Model: SF-518 Digital Temperature Controller

Dimension:77(Length)×35(Width)×60(Depth)mm
Mounting hole dimension:71(Length)×29(Width)mm

Features of Function

- Mini-sized and integrated intelligent control and applicable to the compressor of one HP.
- Temperature Display/ Temperature Control/Highest and Lowest Temperature Record/The alarm function Manual, automatic/defrost by turning off / Light Control/Value Storing/ Parameter Locking

Specifications

1. Output of the outside sealed transformer:12VAC(one transformer matched with one temp.controller)
2. Temperature sensor:NTC,2m(L)
3. Range of temperature displayed: －45℃~ 45℃; Accuracy:±1℃
4. Range of set temperature: －45℃~45℃; Factory default: 4℃
5. Temperature of the operating environment:－10~60℃ Relative Humidity:20%~90%(Non-condensing)
6. Output contact capacity:
   - Compressor: N.O. 20A/250VAC
   - Light: N.O. 5A/250VAC
   - Alarm: 5A/250VAC

Front Panel Operation

1 . Set temperature (compressor stop temperatuer) 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. Light: Press △ button, it lights; Press again, it stops.
3. The muffling of the alarm: When the temperature is upon the limit and alarms, the temperature display flashes. Press the ▽ key to muffle.
4. Manual start/stop defrost: press HI LO button for 1 second and then press SET button simultaneously for 6 seconds, to defrost or stop defrost.
5. 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.
6. Defrost LED: during defrosting, the LED is on;When it stops defrosting, the LED is off. During the delay display of defrost, the LED flashes.
7. 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 12 parameters : E1,E2,E3,E4,E5, ~ C4.
   - 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.	0℃	F4	Display during defrost	0=Nomal display 1 = Last value before defrost	1
E2	Higher setpoint limit	Set temp.～45℃	12℃				
E3	Temp. hysteresis	1～10℃	3℃	C1	High temperature alarm	（C2+1）~45℃	9℃
E4	Comp. start delay time	0～10Min	2Min	C2	Low temperature alarm	－45℃~（C1－1）	1℃
E5	Offset on room temp.	－5～5℃	0℃	C3	Time delay of alarm and memory when starting	（0~24）×10min.	06
F1	Max. defrost duration	1～60Min	20Min				
F2	Defrost interval time	0～24Hr	6Hr	C4	Time delay of alarm when working	0~60min.	0min.

When C3=01, the time delay of alarm and memory when starting is 10 minutes;
When C3=06, the time delay of alarm and memory when starting is 60 minutes.

8. The factory default resumption: press ▽ button for 1 second and then press △ button simultaneously for 6 seconds, the indicator flashes and the buzzer buzzes, all parameters will be resumed as same as factory defaults. After 6 seconds, it returns to the normal operation.
9. Lock parameters
   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 controller
- After turning on for one minute, the evap. fan operates, And after the delay time ,the compressor starts operating when cold room temperature ≥ (set temp.+ Hysteresis), and will be off when cold room temperature ≤ set temp.
- To protect the compressor, it can re-start unless the time when the compressor stops every time is longer than the delay time(Parameter E4).

2. Defrost
- 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. After two minutes it will be in the normal status of refrigeration .
- When the defrost interval time is set "00" , the function of automatic defrost will be cancelled.

3. Highest and lowest temperature record
- When the power is on and after the delay time set by C3 Parameter, the controller starts to record the highest and lowest temperature and renew at any time. It will write down the highest and lowest temperature that has been ever reached, on the memory every five minutes. It will keep it in memory forever even if the power is off.
- Press the HI/LO key at any time, the HI/LO LED is on, and the highest temperature will be shown. press the HI/LO key again, the lowest temperature will be shown. If press the HI/LO key hold for 5 seconds, the display will flash for 3 seconds, the buzzer will sound. The highest and lowest temperature in the past will be deleted and will be renewed as the present cold room temperature and start to record again.

4. The alarm function
- When the power is on and after the delay time set by C3 Parameter, the alarm function is set.
- When the controller is power off, the alarm output signal contacts will be connected.
- In order to prevent the sudden change of temperature,the delay time for alarm can be set by C4 parameter, (When C3=0 or C4=0, there is no delay time). When the cold room temperature is higher than the high limit of the alarm temperature or lower than the low limit of the alarm temperature, it will alarm after the delay time and the display will flash, the buzzer will sound, and the alarm output signal contacts will be connected. Press mute button to stop sounding and cancle the external alarm output at the same time .

5. 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 30 minutes delay of room temp. display. The defrost LED flashes during the delay.

Circuit Diagram