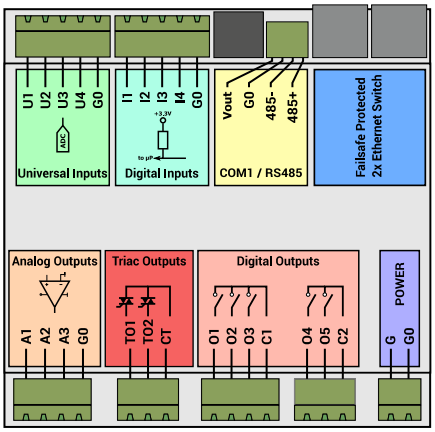
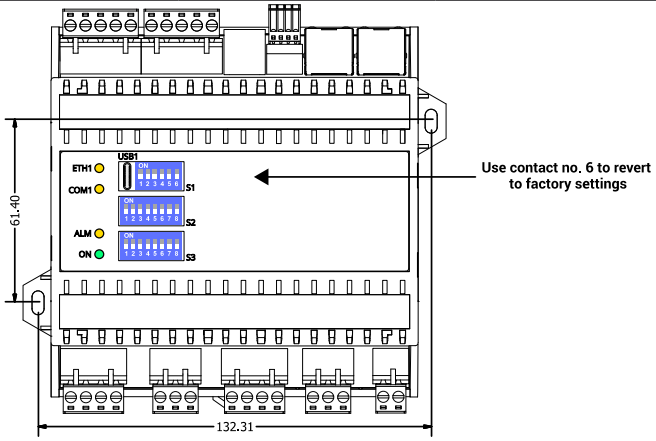
RAC18-IP

SPECIFICATION		
Power supply	DC: 24 V ± 20%, 10 W; AC: 24 V ± 20%, 23 VA	
Vout	Max. 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	4 dry contact inputs, high-speed pulse counter up to 100 Hz	
Digital outputs	5 relay outputs	Max. ratings
	Resistive load (AC1)	3 A at 230 V AC, 3 A at 30 V DC
	Inductive load (AC3)	75 VA at 230 V AC, 30 W at 30 V DC
Analog outputs	3 0-10 V DC outputs, maximum load up to 20 mA per channel	
Triac outputs	2 0.5 A outputs; maximum voltage up to 230 V AC	
Interfaces	2 ports, 10/100 Mb/s Ethernet switch with fail-safe protection; RS485; 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, screwless max 1.5 mm² (24 ... 16 AWG), RJ45 Other connectors: separable max 2.5 mm² (18 ... 12 AWG)	
Dimensions	123.3 x 136.6 x 54.5 mm (4.85 x 5.38 x 2.15 in)	
Mounting	DIN rail mounting (DIN EN 50022 norm)	
Housing material	Plastic, self-extinguishing PC/ABS	

BLOCK DIAGRAM

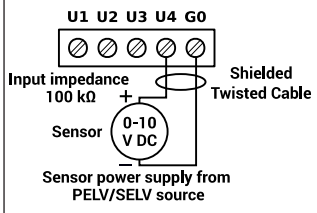


DIMENSIONS/TOP PANEL

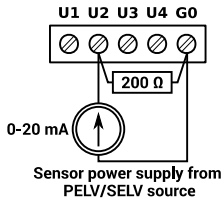


UNIVERSAL INPUTS

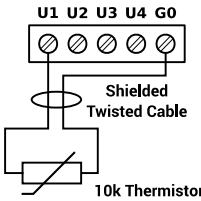
Voltage measurement



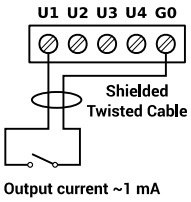
Current measurement



Temperature measurement

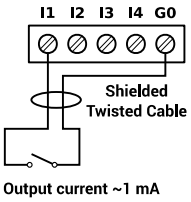


Dry contact



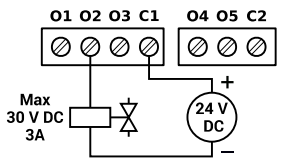
DIGITAL INPUTS

Dry contact

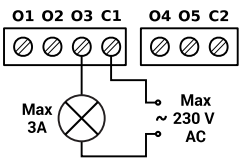


DIGITAL OUTPUTS

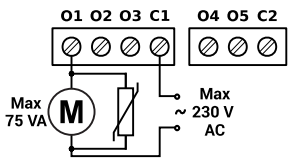
Connection of electrovalve



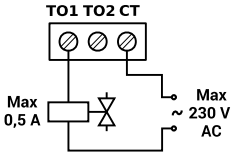
Connection of resistive load



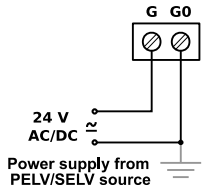
Connection of inductive load



TRIAC OUTPUTS

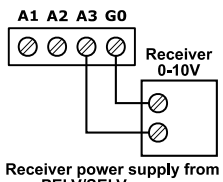


POWER SUPPLY

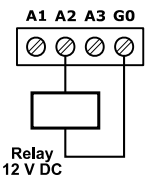


ANALOG OUTPUTS

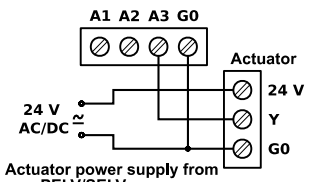
0-10 V output



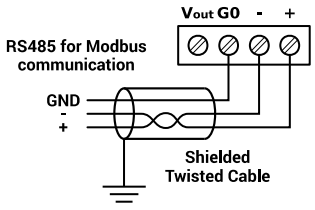
Connection of relay



Connection of actuator



COMMUNICATION

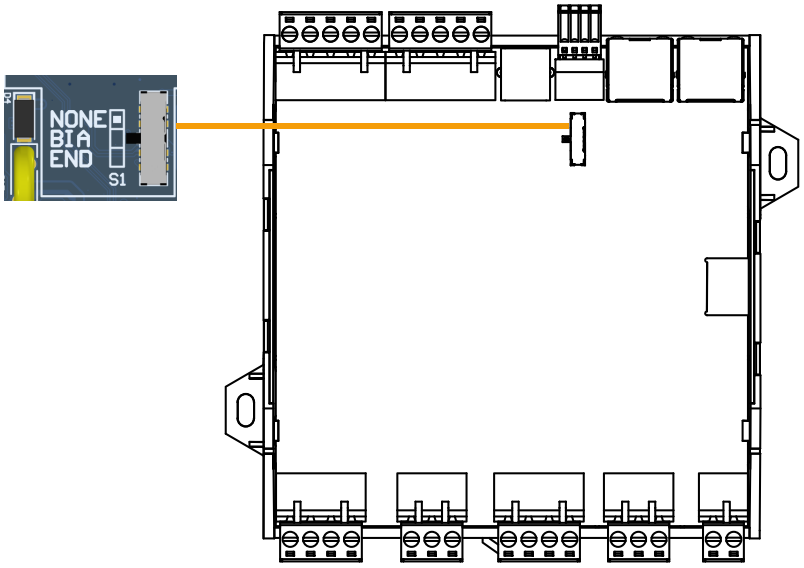


The performances stated in this sheet can be modified without any prior notice.

RS485 CONFIGURATION

In the RAC18-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 by removing the top part of enclosure.

SWITCH POSITION	BIASING	TERMINATION 120 Ω
1 (NONE) - default	OFF	OFF
2 (BIA)	ON	OFF
3 (END)	ON	ON



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

UL listed for U.S. and Canada according to UL 60730-1 and CAN/CSA E 60730-1

UL compliant ratings:

- Power supply: 24 V DC, 10 W or 24 V AC 23 VA, provided by PELV/Class2 power source;
- Relay outputs: 240 V AC, 50/60 Hz, 3 A, 30k cycles, General Purpose Load;
- Relay outputs: 30 V DC, 3 A, 6k cycles, SELV/PELV/Class 2, General Purpose Load;
- Triac outputs: 240 V AC, 50/60 Hz, 0,5 A, General Purpose Load;
- Triac outputs: 24 V AC, 50/60 Hz, 0,5 A, SELV/PELV/Class 2, General Purpose Load;
- Analog outputs A1, A2, A3: 0-10 V DC, 20 mA, PELV/Class 2, P<15 W, resistive load;
- Analog outputs Vout: PELV/Class 2, P<15 W, resistive load;
  - 23 V DC, 5 W for 24 V DC power supply input,
  - 33 V DC, 5 W for 24 V AC power supply input;
- Temperature operating range: 0°C to +40°C (32°F to 104°F);
- Temperature storage range: -40°C to +60°C (-40°F to +140°F).

UL compliant notes:

- Degree of protection provided by enclosure: open type;
- Purpose of control: operating control;
- Construction of control: independently mounted control;
- Type of action: type 1.C action;
- Method of mounting control: panel mounting control;
- Pollution degree: 2;
- Impulse voltage: 500 V power supply, 2500 V relay/triac outputs;
- Relay outputs O4, O5 share the same power source;
- Relay outputs O1, O2, O3 share the same power source;
- Different power sources can be used for O1, O2, O3 and O4, O5 relay outputs;
- For every section of digital/triac outputs: CT-TO1, TO2; C1-O1, O2, O3; C2-O4, O5 only one output can be loaded simultaneously at the same time;
- RAC18-IP must be supplied by a PELV power source. Functional earth must be connected G0 terminal;
- RAC18-IP is declared and rated as an open type equipment. Therefore, special precautions must be taken during installation and maintenance in the end use application;
- For screw terminals solid or stranded wire are allowed with minimum required torque value is 5 pound inch;
- The maximum length of cables connected directly to terminals of the product is 10 m (power supply lines, input/output and communication lines).

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.
• 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.

Electrical installation of this product must be done in accordance with national wiring codes and conform to local regulations.