ModBus temperature and humidity sensor

STA6xM

MODEL	DESCRIPTION
STA60M	24Vac/Vdc ModBus temperature sensor
STA61M	24Vac/Vdc ModBus temperature and humidity sensor
STA60M-2	230Vac ModBus temperature sensor
STA61M-2	230Vac ModBus temperature and humidity sensor
STA60MP	24Vac/Vdc Modbus temperature sensor, flush mounting
STA61MP	24Vac/Vdc Modbus temperature and humidity sensor, flush mounting
STA60MP-2	230Vac Modbus temperature sensor, flush mounting
STA61MP-2	230Vac Modbus temperature and humidity sensor, flush mounting

APPLICATION AND USE

STA6xM is a room terminal that allows the user to control temperature and humidity in residential environments. It communicates through the ModBus protocol and can be connected to programmable controllers, properly setted, can operate on that network as master devices. Depending on the model, the terminal is fitted with a temperature probe or temperature and humidity probe, and power supply may be 230Vac or 24Vac/Vdc. There are models flush mounting or wall mounting, all compatible with 503E electrical box.

TECHNICAL CHARACTERISTICS

Power supply: STA6xM/STA6xMP: 24Vac (+10/-15%), 22-35Vdc; STA6xM-2/ STA6xMP-2: 230Vac (+10/-15%) 50/60Hz;
Maximum current: 2VA;
Temperature:
- operation: -10T60°C, 10-90% U.R. non condensing;
- storage: -20T70°C, 10-90% U.R. non condensing;
Environmental pollution: 2;
PTI of insulating materials: PCB: da 175 a 249; insulation material: PTI 275;
Software class and structure: A;
Case protection degree: IP20;
Heat and fire resistance: D category;
Classification according to protection against electric shock: to be integrated into class 1 or 2 appliances;
Period of electrical stress across the insulating parts: long;
Immunity against voltage surges: category II;
Precision of temperature measurement: range 0T40°C: ±1°C; over: ±1.5°C
Precision of humidity measurement: range 0T60°C, 20-80% rH: ±5% rH
Connections:
- 485 serial: AWG 20-22, shielded cable Lmax=500m;
- power supply: wires cross-section: 0,5mm²-1,5mm²;

KEYPAD AND OPERATION

The meaning of buttons and displays may vary according to the control connected to the terminal. Below there is a description of the common settings. If "CN" is shown on the display, it means there is no communication with the electronic controller the terminal is connected to. On power-up, the terminal normally shows "CN" for around 30s, until communication is established.
If "Init" is shown at the bottom, the terminal is being initialised by the master controller. If this process lasts more than 10 minutes it means there are communication problems.

Key	Desc.	Function
mode	mode	Select operation mode: press until the desired operation mode is displayed;
	FAN	Select fan speed: press to select the desired speed (min, med, max) or automatic (Auto);
	CLOCK	Press briefly: enable/disable the time bands. When time bands are enabled the icon comes on. Press and hold (3s): access to the menu for clock/time bands settings. Use the knob to select the following options: CLOCK: set current date/time: the time will start flashing. Turn the knob to select and press to confirm; TIMEBAND: time band setting. For each time band (max. 6) press to set the starting time and the corresponding temperature set point. The related icon will be shown on the side, depending on the status (day/night) and whether or not the home is occupied. Select ESC to exit the procedure and return to the standard display. ESC: to exit After a 10s timeout the sensor automatically returns to the main menu.
	POWER	Controlled device On/Off ; in some menus pressing the button briefly is the same as choosing ESC.
PUSH	Knob	Turn the knob to set the value and press to confirm.

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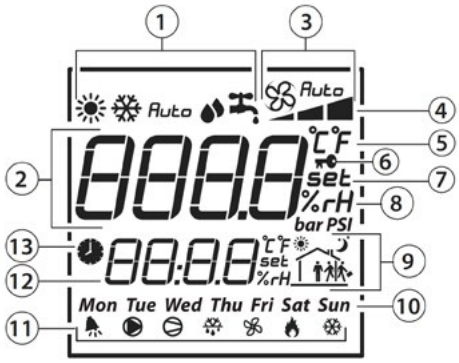
Accessing the special menu: MODE + CLOCK for 3s to access the alarms menu, active only if the icon is on. The alarms displayed depend on the electronic controller connected to the terminal. To access the parameters menu, press FAN and POWER together for 3s. Different passwords can be entered to access different menus.
Psw 22 accesses to the terminal parameters menu, which includes "ADDR" for setting the serial address:

- "Baud" for setting the baud rate ("0"= 4800bps, "1"= 9600bps, "2"= 19200bps);
- "Pcal" for calibrating the probe.

Display legend

1	Operation mode
2	Main field
3	Manual/automatic fan speed mode
4	Fan speed indicator
5	Temperature unit of measurement
6	Function locked
7	Set point
8	Relative humidity
9	Current time band
10	Day of the week
11	Actuator on
12	Secondary field
13	Time bands on



INSTALLATION AND MOUNTING

STA6xM / STA6xM-2

1. separate the front from the rear of the terminal using a screwdriver (Fig. 1);
2. disconnect the 4-pin connector from the front part (Fig. 2);
3. to remove cover A1, unscrew screw A2 and press the point of attachment (Fig. 3); access terminal block A3 (Fig. 4)
4. drill the holes in the wall (dia. 5 mm); then insert the plugs and screws supplied, making sure that the electrical wires pass through hole E (Fig. 5);
5. make the electrical connections:
   - for the 24Vac/Vdc models see Fig. 6; make sure the polarity (24V, GND) is correct for direct current power supply;
   - for the 230 Vac models see Fig. 7.
6. close cover A1, completing the same operations as described above in reverse;
7. plug the 4-pin connector back in (Fig. 8);
8. finally replace the terminal, starting with the bottom tabs and applying a hinge movement. Make sure that the electrical wires are inside to ensure correct fastening (click on).

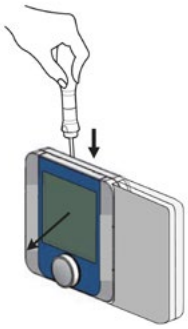


Fig. 2

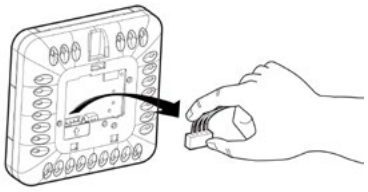


Fig. 1

9.

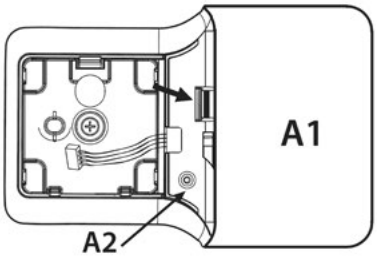


Fig. 3

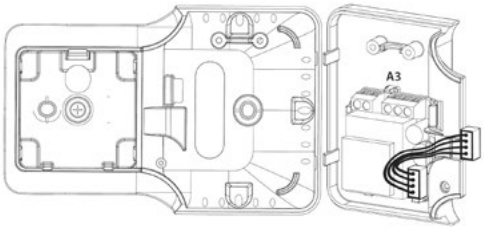


Fig. 4

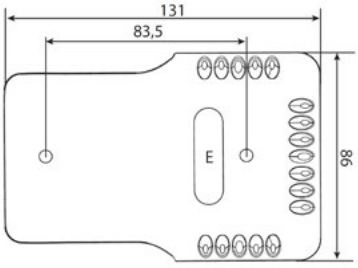


Fig. 5

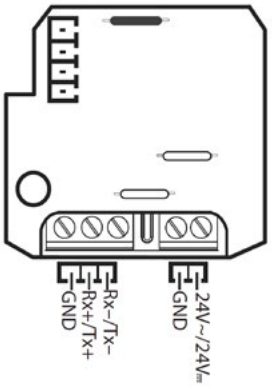


Fig 6

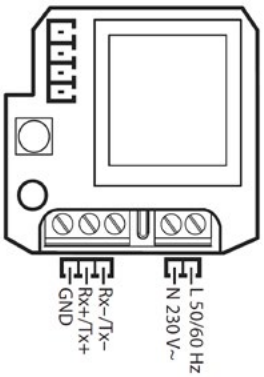


Fig. 7

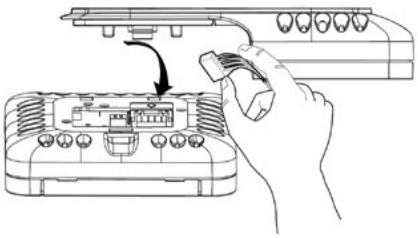


Fig. 8

STA6xMP / STA6xMP-2

To fi t the rear part of the terminal use a fl ush mount box with a min. diameter of 65 mm and a minimum depth of 31 mm.

1. detach the front from the rear of the terminal using a screwdriver (Fig. 1p);
2. disconnect the 4-pin connector from the front part (Fig. 2p);
3. make the electrical connections:
   - for 230 models Vac see Fig. 4p;
   - for 24 Vac/24 Vdc models see Fig. 3p; make sure the polarity(24 V , GND) is right for direct current power supply;
4. fasten the rear to the flush mount box using the 2 screws supplied as shown in Fig. 6p and 7p;
5. plug the 4-pin connector back in;
6. finally reposition the terminal, starting from the bottom tabs using a hinge movement. Make sure that the electrical wires are in position to ensure the terminal clicks into place.

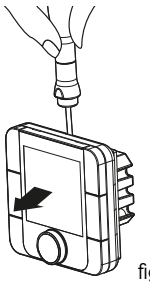


fig. 1p

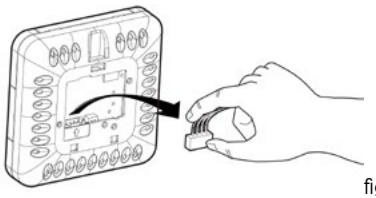
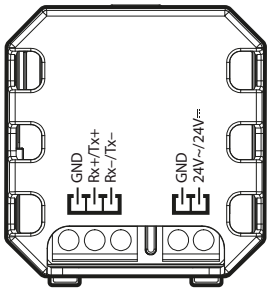


fig. 2p

24 Vac/dc



230 Vac

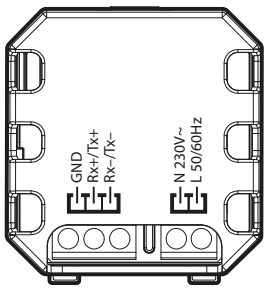


fig. 3p

fig. 4p

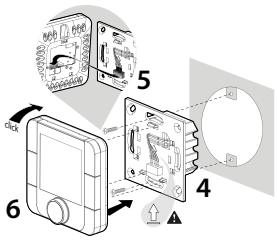


fig.6p

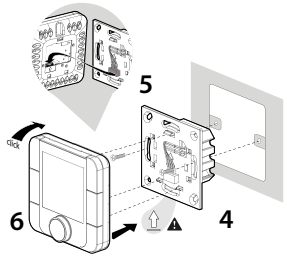


fig. 7p

7.

Installation warnings

- Before performing any operations on the terminal, disconnect the power supply from the device by switching the main switch on the electrical panel OFF. Then remove the front part of the terminal from the rear to make the electrical connections;
- for the 24Vac version use a class 2 power transformer with minimum rating of 2VA;
- if the transformer used for the terminal is the same for the controllers connected to the serial line, the power supply GND terminal on STA6xM must be connected to the controller power supply GND line;
- if a power terminal on the 24Vac/Vdc version needs to be earthed, use the GND terminal, both for STA6xM and the other powered devices;
- when STA6xM has a DC power supply, the controllers connected to the serial line must also have a DC power supply. If the controllers connected to the serial line have not DC power supply, then STA6xM cannot use the DC power supply;
- for the serial connection use three-wire shielded cable, AWG 20-22. The length of the network must not exceed 500m. For extended networks fi t a 120 Ohm resistor between RX/TX+ and RX/TX- on the first and last device, to avoid possible communication problems.

General notes

Avoid installing the devices in environments with the following characteristics:

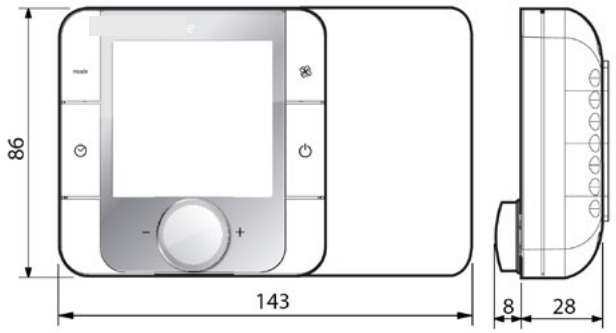
- relative humidity greater than the value specified;
- strong vibrations or knocks;
- exposure to water sprays;
- exposure to aggressive and polluting atmospheres(e.g.: sulphur and ammonia fumes, saline mist, smoke) so as to avoid corrosion and/or oxidation;
- strong magnetic and/or radio frequency interference (for example, near transmitting antennae);
- exposure to direct sunlight or the elements in general;
- large and rapid fl uctuations in the room temperature;
- environments where explosives or mixes of fl ammable gases are present;
- exposure to dust (formation of corrosive patina with possible oxidation and reduction of insulation).

Disassembly

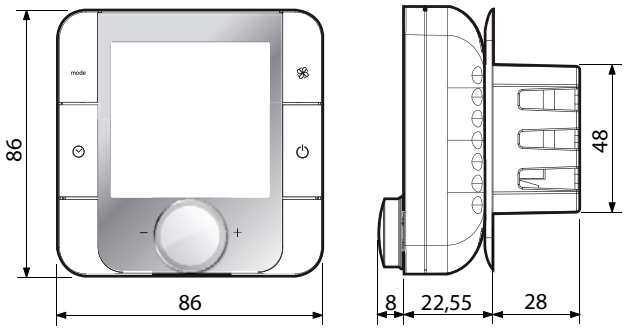
Insert a screwdriver into the clot at the top (Fig. 1) and press downwards to detach the display.

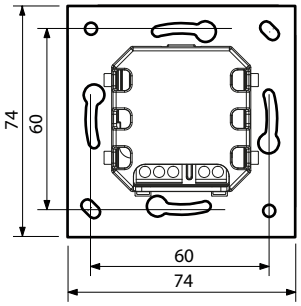
DIMENSIONS [mm]

STA6xM / STA6xM-2



STA6xMP / STA6xMP-2





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