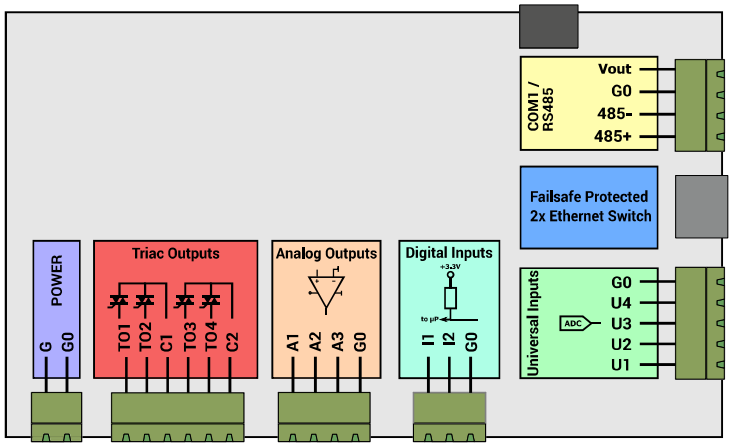
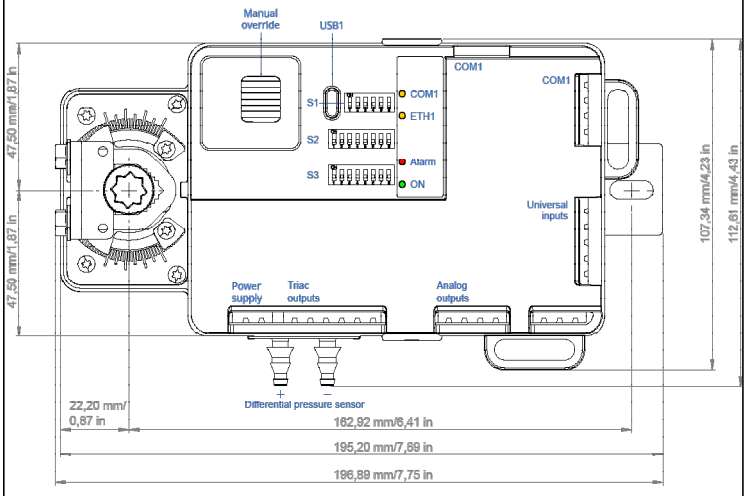
VAV14-IP

SPECIFICATION	
Power supply	DC: 24 V ± 20%, 7 W; AC: 24 V ± 20%, 18 VA
Vout	Max. 2.5 W, max. 40 V DC - depends on the input supply voltage 23 V DC for 24 V DC input supply voltage 33 V DC for 24 V AC input supply voltage
Universal inputs	4, voltage, current, resistance, temperature, dry contact inputs
Digital inputs	2, dry contact inputs, high-speed pulse counter up to 100 Hz
Analog outputs	3, 0-10 V DC outputs, max. load up to 20 mA per channel
Triac outputs	4, 0.5 A outputs; max. voltage 24 V AC
Pressure sensor	From -500 to 500 Pa/- 2 inWC to 2 inWC
Spigots	2, for 4 to 8 mm (1/8 to 5/16 in) tube
Damper actuator	4 Nm, angle: 95° adjustable, rotation time: 95º in 95 sec (+/- 5 sec)
Interfaces	2 ports, 10/100 Ethernet switch with fail-safe protection; RS-485; USB type C
Ingress protection	IP20 - for indoor installation
Temperature	Operating: 0°C to 50°C (32°F to 122°F), storage: -40°C to +85°C (-40°F to +185°F)
Relative humidity	5 to 95% RH (without condensation)
Connectors	RS485: separable max. 2.5 mm2 (18 – 12 AWG), RJ45 Ethernet: RJ45
Manual override	Button for manual adjusting of the damper actuator's position
Dimensions	196.89 x 112.61 x 77.00 mm (7.75 x 4.43 x 3.00 in)
Mounting	Directly on an air duct or in a panel
Housing material	Plastic (PC/ABS)

BLOCK DIAGRAM

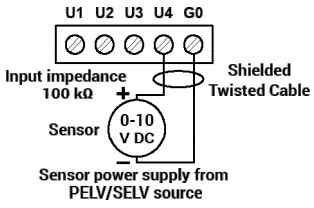


DIMENSIONS/TOP PANEL

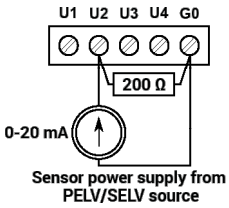


UNIVERSAL INPUTS

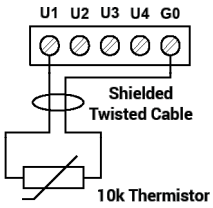
Voltage measurement



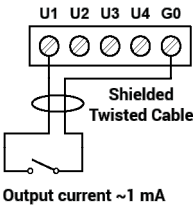
Current measurement



Temperature measurement

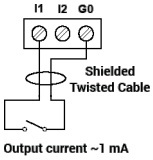


Dry contact



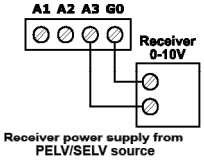
DIGITAL INPUTS

Dry contact

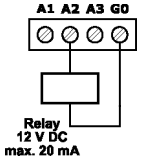


ANALOG OUTPUTS

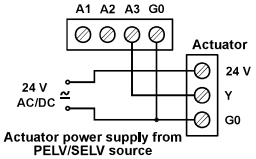
0-10 V output



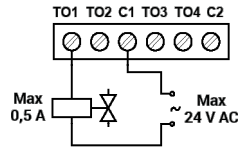
Connection of relay



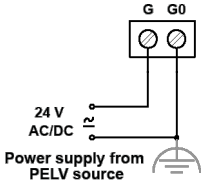
Connection of actuator



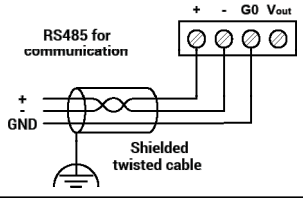
TRIAC OUTPUTS

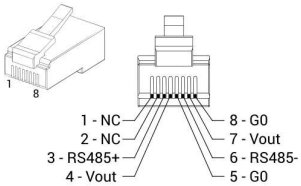


POWER SUPPLY



COMMUNICATION

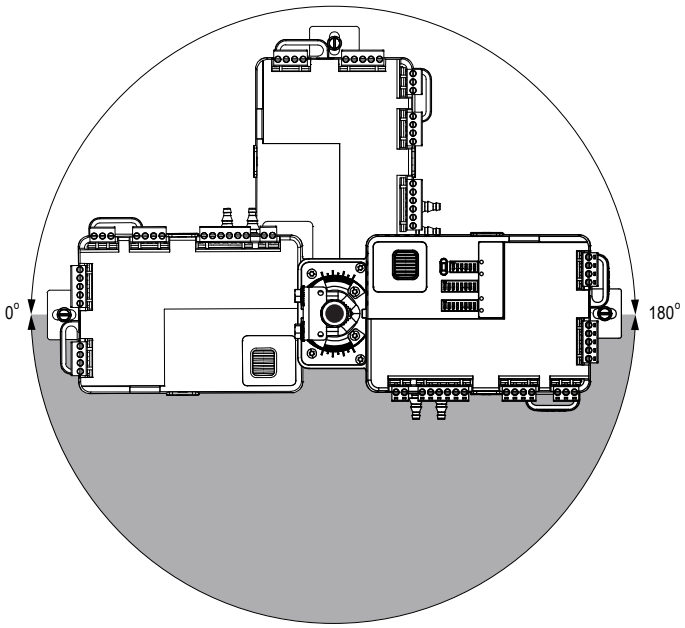




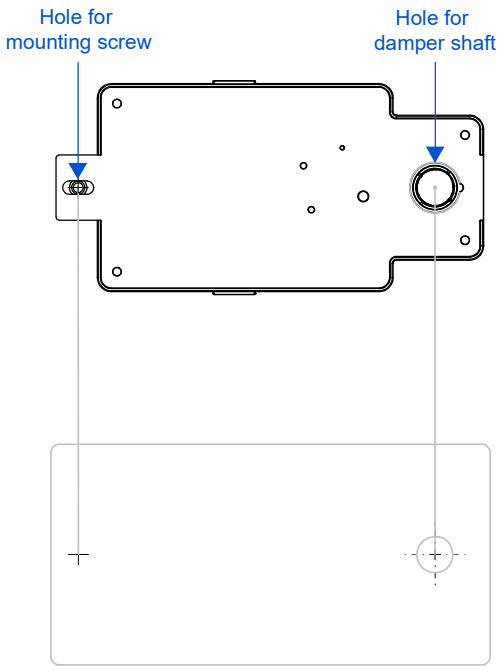
The performances stated in this sheet can be modified without any prior notice.

MOUNTING ORIENTATION

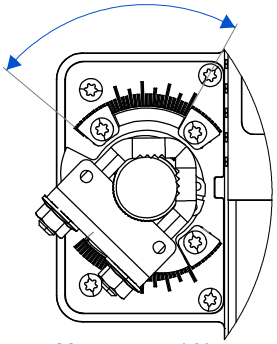
To prevent condensation that might occur on damper shaft and get into the controller's housing, VAV14-IP should be installed in any position above the damper shaft level (from 0 to 180 degree)



BACK VIEW



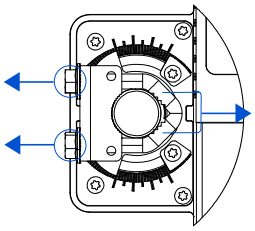
SCREW ADJUSTMENT RANGE AND TORQUE



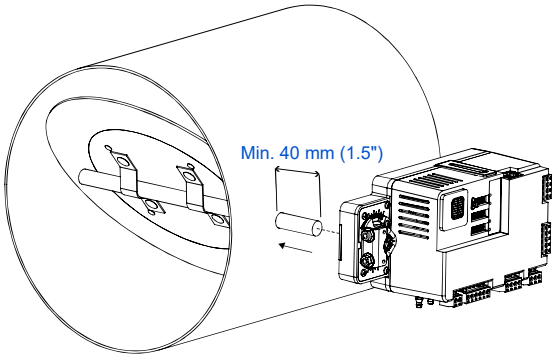
Max. torque 4 Nm

INSTALLATION

1. Loosen the U-bracket before mounting the controller onto the shaft

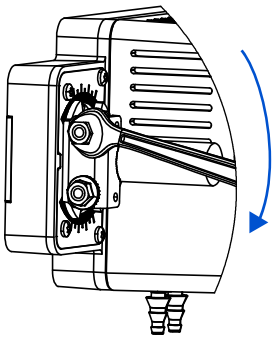


2. Mount the controller onto the damper shaft

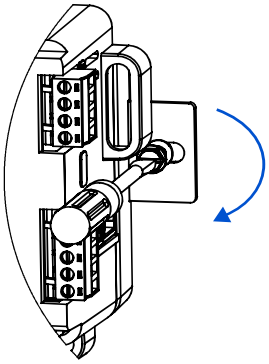


Minimum length required for a damper shaft is 40 mm/1.5 in

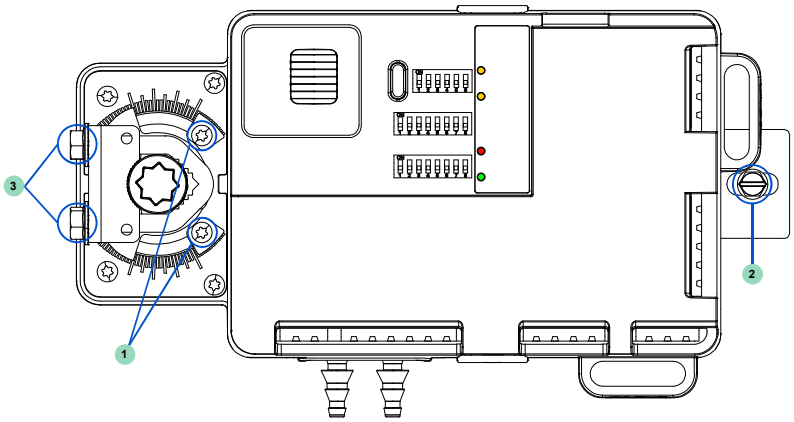
3. Tighten the U-bracket on the shaft



4. Tighten the mounting screw on the side opposite to the damper shaft

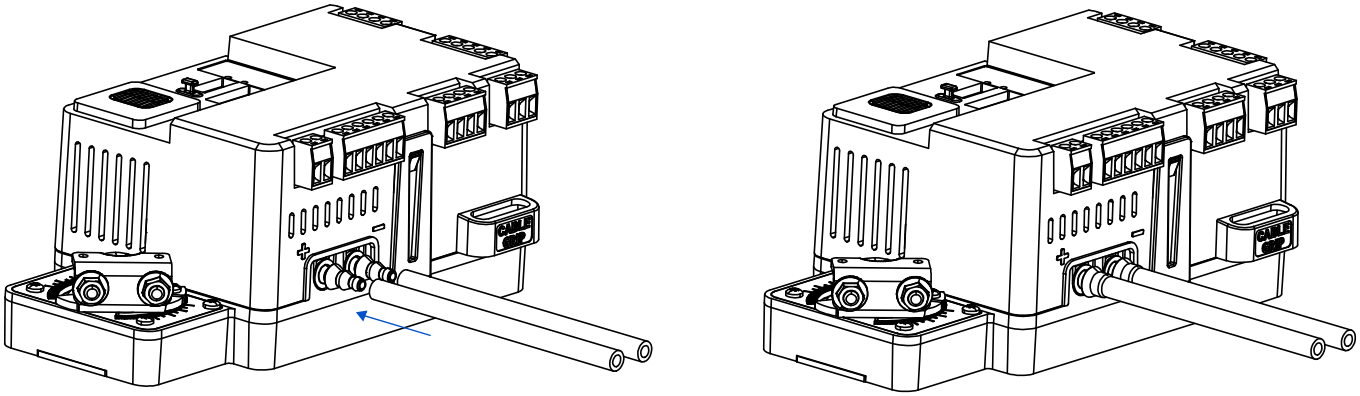


SCREWS



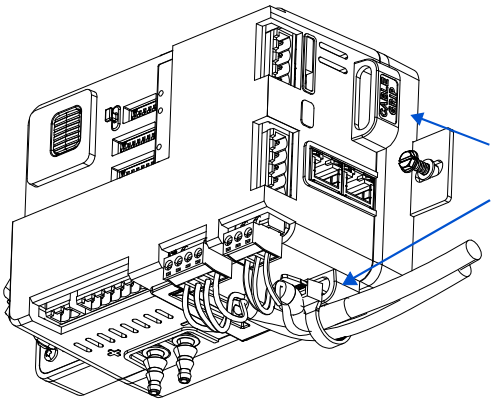
1 – screws for adjustable stops: torx screw M3x8 (2 pc)
2 – screw for VAV14-IP mounting: sheet-metal tapping screw fi 4.2 mm, L 13 mm
3 – M5 hexagon flange nut (2 pc)

PRESSURE HOSES



CABLE GRIPS

Cables can be tied by zips to cable grips for better cable menagement



BOX CONTENTS

Sheet-metal tapping screw (fi 4.2 mm L 13 mm), slotted hexagon head
Bearing bushes with flange fi 5 mm (inner) fi 6 mm (outer), L 35 mm
Pressure hose fi 7 mm (outer), L 1 m

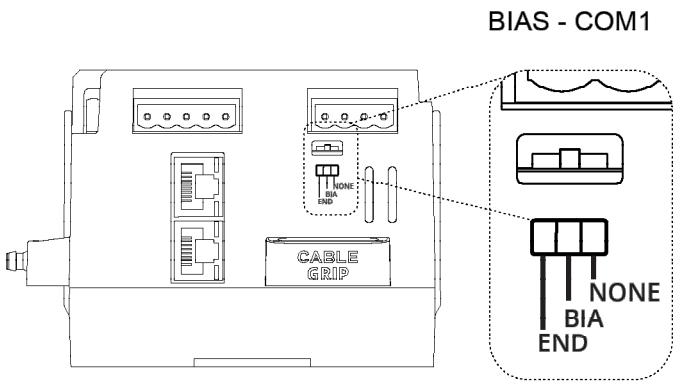
RS485 CONFIGURATION

In the VAV14-IP device, there is a built-in 3 position switch, which is dedicated to connect 120 Ω termination resistor and/or biasing resistors. It can be accessed on the side of the enclosure.

SWITCH POSITION	BIASING	TERMINATION 120 Ω
NONE	Off	Off
BIAS	On	Off
END	On	On

If the switch is in the END position, it connects the termination resistor 120 Ω and biasing resistors 680 Ω (pull-down to ground G0 and pull-up to +5 V DC) to the RS485 bus.

If the switch is in the BIA position, it connects the biasing resistors 680 Ω (pull-down to ground G0 and pull-up to +5 V DC) to the RS485 bus. The biasing is added to the RS485 bus in order to reduce communication failures.



FCC COMPLIANCE NOTE

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

SAFETY COMPLIANCE NOTE

- Improper wiring of the product can damage it and lead to other hazards. Make sure that the product has been correctly wired before turning the power on.
- Before wiring or removing/mounting the product, make sure to turn the power off. Failure to do so might cause an electric shock.
- Do not touch electrically charged parts such as power terminals. Doing so might cause an electric shock.
- Do not disassemble the product. Doing so might cause an electric shock or faulty operation.
- Use the product only within the operating ranges recommended in the specification (temperature, humidity, voltage, shock, mounting direction, atmosphere, etc.). Failure to do so might cause a fire or faulty operation.
- Firmly tighten the wires to the terminal. Failure to do so might cause a fire.
- Avoid installing the product in close proximity to high-power electrical devices and cables, inductive loads, and switching devices. Proximity of such objects may cause an uncontrolled interference, resulting in an unstable operation of the product.
- Proper arrangement of the power and signal cabling affects the operation of the entire control system. Avoid laying the power and signal wiring in parallel cable trays. It can cause interferences in monitored and control signals.
- It is recommended to power controllers/modules with AC/DC power suppliers. They provide better and more stable insulation for devices compared to AC/AC transformer systems, which transmit disturbances and transient phenomena like surges and bursts to devices. They also isolate products from inductive phenomena from other transformers and loads.
- Power supply systems for the product should be protected by external devices limiting overvoltage and effects of lightning discharges.
- Avoid powering the product and its controlled/monitored devices, especially high power and inductive loads, from a single power source. Powering devices from a single power source causes a risk of introducing disturbances from the loads to the control devices.
- If an AC/AC transformer is used to supply control devices, it is strongly recommended to use a maximum 100 VA Class 2 transformer to avoid unwanted inductive effects, which are dangerous for devices.
- Long monitoring and control lines may cause loops in connection with the shared power supply, causing disturbances in the operation of devices, including external communication. It is recommended to use galvanic separators.
- To protect signal and communication lines against external electromagnetic interferences, use properly grounded shielded cables and ferrite beads.
- Switching the digital output relays of large (exceeding specification) inductive loads can cause interference pulses to the electronics installed inside the product. Therefore, it is recommended to use external relays/contactors, etc. to switch such loads. The use of controllers with triac outputs also limits similar overvoltage phenomena.
- Many cases of disturbances and overvoltage in control systems are generated by switched, inductive loads supplied by alternating mains voltage (AC 120/230 V). If they do not have appropriate built-in noise reduction circuits, it is recommended to use external circuits such as snubbers, varistors, or protection diodes to limit these effects.

INSTALLATION GUIDELINES


Please read the instruction before use or operating the device. In case of any questions after reading this document, please contact the iSMA CONTROLLI Support Team (support@ismacontrolli.com).


• Before wiring or removing/mounting the product, make sure to turn the power off. Failure to do so might cause an electric shock.
• Improper wiring of the product can damage it and lead to other hazards. Make sure that the product has been correctly wired before turning the power on.
• Do not touch electrically charged parts such as power terminals. Doing so might cause an electric shock.

• Do not disassemble the product. Doing so might cause an electric shock or faulty operation.


• Use the product only within the operating ranges recommended in the specification (temperature, humidity, voltage, shock, mounting direction, atmosphere, etc.). Failure to do so might cause a fire or faulty operation.
• Firmly tighten the wires to the terminal. Failure to do so might cause a fire.

• Avoid installing the product in close proximity to high-power electrical devices and cables, inductive loads, and switching devices. Proximity of such objects may cause an uncontrolled interference, resulting in an instable operation of the product.
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• Power supply systems for the product should be protected by external devices limiting overvoltage and effects of lightning discharges.
• Avoid powering the product and its controlled/monitored devices, especially high power and inductive loads, from a single power source. Powering devices from a single power source causes a risk of introducing disturbances from the loads to the control devices.
• If an AC/AC transformer is used to supply control devices, it is strongly recommended to use a maximum 100 VA Class 2 transformer to avoid unwanted inductive effects, which are dangerous for devices.
• Long monitoring and control lines may cause loops in connection with the shared power supply, causing disturbances in the operation of devices, including external communication. It is recommended to use galvanic separators.
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Electrical installation of this product must be done in accordance with national wiring codes and conform to local regulations.

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