

User Manual of STC-9200 Thermostat

Refrigeration & Defrosting & Evaporator Fan Controller

(Version 22.11.07GEN)

The STC-9200 temperature controller controls the power supply status of the connected **Refrigeration device, the defrosting unit, and the Evaporator Fan**, typically suited to an oversized freezer room.

1. Package

Controller: 1PCS Sensor: 2PCS Clips: 2PCS Manual: 1 PCS Waterproof Cover: 1PCS

2. Specification

Input Power 220V AC ± 10% 50/60HZ; (12/24/48/110V Option)
 Maximum current 8A (Default) under 250V AC
 Thermistor / Sensor NTC, 25°C /10 KΩ, the sensor cable 200cm
 Protection Class IP65 to the front panel
 Storage -10°C ~ 60°C, RH<90%, without condensation
 Temperature Range Measurable: -50.0°C ~ +50.0°C; Controllable: -50.0°C ~ +50.0°C
 Resolution 0.1°C
 Accuracy ± 1°C from -40°C to +50°C; ± 2°C in other range
 Power Consumption ≤ 3W

3. Environmental Information



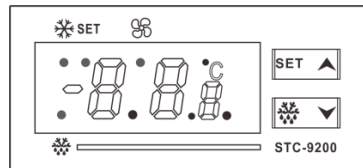
The package's material is 100% recyclable. Just dispose of it through specialized recyclers.
 The electro components can be recycled if it is disassembled for specialized companies.
 Please do not burn or throw the controllers in domestic garbage. Observe the respective law in your region concerning the environmentally responsible manner of disposing of its devices.

4. Appearance & Operation

4.1. Front Panel & Operation

Under normal status, the screen shows room sensor temp.

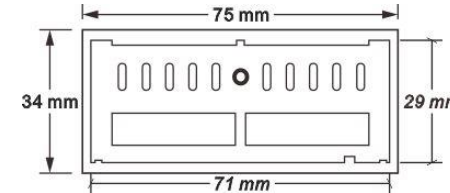
- Hold the **SET** for 3s to enter/exit the user setting interface to check and modify the set-point and the hysteresis here.
- Hold the **▲** key and the **▼** key at the same time for 10s to lock/unlock the admin menu:
 off = unlock, editable
 on = locked, only can check the value, not editable.
- Hold the **SET** and the **▼** keys for 10s to enter admin interface; Press the **SET** to check current data, and press the **▲** or **▼** key to change the data; Press the **SET** again to save data and back to menu list; If without operated in 10s, the new data will be auto-saved.
- Hold the **▼** for 3s to check the defrost sensor temp.;
- Hold the **▲** for 3s to trigger the forced refrigeration mode manually (conditions in 5.3); do it again to quit.
- Hold the **❄** for 3s to trigger the forced defrosting mode manually (conditions in 5.2); do it again to enter defrosting water dripping status.



4.2. Indicator / Character in Display

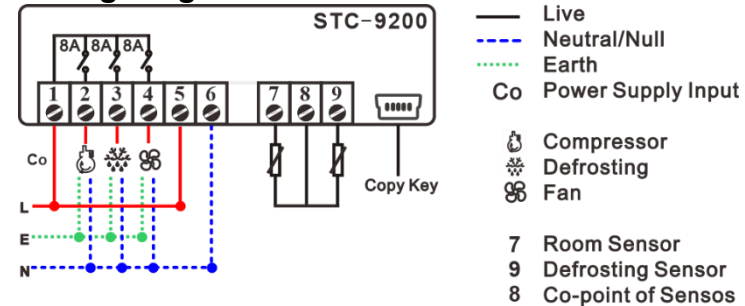
Indicator	❄	SET	❄	●
	●	●	●	❄
Meaning	Compressor status	Setting Status	Fan Status	Defrosting status
On	Working	Setting	Working	Working
Hide	Stop	Normal	Stop	Stop
Wink	Time Delay	N/A	Time Delay	Dripping Water
Fast Wink	Manually Refrigeration	N/A	N/A	Manually Defrosting

4.3. Dimensions & Installation



- Mount size: 71*29*85 mm (W*H*D);
- Detach the slide fasteners, put the controller into the hole, and wire it.
- Install the fasteners and the waterproof cover.

4.4. Wiring Diagram



- 10K NTC sensor, need not distinguish + or -.
- The input voltage must be within the voltage value marked in the diagram ±10% value.
- Suggest Load Power ≤ $\frac{\text{Voltage} * \text{Max current of Relay}}{\text{Factor}}$

4.5. Copykey (Optional)

- Upload to Controller
 - Insert the Copykey, Press the **▲** key, the display shows "uPL";
 - Now Press the **Set** key to upload data will show "End" once finished;
 - Shut down the controller and then pull out the Copykey.
- Download from Controller
 - Assure controller being shut down and insert the Copykey, then starting up
 - The controller will scan the Copykey and download data automatically, shows "daL" when downloading, and shows "End" once finished.
 - Restart the controller; it will work according to the new data.

Attention:

- Part of the parameters will be executed in the next cycle; please power off the controller and power back to start a new cycle for running by the new data without a wait.
- If a parameter in the Copykey exists error or in the wrong format, the display shows Err.

5. Configurations

5.1. Code and Function Menu

Hold the SET + ▼ keys at the same time for 10s to enter the Admin Interface;

The codes SEt and HY (F01 and F02) are user menu; others are admin menu, ref 4.1 A & C

Cate.	EN	F	Function	Min	Max	Default	Unit		
Temp.	SEt	F01	SP (Temperature Set-Point)	LS	US	-5.0	°C		
	HY	F02	Temperature Hysteresis / Return Difference	1.0	25.0	2.0	°C		
	US	F03	Upper limit for SP	F01	50.0	20.0	°C		
	LS	F04	Lower limit for SP	-50.0	F01	-20.0	°C		
	RC	F05	Delay Time for Compressor Delay Time for Defrosting (only for hot gas tdf/F10)	0	50	3	Min		
Defrost	idf	F06	Defrost	Cycle / Interval Time	0	120	6	Hour	
	ndf	F07		Lasting Time	0	255	30	Min	
	dte	F08		Stop Temperature	-50.0	50.0	10.0	°C	
	fdt	F09		Water dripping Time	0	10.0	2	Min	
	tdf	F10	Defrosting Mode:						
		EL/0	Electric-Heating.	EL/0	HtG/1	EL/1	N/A		
		HtG/1	Hot Gas from the compressor.						
	dct	F11	Count mode of defrost cycle:						
		ct/0	Cumulative time from the controller power on;	ct/0	CoH/1	ct/0	N/A		
		CoH/1	Cumulative time of the compressor working.						
Fan	FnL	F13	Fan output modes when Fod ≥ 0						
				ctr/0	Fan Starts by F14/Fat, Stop by F15/FSt;	ctr/0	[-n/2	ctr/0	N/A
				o-n/1	continuous working except defrosting begins; Fod is when the fan starts later than the compressor; the fan stops if defrosting begins.				
	Fat	F14	Defrost sensor Temperature for Fan Starts	-50.0	FSt/F15	-10.0	°C		
Fod	F15	Time delay seconds for fan							
			< 0	Fod is the period for the fan to start earlier than the compressor starts; the fan stops before defrosting.	-255	255	60	S	
			≥ 0	The fan was controller by F13/FnL					
FSt	F15	Defrost sensor Temperature for Fan Stops	Fat/F14	50.0	-5.0	°C			
Alarm	RLU	F17	Room sensor Temperature to Trigger Alarm	Upper Limit	ALL	50.0	50.0	°C	
	RLl	F18		Lower Limit	-50.0	RLU	-50.0	°C	
	RLd	F19		Time delay	0	99	15	Min	
Cali.	oC	F20	Temperature Calibration = Real Temperature - Measured	-10.0	10.0	0.0	°C		

The EN code menu and the F code menu are same, just for satisfy different clients.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 1 2 3 4 5 6 7 8 9 °C
A b c d e f g h i j k l m n o p q r s t u v w x y z 1 2 3 4 5 6 7 8 9 °C

5.2. When will the Defrosting Start / Stop?

- Defrost relay will **close/on** when reaching all the below conditions
 - The time should later than: the compressor last stops moment + RC/F05 if the defrosting Mode was thermal air / Hot Gas (tdf/F10 = HtG).
 - The defrost sensor temperature < Defrost stop temperature (in dte/FB)
 - Time passed the defrosting cycle time (idf/F06) or forced defrosting beginning
- Defrost relay will **open/off** when reaching any one of the below conditions
 - The defrost sensor temperature ≥ Defrost stop temperature (in dte/FB)
 - Passed the defrosting Lasting Time (ndf/F07)

5.3. When will the Compressor Start / Stop?

The room temperature was supposed to keep at the range from "SEt/F01" to "SEt+HY (F01+F02)."

First, Time Conditions

- When Fod/F15 > 0s, the time should be later than:
 - The moment of the compressor recent stops + RC/F05
- When Fod/F15 < 0s (the fan startup earlier than the compressor), the time later than:
 - The moment of the compressor recent stops + RC/F05, and
 - The fan starts moment + Fod/F15

And Temperature Conditions

- If tdf/F10 = EL/0 (like an electric heating wire wound around the evaporator)

Controller Status	Working Condition	Stops Condition
Forced defrosting	Room Temp ≥ SEt/F01 The dripping time Fdt/F09 is over (ref 4.1 F)	Room Temp < SEt/F01 or defrost beginning
Not in defrosting	Room Temp ≥ SEt + HY (F01 + F02)	or forced refrigeration is over.

- If tdf/F10 = HtG/1 (Hot Gas from the compressor Reverse Rotary), 1 more status than A

Controller Status	Working Condition	Stops Condition
Auto defrosting	Evaporator Temp > dte/F08 defrost stop temp.	Room Temp < SEt/F01; or defrosting beginning ;
Forced defrosting	Room Temp ≥ SEt/F01 The dripping time Fdt/F09 is over (ref 4.1 F)	or forced Refrigeration is over and won't defrost at once.
Not in Defrosting	Room Temp ≥ SEt + HY (F01 + F02)	

5.4. Alarming & Error Code

Once alarming, the readout flashing and buzzer screaming press any key to stop the buzzer ticktack, but the error code in the display will not disappear until all errors have been fixed.

Code	Troublesome From	Reason
E01	Room Sensor	Open or short
E02	Defrost Sensor	Open or short
HHH	Room or Defrost Sensor	> Max measurable limits 50°C
LLL		< Min measurable limits -50°C
Readout flash buzzer screams	Room Sensor	50 °C > room temp. > RLU/F17 or -50 °C < room temp. < RLl/F18

5.5. When will the Fan Work/Stop?

Please check the conditions from Fod/F15 & FnL/F13 in the menu list.

[Video on YouTube](https://www.youtube.com/watch?v=...)

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