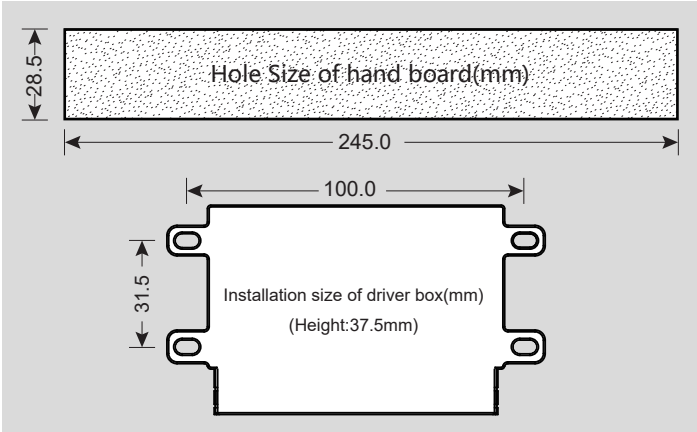




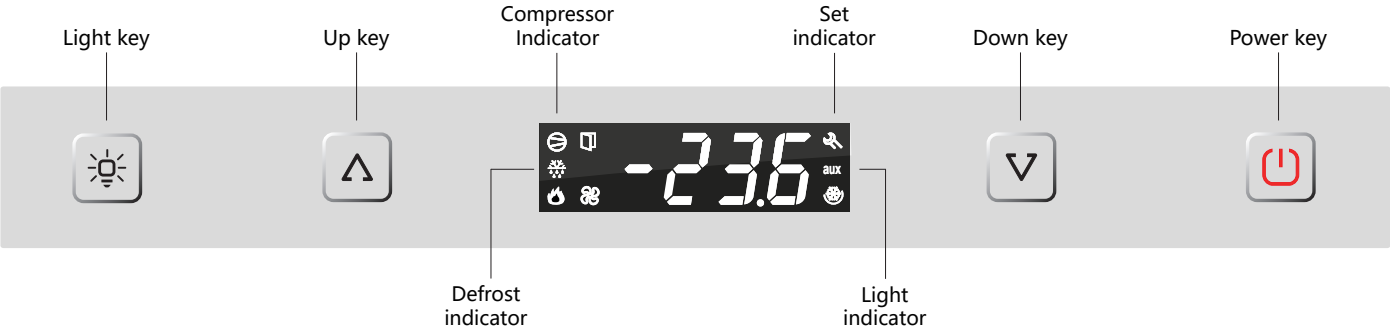
EN-23 + DB-102(Compressor,Light control)

1. Dimensions and Panel mounting



-Before installation, please ensure that the working environment of the controller meets the requirements in the technical parameters;
-Do not place the equipment near heat sources, strong magnetic equipment, or install it in direct sunlight, rain, humidity, dust, places subject to mechanical vibration.

4. Panel and operation



4.1 Indicator light description

- Compressor : Lights up when Compressor is working, flashes when the compressor starts with a delay, and goes out the rest of the time;
- Defrost: Lights up when the defrost is working, and goes out the rest of the time;
- Light: Lights up when the aux output is working, and goes out the rest of the time;
- Set: Lights up when the shutdown temperature or other parameters are set, and goes off the rest of the time;

4.2 Key function

Light key |

-Turn on or off light(can still be controlled in the power-off state);

Up key |

-Scrolls through menu items and increases values;

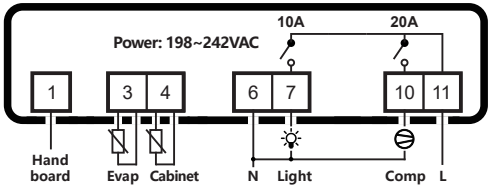
Down key |

-Scrolls through menu items and decreases values;

Power key |

-Pressing power key for 3s to switch between the power-on state and power-off state;

2. Wiring diagrams



3. Technical data sheet

Dimensions:	Hand board (L*W*H): 245.0*28.5*25.0mm
	Driver board (L*W*H): 113.0*77.0*37.5mm
connector insert:	Φ6.3mm,0.8mm thickness insert (250 insert)
Power supply:	220VAC±10%,50/60Hz
power consume:	5.0VA max
Resolution:	0.1°C or 1°F
Temperature measurement range and accuracy:	-50°C ~ 90°C, -40°C ~ 50°C ±1°C, others ±2°C
Output Relay:	Compressor: 20A/240VAC normal open, single-phase 2HP compressor can be driven
	Light: 10A/240VAC normal open
Working temperature:	-20°C ~ 55°C
Storage temperature:	-25°C ~ 70°C
Relative humidity:	20% ~ 85% (no frost)

4.3 Normal operations

How to change the set point temperature

Press key or key, the set point displayed, the set point can be modified by press key or key.

No key operation within 8 seconds, it will exit from parameter setting and automatically save the current parameter value.






How to change the other parameters





Press key and key together for 3 seconds, the "St" code displayed, Press key, the "Po" code displayed, then press key, display 00, press key and key to input the password of administrator menu(Password=55). Press key again, display "Po" code. It could select parameter items St、Po、c1、c2.....PAS by pressing the key and key.

When the parameter item is selected, press key to enter to the setting of the current item, press key or key to modify the value, and then press key to return to the menu.

No key operation within 8 seconds, it will exit from parameter setting and automatically save the current parameter value.

5. Parameter table

	No.	Para.	Default	Description	Range
	0	St	4°C	Set point	c5 ~ c6
	1	Po	00	Password	00 ~ 255
	2	c1	4.0°C	Differential	0.5°C(1°F) ~ 9.0°C(20°F)
	3	c2	3	Compressor min OFF time	0 ~ 60 mins
	4	c3	3	Output activation delay at start-up	0 ~ 90 mins
	5	c4	0.0°C	Probe for cold room calibration	-10.0°C(-20°F) ~ 10.0°C(20°F)
	6	c5	-2°C	Minimum Set Point	-50°C(-58°F) ~ St
	7	c6	10°C	Maximum Set Point	St ~ 85°C(185°F)
	8	c7	0	Max compressor stand by time	0 ~ 9 mins, 0: disabled
	9	c8	0	Compressor min on time	0 ~ 90 mins, 0: disabled
	10	d1	1	Enable the evaporator probe	0: disabled 1: enable
	11	d2	0.0°C	Probe for evaporator calibration	-10.0°C(-20°F) ~ 10.0°C(20°F)
	12	d3	1	Selects the count mode for the defrost interval	0: compressor running time 1: device running time
	13	d4	4	Interval between the start of two consecutive defrost cycles	0 ~ 90h, 0: defrost disabled
	14	d5	3	Display mode during defrost	0:displays the temperature read by probe Pb1; 1: display dEF during the whole period of defrost and dripping; 2:locks recorded value of Pb1 at defrost start until timeout of d9, then display the temperature read by Pb1; 3:locks recorded value of Pb1 at defrost start until the Pb1 temperature is lower than value of Pb1 at defrost start, then display the temperature read by Pb1;
	15	d6	25	Determines the maximum defrost duration	1 ~ 90 mins
	16	d7	12°C	Defrost end temperature	0°C(32°F) ~ 50°C(122°F)
	17	d8	3	Draining time after defrost	0 ~ 60 mins, 0: disabled
	18	d9	15	Timeout time value of delay to display the temperature read by Pb1	0 ~ 90 mins
	19	d10	0	Defrost delay time after call	0 ~ 60 mins, 0: disabled
	20	d11	1	Defrost type	0: natural defrost 1: electric defrost 2: reverse cycle defrost
	21	d12	0	Reserved	Reserved
	22	d13	-50	Reserved	Reserved
	23	F1	3	Fan management	0:working with the step of compressor and always on during the period of defrost and dripping 1: working with the step of compressor, off on the period of defrost and dripping, restart when time out of F3 after dripping 2:always on except the period of defrost and dripping 3:always on except the period of defrost and dripping, restart when time out of F3 after dripping 4:reserved 5:always on 6:Determined by evaporator probe (F4/F5)
	24	F2	4	First time activation delay after power on	0 ~ 60 mins
	25	F3	2	Activation delay after any defrost	0 ~ 60 mins, 0:disabled
	26	F4	-12°C	Min working temperature for fan	-50°C(-58°F) ~ F5
	27	F5	-5°C	Max working temperature for fan	F4 ~ 85°C(185°F)
	28	A1	5	Compressor switch-off time in the event of error probe	1 ~ 60 mins
	29	A2	30	Compressor switch-on time in the event of error probe	0 ~ 60 mins, 0:disabled
	30	A3	1	Buzzer alarm	0:disabled 1:enable

	No.	Para.	Default	Description	Range
	31	A4	-40°C	Lower temperature alarm	-50°C(-58°F) ~ A5
	32	A5	30°C	Higher temperature alarm	A4 ~ 85°C(185°F)
	33	A6	20	Alarm active delay time	0 ~ 60, delay time =A6x3 mins
	34	A7	40	First time alarm active delay time	0 ~ 60, delay time =A7x3 mins
	35	A8	0	Auxiliary relay appointment	0: light 1: alarm 2: aux heater
	36	do1	0	Disabled or enabled door switch	0: disabled 1: Turn off the fan when the door is open; 2: Turn on the light when the door is open, and turn off the light when the door is closed; 3: Turn on the light when the door is open and turn off the fan; turn off the light when the door is closed, and the fan will return to the state before the door is opened; 4: As a synchronous defrost signal, start defrost;
	37	do2	0	Buzzer response delay when opening the door	0~200, delay time=do2*3 sec, 0: Not responding
	38	cd1	00	Disabled or enabled the Probe for condenser	0: disabled 1: enable
	39	cd2	55°C	Higher temperature alarm active value of condenser	30°C(86°F) ~ cd4-1
	40	cd3	5°C	Condenser alarm differential	1°C(2°F) ~ 15°C(30°F)
	41	cd4	64°C	the value of condenser temperature to active the protection	cd2+1 ~ 90°C(194°F)
	42	u1	01	Unit	00: Fahrenheit 01: Celsius
	43	u2	03	Display delay for every 1°C increase in cabinet temperature	0~90(unit:10 sec), 0: disabled
	44	Adr	01	machine ID	00~246
	45	PAS	55	Password set	0~255, 0: disabled

6. Error Code

Label	Description	Cause	Problem solving
E1	Probe 1 in error	1.Measured values are outside operating range 2.Probe inoperable/short circuited/open	Verify probe type Verify probe wiring Replace probe
E2	Evaporator probe error		
E3	Condenser probe error		
rH	Alarm due to HIGH Temperature Pb1	the cabinet temperature>A5 and the cabinet continues Temperature alarm delay time;	wait for value read by Pb1 to return < A5;
rL	Alarm due to LOW Temperature Pb1	the cabinet temperature <A4 and the cabinet continues Temperature alarm delay time;	wait for value read by Pb1 to return > A4;
dEF	Defrosting or dripping	/	/