



NULINE
REFRIGERATION

A SIGN OF QUALITY

FREEZERS

TEMPERATURE SET AT

-18 --- -22°C

ALARM SET AT

-15 --- 25°C

30 Minute Delay on Alarm

To Silence alarm press SET button for 2 seconds to reset alarm



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How to Check Min / Max Temp

- Press Hi/low button your max temperature will appear while flashing.
- Repeat process to obtain min temperature.

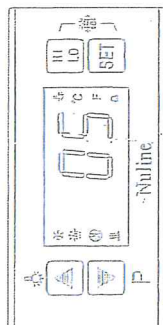
To RESET min/max temperature

- press hi/low button, hold in until beeps approx. 6-10 seconds and let go

Alarm

- To silence alarm press down arrow button
-

Model SF-618 Digital Temperature Controller



Features of Function

- Mini-sized and integrated intelligent control, applicable to the compressor of one HP.
- Temperature Display/ Temperature Control / Manual, automatic defrost/Time setting to-end defrost/ Highest and lowest temperature memorization/Alarm delay/Door switch/Value storing/Parameter locking/Self testing

Specifications:

- Power supply: 240VAC 50/60Hz (6vdc, when electric supply disconnected, the controller could display normally and alarm)
- Temperature sensor: NTC, Double sensors (for cold room & product, temperature control), 2m(L)
- Range of temperature displayed: -45~66.0°C Accuracy: ±0.1°C
- Range of set temperature: -19.9~20.0°C Factory default: 4.0°C
- Dimension: 77(Length)×35(Width)×70(Depth)mm Mounting hole dimension: 71(Length)×29(Width)mm
- Temperature of the operating environment: -10~60°C
- Relative Humidity: 20%~90%(Non-condensing)

7. Relay output contact capacity: _____

* Compressor: N.O. 30A/250VAC (can directly connect 1HP compressor, if more needs to connect an

AC connector)

* Light: N.O. 5A/250VAC * Alarm: N.O. 5A/250VAC

Print Panel Operator

- Set temperature (down time temperature) adjustment
Press button, the set temperature is displayed, then press or to store and memorized. Press button to exit the adjustment status and display the cold-room temperature. If no more buttons are pressed within 6 seconds, the cold room temperature will be displayed.

- Manually start/ stop defrosting: press button then press button and hold for 6 seconds to enter defrost status or to stop defrost.

- Display the product sensor temperature: Press button, the product temperature will flash and display, after 6 seconds will resume cold room temperature normally.

- Light: Press button to turn on or off the light.

- Refrigeration LED: During refrigeration, the LED is on; When the temp. is constant, the LED is off; During the delay, the LED flashes.

- Defrost LED: during defrosting, the LED is on; During the delay display of defrost, the LED flashes.

- Parameter setup
Press button and hold for 6 seconds to enter the parameter setting (flash and display PAS) after enter the correct password, press button will display E1, E2, ..., do3, PAS in sequence. Press or button, the value of parameter will be displayed and can be modified and stored. If no more buttons are pressed within 6 seconds, it will exit and store the new value. Note: Only when enter the inner parameter menu (display PAS) enter the correct password, can adjust parameter value. If enter the incorrect password, will exit the parameter modification, the set temperature adjustment still active. If forget the password, need to resume the factory default.

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SET POINT 4.5

Parameter	Function	Set range	Default	Parameter	Function	Set range	Default
PAS	Password	00~99	15	C3	Product temp. high temp. Alarm	-19.9~20.0°C	20.0°C
E1	Lower setpoint limit	-19.9°C~Set temp.	2.0°C	C4	Alarm hysteresis	1.0~20.0°C	2.0°C
E2	Higher setpoint limit	Set temp.~20.0°C	10.0°C	C5	Startling up temp. alarm delay	00~99min	10min
E3	Temp. Hysteresis	0.1~20.0°C	0.4	C6	Temp. Alarm delay	00~99min	15
E40	Turning on delay time	00~10Min	3min	C7	Power off relay alarm	00=do not alarm 01=alarm	01
E41	Comp. Start delay time	00~10Min	3min	C8	Alarm relay class after muffic, alarm relay switch	00=open 01=close	00
E5	Offset on room temp.	-19.9~20.0°C	0.0°C	C9	Restart time after buzzer tone	00=do not restart 00~30min=restart time	10min
E6	Offset on evap. Temp.	-19.9~20.0°C	0.0°C	C10	Comp. Force stop time	01~99Min	99min
F0	Defrost type	00=defrost by turning off comp.	00	C11	Comp. Force running time	00=comp. Stop 01~99min=starting time	0min
F1	Max defrost duration.	01~60Min	1min	C12	Alarm output type	00=connect activation when alarm 01=connect disconnect when alarm	01
F2	Defrost interval time.	00~24Hr	00	CF	Temperature unit	°C=Cel status	°C
F4	Display during defrost.	00=not room temp. display normally 01=last value before defrost 02=fixed display cold room temp. 03=display DEF	00	Do1	Door open alarm	00=do not alarm 01=original status alarm	04 min
C1	Cold room high temp. Alarm	C2~20.0°C	8	Do2	Comp. Status when door open	00=stop 01=original status	01
C2	Cold room low temp. Alarm	-19.9°C~C1	2	Do3	Light status when door open	00=stop 01=original status	01

Instrument running alarm indication list

Alarm type	Compressor running	Compressor on	Compressor off	Room temp. sensor short circuited	Room temp. sensor open circuited	Product temp. sensor short circuited	Product temp. sensor open circuited	Product temp. sensor high temp Over limit alarm	Electric supply off alarm	Door open delay alarm
Cold room high temp. alarm	Compressor running	Compressor on	Compressor off	Room temp. sensor short circuited	Room temp. sensor open circuited	Product temp. sensor short circuited	Product temp. sensor open circuited	Product temp. sensor high temp Over limit alarm	Electric supply off alarm	Door open delay alarm
Cold room low temp. Alarm	Compressor running	Compressor on	Compressor off	Room temp. sensor short circuited	Room temp. sensor open circuited	Product temp. sensor short circuited	Product temp. sensor open circuited	Product temp. sensor high temp Over limit alarm	Electric supply off alarm	Door open delay alarm
Room temp. sensor short circuited	Compressor running	Compressor on	Compressor off	Room temp. sensor short circuited	Room temp. sensor open circuited	Product temp. sensor short circuited	Product temp. sensor open circuited	Product temp. sensor high temp Over limit alarm	Electric supply off alarm	Door open delay alarm
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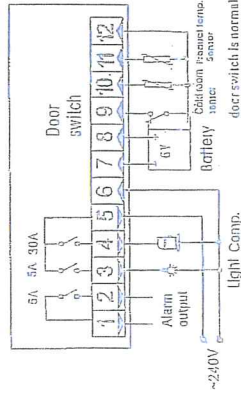
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- When the electric supply is off, flash and display EEL and alarm. When setting do l=00, do not alarm when door open. When setting do l>0, when reach the delay time, flash and display dr and alarm, press random button to mute.
- If setting C7=0, then relay do not alarm when power off.
- If setting C8=0, then after alarm mute, alarm relay do not close.
- If setting C9=0, then after button mute, the buzzer do not restart.
- If setting other numbers, then after reaching delay time, buzzer sounds one more time. (Under the condition of alarm not terminate)
- 4. Abnormal work mode
 - When cold room sensor is short-circuited or high temperature over limit (over 66°C), "1H" is displayed; when cold room sensor is open-circuited or low temperature over limit (lower than -45°C) "1L" is displayed. Compressor will enter the force running mode, according to C10; C11 set parameters running in sequence.
 - When product temperature sensor short-circuited or high temperature over limit (over 66°C), alternate display 2H and cold room temperature, when product temperature sensor open circuit or low temperature over limit (lower than -45°C), alternate display 2L and cold room temperature.

Circuit diagram



Notes for Installation

1. 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.
2. When installation the sensor shall be placed with the head upward and the wire downward;
3. The temperature controller can not be installed in the area with water drops.

Accessories

1. Two temperature sensors
2. One installation stand
3. One door switch line
4. One cover panel

3. Highest and lowest temperature record: After turning on and C5 delay will start to record the highest and lowest temperature, the record will be refreshed at any time. 5 minutes in a group and enter in memory the once achieved highest and lowest value, permanent memorize still work when power off. Press [M] button, highest temperature will be displayed. Press again, the lowest temperature will be displayed. If hold [M] button for 6 seconds, will flash and display for 3 seconds, the buzzer sound, could clear previous highest and lowest temperature record, update to present cold room temperature and record again. (Highest and lowest temperature record instruction: When F4=0, can record highest and lowest temperature at any time. When F4=1, 2, 3, during defrost and delay locking 20 minutes, do not record highest and lowest temperature. When cold room sensor failure, do not record highest and lowest mode.
10. Only when enter the inner parameter menu (P.A.S display) and enter the correct password, can check or change the password value. After entering the inner parameter P.A.S, press [M] button could display and change the password, then press [M] button to confirm and store the new password.

Function details

1. Temperature Control
 - After turning on for the delay time (parameter E4), the compressor starts operating when cold room temperature is higher than the (set temperature+ hysteresis), and will be off when cold room temperature is lower than the set temperature.
 - 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 E41).
2. Defrost control
 - After working a defrost interval (parameter F2), will automatically enter the defrost status. Current defrost ends when pass parameter F1, after defrost need to pass 2 minutes dripping time can enter refrigeration status.
 - When defrost interval F2 is set to 00, the automatic defrost by turning off compressor will be cancelled.
 - When setting parameter F4=0, cold room temperature will displayed normally during defrost.
 - When setting parameter F4=1, cold room temp. is locked during defrost, and the last value before defrost is displayed. When defrost ends, normal display will be resumed after temperature display 20 minutes delay (or cold room temperature lower than the set temperature). The defrost LED flashes during delay.
 - When setting parameter F4=2, the set temperature will be displayed during defrost.
 - When defrost ends, normal display will be resumed after 20 minutes delay (or cold room temperature lower than the set temperature). The defrost LED flashes during delay.
 - When setting parameter F4=3, DEF will be displayed during defrost. When defrost ends, normal display will be resumed after 20 minutes delay (or cold room temperature lower than the set temperature).

3. Alarm control

- After turning on for the first time, need to pass C5 delay time, then the high low temperature alarm function can be triggered (C1, C2, C3). After passing C5 delay, when the 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 C6, will enter alarm status, alarm start. When high temperature alarm alternate display H1 and cold room temperature, the compressor start to refrigerate. When low temperature alarm, will alternate display L0 and cold room temperature, the compressor stop. When cold room temperature is higher than the (low temperature alarm value C2+alarm hysteresis C4), the low temperature alarm ends. When cold room temperature is lower than (high temperature alarm value C1+alarm hysteresis C4), the high temperature alarm ends.
- When the product sensor temperature is higher than or equal to product temperature high temperature alarm C3 and duration more than alarm delay time C6, will enter alarm status and start alarm, alternate display H2 and cold room temperature. When product sensor temperature lower than (high temperature alarm value C3+alarm hysteresis C4), the high temperature alarm ends.