



MT-512Ri plus

DIGITAL CONTROLLER FOR COOLING WITH NATURAL DEFROST THROUGH COMPRESSOR SHUTDOWN

Ver. 09



MT512RiPL V09-05T-11485

1. DESCRIPTION

The **MT-512Ri plus** is a temperature controller and indicator, with a joined cyclical timer. Controls cooling and defrost through compressor shutdowns. It also has a serial output for communication with the SITRAD®.
Product complies with CE (European Union), NSF (United States) and UL Inc. (United States and Canada).

2. APPLICATIONS

- Counters
- Cooled chambers

3. TECHNICAL SPECIFICATION

- Power supply: MT-512Ri plus → 115 or 230 Vac ±10%(50/60 Hz)
MT-512RiL plus → 12 or 24 Vac/dc
- Control temperature: -50 to 75.0°C / -58 to 167°F
- Load current: NO → 16(8)A/250Vac 1HP
NC → 8A/250Vac
- Dimensions: 71 x 28 x 71mm
- Operating temperature: 0 to 50°C/32 to 122°F
- Operating humidity: 10 to 90% RH (without condensation)

CLASSIFICATION ACCORDING TO IEC60730-2-9 STANDARD:

- Temperature limit of the installation surface: 50°C / 122°F
- Type of construction: Built-in electronic controller
- Automatic action: Type 1
- Control of pollution: Level 2
- Impulse voltage: 1,5kV
- Temperature for the test of sphere pressure: 75°C and 125°C / 167°F and 257°F
- Insulation: Class II

4. CONFIGURATIONS

4.1 - control temperature adjust (SETPOINT)

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

4.2 - Parameters table

Fun	Description	CELSIUS				FAHRENHEIT			
		Min	Max	Unid	Standard	Min	Max	Unid	Standard
F01	Access code: 123 (one hundred and twenty three)	-	-	-	-	-	-	-	-
F02	Indication offset	-5.0	5.0	°C	00.0	-9	9	°F	000
F03	Minimum setpoint allowed for the end user	-50	75.0	°C	-50	-58	167	°F	-58
F04	Maximum setpoint allowed for the end user	-50	75.0	°C	75.0	-58	167	°F	167
F05	Control differential (hysteresis)	0.1	20.0	°C	01.0	1	40	°F	002
F06	Delay to turn the cooling output on	0	999	sec.	020	0	999	sec.	020
F07	Cooling time	1	999	min.	240	1	999	min.	240
F08	Defrosting time	0	999	min.	030	0	999	min.	030
F09	Initial state up on energizing the instrument	0 - cooling	1 - defrost	-	0	0 - cooling	1 - defrost	-	0
F10	Indication of the temperature locked during defrost	0 - no	1 - yes	-	0	0 - no	1 - yes	-	0
F11	Delay on the activation of the instrument	0	240	min.	000	0	240	min.	000
F12	Additional time at the end of the first cycle	0	240	min.	000	0	240	min.	000
F13	Address of the instrument on the network RS-485	001	247	-	001	001	247	-	001

4.3 - Parameters Alteration

- Access function "F01" by simultaneously pressing keys **▼** and **▲** for 2 seconds.
- When the message **Fun** appears release the keys and wait for the **F01** indication. When the indication appears on the display press the **SET** key and use **▼** or **▲** to enter the access code (123) When ready press the **SET** button to confirm.
- Use keys **▼** or **▲** to access the desired function.
- After selecting the function, press **SET** (press once quickly) to view the value configured for that function.
- Use the **▼** or **▲** keys to change the value and, when ready, press **SET** to memorize the configured value and return to the function menu.
- To exit the menu and return to the normal operation (temperature indication), press **SET** (hold it in) until **--** appears.

5. FUNCTIONS WITH FACILITATED ACCESS

5.1 - Maximum and minimum temperature logs

Press the **▲** key. The minimum and maximum temperatures registered will appear.
Note: To restart the logs you just have to keep the **▲** key pressed during the viewing of the minimum and maximum temperatures until **F5E** to be displayed.

Manual defrost:

- To change from "cooling" to "defrost" or vice-versa, irrespective of the programming, hold **▲** key in for four seconds, until **dEF** ou **rEF** appears in the display.
- To visualize the status and the elapsed time, press **▼**.

dEL → Initial delay **rEF** → Refrigeration → **dEF** Defrosting

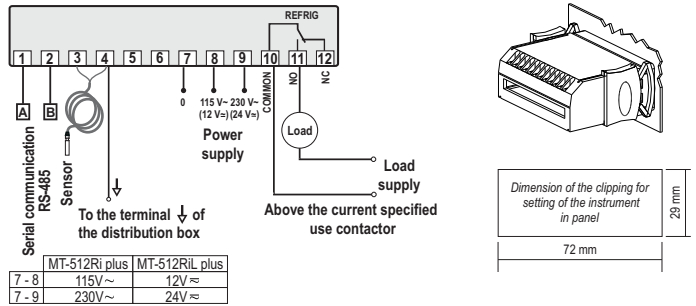
6. SIGNALLING

- REFRIG - Cooling output on
- DEFROST - Performing natural defrost
- E r r** - Sensor disconnected or temperature out of the specified range.

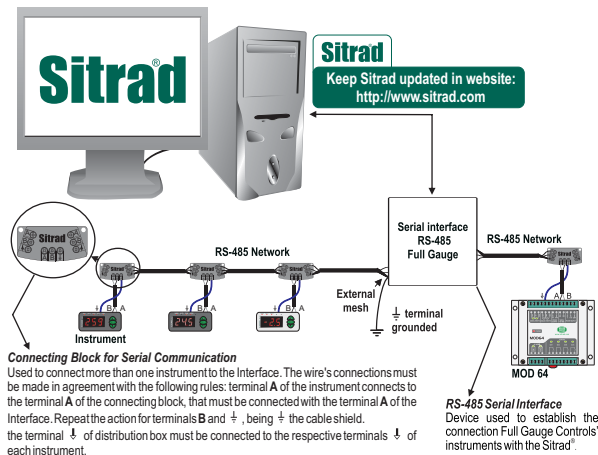
7. SELECTION OF THE UNIT (C° / F°)

In order to define the unit that the instrument will operate in, enter function "F01" with the access code "231" and confirm with the **SET** key. Press the **▲** key and the indication **Un** will appear. Press **SET** to choose between **C°** or **F°** and confirm. After selecting the unit the **F r C** message will appear, and the instrument will return to the function "F01". Every time that the unit is changed, the parameters should be reconfigured, since they assume the "standard" values.

8. WIRING DIAGRAM



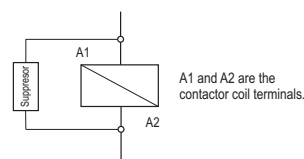
9-INTEGRATING CONTROLLERS, RS-485 SERIAL INTERFACE AND COMPUTER



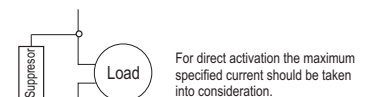
IMPORTANT

- 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 suppressors to contactors



Schematic for the connection of suppressors to direct activation loads





ENVIRONMENTAL INFORMATION

Package:

The packages material are 100% recyclable. Just dispose it through specialized recyclers.

Products:

The electro components of Full Gauge controllers can be recycled or reused if it is disassembled for specialized companies.

Disposal:

Do not burn or throw in domestic garbage the controllers which have reached the end-of-life. Observe the respectively law in your region concerning the environmental responsible manner of dispose its devices. In case of any doubts, contact Full Gauge controls for assistance.



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.

