MT-518Ri
DIGITAL TEMPERATURE CONTROLLER
WITH TWO STAGES
Ver. 12

1. DESCRIPTION
MT-518Ri is a temperature controller with two outputs that can be configured as double stage of refrigeration, double stage of heating or heating and refrigeration. Its second output also can be configured for alarm intra, extra-range or even , relative extra-range.
Product complies with CE (European Union) and UL Inc. (United States and Canada).

2. APPLICATION
• Winter/Summer automatic system in air conditioning

3. TECHNICAL SPECIFICATIONS
- Power supply: MT-518Ri — 115 or 230 Vac ± 10% (50/60Hz)
MT-518RL — 12 or 24 Vac/dc
- Control temperature: ±0.5°C (decimal resolution between -10 and 100 ºC)
- Input: NTC sensor
- Load current: 8(6)A/250Vac 1/4HP each output
- Dimensions: 71 x 28 x 71mm
- Operation temperature: 0 to 50 ºC
- Operation humidity: 10 to 90% RH (without condensation)

CLASSIFICATION ACCORDING TO IEC60730-2-9 STANDARD:
- Temperature limit of the installation surface: 50ºC
- 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: 75ºC and 125ºC
- Insulation: Class II

4. CONFIGURATIONS
4.1 - Control temperatures adjust (SETPOINTS)
- Press F01 for 2 seconds until SET will appear and the adjusted temperature for first stage.
- Use the keys  and  to change the value and then press  to record it.
- New SET and the adjusted temperature for 2nd stage will appear (only if F06 = 0 or F06 = 1).
- Use the keys  and  to change the value and then press  again.

4.2 - Parameters table

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
<th>Min</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>F01</td>
<td>Access code</td>
<td>123</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F02</td>
<td>Display (off/on)</td>
<td>0</td>
<td>1</td>
<td>°C</td>
</tr>
<tr>
<td>F03</td>
<td>1st stage operation mode</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>F04</td>
<td>Minimum setpoint allowed to the end user (1st stage)</td>
<td>-50</td>
<td>105</td>
<td>ºC</td>
</tr>
<tr>
<td>F05</td>
<td>Maximum setpoint allowed to the end user (1st stage)</td>
<td>-50</td>
<td>105</td>
<td>ºC</td>
</tr>
<tr>
<td>F06</td>
<td>Control Differential (hysteresis) of 1st stage</td>
<td>0.1</td>
<td>20.0</td>
<td>°C</td>
</tr>
<tr>
<td>F07</td>
<td>Minimum delay to turn on the 1st stage output</td>
<td>0</td>
<td>999</td>
<td>sec</td>
</tr>
<tr>
<td>F08</td>
<td>2nd stage operation mode</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>F09</td>
<td>Minimum setpoint allowed to the end user (2nd stage)</td>
<td>-50</td>
<td>105</td>
<td>ºC</td>
</tr>
<tr>
<td>F10</td>
<td>Maximum setpoint allowed to the end user (2nd stage)</td>
<td>-50</td>
<td>105</td>
<td>ºC</td>
</tr>
<tr>
<td>F11</td>
<td>Control Differential (hysteresis) of 2nd stage</td>
<td>0.1</td>
<td>20.0</td>
<td>°C</td>
</tr>
<tr>
<td>F12</td>
<td>Minimum delay to turn on the 2nd stage output</td>
<td>0</td>
<td>999</td>
<td>sec</td>
</tr>
<tr>
<td>F13</td>
<td>Alarm delay when the instrument is powered on</td>
<td>0</td>
<td>999</td>
<td>min</td>
</tr>
<tr>
<td>F14</td>
<td>Alarm output time on</td>
<td>0</td>
<td>999</td>
<td>sec</td>
</tr>
<tr>
<td>F15</td>
<td>Alarm output time off</td>
<td>0</td>
<td>999</td>
<td>sec</td>
</tr>
</tbody>
</table>

Note: F02 function allows to correct eventual shifting lines in the reading, proceeding of the sensor exchange or alteration of sensor length.

4.3 - Parameters alteration
Access the function F01 pressing simultaneously the keys  and  for 2 seconds until appearing , releasing after that. Soon it will appear and then press (short touch).
- Use the keys  and  to enter with the access code (123), and then press  to enter.
- Use the keys  and  to access the desired function.
- After selecting the function, press (short touch) to display the configured value for that function.
- Use the keys  and  to change the value and then press  to record the new value and return to the functions.
- To return to the normal operation, press  until SET will appear.

5. Fuctions with facilitated access
Registers of minimum and maximum temperatures
Press , the minimum registered temperature appears and after soon the maximum registered temperature.
Note: To reset the registers, the key pressed during the visualization of the minimum and maximum temperatures until SET will be showed.

If the instrument is configured as alarm, set the F09 and F10 act points normally and ignore ST2 and F31. If the temperature goes out the specified range and ring the alarm, press  and  to inhibit the sound.

6. SIGNALING
ST1 - 1st stage output on
ST2 - 2nd stage output on
- Detached sensor or temperature outside the specified range
- If the functions F14 and F15 are set with zero, the ST2 output will be kept on when the temperature is below 23 ºC (25-2) or above 30 ºC (25+5).
- If ST1 value is changed to 24 ºC the alarm values will be automatically modified to 22 and 29 ºC.

7. WIRING DIAGRAM

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Power supply</th>
<th>Loads supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>M518RL</td>
<td>M518RL</td>
<td></td>
</tr>
</tbody>
</table>

Above specified current use contactors.

IMPORTANT
According to the chapters of norm IEC 60344:
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.

For more information contact our application eng. department through e-mail support@fullgauge.com or dial +55 11 3475.3308.

Contact suppressor connection diagram

Diagram for suppressor installation for direct drive load inputs

Note: The user can increase the length of the sensor cable to up to 200 meters, by using PP 2 X 24 AWG cable. For immersion in water, use thermometric well.

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.