

EAG-6030 Temperature Controller Operation Manual

Product Overview

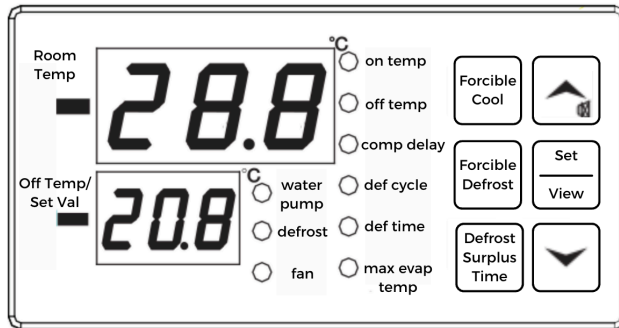
Dual temperature display, direct access to viewing and setting parameters through buttons. Multiple clear indicator lights display the system's operating status, avoiding any difficult-to-understand parameters, and enabling end users to operate various functions conveniently without relying on the manual. Equipped with cooling, defrosting, fan and water pump functions, suitable for controlling temperatures in cold environments.

Features

- Temperature Measurement, Display, Control, Calibration and Limit Alarm
- Cooling, Defrosting, Fan and Water Pump Control Output
- Sensor Malfunction Alarm
- Optional Defrost Sensor

Size and Specification

- Front panel size: 100(L) x 51(W)(mm) Installing hole size: 92(L) x 44(W)(mm)
- Product size: 100(L) x 51(W) x 82.5(D)(mm) Sensor wire length: 2 meters (probe included)
- Resolution: 0.1
- Accuracy: $\pm 1^{\circ}\text{C}$
- Measurement and control temperature range: -50°C to 50°C
- Power supply voltage: 220VAC $\pm 10\%$ 50Hz/60Hz
- Relay output contact capacity: 3A/220VAC
- Sensor type: NTC (10K Ω /25 $^{\circ}\text{C}$, B value 3435K)
- Operating ambient temperature: -5°C to 60°C
- Operating ambient relative humidity: 20% to 80% (non-condensing)



Descriptions of Indicator Light

Indicator Light	Status	Meaning
Water Pump Indicator Light	Light off	Water Pump stops
	Light flashes	Water Pump delays
	Light on	Water Pump works
Defrost Indicator Light	Light off	Defrosting stops
	Light flashes	Defrosting drops
	Light on	Defrosting works
Fan Indicator Light	Light off	Fan stops
	Light flashes	Fan delays
	Light on	Fan works

User's menu

Functions	Parameter Range	Default	Remark
on temp	off temp~50.0 $^{\circ}\text{C}$	10.0 $^{\circ}\text{C}$	Compressor starts up when temperature reaches the set value
off temp	-50.0 $^{\circ}\text{C}$ ~on temp	-10.0 $^{\circ}\text{C}$	Compressor stops when temperature reaches the set value
comp delay	1~120mins	3mins	The minimum interval time between two start up time
def cycle	0~120hrs	6hrs	The minimum interval time between two defrosting
def time	0~120mins	30mins	The defrosting duration time
max evap temp	-50.0 $^{\circ}\text{C}$ ~+50.0 $^{\circ}\text{C}$	10.0 $^{\circ}\text{C}$	Defrosting is not allowed when defrost sensor temp is higher than max evap temp

Administrator's menu

Code	Function	Setting Range	Default
F01	Temperature calibration	-10.0 $^{\circ}\text{C}$ ~+10.0 $^{\circ}\text{C}$	0.0 $^{\circ}\text{C}$
F02	Alarm when exceed temp limit	0.0 $^{\circ}\text{C}$ ~+50.0 $^{\circ}\text{C}$	5.0 $^{\circ}\text{C}$
F03	Defrost cycle time calculation	0: Controller accumulated working time after electrified 1: Compressor accumulated working time after electrified	1
F04	Defrost dripping time	0~120mins	3mins
F05	Defrost sensor option	0: no defrost sensor 1: defrost sensor selected	1
F06	Water pump pre-charge time	3~255sec	5s
F07	Water pump shutdown delay	3~255sec	10s
F08	Fan run mode	-1: The fan runs continuously 0~30: The fan starts up when compressor already run for 0~30mins	0
F09	Fan shutdown mode	-1: The fan runs continuously 0~30: The fan stops when compressor already run for 0~30mins	0
F10	Alarm delay when temp exceeds set limit	0~120mins	30mins
F11	Alarm delay time after the power electrified for the first time	0~120hrs	2hrs

User's Menu Settings:

In the operating state, hold down the "Set/View" button for more than 5 seconds until the "SET" is displayed on the "Room Temp" window. This indicates entry into the user menu settings. The "Startup Temperature" indicator light will illuminate. Each subsequent press and immediate release of the "Set/View" button will enter the next parameter setting (operation can be cycled), with the corresponding parameter indicator light illuminating. After entering the user menu, pressing the "▲/☒" or "▼" button can modify the set parameters displayed in the "Shutdown Temperature" window.

Administrator's Menu Settings:

In the operating state, hold down the "Set/View" and "▼" buttons for more than 5 seconds until the "F01" is displayed on the "Room Temp" window. This indicates entry into the administrator's menu settings. Each subsequent

press and immediate release of the "Set/View" button will enter the next parameter setting (operation can be cycled). After entering the administrator's menu, pressing the "▲/⏏" or "▼" button can modify the set parameters displayed in the "Shutdown Temperature" window. All parameter indicator lights off. In the parameter setting state, hold down the "Set/View" button for more than 3 seconds or if no button is pressed for 30 seconds will exit the parameter setting mode.

User's Menu Viewing:

In the operating state, hold down the "Set/View" button for 3 seconds until the "Startup Temperature" indicator light illuminates. Each subsequent press and immediate release of the "Set/View" button will display the next parameter (operation can be cycled), with the corresponding parameter indicator light illuminating. In parameter viewing mode, the set parameters cannot be modified. In parameter viewing mode, holding down the "Set/View" button for more than 3 seconds or no button action within 10 seconds will exit parameter viewing mode. The "Room Temp" window displays the current temperature of the warehouse.

Defrost Surplus Time Key Instruction:

In the operating state, press and release the "Defrost Surplus Time", the "Room Temp" window displays defrosting surplus time and system exits 5 seconds later.

Forcible Defrost Key Instruction:

In the operating state, the defrost time and the defrost cycle is set not as "0", under the non-defrosting status, the defrost sensor temperature is lower than the setting defrost stop temperature, pressing the "Forcible Defrost" key for 5 seconds to enter the forcible defrosting status, the defrosting indicator light is on. In the operating state, during the defrosting procedure, pressing the "Forcible defrost" key for 5 seconds to exit from defrosting status, the defrosting indicator is off.

Forcible Cool Key Instruction:

In the operating state, and non-defrosting, non-cooling, non-dripping, when the storage temperature is higher than the stop temperature meanwhile is lower than the start temperature, pressing "Forcible Cool" key for 5 seconds to enter forcible cooling status, cooling indicator light flashes when compressor delay time not exceed the set delay time. Cooling indicator light is on when compressor delay time exceeds the set delay time. In the operating state, pressing "Forcible Cooling" key for 5 seconds to exit form the cooling status, the cooling indicator light is off.

"▲/⏏" Key Instruction:

In the operating state, press and release the "▲/⏏" key can silence the buzzer alarm for this instance.

"▼" Key Instruction:

In the operating state, press and release the "▼" key, the "Room Temp" screen displays the defrosting sensor's temperature, 5 seconds later then exits automatically. If defrost sensor is not selected (set as "0"), defrosting sensor's temperature won't be shown.

Control Operation

Compressor Control

(1) Compressor start up when all the following conditions are met:

a. Compressor delay time exceeds the setting compressor delay time. b. After the water pump starts and completes the water pump pre-charge time. c. Under the non-defrosting, non-dripping status, the storage temperature \geq the setting start temperature or when the forcible cooling or hot gas defrosting.

(2) Compressor close when any of the following condition is met:

a. The storage temperature \leq the setting stop temperature. b. When the electric heating defrosting starts. c. When the forcible cooling ends.

Defrost Control

(1) Defrost starts when all the following conditions are met:

a. Defrost cycle is not set to "0". b. The defrosting sensor's temperature < the setting defrosting stop temperature. (Works only if defrost sensor is selected - set as "1") c. When system reached the setting defrost cycle time, or the forcible defrosting starts.

(2) Defrost stops when any of the following condition is met:

a. When the defrost cycle is set as "0". b. Defrosting running time runs out. c. Pressing the "Forcible Defrost" key to end defrosting. d. The defrosting sensor's temperature > the defrosting stop temperature. (Works only if defrost sensor is selected - set as "1")

Fan Control

(1) When the Fan Run mode is set as:

a. -1: Fan continues to work, and fan stops in the process of defrosting. b. 0~30: Fan start-up function delays 0~30 minutes than compressor, and fan stops in the process of defrosting.

(2) When the Fan Shutdown mode is set as:

a. -1: Fan continues to work, and fan stops in the process of defrosting. b. 0~30: Fan shutdown function delays 0~30 minutes than compressor, and fan stops in the process of defrosting. Either Fan Run mode or Fan Shutdown mode is set as "-1", fan continues to work meanwhile defrosting stops.

Water Pump Control

Before starting cooling, first turn on water pump. After water pump runs for the set pre-charge time, start compressor. When cooling ends and compressor stops, water pump will continue to run for a delay period before stopping.

Alarm Output

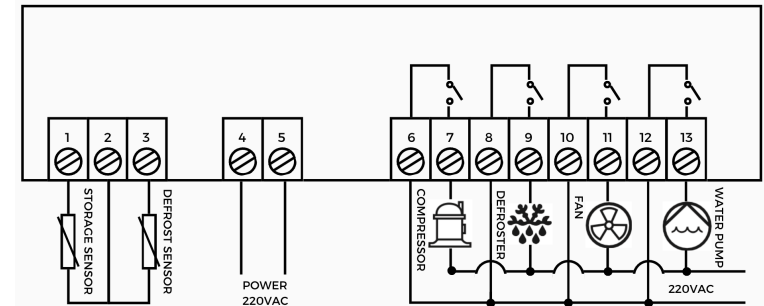
In the operating state, when there is a sensor open or short circuit fault, or when the sensor measures a temperature beyond its range or limit, the buzzer will sound. Pressing the "▲/⏏" button can silence the alarm. The sensor temperature exceeds the limit when the storage temperature is > the sum of "the setting startup temperature and over-temperature alarm deviation set value" or < the difference between "the setting stop temperature and over-temperature alarm deviation set value".

Fault Code

Code	Explanation
E1	Storage sensor not installed properly, resulting in short circuit or open circuit. Proportional cooling operation (i.e., Stop for 30 minutes, Run for 15 minutes) with alarm output.
E2	Defrost sensor not installed properly, resulting in short circuit or open circuit. The defroster will run as preset defrost cycle and the defrost duration time with alarm output.
E3	Storage temperature exceeds the setting temperature upper limit. Proportional cooling operation (i.e., Stop for 30 minutes, Run for 15 minutes) with alarm output.
E4	Defrosting sensor's temperature exceeds the setting temperature upper limit. The defroster will run as preset defrost cycle and the defrost duration time with alarm output.

Remark: If defrost sensor is not selected (set as "0"), corresponding defrost sensor fault code will be disabled.

Wiring Diagram



Safety Notes

Danger

Strictly differentiate between sensor wires, power lines, and output relay interfaces; do not misconnect, and do not overload the relays; All wiring changes must be performed with the power disconnected.

Warning

This device is prohibited for use in water or humid environments, and in high temperature, strong electromagnetic interference, or highly corrosive environments.

Caution

The power supply voltage should be consistent with the standard voltage on the machine and ensure the stability of the power supply voltage; To avoid possible interference, it is recommended to keep the sensor wires and power lines at an appropriate distance.