



RT-607Ri plus

DIGITAL THERMOSTAT WITH EVENT SCHEDULE

Ver.01



RT607V01-09T-10790

1. DESCRIPTION

Digital temperature controller and display conjugated to a time programmer with up to four daily events, all with adjustable start and end. Its internal quartz synchronizer clock remains accurate for more than 60 years, even at frequent and often long power shortages.

Through serial output, the RS-485 allows communication with SITRAD® software, which makes its configuration simple and fast.

Product complies with UL Inc. (United States and Canada).

2. APPLICATION

- Defreeze at set times
- Air-conditioning
- Water heaters
- Counters with static coil

3. TECHNICAL SPECIFICATIONS

- Power supply: RT-607Ri plus - 115 or 230Vac ± 10% (50/60Hz)

RT-607RiL plus - 12 or 24 Vac/dc

- Control temperature: -50 to 105°C

-58 to 221°F

- Resolution: 0.1°C between -10 e 100°C and 1°C in the rest of the range

1°F between -58 and 221°F

- Dimensions: 71 x 28 x 71 mm

- Operating temperature: 0 to 60°C / 32 to 140°F

- Operating humidity: 10 to 90% RH (without condensation)

- Sensors: S1- Thermostat sensor (black)

- Control outputs:

THERM - Thermostat control output - 10A/240Vac 1/4HP

EVENT - Event schedule activation output - 10A/240Vac 1/4HP

4. CONFIGURATIONS

4.1 - Control temperature setting (SETPOINT)

Press **SET** for 2 seconds until **SEL** appears, and then release the key. The set working temperature will appear. Use the **▼** and **▲** keys in order to change the value and, when ready, press **SET** to record.

4.2 - To enter into the functions menu

Press **▼** and **▲** simultaneously for two seconds until it **SEL** appears, then releasing it. When **Cod** appears, press **SET** (short hit) and enter the code (123) through keys **▼** and **▲**. To confirm, press the key **SET**. Through keys **▼** and **▲** access the other functions and proceed in the same manner to adjust them.

To leave and return to normal operations, press **SET** (long hit) until **---** appears.

4.3 - Functions

- Cod** Access code entry
- Fun** Advanced configuration functions
- Mod** Events planner operating mode
- Pro** Scheduling in the events planner
- CLo** Adjustment of the clock and the day of the week

4.4 - Parameters table

| Fun | Description | CELSIUS | | | | FAHRENHEIT | | | |
|------------|-------------------------------------------------|------------|------------|------|------------|------------|------------|------|------------|
| | | Min | Max | Unit | Standard | Min | Max | Unit | Standard |
| dIF | Temperature control differential (hysteresis) | 0.1 | 20.0 | °C | 1.0 | 1 | 36 | °F | 2 |
| OFF | Indication Offset | -5.0 | 5.0 | °C | 0 | -9 | 9 | °F | 0 |
| Lo | Minimum limit of adjustable temperature | -50.0 | 105.0 | °C | -50.0 | -58 | 221 | °F | -58 |
| Hi | Maximum limit of adjustable temperature | -50.0 | 105.0 | °C | 105.0 | -58 | 221 | °F | 221 |
| OPr | Operation mode for the thermostat | CoL | HoL | - | CoL | CoL | HoL | - | CoL |
| dEL | Minimum time of off thermostat output | 0 | 999 | sec. | 0 | 0 | 999 | sec. | 0 |
| REC | Hitch thermostat to event schedule | 0-no | 1-yes | - | 0-no | 0-no | 1-yes | - | 0-no |
| ETn | Manual activation time for events output | 0 | 999 | min. | 0 | 0 | 999 | min. | 0 |
| Adr | Address of the instrument on the network RS-485 | 1 | 247 | - | 1 | 1 | 247 | - | 1 |

4.4.1 - Parameters description

dIF Temperature control differential (hysteresis)

It is the temperature difference (hysteresis) between turning the refrigeration or heating ON and OFF.

Example: When you wish to control the temperature at 4.0 °C with a 1.0 °C differential. In the case of refrigeration, it shall be turned off at 4.0°C and turned on again at 5°C

In the case of heating, it shall be turned off at 4°C and turned on again at 3°C

OFF Indication Offset

Permits to compensate for any possible deviations in the reading of the room temperature (S1), resulting from the sensor replacement or change in the cable length.

Lo and **Hi** Minimum and Maximum limits of adjustable temperature

Limits whose purpose is to avoid that, by mistake, the temperatures are exaggeratedly set too high or too low with relation to the setpoint.

OPr Operation mode for the thermostat

This function allows setting the thermostat operation mode:

CoL Refrigeration

HoL Heating

dEL Minimum time of off thermostat output

Minimum time during which the thermostat output shall remain off before being reactivated. This field is also used as activation delay when the controller is turned on.

REC Hitch thermostat to event schedule

This option allows linking the thermostat output operation (THERM) to the event schedule. If option 0 (no) is selected, the thermostat output shall be controlled by the temperature alone.

In the case of option 1, the thermostat option shall be controlled by the temperature and may only be activated in a valid event in the event schedule.

ETn Manual activation time for events output

Time that output events is active when it is activated manually. Once this period of time is over, the output events returns to function automatically.

Adr Address of the instrument on the network RS-485

Address of the instrument in the network for the communication with the SITRAD® software. Remarks: in a single network, there cannot be more than one instrument with the same address.

4.4.2 - Events schedule operating mode

In this option, you can choose how the events schedule will operate.

1b1 Weekly programming - In this mode, the instrument can configure up to four events for every day of the week

2E6 Programming for business days - In this mode, the instrument keeps the events the same for business days (Monday through Friday), and allows the programming of different events for Saturday and Sunday.

1E7 Daily programming - In this mode, the instrument keeps the events the same for all of the days of the week.

4.4.3 - Programming of the events schedule

In this option, you can enter the values for the time periods for each event. The entry of the data depends on the operating mode configured. You can configure up to four events for each day. For each event you configure the start time and the end time through options **On1** **OF1** until **On4** **OF4** where:

On1 Start time for the first event

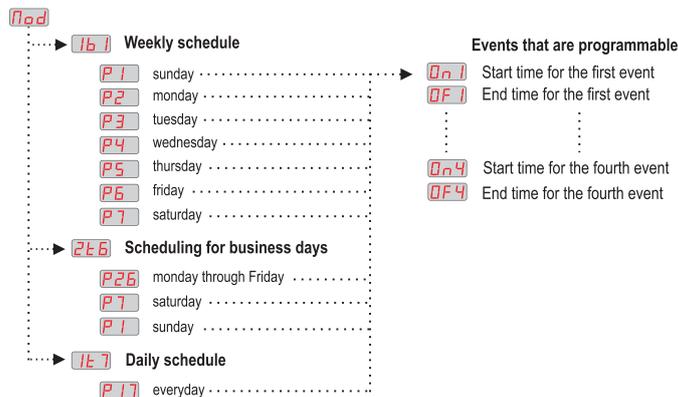
OF1 End time for the first event

⋮

On4 Start time for the fourth event

OF4 End time for the fourth event

If you do not need to use the four events, you can configure it to be deactivated, and all you have to do is increase the off time (**OF**) for example) until the **OFF** indication appears. It is also possible to configure an event to overlap at midnight, and for that you should increase the off time until the option **Crco** appears and adjust an event for the next day to start at 00h and 00min. According to the operating mode configured, the following scheduling possibilities may be presented.



4.4.4 - Adjustment of the current time and day of the week

After entering the function menu, press key **▲** repeatedly until the message **CLo** appears Hit key **SET**. The settings will appear in the following order:

HOURS → MINUTES → DAY OF THE WEEK

Ex.: 12h43min - Friday

12h Hours

43 Minutes

5 Day Of The Week

5. FUNCTIONS WHIT FACILITATED ACCESS

5.1 - Visualize the current time

Quickly pressing the key **SET**, you can visualize the time set in the controller, the current time will be shown, followed by the minutes and then the day of the week.

Ex.: 12h43min - Friday

12h Hours

43 Minutes

5 Day Of The Week

5.2 - View maximum and minimum temperature

By pressing key **▲** one can view the minimum and maximum thermostat temperature. On pressing key **▲** (short touch), the minimum temperature shall be displayed, followed by the maximum temperature. If the key **▲** remains pressed in, the values will be reinitialized and the message **F5E** will be shown in the display.

5.3 - Manual activation of the output events

Pressing the **▲** key for 10 seconds, manually activate the output events. It will be deactivated after the time adjusted in the function elapses **EET**. If the **▲** key is pressed again for 10 seconds, the manual drive will be disabled and the event output will work on an automatic way once more. To deactivate the manual activation, all you have to do is configure function **EET** with the value "000". The display will show the **EDA** message when the manual drive is enabled and the **EDF** message when the manual drive is disabled.

6. SIGNALLING

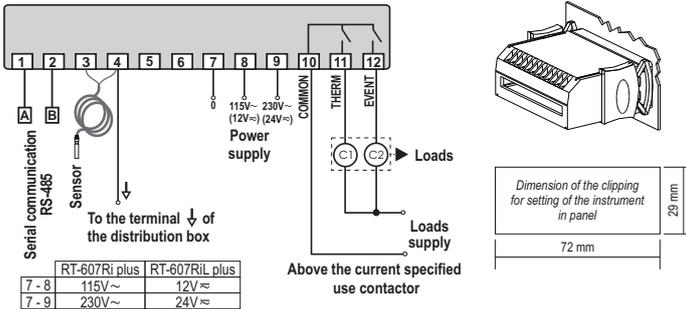
Erc Thermostat sensor disconnected or out of range

PPP Configuration parameters not programmed or out of range

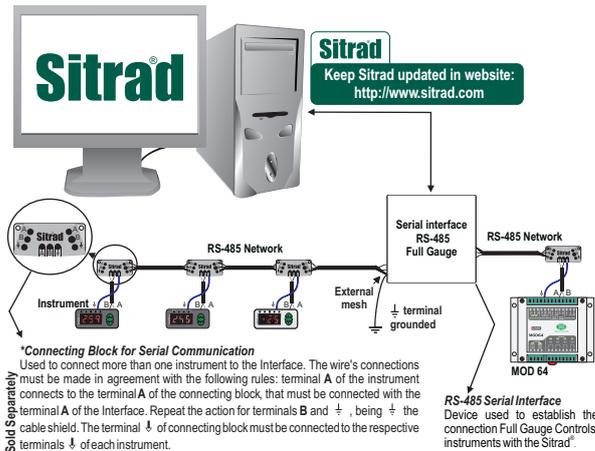
7. UNIT SELECTION(°C / °F)

To define the unit that the system will use to operate, enter into the functions menu **Code** using the access code "231" and confirm it by hitting key **SET**. The indication **Unit** will appear, then press **▼** or **▲** to choose between **°C** or **°F** and confirm with key **SET**. After selecting the unit the **FAC** figure will appear, and the instrument will return to the function **Code**. Whenever the unit is altered, the parameters should be reconfigured, since they assume "standard" values.

8. WIRING DIAGRAM



Integrating Controllers, RS-485 Serial Interface and Computer

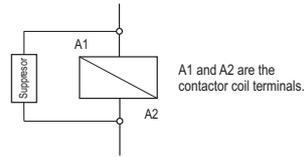


IMPORTANT

According to the chapters of norm IEC 60364:

- 1: Install protector against overvoltage on the power supply
- 2: Sensor cables and signal cables of the computer may be joined, but not in the same electric conduit through which the electric input and the activation of the loads run
- 3: Install transient suppressors (RC filters) parallel to the loads as to increase the product life of the relays.

Schematic for the connection of suppresors to contactors



Schematic for the connection of suppresors to direct activation loads



PROTECTIVE VINYL:

This adhesive vinyl (included inside the packing) protects the instruments against water drippings, as in commercial refrigerators, for example. Do the application after finishing the electrical connections.

Remove the protective paper and apply the vinyl on the entire superior part of the device, folding the flaps as indicated by the arrows.

