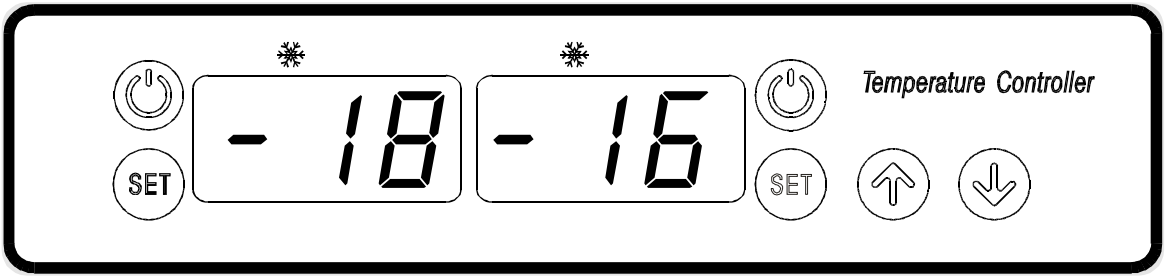
Model: SF-272 Digital Temperature Controller



Features of Function

- Temperature display / Temperature Control/Refrigeration defrost by turning off comp./ Freezing defrost by turning off comp./ High, low temperature alarm/Self -testing

Specifications

1. Power supply:220VAC
2. Temperature sensor: NTC, Double sensors, 2m(L) (Neither positive nor negative)
3. Range of temperature displayed : －45～120℃(-49~248℉) Accuracy: ±1℃ （2℉ ）
4. Range of set temperature:
   Freezing: －30～20℃(-22~68℉) Factory default: -10℃ （14℉ ）
   Refrigeration: －30～20℃(-22~68℉) Factory default: 06℃ （43℉ ）
5. Dimension:230(Length)×54(Width)×27(Depth)mm
   Mounting hole dimension:225(Length)×49(Width)mm
6. Temperature of the operating environment:－10～60℃ (14~140℉)
   Relative Humidity:20%~90%(Non-condensing)
7. Output contact capacity:
   - Refrigeration comp. : N.O.10A/250VAC
   - Freezing comp. : N.O.30A/250VAC

Front Panel Operation

1. Set temperature adjustment
   Press (SET) button, the corresponding set temperature is flash and displayed.
   Press (△) or (▽) button to modify and store the displayed values.
   If no more button is pressed within 6 seconds, the cold-room temperature will be displayed.
   (Set temperature adjustment range: corresponding window parameter E1～E2)
2. Manual enter/stop defrost: Press (⏻) and (△) button at the same time and hold for 6 seconds, can enter corresponding defrost state or stop defrost.
3. Refrigeration LED: During refrigeration, the LED is on; When the temp. is constant, the LED is off; During the delay process, the LED flashes.
4. Power switch: Press (⏻) button and hold for 3 seconds, the corresponding window will stop the control output and display "--- ", press (⏻) button for 1 second to start up.
5. Parameter setup
   Press (SET) button and hold for 6 seconds to enter the corresponding window inner parameter setup, at the same time E1 flashes.
   Press again (SET) button to select sequentially from the parameters: E2,E3,E4,.....CF,E1.
   Press (△) or (▽) button 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.
6. Factory default resumption: press (⏻) and (SET) at the same time and hold for 6 seconds, flash and display "888 " . At this time the corresponding window parameters will be resumed as factory defaults, after 6 seconds, it will return to normal operation.
7. Parameter locking: press (▽) button and hold for 6 seconds to lock the parameters if OFF is displayed, or to unlock if ON is displayed. Refrigeration and freezing parameters can be checked only and not be modified if locked, but the adjustment of the set temperature is still active. (Factory default is ON)

Function details

1. Temperature Control
   - After turning on for the delay time, the compressor starts operating when cold room temperature＞(set temperature+ hysteresis), and will be off when cold room temperature ＜ set temperature.
   - To protect compressor, it can not re-start unless the time when the compressor stops every time is longer than the delay time (Parameter E4).
   - The two compressors will not start at the same time , they will start alternately every 20 seconds.

Refrigeration (left window) parameters

Parameter	Function	Set range	Default
E1	Set temp. Lower limit	−35℃ −31℉ ～set temp.	−05℃ 23℉
E2	Set temp. Higher limit	Set temp.～ 20℃ 68℉	12℃ 54℉
E3	Temp. Hysteresis	01～20℃ 02～36℉	05℃ 09℉
E4	Comp. Start delay time	00～10min	2min
E5	Offset on room temp.	−20～20℃ −36～36℉	00℃ 00℉
F1	Defrost duration	01～60min	20min
F2	Defrost interval	00～24hr	0hr

Parameter	Function	Set range	Default
F4	Display during defrost	00=normal display 01=last value before defrost 02=dEF	01
C1	Room temp. High temp. alarm	C2～ 45℃ 113℉	45℃ 113℉
C2	Room temp. Low temp. alarm	−45℃ −49℉ ～C1	−40℃ −40℉
C3	Alarm hysteresis	01～20℃ 02～36℉	02℃ 04℉
C4	Alarm delay	00～90min	30min
CF	Temp unit	℃=Celsius ℉=Fahrenheit	℃

Freezing (right window) parameters

Parameter	Function	Set range	Default
E1	Lower set temp.	−35℃ −31℉ ～set temp.	−23℃ −09℉
E2	Higher set temp.	Set temp.～ 20℃ 68℉	03℃ 37℉
E3	Temp. Hysteresis	01～20℃ 02～36℉	05℃ 09℉
E4	Comp. Start delay time	00～10min	2min
E5	Offset on room temp.	−20～20℃ −36～36℉	00℃ 00℉
F1	Defrost duration	01～60min	20min
F2	Defrost interval	00～24hr	4hr

Parameter	Function	Set range	Default
F4	Display during defrost	00=normal display 01=last value before defrost 02=dEF	01
C1	Room temp. High temp. alarm	C2～ 45℃ 113℉	45℃ 113℉
C2	Room temp. Low temp. alarm	−45℃ −49℉ ～C1	−40℃ −40℉
C3	Alarm hysteresis	01～20℃ 02～36℉	02℃ 04℉
C4	Alarm delay	00～90min	30min
CF	Temp unit	℃=Celsius ℉=Fahrenheit	℃

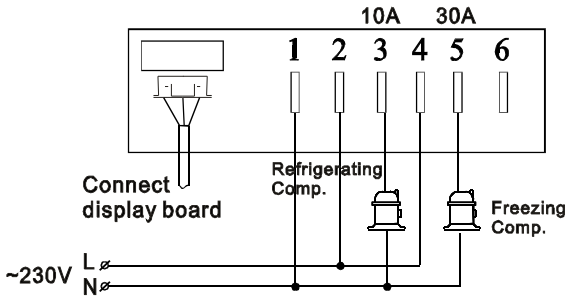
2. Defrost Control

- After working a defrost interval (parameter F2) will automatic enter the stop state, the compressor will stop.
- After the defrost duration F1, will enter the automatic refrigeration state.
- When setting defrost interval 00, the defrost by turning off compressor function will be cancelled.
- When setting parameter F4=00, will display the cold-room temperature normally.
- When setting parameter F4=01, the room temperature is locked during defrost, and the last value before defrost will be displayed. When defrost ends, it will resume normal display after 20 minutes delay of room temperature display or room temperature is lower than the set temperature.
- When setting parameter F4=02, dEF will flash display. When defrost ends, it will resume normal display.

3. Alarm control:

- After the compressor turning on and off normally for once, then can start the high low temperature alarm.
- When cold-room temperature is abnormal(for example: more than high temperature alarm C1 or low temperature alarm C2) and duration more than alarm delay time C4, and then enter alarm state and start the alarm. When high temperature alarms, the cold-room temperature and HI will alternate display, the corresponding compressor will start. When low temperature alarms, the cold-room temperature and Lo alternate display, the compressor stops.
- When cold-room temperature is more than (low temperature alarm value C2+ alarm hysteresis C3), the low temperature alarm will end. When cold-room temperature is lower than the (high temperature alarm value C1- alarm hysteresis C3), the high temperature alarm will end.
- When alarm, the buzzer sounds, press random button to cancel the sound.

4. Abnormal work mode:
   When room sensor is short-circuited or overheated(more than 120℃/248℉) "HH" will be displayed; when room sensor is open-circuited or temperature is too low (less than —45℃/-49℉) "LL" will be displayed. When the room sensor defective, the corresponding window will enter timing work mode, the compressor automatically work in the cycle of 30 minutes on and 15 minutes off.
5. Circuit Diagram:



Notes for Installation

1.The temperature controller cannot be installed in the area with water drops. When installation the probe shall be placed with the head upward and the wire downward. Sensor 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.

Accessories for the temperature controller

1. Two temperature sensors 2. One installation stand