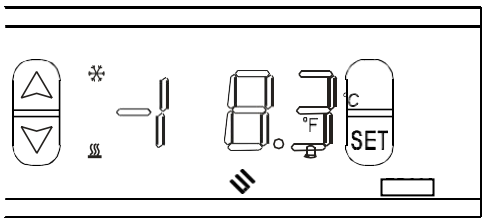
## Digital Temperature Controller




**Features of Function**

- It is a mini-sized and integrated intelligent controller.
- Temperature Display/ Temperature Control / Refrigerating & heating modes selection / Defrost by turning off comp./ Value Storing / Self Testing

**Specifications**

1. Power supply:120VAC
2. Temperature sensor: NTC, 1pc, 2m(L) (Neither positive nor negative)
3. Range of temperature display:－45～120℃ (－49~248℉) Accuracy:±1℃(±1.8℉)
   Resolution:0.1℃ (－19.9～99.9℃)
4. Range of set temperature:－45～120℃ (－49~248℉) Factory default : 1.7℃ (35℉)
5. Dimension:77(Length)×35(Width)×60(Depth)mm
   Mounting hole dimension:71(Length)×29(Width)mm
6. Temperature of the operating environment:－10～60℃ (14～140℉);
   Relative Humidity:20%~90%(Non-condensing)
7. Relay output contact capacity
   Control output: N. O. 10A

**Front Panel Operation**

1 . Set temperature (compressor stop temperature) adjustment

- Press SET button, the set temperature is displayed and flashes.
- Press △ or ▽ button to modify and store the displayed value . The values can be increased or reduced rapidly by pressing △ button or ▽ button for more than 2 seconds. Press SET button to exit the adjustment and display the cold-room temperature.
- If no more button is pressed within6 seconds, the cold-room temperature will be displayed. (Set temperature adjustment range: parameter E1～E2)

2. Refrigerating LED: During refrigerating, the LED is on; when the cold-room temp. is constant, the LED is off; during the delay, the LED flashes.
3. Defrost LED: during defrosting, the LED is on.
4. Heating LED: during heating, the LED is on; when the cold-room temp. is constant, the LED is off; during the delay, the LED flashes.
5. Parameters 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,C1,C2,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, it will return to normal operation mode.

| Parameter | Function | Set range | Default |
|---|---|---|---|
| E1 | Lower set point limit | －49℉～Set tem p.<br>－45℃ | 32. 0℉<br>0. 0℃ |
| E2 | Higher set point limit | Set temp.～248℉<br>120℃ | 160℉<br>71．0℃ |
| E3 | Temp. hysteresis | 1～54.0 ℉<br>1～30.0℃ | 0. 2℉<br>0. 1℃ |
| E4 | Comp. Start delay time | 0～10Min | 0分钟 |
| E5 | Offset on evap. temp | －35～36 .0℉<br>－19.9～20 .0℃ | 0 |
| C1 | Temperature unit | 0=℃ 1= ℉ | 1 |
| C2 | Temperature control mode | 0=refrigerating 1=heating | 1 |

6. The factory default resumption: press ▽ button for 1 second and then press △ button simultaneously for 6 seconds, the display flashes , all parameters will be resumed to factory defaults. After 6 seconds, it returns to normal operation mode.
7. Parameters Locking
Press ▽ button and hold for 6 seconds to lock the parameters if " OFF" is displayed or to unlock if "On" is displayed. Parameters can be displayed only and can not be modified if locked, but the adjustment of the set temperature is still active (The factory default is "On" )

**Function details**

1. Refrigeration control:
- When temperature control mode (parameter C2) is set to 0, and after delay time, the compressor starts operating when cold-room temperature ＞ (set temp. + hysteresis) and stops operating when cold-room temperature ＜set temperature.
- To protect the compressor, it can not be re-started unless the time when compressor stops every time is longer than the delay time(Parameter E4).

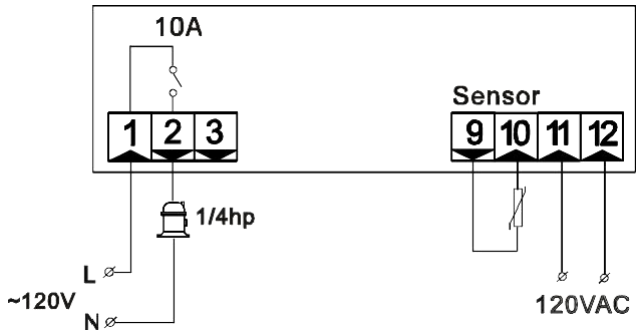
2. Heating control:
- When temperature control mode( parameter C2) is set to 1, and after delay time, the heater starts heating when cold-room temperature ＜(set temp.－hysteresis) and stops heating when cold-room temperature ＞set temperature.

3. Defrosting
- Operating after a defrost interval time (Parameter F2),it will automatically enter halt state, the compressor stops. After a certain time(F1), it will enter automatic refrigeration s tate.
- When the defrost interval time is set to "00" , the function defrost by turning off comp. will be cancelled.
- Press SET and ▽ button simultaneously and hold for6 seconds to enter the parameter setup mode while F1 flashes. Press again SET button to select F2, F1. Press △ or ▽ button, the value of parameter will be displayed and can be modified and stored.
- If no more button is pressed within 10 seconds, it will return to normal operation.

| Parameter | Function | Set range | Default |
|---|---|---|---|
| F1 | Max. Defrost duration | 1～90Min | 20Min |
| F2 | Defrost interval | 0～24Hr | 0Hr |

4. Abnormal work mode
- When cold-room sensor is short-circuited or overheated (more than 120℃ / 248℉) " HH" is displayed; when the cold-room sensor is open-circuited or temperature is too low (less than －45℃/－49℉), " LL" is displayed. Alarm LED flashes.

5. Circuit Diagram




**Notes for Installation**

1. The sensor cable leads must be kept separately from main volt age wires in order to avoid high frequency noise induced. Separate the power supply of the loads from the power supply of the controller.
2. In case of long-distance probe installation from the controller, the probe cable may be prolonged up to 100 m max. without any re-calibration
3. The temperature controller can not be installed in the area with water drops.

**Accessories for the temperature controller**

1. One pc of temperature sensor 2.
One pc of installation stand
3. One pc of cover panel