HASWILL ELECTRONICS STC-9100 Thermostat Refrigeration or Defrosting and Alarm Output Controller User Manual

User Manual of STC-9100 Thermostat
Refrigeration & Defrosting & Alarm Output Controller
(Version 22.11.07GEN)

The STC-9100 temperature controller controls the power supply status of the connected Refrigeration device, defrosting unit, and the Alarm output, typically suited to ultra-low temperature walk-in freezer room;
It could wire an external alarm apparatus to remind users once error.

Contents

Package

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

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
ower Consumption	≤ 3W

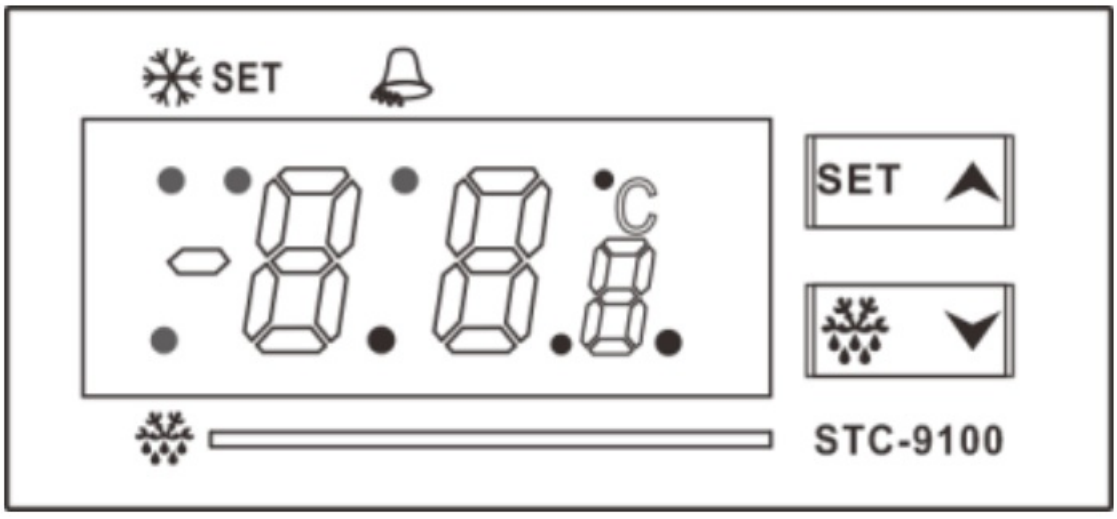
Environmental Information

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.

Appearance & Operation

4.1. Front Panel & Operation

Under normal status, the screen shows room sensor temp.



A. Hold the for 3s to enter/exit the user setting interface to check and modify the set-point and the hysteresis here.

B. Hold the and 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.

C. Hold the and keys for 10s to enter admin interface; Press the to check current data, and press the or key to change the data; Press the again to save data and back to menu list; If without operated in 10s, the new data will be auto-saved.
The latest and easiest PDF instruction of STC-9100 temperature

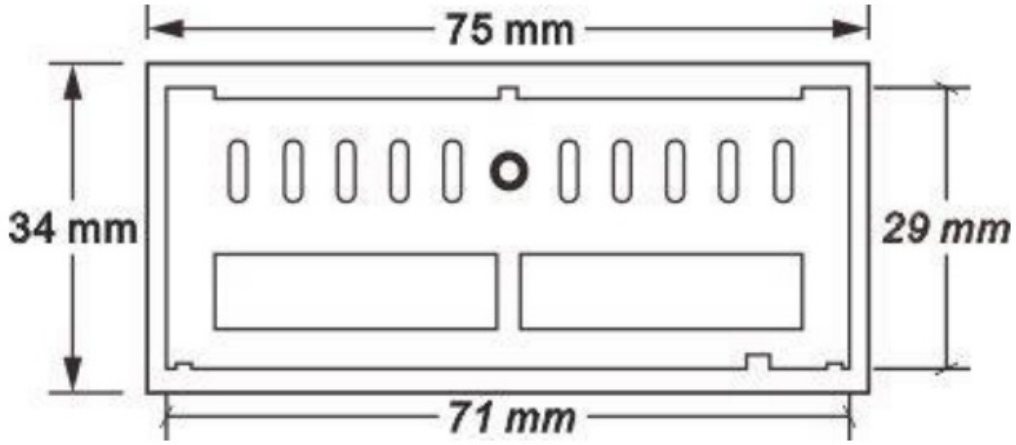
D. Hold the for 3s to check the defrost sensor temperature.

E. Hold the for 3s to trigger the forced refrigeration mode manually (conditions in 5.3); do it again to quit.
F. 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

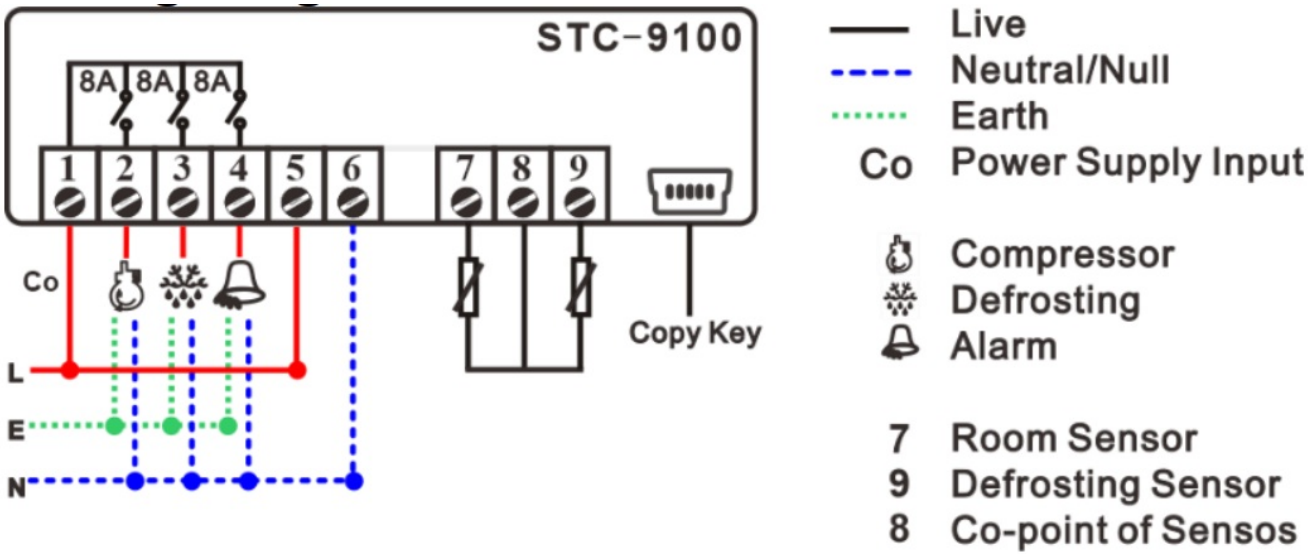
Indicator		SET		
Meaning	Compressor status	Setting Status	Alarm Status	Defrosting status
On	Working	Setting	Working	Working
Hide	Stop	Normal	Normal	Stop
Wink	Time Delay	N/A	N/A	Dripping Water
Fast Wink	Manually Refrigeration	N/A	N/A	Manually Defrosting

4.3. Dimensions & Installation



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

4.4. Wiring Diagram



A. 10K NTC sensor, need not distinguish + or -.
B. The input voltage must be within the voltage value marked in the diagram ±10% value.

C. Suggest Load Power $\leq \frac{\text{Voltage} * \text{Max current of Relay}}{\text{Factor}}$

4.5. Copykey (Optional)
A. Upload to Controller

1. Insert the Copykey, Press the key, the display shows “UPL”;
2. Now Press the key to upload data will show “END” once finished;
3. Shut down the controller and pull out the Copykey.

B. Download from Controller

1. Assure controller being shut down and insert the Copykey, then starting up
2. The controller will scan the Copykey and download data automatically, shows “DOL” when downloading, and shows “END” once finished.
3. 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 process for running by the new data without a wait.
- If a parameter in Copykey exists error or is in the wrong format, the display shows ERR.

Configurations

5.1. Code and Function Menu
Hold the + keys at the same time for 10s to enter the Admin Interface The codes SET and HY (F01 and F02) are the 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			SEt	50.0	20.0	°C
	LS	F04	Lower limit for SP			-50.0	SEt	-20.0	°C
	AC	F05	Delay Time for Compressor; Delay Time for Defrosting (only for hot gas tdF/F 10)			0	50	3	Min
Defr.	idF	F06	Defrost	Cycle / Interval / Span Time		0	120	6	Hour
	ndF	F07		Lasting Time / Duration		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	F 10	Defrosting Mode			EL/0	HtG/1	EL/1	N/A
			EL/0	Electric-Heating;					
			HtG/1	Hot Gas from the compressor reverse working.					
	dCt	F 11	Count mode of defrost cycle			rt/0	CoH/1	rt/0	N/A
			rt/0	Cumulative time from the controller power on;					
			CoH/1	The cumulative time from the compressor works					
	dFd	F 12	Display mode when defrosting:			rt/0	it/1	rt/1	N/A
			rt/0	Shows the room sensor temperature display					
			it/1	Shows the evaporator sensor temp. (continue showing 10 minutes once defrosting over)					
Alarm	dno	F 13	Alarm output options:			n-C/0	A-C/1	n-C/2	N/A
			n-C/0	N/A, alarm output function was banned.					
			A-C/1	follow the status of the buzzer	press any key to stops				
			A-A/2		It cannot be canceled before fixed all errors.				
	ELL	F 14	Defrost sensor temp. to trigger Alarm		Lower Limit	-50.0	ELU	-50.0	°C
	Eod	F 15			Time delay	0	255	0	Min
	ELU	F 16			Upper Limit	ELL	50.0	50.0	°C
	ALU	F 17	Room sensor temp. to trigger Alarm		Upper Limit	ALL	50.0	50.0	°C
	ALL	F 18			Lower Limit	-50.0	ALU	-50.0	°C
	ALd	F 19			Time delay	0	99	15	Min
Cali.	ot	F20	Temperature Calibration = Real Temp. - 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 n̄ n o P q r S t U v y u y Ξ 1 2 3 4 5 6 7 8 9 °C

5.2. When will the Defrosting Starts / Stops?

STC-9100 temperature controller user manual from Haswill Electronics teaches you

A. Defrost relay will close/on when reaching all the below conditions

- The time should later than: the compressor last stops moment + AC/F05 if the defrosting Mode was thermal air / Hot Gas (tdF/F 10 = HtG).
- The defrost sensor temperature < Defrost stop temperature (in dtE/F8)

- Time passed the defrosting cycle time (dF/F06) or forced defrosting beginning

  B. Defrost relay will open/off when reaching any one of the below conditions
- The defrost sensor temperature ≥ Defrost stop temperature (in > dtE/F08)
- Passed the defrosting Lasting Time (MDF/F07)

5.3. When will the Compressor Start / Stop?

The room temperature was supposed to keep at the range from "≥ SEt + Hy (F01 + F02)."
The time should be later than the compressor last stops moment + AC/F05, and then
A. If TDF/F10 = EL/0 (like an electric heating wire wound around the evaporator)

Controller Status	Start Condition	Stop Condition
Forced defrosting	Room Temp < SEt/F01 The dripping time Fdt/F09 is over (ref 41 F)	Room Temp ≥ SEt/F01 or defrosting **beginning**; or forced Refrigeration is over.
Not in defrosting	Room Temp Hy (F01 and F02)	

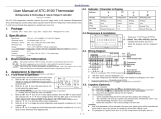
B. If tdF/F10 = HtG/1 (Hot Gas from the compressor Reverse Rotary), 1 more status than A

Code	Troublesome From	Reason
E01	Room Sensor	Open or short
E03		Temperature not in the measurable range
rH		ALU/F17 >Temp. < **Max** measurable limits 50°C
rL		ALL/F18 > Temp. > **Min** measurable limits -50°C
E02	Defrost Sensor	Open or short
E04		Temperature not in the measurable range
EH		ELU/F16 <Temp. < **Max** measurable limits 50°C
EL		ELL/F14 > Temp. > **Min** measurable limits -50°C

Video on YouTube
Haswill Electronics
https://www.thermo-hygro.com

https://www.thermo-hygro.com/

Documents / Resources

	HASWILL ELECTRONICS STC-9100 Thermostat Refrigeration or Defrosting and Alarm Output Controller [pdf] User Manual STC-9100, STC-9100 Thermostat Refrigeration or Defrosting and Alarm Output Controller, Thermostat Refrigeration or Defrosting and Alarm Output Controller

References

- YouTube
- Haswill Electronics - An exporter of digital temperature devices from China
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