

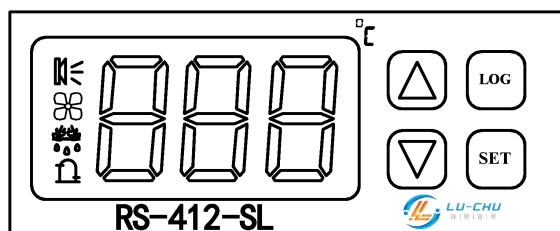


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412-SL

system controller

Panel:



Product Service

Notice:

1. Before installing, please turn off the power to avoid fatal electrical injuries
2. Please install on dry place and avoid damp.
3. In order to prevent from leaking and dangerous, waterproofing measures must be taken.
4. Please check the wiring and input power before power transmission.
5. Please follow the installed rules for your safety, especially wiring diagram and electric current requirement.
6. **Please do not tie sensor, connecting line of panel and rear, power lines and lines of load (e.g. fan) together.**

Technical data:

- Power Supply: 85V ~ 265V/AC/50 ~ 60HZ
- Display: Seven segment LED
- Mounting: SNAP-IN
- Fit-in size: 70*28*64mm³
- Maximum output rating: Compressor 30A/250V
- Temperature range: -65°C ~ +50°C
- Working temperature: -15°C ~ +70°C
- Accuracy: ±1°C
- Resolution: 0.1°C

System parameter table:

No.	Symbol	Description	Range	Default
1.	tS	Compressor stop temperature	-65°C ~ +50.0°C	-45°C
2.	td	Differential temperature for compressor restart	+0.1°C ~ +15.0°C	+4.0°C
3.	Sd	Compressor start-up delay time	0 ~ 15 (Min.)	0 (Min.)
4.	di	Defrost interval	0 ~ 24 (Hr.)	0 (Hr.)
5.	dd	Defrost duration	0 ~ 60 (Min.)	0 (Min.)
6.	CL	Condenser cleaning interval	0 ~ 250 day	0 day
7.	tA	Sensor calibration	-9.0°C ~ +9.0°C	-3.0°C

Note: When [Lo]=y, the range of [tS] is between [tH] ~ [tL]

Lock parameter table:

No.	Symbol	Description	Range	Default
1.	Lo	Parameters protection	y: Lock/n: unLock	y
2.	tH	The upper temperature limit	tS ~ +50.0°C	-25°C
3.	tL	The Lower temperature limit	-65°C ~ tS	-64°C
4.	AH	High temperature alarm	tS ~ +50.0°C	0.0°C
5.	Ht	Alarm when the temperature is higher than AH setting continuously over this duration	0 ~ 180 (Min.)	90 (Min.)
6.	AL	Low temperature alarm	-65°C ~ tS	-64°C
7.	Lt	Alarm when the temperature is Lower than AL setting continuously over this duration	0 ~ 180 (Min.)	10 (Min.)
8.	do	Display shows state during defrost	1= temp. before defrost 2= show DEF 3= room temp.	1

Note: When parameter Lo is set to "y", the parameter "tS" will be the only parameter which can be shown on display. No other parameters can be modified until Lo is set back to "n".

When setting [AL], press [▲] or [▼] within 3 secs to adjust the value.

Error code:

Error code	Description
E1H	Sensor shorted or temperature higher than +50.0°C
E1L	Sensor opened or temperature Lower than -65°C
AH	High temperature alarm
AL	Low temperature alarm
CLn	Condenser need to be clean, CLn flashing

Operation System parameter setting:

1. Press [SET] key, the display flashes pattern [888], then shows the symbol of the first system parameter [tS], press [▲] or [▼] key to choose other parameters. Press "SET" key, the display will show value of each parameter. Then, press [▲] or [▼] key to adjust value.



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Finally, press【SET】key until display show『god』to finish adjusting, then display will show temperature.

Lock system parameter setting:

1. Press【SET】key for three seconds, the display begins flashing pattern『888』. While flashing, press both【▲】and【▼】keys together until display shows『Lo』. Press【▲】or【▼】to choose『y』or『n』(y=Lock; n=unlock)
2. If you choose『n』, after pressing【SET】key, the display shows pattern『tH』, then press【▲】or【▼】key to move to the next parameter. Press “SET” key, the display will show value of each parameter. Then, press【▲】or【▼】key to adjust value. Finally, press【SET】key until display show『god』to finish adjusting, then display will show temperature.

Other operations:

1. When power『ON』, the compressor is delaying for protecting. Press【▼】key to run compressor. (Display shows『Fon』)
2. Total operation hours (tot): Press【▲】button and【▼】button simultaneously, then display will show three values. For example if the total running time is 12345 hours, the display will show first set “tot” (means total running time), then followed by the second digit set 『012』, then the last digit set『345』.
3. If there is no key was pushed within 30 seconds or press【Log】, display will show normal temperature.
4. Press【Log】key, the displays flashes『dEf』, the controller go into defrost immediately.
5. When alarm sounds, press【▼】to stop.
6. When sensor is shorted or opened, display shows error code until malfunction is solved.
7. While“CLn”is flashing, press【▼】to stop alarm. To reset the“CLn”error code, use『ON/OFF』key to turn Off power and turn on power again. The system will re-count the cleaning time.

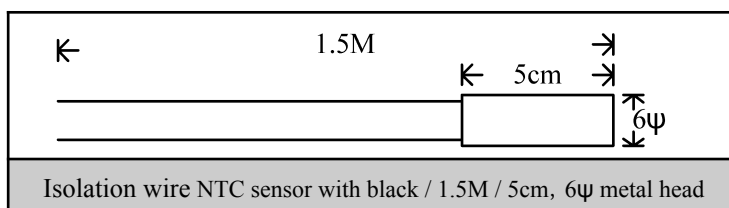
Function keys:

LED Indicators:

	Increase/decrease	To adjust value
	Set	Request for setting the parameter
	Defrost	Manual defrost

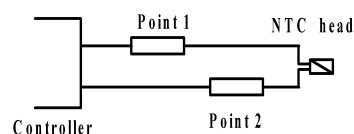
	Green	Lamp flash, compressor time delay Lamp ON, compressor runs
	Red	Lamp flash, system defrosting
	Red	Lamp flash, alarm is on

SENSOR Specifications



※Lengthen your NTC sensor probe, Please pay attention on below:

- (1). Turn Off the system power.
- (2). To avoid short circuit, the connection points should be interleaved as shown right.



Wiring diagram:

