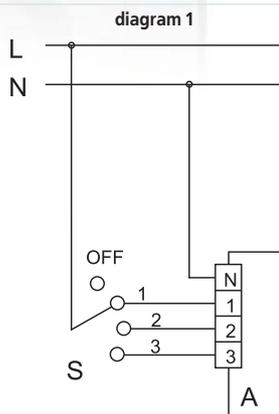
diagram 1 and 3) as well as fan switching ON and control synchronically with lightening in the room (wiring diagram 2 and 4).

■ Mounting

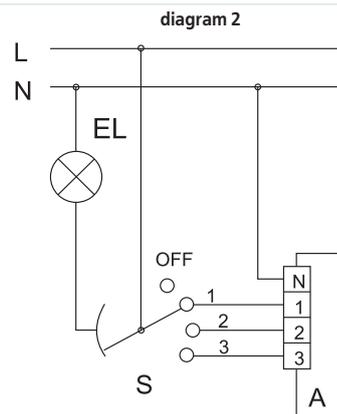
Speed switch is designed for indoor wall mounting inside a flush mounting box. It can be installed into standard round electric junction boxes.

Technical data:

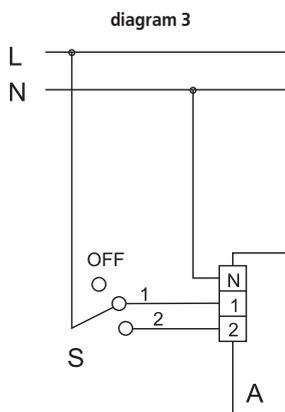
	P2-1-300	P3-1-300
Voltage, V/ 50 Hz	1~ 230	1~ 230
Rated current, [A]	5,0	5,0
Number of selected speeds	2	3
Overall dimensions LxWxH [mm]	88x88x51	88x88x51
Maximum ambient temperature [°C]	40	40
Protection rating	IP 40	IP 40
Mass [kg]	0,13	0,13



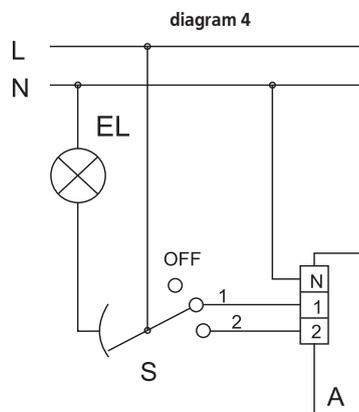
The fan can be manually switched ON to one of the three required speeds or switched OFF by means of external speed switch as P3-1-300.



The fan can be manually switched ON to one of three speeds by means of such external S speed switch as P3-1-300. When switching the fan ON the light is switched in parallel ON. The fan can be switched OFF with parallel switching the light OFF. The fan operates both with light or without it.



The fan can be manually switched ON to one of the two required speeds or switched OFF by means of the external speed switch as P2-1-300.



The fan can be manually switched ON to one of three speeds by means of the external S speed switch as P2-1-300. When switching the fan ON the light is switched in parallel ON. The fan can be switched OFF with parallel switching the light OFF. The fan operates both with light or without it.

Switch connection options

Speed controller
R-1/010



■ **Applications**

Applied for smooth speed control of EC motors with the control input 0-10 V.

■ **Design and control**

The controller casing is made of plastic. Switching ON/OFF is effected by means of control knob rotation.

The control range starts from the minimum possible value and includes the maximum possible values.

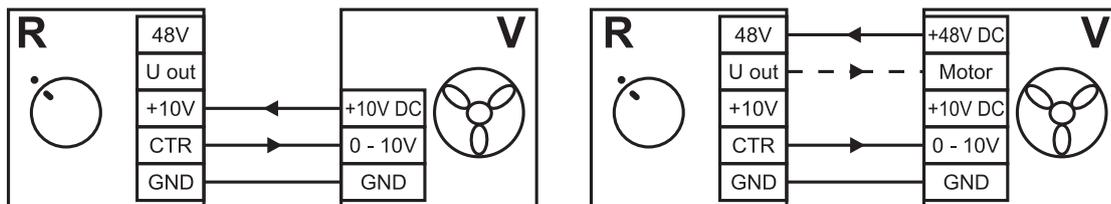
■ **Mounting**

The speed controller is designed for indoor flush mounting box. It can be also installed into standard round electric junction boxes.

Technical data:

	R-1/010
Voltage [V]	10-48VDC
Control signal [V]	0-10
Maximum current [mA]	5mA
Overall dimensions LxWxH [mm]	78x78x63
Maximum ambient temperature [°C]	35
Protection rating	IP 40
Mass [kg]	0,12

Designation key:
V - fan;
R - controller R-1/010



Controller wiring diagram

Time sensor
T-1,5 N
TH-1,5 N
TF-1,5 N
TP-1,5 N



■ **T-1,5 N - run out timer**

Enables the fan operation within the set time period after pressing the knob for switching the fan OFF. After the set time from 2 to 30 minutes the fan switches automatically OFF. The run-out timer is generally applicable for the fans installed in bathrooms, WC or kitchens.

■ **TH-1,5 N - humidity sensor**

The fan with such sensor switches automatically ON in case of exceeding the set humidity level. A user can independently adjust the required humidity level based on personal preferences. The humidity sensor is generally applicable for the fans installed in the premises with increased humidity as bathrooms, kitchens, washing rooms or pools.

■ **TF-1,5 N - timer + photo sensor**

The built-in photo sensor responds to the indoor illumination rate fluctuations and has the provisions for automatic switching the fan ON accordingly. In case of light switching OFF the fan will be switched

OFF with respect to the built-in run-out timer with the time period set between 2 to 30 minutes. In such a way the ventilation system fitted with a photo sensor is fully automated and requires no human control. The photo sensor is generally applicable for the fans installed in periodically visited premises.

■ **TP-1,5 N - infra-red sensor**

The built-in infra-red sensor responds to movement in a room and switches the fan automatically ON. If the room is empty the fan switches OFF with respect to the built-in run-out timer adjustable between 2 to 30 minutes. In such a way the ventilation system fitted with infra-red sensor is fully automated and requires no human control. The infra-red sensor is generally applicable for the fans installed in periodically occupied spaces.

■ **Mounting**

The sensors are designed for indoor wall surface installation (Modification N).

