



# MT-516Ri

## DIGITAL TEMPERATURE CONTROLLER WITH CYCLICAL TIMER

Ver.11



MT516V11-02T-10759

### 1. DESCRIPTION

The **MT-516Ri** controls and indicates the temperature and can be configured for refrigeration or heating. It also has a cyclical timer.  
Product complies with CE (European Union) and UL Inc. (United States and Canada).

### 2. APPLICATION

- Milk coolers
- Chambers
- Balconies
- Heat pumps

### 3. TECHNICAL SPECIFICATIONS

- Power supply: MT516Ri → 115 or 230 Vac ± 10% (50/60Hz)  
MT516RIL → 12 or 24 Vac/dc
- Control Temperature: -50 to 105°C
- Load current: 8(3)A/250Vac 1/4HP each output
- Dimensions: 71 x 28 x 71 mm
- Operation temperature: 0 to 50°C
- Operation Humidity: 10 to 90% RH (without condensation)

### CLASSIFICATION ACCORDING TO IEC60730-2-9 STANDARD:

- Temperature limit of the installation surface: 50°C
- 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
- Insulation: Class II

### 4. CONFIGURATIONS

#### 4.1 - Control temperature adjust (SETPOINT)

- Press **SET** for 2 seconds until **SEB** appears. The adjusted control temperature will appear.
- Use the keys **▼** and **▲** to change the value and then press **SET** again to record it.

#### 4.2 - Parameters table

Configuration parameters protected by access code:

Fun	Description	Min	Max	Unit
F01	Access code 123 (one hundred and twenty-three)	-	-	-
F02	Display (offset)	-5.0	5.0	°C
F03	Operation mode <sup>(1)</sup>	0	3	-
F04	Minimum setpoint allowed to the user	-50	105	°C
F05	Maximum setpoint allowed to the user	-50	105	°C
F06	Control Differential (hysteresis)	0.1	20.0	°C
F07	Delay to turn the compressor on	0	999	sec.
F08	Time base of timer <sup>(2)</sup>	0	3	-
F09	Timer on	1	999	sec. / min.
F10	Timer off	1	999	sec. / min.
F11	Timer initial status	0 - off	1 - on	-
F12	Timer always on while compressor on <sup>(3)</sup>	0 - no	1 - yes	-

<sup>(1)</sup>F03 - Operation Mode:  
0 - refrigeration  
1 - heating  
2 - alarm (inside the range)  
3 - alarm (outside the range)  
If configured for LED, the inferior and superior setting must be adjusted in the functions F04 and F05.

<sup>(2)</sup>F08 - Time base of timer  
F08 - F09 (top) - F10 (bottom)  
0 - seconds seconds  
1 - minutes minutes  
2 - seconds minutes  
3 - minutes seconds

<sup>(3)</sup>F12 - Timer always on while compressor on:  
This function serves for some applications, for examples, in milk coolers, when timer commands that agitator. That will keep "on" while refrigeration is "on", if you program "1" (yes).

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

#### 4.3 - Parameters configuration

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

### 5. FUNCTIONS WITH FACILITATED ACCESS

#### 5.1 - Registers of minimum and maximum temperatures

Press **SET**. The registered minimum temperature appears and after soon the registered maximum temperature.

Note: To reset the registers, keep the key **SET** pressed during the visualization of the minimum and maximum temperature until **SEB** to be showed.

#### Timer: Manual status changes

- To change the timer output (on ↔ off) keep the key **▼** pressed for 4 seconds, until **---** appear.

#### To display actual time

- To see actual time, press **▲**.

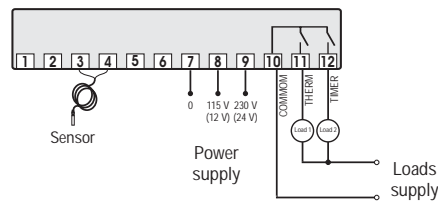
### 6. SIGNALLING

THERM - Thermostat output on

TIMER - Cyclical timer output on

**Err** - Detached sensor or temperature outside the specified range.

### 7. WIRING DIAGRAM



	MT-516Ri	MT-516RIL
7 - 8	115V~	12V≈
7 - 9	230V~	24V≈

- Load1** - Refrigerator  
- Heater  
- Contactor  
- Solenoid
- Load2** - Mat  
- Agitador  
- Contactor  
- Water pump

Above specified current use contactors.

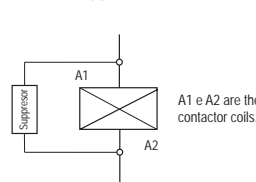
### IMPORTANT

According to the chapters of norm IEC 60364:

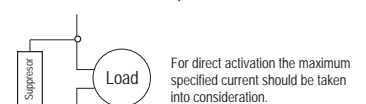
- 1: Install protector against overvoltage on the power supply
- 2: Sensor cables and signal cables of the computer may be joined, but not in the same electric conduit through which the electric input and the activation of the loads run
- 3: Install transient suppressors (RC filters) parallel to the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

For more information contact our application eng. department through e-mail [support@fullgauge.com](mailto:support@fullgauge.com) or dial +55 51 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.

