Model: SF-102B   Digital Temperature Controller

Dimension:77(Length)×35(Width)×70(Depth)mm
Mounting hole dimension:71(Length)×29(Width)mm

Features of Function

- It is a mini-sized and integrated intelligent controller and applicable to the compressor of one HP.
- Temperature Display(℃/℉ swit chable)/ Temperature Control/ Manual, automatic defrost by turning off compressor / Value Storing/ Self Testing /Parameter Locking

Specifications

1. Power supply: 230VAC 50/60Hz
2. Temperature sensor: NTC, one sensor,2m(L)
3. Range of temperature display:—45～66℃（—45~150℉）;   Accuracy:±1℃（±2℉）
4. Range of set temperature:—45～45℃（—45~120℉);   Factory default :2℃（36℉）
5. Temperature of the operating environment:—10～60℃（14~140℉）;
   Relative Humidity:20%~90%(Non-condensing)
6. Relay output contact capacity
- Compressor: N.O. 30A/250VAC
   (applicable to one HP Compressor,if more it need to connect an AC contactor)

Front Panel Operation

1 . Set temperature (compressor stop temperature) adjustment
- Press SET button, the set temperature is displayed.
- Press △ or ▽ button to modify and store the displayed value , Press SET button to exit the adjustment and display the cold-room temperature.
- If no more button is pressed within 6 seconds, the cold-room temperature will be displayed.
  (Set temperature adjustment range: parameter E1~E2)
2. Manual start/stop defrost: Press ❄ button and hold for 6 seconds to defrost or stop defrost.
3. Refrigeration LED: During refrigeration,the LED is on;When the cold room temp. is constant,the LED is off; During the delay start, the LED flashes.
4. Defrost LED: during defrosting, the LED is on; During the delay display of defrost, the LED flashes.
5. Parameter setup
- Press SET button and hold for 6 seconds to enter the parameter setup mode while E1 flashes.
- Press again SET button to select sequentially from the parameters : E2,E3,E4,E5,F1,F2,F4,C1,E1.
- Press △ or ▽ button, the value of parameter will be displayed and can be modified and stored.
- If no more button is pressed within 6 seconds, the cold-room temperature will be displayed.

Parameter	Function	Set range	Default	Parameter	Function	Set range	Default
E1	Lower setpoint limit	—45℃～Set temp. —45℉	—2℃ 28℉	F1	Max. Defrost duration	1～60Min	20Min
E2	Higher setpoint limit	Set temp.～45℃ 120℉	20℃ 68℉	F2	Defrost interval time	0～24Hr	04Hr
E3	Temp. hysteresis	1～10℃ 1～18 ℉	4℃ 7 ℉	F4	Display during defrost	0=Normal display 1 = Last value before defrost	0
E4	Comp.start delay time	0～10Min	03Min				
E5	Offset on room temp.	—20～20℃ —36～36 ℉	0	C1	Temperature unit	℃=Celsius ℉ =Fahrenheit	℃

6. Factory defaults modification: Press SET button to adjust set temperature. Press SET button for 6 seconds tenter parameter setup state to adjust parameters, and then press SET button again for 6 seconds, " COP" will be displayed, store the modified set temprature values and parameters as factory defaults.

7. The factory default resumption: press △ & ▽ buttons for 6 seconds," 888" will be displayed and flash. At that moment all parameters and set temperature will be resumed as same as factory default, after 6 seconds it returns to nromal operation mode.

8. Parameters Locking

In normal operating,press ▽ button and hold for 6 seconds to lock the parameters if "OFF" is displayed (No modification is allowed),or to unlock if "ON" is displayed. Parameter can be displayed only and can not be modified if locked, but the adjustment of the set temp. is active.(the factory default is "ON")

Function details

1. Temperature Controlling
- After turning on for the delay time,the compressor starts operating when cold-room temperature $\geq$ (set temperature+ Hysteresis), and will be off when cold-room temperature $\leq$ set temperature.
- To protect the compressor, it can be re-started unless the time when the compressor stops every time is longer than the delay time(Parameter E4).

2. Defrosting Functions
- Operating after a defrost interval time it will be automatically in the status of defrost. The defrost LED will turn on, and the compressor will stop. When the defrost duration ends, the compressor will exit the defrost status,and enter the normal status of refrigeration.
- When the defrost interval time is set to "00" , the function of automatic defrost will be cancelled.

3. Display during defrost
- When setting the parameter F4=1,the room temp. is locked during defrost, and the last value before defrost is displayed. When defrost ends, normal display will be resumed after 20 minutes delay of room temp. display. The defrost LED flashes during the delay.

4. Abnormal work mode
- When the room sensor is short-circuited or overheated (more than 66℃ / 150℉) " HH" is displayed ; When the room sensor is open-circuited or temperature is too low (less than -45℃ / -45℉) "LL" is displayed. At that time the compressor works automatically by the cycle of 30 minutes on and 15 minutes off.

Notes for Installation

1. The sensor cable leads must be kept separately from main voltage wires in order to avoid high frequency noise induced. Separate the power supply of the loads from the power supply of the controller.
2. When install the sensor, it shall be placed with the head upward and the wire downward; The evaporator sensor must be installed between the fins of the evaporator in the area, where probably the ice is the thickest. Don't place the evaporator sensor near the electric heater.
3. In case of long-distance sensor installation from the controller, the sensor cable may be prolonged up to 100 m max. without any re-calibration.
4. The temperature controller can not be installed in the area with water drops.

Accessories for the temperature controller

1. One temperature sensor
2. One installation stand
4. One cover panel and 1 φ3×10mm screw

Circuit Diagram