

User Manual Digital Thermostat

Industrial Liquid Refrigerators



TX200



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GENERAL WARNING

This manual is an integral part of the machine's Instruction Manual, and must be kept near the machine for quick and easy reference.

DISPLAY

Display available information:

- Main display (red colour): Detected temperature
- Ancillary display (yellow colour): Set-point

DISPLAY ICONS

°C °F	On, when display indicates a temperature or a pressure value
	Blinking in presence of an alarm
Vset	On if a Set-point (dynamic set-point) automatic modification function is activated
menu	On during the access to function menu
	On if heaters are operating
FlowI	Blinking if water flow switch digital input is activated
	On if water pumps are working
	On if fans are working
1 2	On if the relevant compressor is working; it blinks if the compressor is under the starting function at a specified time
	On if the machine is working and the Cool working condition is activated
LP HP	HP and LP icons are blinking in case the High or Low pressure alarm is activated

KEY FUNCTION

KEY	FUNCTION
	Press and release during main display: It allows the set point display Press and release twice during main display: If the dynamic set point or tanks function is activated, the Vset icon is on and display indicates the working real set
SET	Press and release under programming condition: It allows the selected parameter modification access; it also allows the set value confirmation during parameter modification Press and release in ALrM menu: It allows the alarm reset (if it could be reset) from ALrM menu
	UP: Press and release: From main display it allows the probe value display set in the high display and the corresponding label in the lower display Press and release during the programming: It allows the (ST, CF, etc) parameter file scrolling; it allows the parameter list scrolling. During parameter modification the value is increased
	DOWN: Press and release: From main display it allows the set probe value display (temperatures) in the high display and the corresponding label in the lower display Press and release during the programming: It allows the (ST, CF, etc) parameter file scrolling; it allows the parameter list scrolling. During parameter modification the value is decreased
	Press and release: It allows the machine access or selects the std-by mode
	Press and release: It allows the function menu access Press and release under programming condition: It allows to exit from parameter modification

KEY COMBINED FUNCTION

KEY	FUNCTION
SET +	Press the keys simultaneously for three seconds: It allows the parameters programming access
SET +	Press the keys simultaneously: It allows the parameter programming exit

NORMAL COMBINED FUNCTION



The instrument displays under normal condition as follows:

- Main display (red colour): Detected temperature
- Ancillary display (yellow colour): Set-point display, display indicates chiller set when the unit is on, OFF with unit in stand by.

DISPLAY DURING AN ALARM CONDITION



In case of alarm display indicates as follows:

- LP + alarm code in the lower display*: low pressure alarm
- HP + alarm code in the lower display*: high pressure alarm
- **Flow!** + alarm code in the lower display: water flow switch alarm
- **⚠** + alarm code in the lower display* in case of different alarm from high or low pressure

*The lower display indicates alarm code alternating with the normal display.

The LP, HP, Flow, **⚠** icons in presence of an alarm are on and blinking.

STD-BY DISPLAY



With the instrument in std-by the display indicates the "OFF" label.

HOW TO SILENCE THE BUZZER

The buzzer silence, in the models equipped with it, has carried out in the following way:

- Automatic silence: When the situation who has caused the alarm condition has been restored
- Manual silence: Press and release one of the keys. The buzzer is off even if the alarm condition remains on.

HOW TO ACCESS TO "PR1" (USER LEVEL) PARAMETERS

How to access to "pr1" parameter menu:

1. Press for a few seconds the SET and "UP" keys
2. The icons **⚙** blink and the higher display indicates "ALL" (parameter generic group)
3. Scroll the parameter groups by "UP" and "DOWN" keys
4. Select the group containing the parameters to be modified by pressing the set key it is possible to access the parameter list contained in the group. The lower display indicates the parameter label and the higher one displays the value.

HOW TO MODIFY A PARAMETER VALUE

1. Access to parameter menu
2. Select the required parameter
3. Press the SET key to enable the value modification;
4. Modify the value by "UP" and "DOWN" key
5. Press SET to store the new value and pass to the next parameter code
6. To exit from the parameter modification procedure press SET and UP when you are in parameter display (not during the modification with blinking value) or for time-out.

Note: The new set value is stored also when you exit for time out without having pressed the SET key.

HOW TO SET THE STAND – BY UNIT

If controller is on, the prolonged pressure of  key imposes the machine to remain in STD-BY.

In STD-BY mode it is also possible to access to menu for the navigation or for the parameter modification.

The alarm management has also enables in STD-BY; the alarms, if they are activated, are normally signaled.

ACCESS AND EXIT FROM FUNCTION MENU

Press and release the menu key; the “menu” icon is on.
Press and release the menu key or wait the time out.

HOW TO DISPLAY THE ALARMS

Access to function menu:

1. Select the function “ALrM” by “UP” and “DOWN” keys
2. Press and release the SET key
3. By pressing the “UP” and “DOWN” keys it is possible to display the alarms on

To exit from the alarm display, press the menu key or wait the time out time.

HOW TO RESET AN ALARM

1. Access to function menu
2. Select the “ALrM” function
3. Press SET; the lower display indicates the alarm code and the higher display indicates the rSt label if there is the possibility to reset the alarm or the label No, if it is not the case. Scroll all the alarms on by the “UP” and “DOWN” keys
4. Press SET in correspondence of the rST label to reset the alarm and pass to the next
5. To exit press the menu key and wait the time out time.

HOW TO SEE THE ALARM LOG-FILE

1. Access to function menu
2. Select the ALOG function by pressing “UP” and “DOWN” keys
3. Press SET, the lower display indicates the alarm code label, the higher one indicates the “n” label and sequence number
4. By pressing “UP” and “DOWN” keys it is possible to scroll all the present alarms
5. The ALOG function exit is enabled by pressing the menu key or for time-out.

The maximum number of registered alarms is 50; the 51st alarm will cancel and automatically replace the oldest alarm (display has made in ascending order from the oldest to the most recent one).

HOW TO DISPLAY THE SET POINT

The pressure and release of the SET key allows the set point display.

It is possible to display the set-point with the device in STD-BY condition by pressing and release the SET key.

HOW TO MODIFY THE SET POINT

1. Press the SET key for at least 3 sec
2. Set point should be displayed blinking
3. To modify the value press “UP” and “DOWN” keys
4. Store the new set Point by pressing the SET key or wait the time out time to exit from the programming.

HOW TO DISPLAY THE SET POINT WITH TEMPERATURE RANGE COOLING DYNAMIC SET FUNCTION (OPTIONAL)

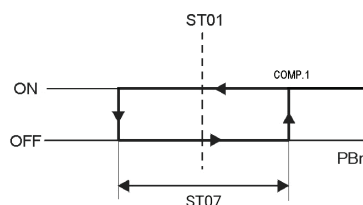
The temperature range cooling setting (dynamic Set-point) is available upon request. The thermostat is already prearranged for this function, it needs simply add the second probe (Ambient probe) and modify some parameters.

This operation foresees the “Dynamic” fluid set-point , where the fluid set-point temperature pursues the air temperature with a fixed temperature range of 2°C less.

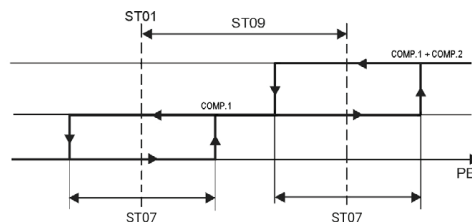
COMPRESSOR WORKING

Machine with one compressor

The compressor starts working when the temperatura del fluid temperature exceed set-point value + the temperature range ST02/2. For example with set-point at and temperature range at ST02 at 2°C, the compressor will start at 16°C (set-point + ST02/2) and will stop at 14°C (set-point – ST02/2).



Machine with two compressors



LOSS OF VOLTAGE

Once reset the power supply due to a black-out:

1. The instrument starts from the condition stated before the black-out
2. All the outstanding specified times are reset and started again.

ALARMS

Code	Cause	Solution
P1	Probe alarm (PB1)	• Check probe connections • Replace probe
P2	Probe alarm (PB2)	• Check probe connections • Replace probe
P3	Probe alarm (PB3)	• Check probe connections • Replace probe
P4	Probe alarm (PB4)	• Check probe connections • Replace probe
A01	Coolant circuit maximum pressure switch alarm (HP)	• Check fan operation • Ensure the minimum installation distances are maintained • Ensure the maximum ambient temperature is not exceeded • Ensure the maximum liquid temperature is not exceeded • Ensure there is no debris in the condensing zone
A02	Coolant circuit minimum pressure switch alarm (LP)	• Check for refrigerant gas leaks • Ensure the minimum ambient temperature is maintained • Verify proper fan operation
A07	Anti-freeze alarm	• Ensure the minimum outlet liquid temperature is maintained • Ensure the liquid in the hydraulic circuit is free from impurities
A08	Hydraulic circuit alarm (ID1)	• Check the pump's heat protection in the electrical cabinet • Check the tank level • Check the level sensor connection • Verify the liquid circulation • Check the flow sensor connection

Code	Cause	Solution
A09	Compressor one heat alarm (ID2)	• Check the compressor's heat protection in the electrical cabinet • Ensure there is no debris in the condensing zone
A11	Fan heat alarm (ID5)	• Check the fan's heat protection in the electrical cabinet
A16	High liquid temperature alarm	• Check the cooling circuit's operating pressure • Ensure there is no debris in the condensing zone
A17	Pump heat alarm	• Check the pump's heat protection in the electrical cabinet • Ensure the liquid in the hydraulic circuit is free from impurities
Afr	Mains frequency alarm	• Ensure the mains supply frequency is compatible with the chiller's operating frequency • Ensure the thermostat is configured for the correct operating frequency



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Follow prompts for option 1,
then option 2 then option 3

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