Model: HD-102SB   Digital Temperature Controller

Refrigeration LED   Defrost LED
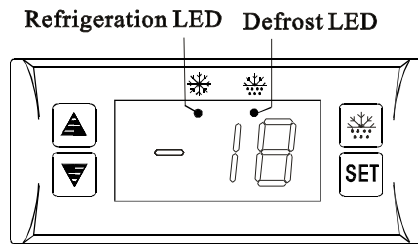
Features of Function
- Mini-sized and integrated intelligent control and applicable to the compressor of one HP.
- Temperature Display/ Temperature Control/ Manual, automatic defrost / Defrost by turning off / Value Storing/ Self Testing

Specifications
1. Output of the outside sealed transformer:12VAC(one transformer matched with one temp.controller)
2. Temperature sensor: NTC (B=3470,5k=25℃) , one sensor(cold room temp. Control),provided by HanDa
3. Range of temperature displayed : −40～40℃ (−40～104℉)   Accuracy: ±1℃(±2℉)
4. Range of set temperature: −40～40℃ (−40～104℉)   Factory default : 4℃(39℉)
5. Dimension:77(Length)×35(Width)×30(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. Output contact capacity:
- Compressor: N.O. 30A/250VAC
   (can connect 1HP compressor, if more it needs to connect can 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: E1～E2)
2. Manual start/stop defrost:Press ❄ button and hold for 6 seconds to defrost or stop defrost.
3. Refrigeration LED: during the first time power on delay start, LED flashes. During refrigeration, the LED turns on; during temperature constant state, the LED turns of;during delay time, the LED turns off.
4. Defrost LED: during defrosting, the LED is on; during delaying time the LED flashes.
5. Parameters setup
   Press SET button for 6 seconds to enter parameter setting(PA will display and flash);and then press SET button, E1, E2～CPA、E1 will display sequentially, press △or ▽button to display and revise the values; if no more button is pressed within 6 seconds, it will exit and store new values.Note: only when it enters inner parameter manual (PA is displayed) and enter correct password, the parameter values can be adjusted. If the entered password is wrong, then all the parameters just can be checked and can not be changed, the set temperature adjustment is still valid. If the user forget the password, then it will resume factory default.
6. Factory default resumption: press △ and ▽ button simultaneously for 6 seconds, "888 " will be displayed. At that moment all the parameters and set temperature will resume to factory default, after 6 seconds it will return to normal operation.
7. Only after enter correct password when it enters inner parameter manual (PA is displayed), CPA value can be checked and changed. After enter inner parameter "CPA "press △or ▽button can display and change password, and then press ❄ button to confirm and store new password. (When "CPA " value is set to "00 " that means password locking is cancelled).

Function details
1. Temperature control
- After turning on the compressor for 3 seconds 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 not re-start unless the time when the compressor stops every time is longer than the delay time (Parameter E4).

| Parameter	Function	Set range	Default
PA	Password	00～99	82
E1	Lower setpoint limit	$-40℃$ $-40℉$ ～Set temp.	00℃ 32℉
E2	Higher setpoint limit	Set temp.～ 40℃ 104℉	10℃ 50℉
E3	Temp. Hysteresis	01～10℃ 01～36 ℉	03℃ 05℉
E4	Comp. start delay time	0～600 Seconds	300Sec
E5	Offset on room temp.	-05～05℃/℉	00
F1	Max. Defrost duration	0～60Min.	20Min.
F2	Defrost interval time	00～24Hr	08Hr
F4	Display during defrost	00＝Normal display 01＝Last value before defrost 02＝Defrost coda "dEF"	01
CF	Temperature unit	00＝℃/01＝℉	00
CPA	Change menu password	00-99 (if it is set to 00, that means the locking is cancelled)	82

2. Timed shutdown defrost control
  • When having worked a defrost interval (ParameterF2), it will enter the stop state automatically and the compressor will stop; after some times later(Parameter F1), it will enter the automatic refrigeration mode.
  • When the defrost interval F2 time is set to "00" , the function of automatic defrost will be cancelled.
  • When setting parameter F4=0, it will display cold room temperature normally.
  • When setting parameter F4=1,the room temp. is locked during defrost, and the first value of the defrost start temperature is displayed. When defrost ends, normal display will be resumed after 20 minutes delay of room temp. display. (or cold room temperature ＜ set temperature). The defrost LED flashes during the delay.
  • When setting parameter F4=2, it will display "dEF ", and flash. When defrost ends, normal display will be resumed after 20 minutes delay of room temp. display. (or cold room temperature ＜ set temperature)
3. Abnormal work mode
   When room sensor is overheated(more than 40℃/104℉) "HH" is displayed;When room sensor temperature is too low (less than $-40℃/-40℉$) " LL" is displayed and the buzzer sound. When room sensor is short circuited "SC" is displayed; when room sensor is open circuited "SO" is displayed and the buzzer sound. When presents the above of several kind of failures, the compressor must stop.
4. Circuit Diagram:
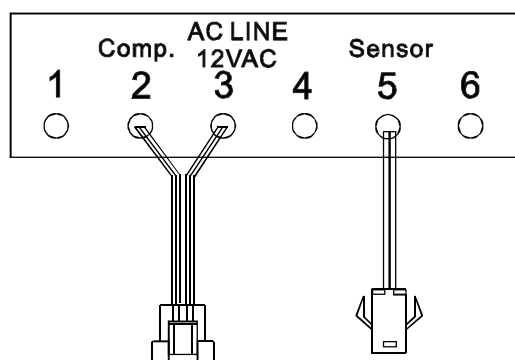
Notes for Installation
1. The sensor cable leads must be kept separately from main voltage wires in order to avoid high frequency noise induced. Separate the power supply of the loads from the power supply of the controller.
2. When install the sensor, it shall be placed with the head upward and the wire downward. The defrost sensor should put in the evaporator tinsel to ice up the thickest place, and shouldn`t near the heating wire.
3.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
4. The temperature controller can not be installed in the area with water drops.

Accessories for the temperature controller
1. Temperature controller meter head lead circuit exposed length is 80mm   2. One installation stand