TX3 Series Delicate Temperature Controller Manual

Features:
1. Temperature Display/Control Function.
2. Manual/Automatic Heating Defrosting Function.
3. Stop Defrosting as per setting time or temperature function.
4. Setting Memory Function. Data can be saved for 10 years.
5. Password Protection Function.
6. Sensor Disconnect Protection/Malfunction Display.
7. Fan Control Function.

For your safe, please read the below content carefully before you use the temperature controller!

▣ Safe Caution

※ Please read the manual carefully before you use the temperature controller!

Please comply with the below important points:

⚠ Warning An accident may happen if the operation does not comply with the instruction.

⚠ Notice An operation that does not comply with the instruction may lead to product damage.

※ The instruction of the symbol in the manual is as below:
⚠ An accident danger may happen in a special condition.

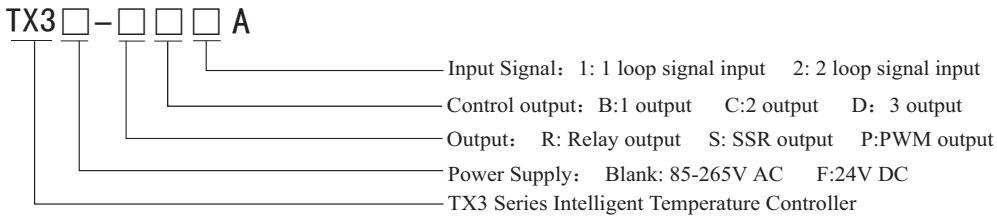
⚠ Warning

1. A safty protection equipment must be installed or please contact with us for the relative information if the product is used under the circumstance such as nuclear control, medical treatment equipment, automobile, train, airplane, aviation, entertainment or safty equipment, etc. Otherwise, it may cause serious loss, fire or person injury.
2. A panel must be installed, otherwise it may cause creepage (leakage).
3. Do not touch wire connectors when the power is on, otherwise you may get an electric shock.
4. Do not dismantle or modify the product. If you have to do so, please contact with us first. Otherwise it may cause electric shock and fire.
5. Please check the connection number while you connect the power supply wire or input signal, otherwise it may cause fire.

⚠ Caution

1. This product cannot be used outdoors. Otherwise the working life of the product will become shorter, or an electric shock accident may happen.
2. When you connect wire to the power input connectors or signal input connectors, the moment of the No.20 AWG (0.50 mm2) screw tweaked to the connector is 0.74n.m - 0.9n.m. Otherwise the connectors may be damaged or get fire.
3. Please comply with the rated specification. Otherwise it may cause fire after the working life of the product becomes shorter.
4. Do not use water or oil base cleaner to clean the product. Otherwise it may cause electric shock or fire, and damage the product.
5. This product should be avoid working under the circumstance that is flammable, explosive, moist, under sunshine, heat radiation and vibration. Otherwise it may cause explosion.
6. In this unit it must not have dust or deposit, otherwise it may cause fire or mechanical malfunction.
7. Do not use gasoline, chemical solvent to clean the cover of the product because such solvent can damage it. Please use some soft cloth with water or alcohol to clean the plastic cover.

1. Model Indication



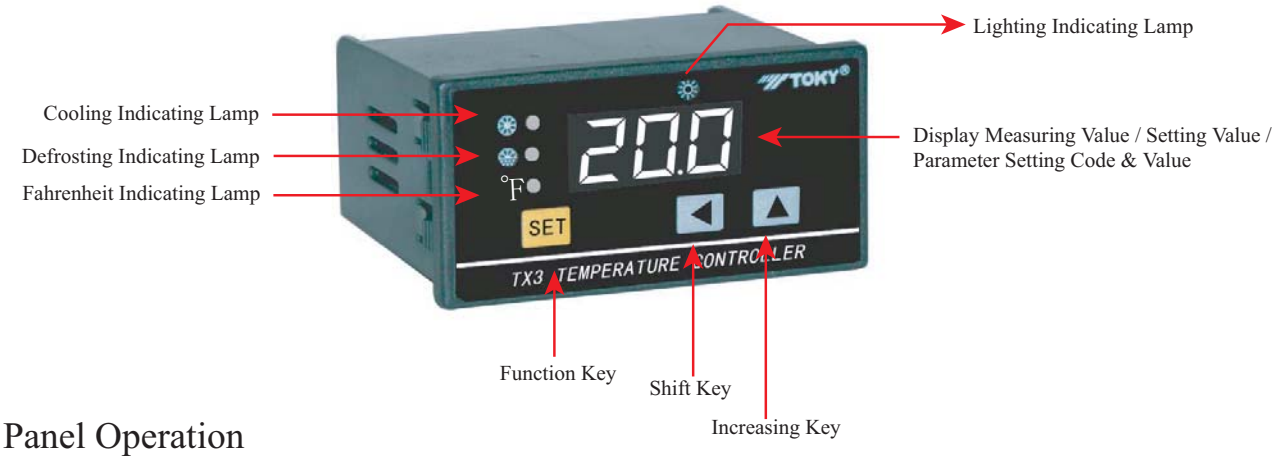
2. Model & Function

No.	Model	Function (Room temperature refers to the inside temperature of a refrigerator or cooler, etc.)
1	TX3-RC1A	Room temperature input, Compressor output & Floodlight output
2	TX3-RC2A	Room temperature & Defrosting temperature input, Compressor & Defrosting output
3	TX3-RD1A	Room temperature input, Compressor & Floodlight & Defrosting output
4	TX3-RD2A	Room temperature & Defrosting temperature input, Compressor & Floodlight & Defrosting output

3. Technical Parameters

Power Supply	85～265V AC 50/60Hz
Power Consumption	＜5W
Ambient Temperature	0℃～50℃
Ambient Humidity	＜80%RH
Control Temperature Range	-40℃～45℃
Measuring Range	-40℃～99℃
Input Signal	2 loop NTC Thermistor (Thermal Resistor, for room & defrosting temperature)
Resolution	Display:±0.1℃
Sampling Cycle	＜0.1S
Output	Relay output, SSR output
Relay Output	Compressor Relay 10A/300V AC Fan/Defrosting 3A/220V AC
Insulating Resistance	≥100MΩ DC 500V
Interference	Power 2000V p-p
Measuring Accuracy	±0.5℃
Dielectric Strength	1600V AC / 1 min.
Dimension(mm)	72W×36H×58L

4. Panel Indication



5. Panel Operation

1) The setting method of temperature

A：Pressing ◀ key to display the setting temperature. The cooling & defrosting indicating lamps flash quickly at the same time.

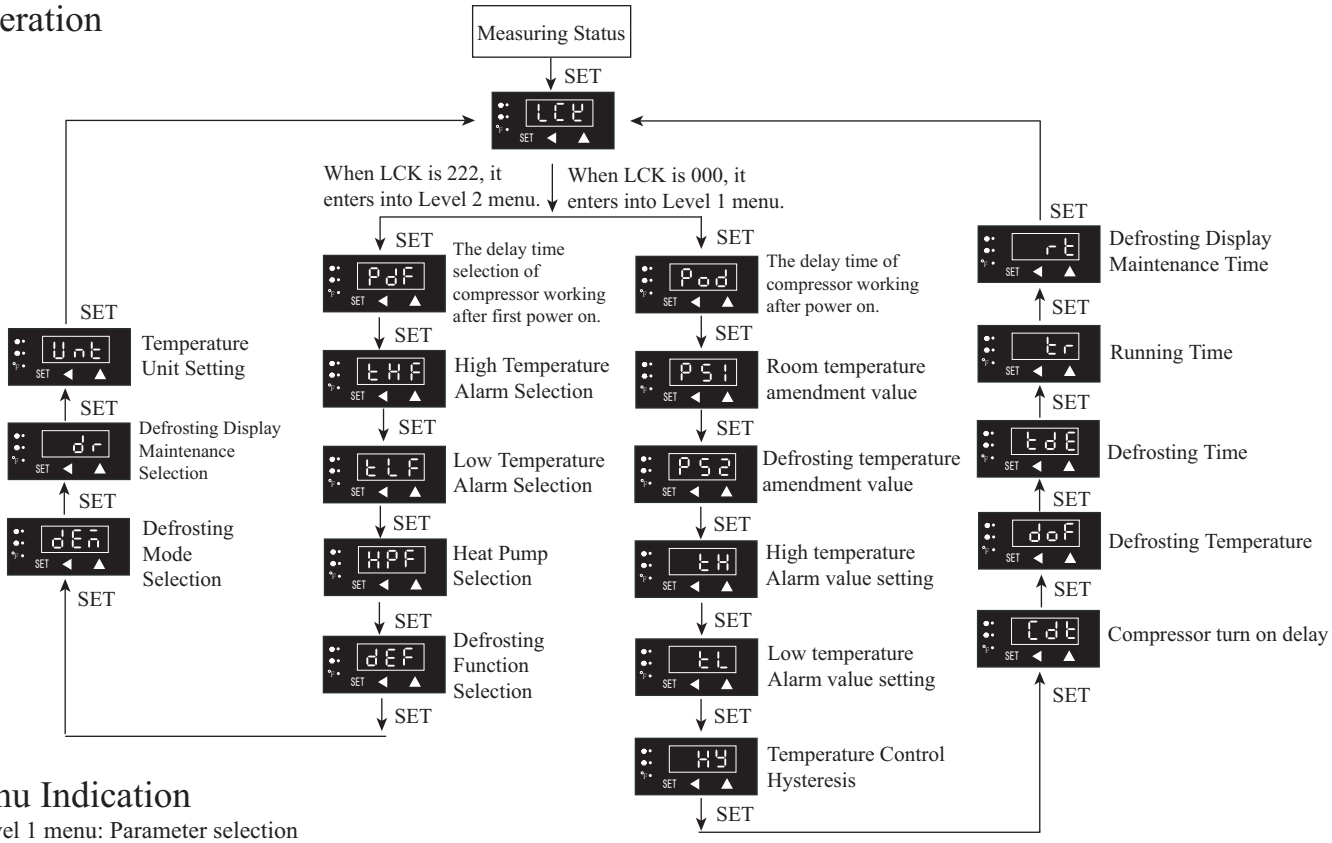
B：Pressing ◀ key again to change the flickering digit，pressing ▲ key to change the flickering value，pressing ◀ key to shift the flickering digit from right to left.

C：Pressing SET key to stop flickering.

D：Pressing SET key again to quit temperature setting，the data modified is saved and the display screen returns to temperature measuring status.

E：If no key pressing for a long time when the controller is in the temperature setting status, it will return to temperature measuring status automatically.

6. Operation



7. Menu Indication

1. Level 1 menu: Parameter selection

Parameter PAR	Display	Definition	Setting Range	Ex-factory Setting
1	LCK	Password Lock	000～999	000
2	Pod	Delay time of compressor after power on	0～30 minutes	2
3	PS1	Amendment of Room temperature	-9.9℃～9.9℃	0
4	PS2	Amendment of Defrosting temperature	-9.9℃～9.9℃	0
5	TH	The Upper limit of controlled temperature	Setting temperature～45℃	20℃
6	TL	The Lower limit of controlled temperature	-40℃～Setting temperature	-35℃
7	HY	The hysteresis of controlled temperature	0℃～10℃	4℃
8	CDT	Delay time of compressor starts up	0～15 minutes	3 minutes
9	Dof	Defrosting temperature	0℃～15℃	8℃
10	Tde	Defrosting time	1～99 minutes	20 minutes
11	Tr	Running time of working compressor	0～24 hours	6 hours
12	rt	Maintenance time of defrosting display	0～30 minutes	20 minutes

2. Level 2 menu: Function selection

Parameter PAR	Display	Definition	The fist level menu to be affected	Setting range	Ex-factory setting
1	PDF	Delay time of compressor after power on	2 (Pod)	Yes/No	Yes
2	THF	High temperature alarm function	5 (TH)	Yes/No	Yes
3	TLF	Low temperature alarm function	6 (TL)	Yes/No	Yes
4	HPF	Heat pump selection	8、9、10、11、12	Yes/No	Yes
5	DEF	Defrosting function	9、10、11	Yes/No	Yes
6	DEM	Defrosting Mode	9 (Dof)	Yes/No	Yes
7	DR	Defrosting display maintenance	12 (rt)	Yes/No	Yes
8	UNT	Temperature unit	All tempearture value	C/F	C

Supplement for the above table (How the first level menu is affected by the setting of second level menu.)

A. No POD menu is displayed if PDF is set as NO.

B. No High Temperature Function or TH menu if THF is set as NO. (Note:The controller just displays UUU if the alarm menu is effective, at this time, the measuring range is the limit range of TH, TL.)

C. No Low Temperature Function or TL menu if TLF is set as NO. (Note:The controller just displays nnn if the alarm menu is effective, at this time, the measuring range is the limit range of TH, TL.)

D. No Heat Pump Function if HPF is set as NO., i.e. No compressor, No CDT、Dof、Tde、Tr、rt menu.

E. No Defrosting Function or Dof、Tde、Tr menu if DEF is set as NO.

F. DEM is for Defrosting Mode selection. NO means Timing Defrosting, no Dof menu. It will change to Timing Defrosting automatically when it detects that the defrosting temperature sensor is not connected or has short circuit.

G.DR is for temperature maintenance function when defrosting. If DR is set as NO, room temperature is displayed truly, no rt menu.

3. Press SET key for more than 5S, then enter to level 1 menu.
4. When the controller display LCK value, set the value as 222, and then press SET key to enter level 2 menu.
5. In the level 2 menu, after all the menus are finished setting, press SET key to return to level 1 menu, LCK value returns to 000 automatically.
6, In all menus, press SET key for more than 5S to save the parameters and return to common measuring status.
7. In all menus, if no key press within 1 minute, the parameter setting is ineffective, and the program returns to common measuring status.
8. In the measuring status, press SET +▲key for 5S to start defrosting. During the defrosting process, press SET + ▲ key for 5S to stop the defrosting manually.
9. In the measuring status, press ▲ key to display defrosting sensor temperature, release ▲ key to return to room temperature measuring status.
10. Press ▲ key for 5S to display HT (Highest temperature), LT (Lowest temperature) and AT (average temperature).

8. Control Function

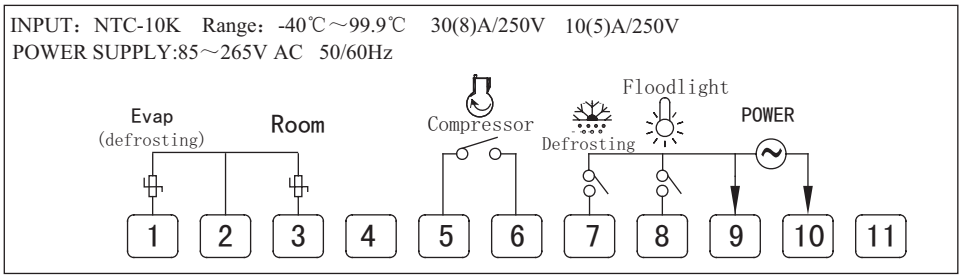
1. Compressor Delay Protection：
a) Power on delay：After the machine is power on, it will enter cooling status after the delay time of POD if the room tempearture value is bigger than the setting SV.
b) During the temperature controlling process, the compressor cannot be restarted until it stops running for the time of CDT.
2. Temperature Control：
a) When the room temperature is higher than the controlled temperature + temperature difference, if the shut down time of compressor does not reach CDT value, the cooling indicating lamp flickers till the delay time is reached, the cooling indicating lamp turns on, the compressor starts running. After the room temperature is lower than the controlled tempearture, the compressor stops running.
b) When it finds the room temperature sensor short circuit or disconnecting, it dispalys ED, and starts the timing cooling process automatically, the compressor runs 45 min and pauses 15 min.
3. Electrothermal defrosting control
a) Starting defrosting
i. When it finds the defrosting temperature is lower than Dof, and the lasting time reaches Tr, it starts defrosting automatically.
ii.If the defrosting temperature sensor has malfunction, the controller starts timing defrosting mode, and the defrosting will be started after the controller runs for Tr time.
iii.During normal running, press SET + ◀ key (Press SET key and then press ◀ key quickly), the meter starts defrosting automatically after 5 seconds.
iv. When starting defrosting, the compressor stops running, the heating thread is power on and heating.
b) Stopping Defrosting：
i. When it detects the defrosting temperature and finds it is bigger than Dof, it stops defrosting automatically.
ii. When the defrosting time reaches TDE, the controllers stops defrosting automatically.
iii.During defrosting, press SET + ◀ key (press SET key and then press ◀ key quickly) for 5 seconds to stop defrosting.
iv. When the defrosting stops, the heating thread is power off.
c) Stopping Defrosting：After the defrosting stops, the system will return to normal working status after the delay of 2 minutes water drip.
d) Defrosting temperature Lock：If the parameter DR displays the room temperature at the moment when the controller starts defrosting and it is locked, after the defrosting finishes and the systems runs for the time of Rt, the controller returns to display the actual room temperature.
4. Room temperature statistical function
a) Automatically record the highest/lowest/average room temperature，press UP key for 5 second to display HT and the statistical value：

Measuring Status → ▲5S HT → ◀ HT Value → SET LT → ◀ LT value → SET AT → ◀ AT value → SET CLR → SET measuring status

HT：The higest room temperature LT：The lowest room temperature AT：The average room temperature CLR：To clean historical record menu

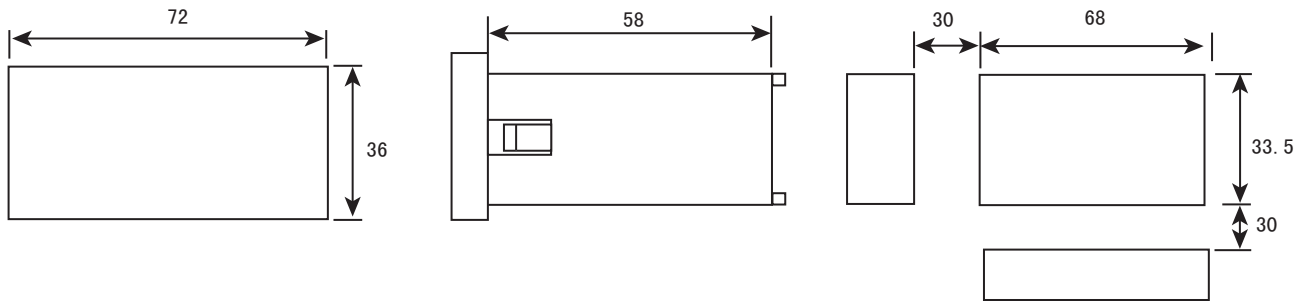
b) HT, LT and AT do not reponse to the temperature value that changes instantly，the detecting cycle is 1 minute, i.e., it takes an average temperature value within 1 min. as a measured value.
c) When it displays CLR, press ▲ key to show OK, and clean the historical record, and do the statistic for new data.
5. Sensor Amendment Function：
a) Subject：To amend the temperature difference caused by different environment, or the function change of the sensor itself during actual measuring.
b) To enter the menu, and adjust PS1 and PS2 to amend the sensor.

9. Connection



Please subject to the connection drawing on the meter if any changes.

10. Dimension



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