

SPVL8-010-EP

EC FAN CONTROLLER WITH
MODBUS/DCI OUTPUT

Mounting and operating instructions



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SAFETY AND PRECAUTIONS



Read all the information, the datasheet, Modbus map, mounting and operating instructions and study the wiring and connection diagram before working with the product. For personal and equipment safety, and for optimum product performance, make sure you entirely understand the contents before installing, using or maintaining this product.



For safety and licensing (CE) reasons, unauthorised conversion and /or modifications of the product are inadmissible.



The product should not be exposed to abnormal conditions, such as extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapours in high concentration can affect the product performance. Make sure the work environment is as dry as possible; avoid condensation.



All installations shall comply with local health and safety regulations and local electrical standards and approved codes. This product can only be installed by an engineer or a technician who has expert knowledge of the product and safety precautions.



Avoid contacts with energised electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product.



Always verify that you apply appropriate power supply to the product and use appropriate wire size and characteristics. Make sure that all the screws and nuts are well tightened and fuses (if any) are fitted well.



Recycling of equipment and packaging should be taken into consideration and these should be disposed of in accordance with local and national legislation / regulations.



In case there are any questions that are not answered, please contact your technical support or consult a professional.

PRODUCT DESCRIPTION

The SPVL8-010-EP is a speed controller and monitoring device for Modbus RTU fans with DCI interface (EBM-Papst protocol). The Modbus RTU/DCI interface (DCI Gen. 1) is used to configure, control and monitor up to 20 fans. Fans featuring the EBM-Papst Modbus/DCI interface will be addressed automatically by the SPVL8-EP controller. This results in much faster commissioning.

ARTICLE CODES

Code	Supply voltage
SPVL8-010-EP	85–305 VAC / 50–60 Hz

INTENDED AREA OF USE

- Speed control, monitoring and commissioning of EBM-Papst filter fan units (FFUs) with EC motor

TECHNICAL DATA

- Modbus RTU/DCI interface (daisy chain interface)
- Linear digital output signal according to the position of the potentiometer
- Automatic initial configuration of each fan
- Automatic assignment of network ID of each fan
- Control from low to high or from high to low speed, selectable via Modbus RTU holding registers
- Fan status monitoring via RGB LED and Modbus input registers
- OFF position
- Bootloader for updating the firmware via Modbus RTU
- Adjustable minimum (V_{min}) and maximum (V_{max}) output value via Modbus RTU holding registers
- Flush or surface mounting
- Push in terminal block
- Compatible with EBM-Papst K3G-series FFU with Modbus RTU/DCI interface
- Enclosure:
 - ▶ External: ASA, white colour (28049P), IP54 (according to EN 60529)
 - ▶ Internal: polyamide, natural colour, IP44 (according to EN 60529)
- Operating ambient conditions:
 - ▶ temperature: 0–40 °C
 - ▶ rel. humidity: 5–95 % rH (non-condensing)

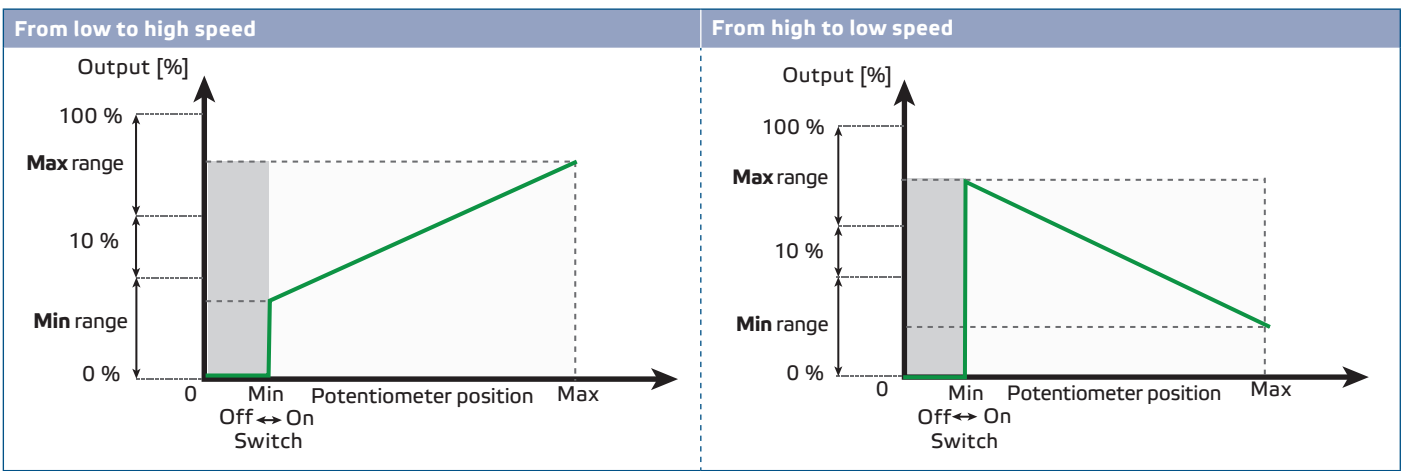
STANDARDS

- Low Voltage Directive 2014/35/EU CE
 - ▶ 60529:1991 Degrees of protection provided by enclosures (IP Code) Amendments AC:1993, A1:2000, A2:2013, AC:2016-12 and AC:2019-12 to EN 60529
 - ▶ EN 60730-1:2011 Automatic electrical controls for household and similar use. Part 1: General requirements
 - ▶ EN 60730-2-8:2002 Automatic electrical controls for household and similar use. Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements Amendment A1:2003 to EN 60730-2-8
 - ▶ EN 60730-2-9:2010 Automatic electrical controls for household and similar use. Part 2-9: Particular requirements for temperature sensing controls
- EMC directive 2014/30/EU:
 - ▶ EN 60730-1:2011 Automatic electrical controls for household and similar use -

Part 1: General requirements

- ▶ EN 60730-2-8:2002 Automatic electrical controls for household and similar use - Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements Amendment A1:2003 to EN 60730-2-8
- ▶ EN 60730-2-9:2010 Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls
- RoHs Directive 2011/65/EU – Restriction of use of certain hazardous substances in electrical and electronic equipment
- ▶ EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

OPERATIONAL DIAGRAMS



WIRING AND CONNECTIONS

L	Power supply, line (85–305 VAC / 50–60 Hz)	
N	Power supply, neutral (85–305 VAC / 50–60 Hz)	
8 - DCI	Modbus DCI output	
7 - GND	Ground	
6 and 2 - /B	Modbus RTU (RS485), signal /B	
5 and 4	Do not connect	
3 and 1 - A	Modbus RTU (RS485), signal A	
Connections	Supply cables	Cable cross section: 0,5–1,5 mm ²
	Modbus DCI communication / RS485 + DCI	Cat5 cable / UTP



MOUNTING INSTRUCTIONS IN STEPS

Before you start mounting the unit, read carefully **“Safety and Precautions”** and follow the steps:

Flush mounting

1. Disconnect the mains supply.
2. Remove the knob by pulling it out.
3. Unscrew the washer to remove the cover of the external enclosure.
4. Do the wiring according to the wiring diagram (see **Fig. 1 Wiring and connections**).
5. Mount the internal enclosure into the wall according to the mounting dimensions shown in **Fig. 2 Mounting dimensions - flush mounting**.

Fig. 1 Wiring and connections

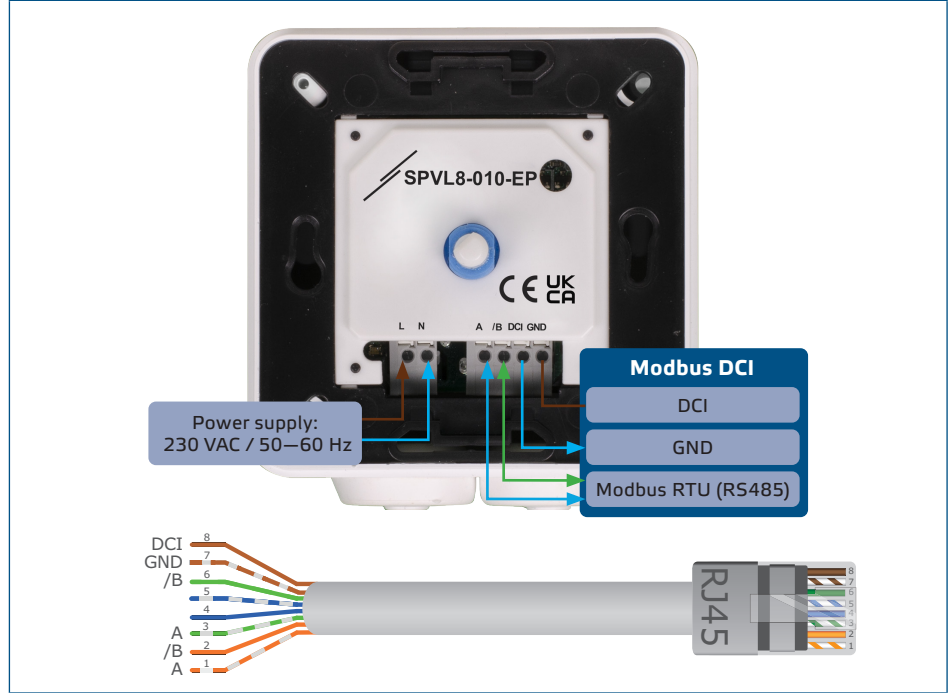
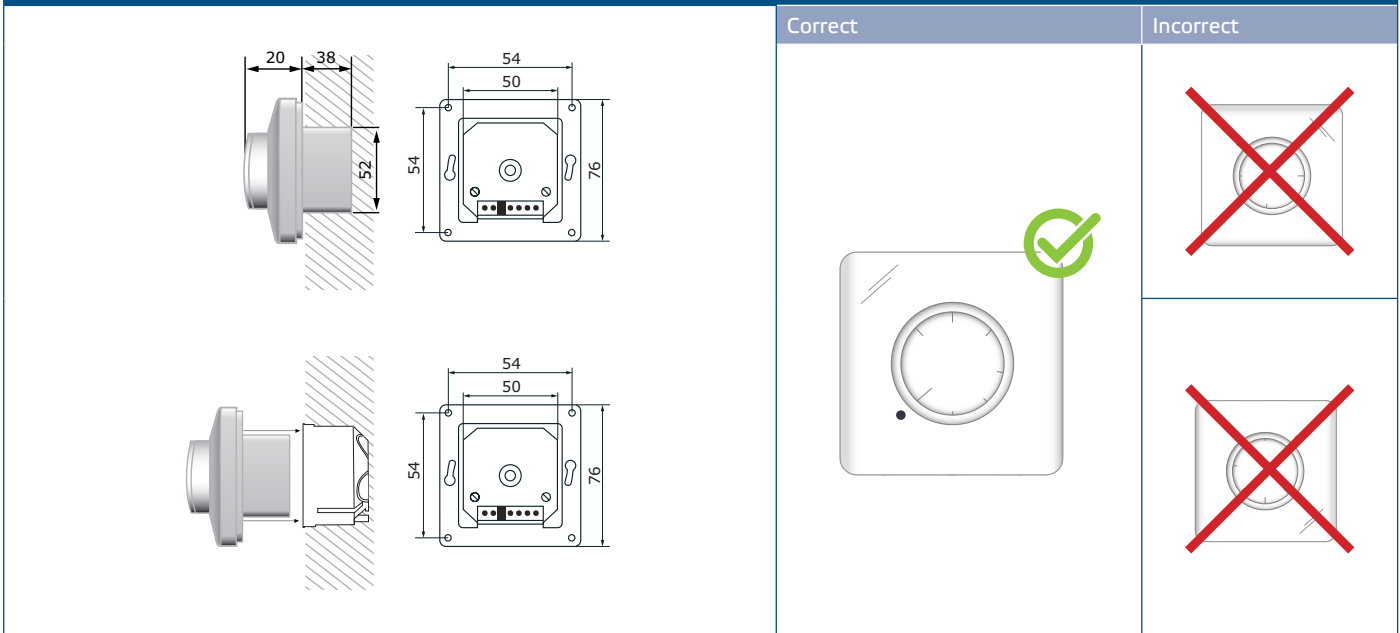
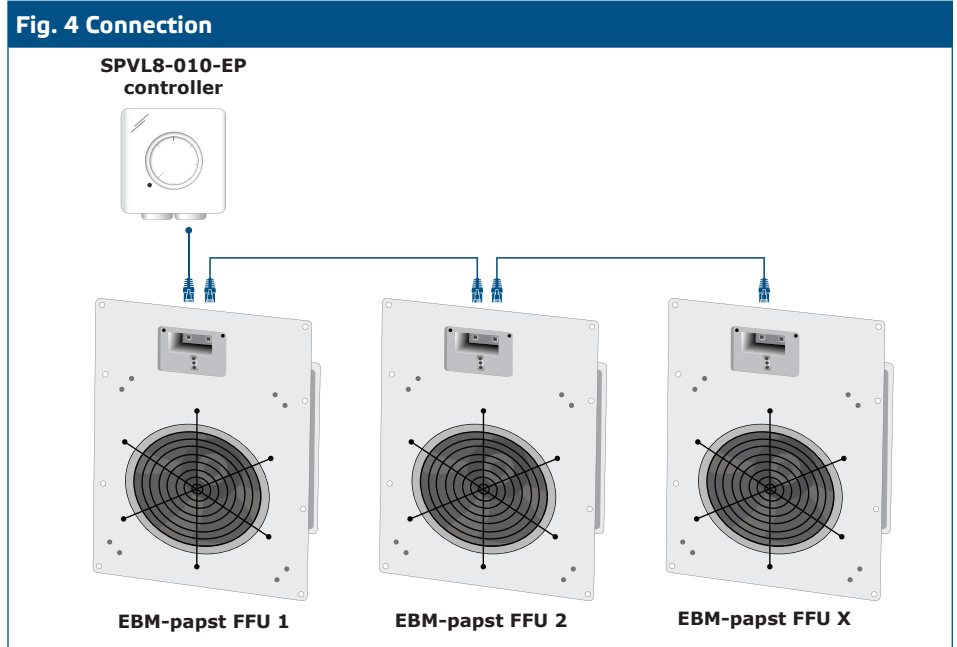


Fig. 2 Mounting dimensions - flush mounting



6. Mount back the cover and secure it with the washer.
7. Put back the knob and turn it to off position.
8. Install all Modbus/DCI controlled motors and carry out electrical wiring according to their datasheet.
9. Connect the controller to the motors using appropriate cables. See **Fig. 4 Connection**.

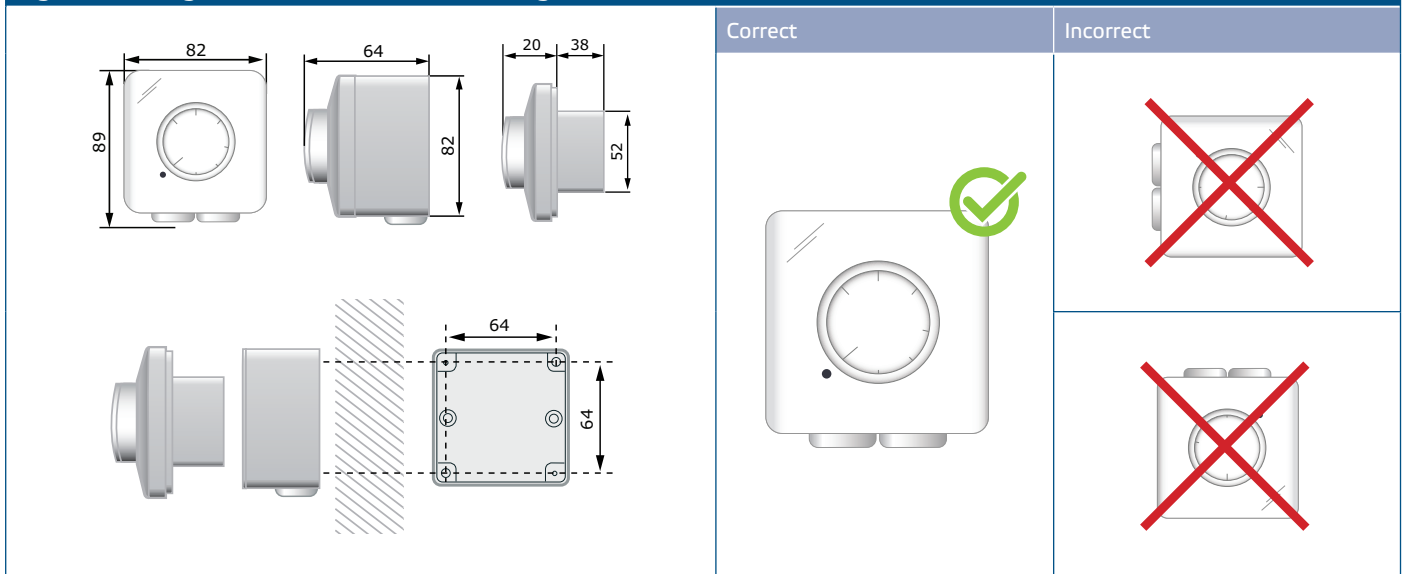


10. Turn on the power supply.
11. Turn on the controller.
12. All motors connected to the controller will be configured automatically.
13. Check the connection status via the LED indication. Turn the knob of the controller to control the speed of the FFUs.
14. Customise the factory settings to the desired ones via the 3SModbus software or SenteraWeb. For the default factory settings, see the *Modbus register map*.

Surface mounting

1. Disconnect the mains supply.
2. Remove the knob by pulling it out and open the cover.
3. Unscrew the washer to remove the cover of the external enclosure.
4. Mount the external enclosure onto the surface by means of the screws and dowels adhering to the mounting dimensions shown in **Fig. 3 Mounting dimensions - surface mounting**.

Fig. 3 Mounting dimensions - surface mounting



5. Insert the cables through the grommets.
6. Do the wiring according to the wiring diagram (see **Fig. 1 Wiring and connections**).
7. Insert the internal enclosure into the external one and fix it using the screws. Mount back the cover and secure it with the washer.
8. Put back the knob and turn it to off position.
9. Install all Modbus DCI controlled motors and carry out electrical wiring according to their datasheet.
10. Connect the controller to the motors using appropriate cables. See **Fig. 4 Connection**.
11. Turn on the power supply.
12. Turn on the controller.
13. All motors connected to the controller will be configured automatically.
14. Check the connection status via the LED indication. Turn the knob of the controller to control the speed of the FFUs.
15. Customise the factory settings to the desired ones via the 3SModbus software or SenteraWeb. For the default factory settings, see the *Modbus register map*.

NOTE

For the complete Modbus register data, refer to the product Modbus Register Map, which is a separate document attached to the article code on the website and contains the registers list. Products with earlier firmware versions may not be compatible with this list.

Optional settings

To assure correct communication, the NBT needs to be activated. See the Modbus Register Map of the product.

NOTE

Mount the unit so that the terminal block and connections are at the lower side.

VERIFICATION OF INSTALLATION



ATTENTION

Use only tools and equipment with non-conducting handles when working on electrical devices.

As soon as the unit has detected at least one FFU, addressing and configuration will be completed automatically.

For installation status, please check the LED indications in the product datasheet.

OPERATING INSTRUCTIONS



ATTENTION

Use only tools and equipment with non-conducting handles when working on electrical devices.

The unit is intended for use with EC fans / motors. It restarts after power failure.

In case of faulty operation, please check if:

- the right voltage is applied
- all connections are correct
- Modbus communication is working and all settings are accessible via Modbus RTU

TRANSPORT AND STORAGE

Avoid shocks and extreme conditions; stock in original packing.

WARRANTY AND RESTRICTIONS

Two years from the delivery date against defects in manufacturing. Any modifications or alterations to the product after the date of publication relieve the manufacturer of any responsibilities. The manufacturer bears no responsibility for any misprints or mistakes in this data.

MAINTENANCE

In normal conditions this product is maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances the unit should be disconnected from the supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.