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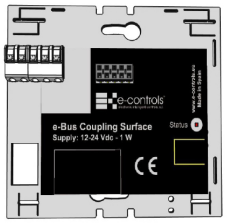
e-Bus Coupling Surface Modbus

Instructions sheet

EN

INS20215060000

Coupling unit with Modbus RTU communication for AirQualy sensor
Product reference: BC.470002-031



e-Bus Coupling Surface Modbus is an AirQualy sensor mounting frame that includes a Modbus RTU (RS-485) communication bus to communicate with a BMS system and provide information from the AirQualy device sensors. The equipment is configured through Modbus or also by means of the E-Configurator APP through the AirQualy equipment, always being synchronized regardless of how it is configured.

The equipment is connected to the electrical network through a power supply and provides the necessary voltage and current for the operation of the AirQualy sensor.

Product description

The ***e-Bus Coupling Surface Modbus*** equipment is responsible for providing the necessary power to the AirQualy sensor for its operation. This product model has a Modbus communications bus through which it is possible to configure all the equipment, read the values of all the sensors through output registers and work on the equipment through input registers. The equipment includes a Proportional Integral (PI) control system to carry out direct control over an output module and work on an air renewal damper or an air conditioning system. To this end, the equipment has registers to configure the control setpoints and adjust the PI control algorithm with the Kp and ti parameters.

Through the configuration registers it is possible to define the switching ranges of the led indicators for each sensor, configure the PI control setpoints of each sensor and enable or disable the led indicators in the model that includes visual signaling.

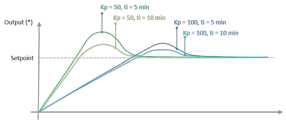
Through the output registers it is possible to read the value of the instantaneous measurement, the filtered measurement and the maximum and minimum values of each sensor.

In the model with led indicators it is also possible to turn off the indicators through the communication bus.

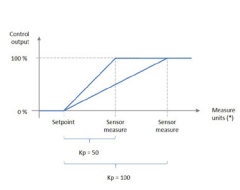
The equipment is powered by a power supply connected to the electrical network.

The following graphs show the operation of the PI control:

Response register output outPI_control



Kp transfer graph



Led indicator of operation

The equipment includes a LED indicator on the front called Status that has the following statuses:

- Start up: Led ON 0,1 sec ; Led OFF 0,1 sec during 5 sec.
- Normal operation: When the equipment is powered, it turns ON and after a few seconds it goes OFF.
- Air Qualy disconnected: The LED briefly flashes every two seconds.
- Configuration fault: This fault occurs if the AirQualy front panel has been configured with a different frame than the one it was connected to. In this case the LED flashes every seconds.
- AirQualy internal fault: The LED lights up for more than 6 seconds.
- Software download: The LED lights up fast.

Equipment setup

This product model can be configured through the Modbus communication por or laos through the AirQualy front, using the E-Configurator APP. When creating the project in the APP, select this product model. When the project opens, click on the device bar and select the coupling unit to modify its configuration parameters. Upload the entire project to the AirQualy for operation.

Installing the product

The unit is designed to mount directly on the surface, fixing by means of 2 screws to the holes in the equipment. The AirQualy front frame acts as a product box, being protected once it is fully installed.

The connection cables to the equipment must not have a section greater than 0.5mm^2.

Installation process:

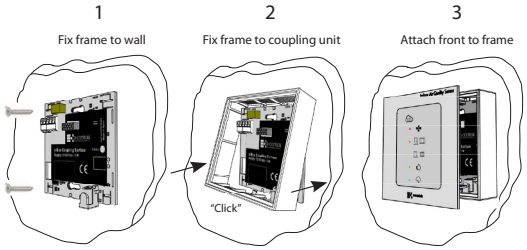
1. Pass the power supply and output cables through the hole in the coupling unit (see installation diagram).
2. Fix the e-Bus Coupling Surface device to the wall.
3. Fix the frame to the coupling unit fixing it on the upper part and pressing lightly on lower part until you hear a "click".
4. Insert the AirQualy sensor centred on the frame, previously inserting the label supplied with the sensor, in the front of the equipment.
5. Power the equipment and wait 5 minutes to obtain a correct measurement.

Precautions:

- Disconnect the device from the supply voltage before mounting or moving the equipment.
- Do not leave bare or wrapped cables around the equipment.
- Do not connect the device with wet hands.
- Do not open or pierce the product.
- Keep the device and cables away from moisture and dust.
- Do not expose the equipment to direct solar radiation.
- Use the equipment in pollution-free environments and in atmospheric pressure environments within the permitted levels.
- Avoid sudden blows on the equipment.
- Keep the equipment's ventilation windows clean using a cloth or with pressurised air.
- Power the equipment with the recommended power source and always with a very low voltage isolated power source.

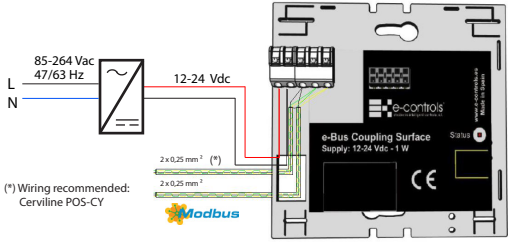
Installing the product

Installation process:



Product disassembly:

Installation diagram



Technical specifications

Power supply
- Operating voltage . . . 12-24Vdc
- Maximum consumption . . . 1 W
- Internal connector . . . .Terminal type
- NOTE: Use a FA-15W-24V power supply or equivalent

Communications
- Interface . . . RS-485
- Terminals . . . A-, B+, GND
- Protocol . . . Modbus RTU
- Configurable transmission speed . . . .1200 to 115200 Baud
- Modbus configuration . . . 8E1, 8O1, 8N1, 8N2

Mechanical characteristics
- Dimensions . . . 78x78x15mm
- Installation type . . . Surface area
- Weight . . . 60 g.
- Connection terminals . . . .Terminal type
- Cable section . . . Maximum 0.50 mm^2

Working temperature
- Operation . . . -10 ºC to + 50 ºC (14 ºF to 122 ºF)
- Storage . . . -20 ºC to +85 ºC (14 ºF to 185 ºF)

Humidity (non-condensing)
- Operation . . . 10% to 90% RH at 50ºC
- Storage. . . . 95% RH at 50ºC

Product family standards
- Automatic electrical control devices for household and similar use . . . EN 60730-1

Conformidad CE
- Mark . . . CE

Safety
- Standard . . . EN 60730-1
- IEC protection . . . Class III

EMC
- Emissions . . . EN 61000-6-3
- Inmunity . . . EN 61000-6-1

Purchase reference

e-Bus Coupling Surface Modbus, Coupling with Modbus RTU communication for AirQualy mounting BC.470002-031

Related items

DIN rail power supply, Input voltage 85-264 Vac, 47/63 Hz, Output 24 Vdc. . . . FA-15W-24V
Desktop mounting box, white plastic box for mounting the AirQualy sensor on desktop . . . AC.000040-000

The packaging of this product is considered an industrial container, with the recipient being a profesional.
The manufacturer is not responsable for the incorrect use or installation of the product.
Read this document before installing the product. Document subject to changes without prior notice.

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