



# TIC-18R<sub>i</sub>

## DIGITAL THERMOSTAT WITH INTERNAL ALARM

Ver.01



TIC18V01-01T-11750

### 1. DESCRIPTION

The **TIC18R<sub>i</sub>** is a digital thermostat for easy installation and implementation. It can be configured for both heating and cooling. It has a internal rechargeable battery and alarm (buzzer) to indicate lack of energy, temperature outside the range and sensor error. It uses a single key to adjust all its functions.

### 2. APPLICATION

- Boilers
- Ovens
- Heaters
- Freezers
- Counters
- Refrigerated balconies

### 3. TECHNICAL SPECIFICATIONS

- Power supply: TIC-18Ri -115 or 230 Vac (50/ 60 Hz)  
TIC-18RIL -12 or 24Vac/dc
- Control temperature: -50 to 105 °C
- Resolution: 0.1°C (between -10 and 100 °C) and 1 °C outside this range
- Duration of the internal battery (alarm activated): Approximately 10 hours
- Load current: 16(8)A / 250Vac 1HP
- Dimensions: 71 x 28 x 71mm
- Operation temperature: 0 to 50 °C
- Operation humidity: 10 to 90% RH (without condensation)

### 4. CONFIGURATIONS

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

- Press **SET** for 2 seconds and **SP** will appear.
- Wait 2 seconds and the adjusted control temperature will appear.
- Use **SET** to change the value.
- Wait 4 seconds to record and return to the normal operation.

#### 4.2 - Parameters table

Configuration parameters:

Fun	Description	Min	Max	Unit	Default
<b>OP</b>	Operation mode	0-refrig.	1-heat	-	0
<b>dF</b>	Differential (hysteresis)	0.1	20.0	°C	2.0
<b>dL</b>	Minimum delay to turn on the output	0	999	seconds	0
<b>oF</b>	Offset (local calibration)	-5.0	5.0	°C	0.0
<b>Lo</b>	Minimum set allowed to the final user	-50	105	°C	-25
<b>Hi</b>	Maximum set allowed to the final user	-50	105	°C	-15
<b>AE</b>	Enabling of the audible alarm	0-disab.	1-enab.	-	0
<b>AL</b>	Minimum temperature to activate alarm	-50	105	°C	-50
<b>AH</b>	Maximum temperature to activate alarm	-50	105	°C	105
<b>Ad</b>	Alarm inhibition time in the energization	0	999	minutes	120

#### 4.2.1 - Parameters description

- OP** This function allows to configure the operation mode of the instrument (heating or refrigerating).
- dF** It is the difference of temperature (hysteresis) between turn on and turn off the "RELAY" control output.
- dL** It is the minimum time that the controller output will keep turned off. This delay starts when the output is turned off.
- oF** It allows compensate eventual shunt in the temperature reading.
- Lo** Allowed range to the final user to adjust setpoint (minimum locking).
- Hi** Allowed range to the final user to adjust setpoint (maximum locking).
- AE** This function allows enabling or disabling the audible alarm (buzzer).
- AL** Operating temperature range (minimum temperature to activate the alarm);
- AH** Operating temperature range (maximum temperature to activate the alarm);
- Ad** Alarm inhibition time after the controller energization.

#### 4.3 - Parameters alteration

The parameters are protected by an access code (except setpoint), which must be inserted to do the alterations.

To enter with the access code:

- Press **SET** for 10 seconds until **Lo** appears.
- Wait 2 seconds and appears **000**.
- Use the key **SET** to insert the code 123. This operation must be done in 4 seconds, otherwise the indication of ambient temperature returns automatically.

After inserting the access code:

- Press **SET** until access the chosen parameter.
- Wait 2 seconds and the configured value will appear.
- Use the key **SET** to change the value.
- Wait 4 seconds to record the new value and to the instrument returns normal operation (temperature indication).

Note: After inserting the access code, do not leave the key **SET** idle (without be pressed) for more than 15 seconds between parameters alteration. In this case **Lo** will appear and the access to the adjust is automatically locked and the access code must be inserted again to do the alterations.

### 5. SIGNALLING

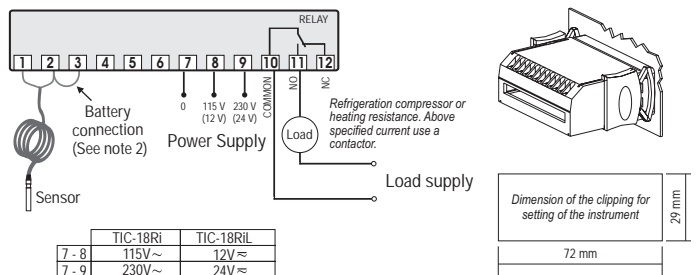
RELAY - Turned on NO contact

**Err** - Detached sensor

Audible alarm - Lack of energy, temperature outside the range of operation or sensor error.

Note: The alarm is factory disabled and must be enabled by changing the parameter AE.

### 6. WIRING DIAGRAM



Note 1: Sensor cable length can be increased by the user until 200 meters, using 2 x 24 AWG cable. For immersion in water use thermometric well.

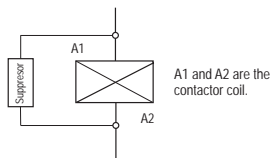
Note 2: The **TIC18R<sub>i</sub>** comes with its internal battery disconnected for storage. Before installing the instrument, connect it to the terminals 2 and 3 through a wire, as shown. "

#### IMPORTANT

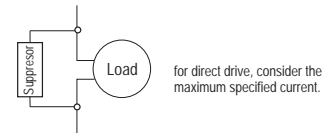
According to NBR5410 and IEC60364 standards:

- 1: Install protectors against overloads on power supply;
  - 2: Sensor cables and computer signs can be together, however not in the same electric ducts where there are power supply and load drive;
  - 3: Install suppressors (RC filters) in parallel to loads to increase the relays endurance.
- For more information contact our application eng. department through e-mail [support@fullgauge.com](mailto:support@fullgauge.com) or dial +55 51 3475 3308.

Wiring diagram of suppressor in contactors



Wiring diagram of suppressor linking in loads direct drive



#### 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.

