CW-5000 | 5200 SERIES

Industrial Chiller USER MANUAL

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Chiller Expert

Contents

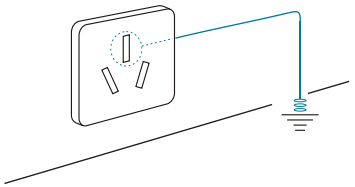
Thank you for using the machine

Please read the installation instructions carefully before installing and operating and keep it properly.
This installation instructions is not a quality assurance.

Reserves the right to the interpretation of correction of typographical errors, improper mentioned information and product improvement.
The amended content will be reprinted in installation instructions without notice in advance.

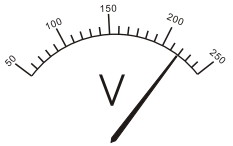
CAUTIONS

1 Please ensure that the power supply and electrical outlet are in good contact and the earth wire must be firmly grounded!



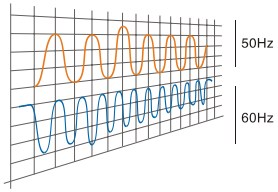
2 Please make sure there is stable and normal voltage for the working chiller!

As the refrigeration compressor is more sensitive to the power supply and voltage, so the operating voltage of our standard product is of 200 ~ 250V (110V model is of 100 ~130V). If you do need a wider operating voltage range, customization is available for us.



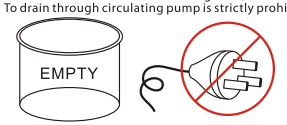
3 Unmatched power frequency can cause the chiller damage!

Please choose model of 50Hz or 60Hz according to actual circumstance.



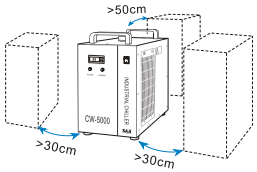
4 To protect the pump, it's strictly forbidden to run the chiller without water in the storage water tank!

The new machine is packed after draining whole water in the tank, so please make sure the tank has water inside before machine starting, otherwise it's easily to have the pump damaged. When the water level is below the green (NORMAL) range of the water level gauge, the cooling capacity of our chiller will go down slightly. Hence please ensure the water level is within the green (NORMAL) range. To drain through circulating pump is strictly prohibited!



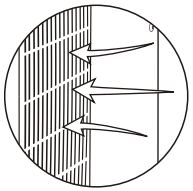
5 Please be sure that the air inlet and air outlet are in good ventilation!

There must be at least 50cm from obstructions to the air outlet which is in the back of the chiller, and should leave at least 30cm between obstructions and the side air inlet.



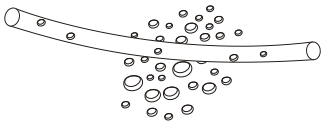
6 The filter screen must be regularly cleaned!

It's essential to unpick and wash the dust gauze, or the serious blockage will cause breakdown to the chiller.



7 Please pay attention to the effect of the condensate water!

With greater ambient humidity, when the water temperature is lower than the ambient temperature, the condensate water will generate on the surface of water circular pipes and the cooled components. If above circumstance appears, it is recommended to set a higher water temperature or keep pipes and cooled parts warm.

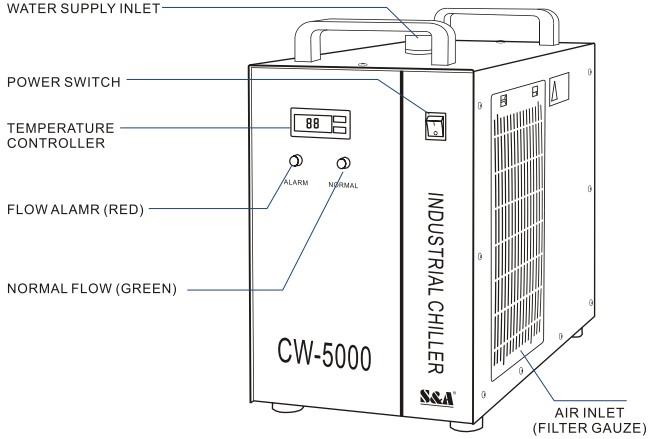


PROFESSIONAL USE ONLY!

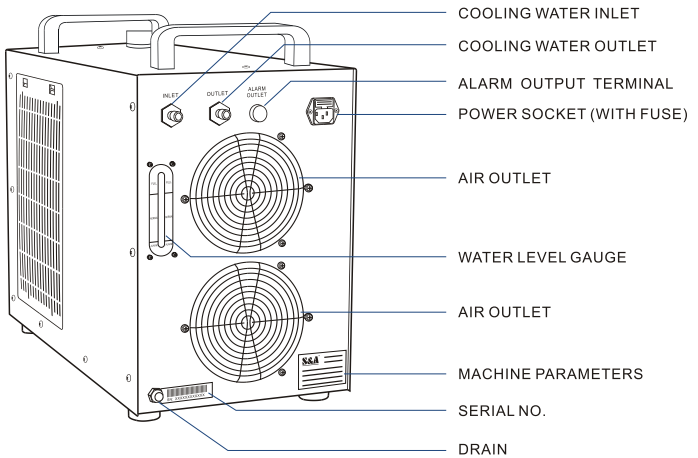
The appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction, children being supervised not to play with the appliance!

CONTOUR AND PARTS INTRODUCTION

Front



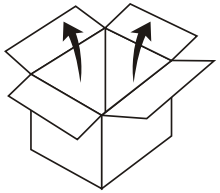
Back



INSTALLATION

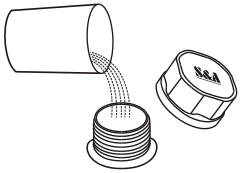
It is very simple to install this industrial cooling machine. The installation for the first time of the new machine can be carried out by following steps:

1



Open the package to check if the machine is intact and all the necessary accessories are completed.

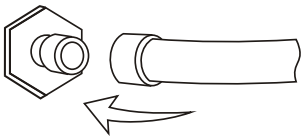
2



Open the injection port to feed cooling water. (Do not spill out the water!)

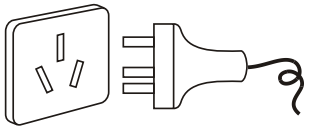
Observing the water level gauge and adding water slowly, be careful not to have the water overflowed! For the cooling of carbon steel equipment, the water should be added an appropriate amount of cooling water additive (anti-corrosion water aqua). Users in cold area should use noncorrosive antifreeze fluid.

3



Connect the water inlet and outlet pipes well according to system conditions.

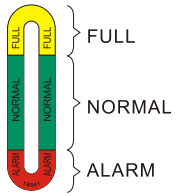
4



Plug in power and turn on the power switch. (Do not start up without water in the water tank!)

(1) Power switch turned on, the circulation pump of the chiller starts working. The first time of operating may cause more bubbles in the pipe leading to a flow alarming occasionally, but running for a few minutes later, it will go back to normal.
(2) After the first boot, you must immediately check whether the water pipe leaks.
(3) Power switched on, if the water temperature is below the set value, it is normal that fans and other components of the machine do not work. The temperature controller will automatically control the working conditions of the compressor, magnetic valve, fans and other parts based on the set controlling parameters.
(4) As it takes a longer time to start over the compressor and other components, according to different conditions, the time is range from seconds to minutes, so do not turn off the power and again on frequently.

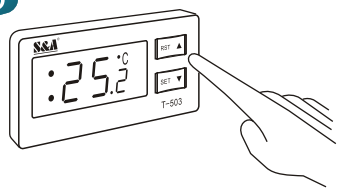
5



Check the water level in the water tank.

The first startup of the new chiller empties the air in the water pipe, leading a slight water level decline, but in order to keep the water level in the green area, it's allowed to add adequate water again. Please observe and record the current water level, and inspect it again after the chiller running for a period of time, if the water level drops obviously, please re-inspect the water pipeline leakage.

6



Adjust parameters of temperature controller.

CW-5000/5200 series use an intelligent thermostat. Normally users do not need to adjust it. If it is really necessary, please refer to page 19, "Operating status and parameters adjustment".

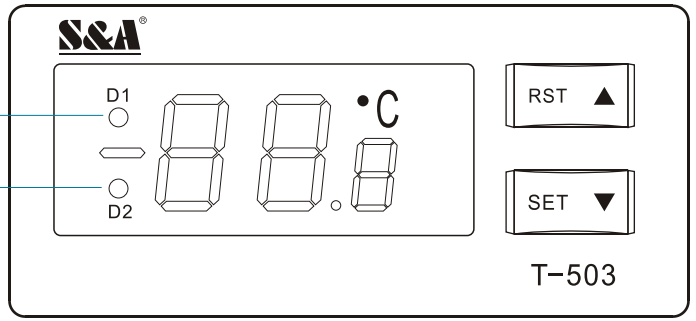
OPERATION STATUS AND PARAMETERS ADJUSTMENT

The new T-503 intelligent temperature controller does not need to adjust the controlling parameters under normal circumstance. It will self-adjust controlling parameters according to room temperature for meeting equipment cooling requirements.

The new T-504 intelligent temperature controller is selected constant temperature control mode as factory setting with water temperature at 25℃. User can adjust it as needed.

T-503 and T-504 controllers are of same functions and structure except factory parameters setting.

1. Temperature control panel description



(1) Indicators D1, D2 (as shown) of thermostat working state

D1

ON: thermostat works in intelligent control mode;
OFF: thermostat works in temperature control mode;
FLASHES: thermostat works in parameters setting mode or displays value of room temperature.

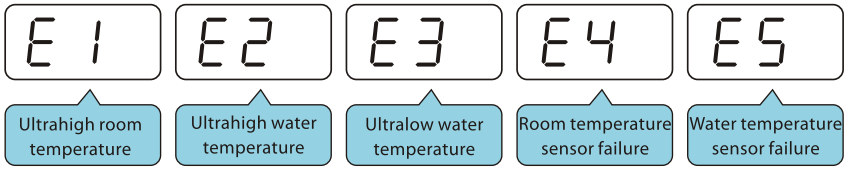
D2

ON: chiller works in refrigerating state;
OFF: chiller works in the insulation working state;
FLASHES: chiller works in the energy-saving state.

(2) ▲▼ buttons are for adjusting the display status of the controller, Parameters selection and adjustment.
(3) **RST** button: enter button.
(4) **SET** button: function setting button.

2. Alarm function

(1) Alarm Display:



When alarm occurs, the error code and the temperature will be alternately displayed.

(2) To suspend the alarm:

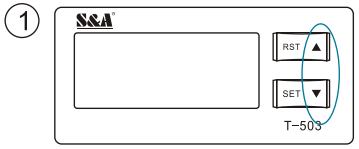
In alarming state, the alarm sound could be suspended by pressing any button, but the alarm display remains until the alarm condition is eliminated.

3. Thermostat parameters list

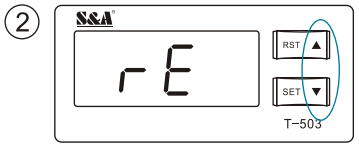
Order	Code	Item	Range	T-503 Temperature controller Factory Setting	T-504 Temperature controller Factory Setting	Notes
1	F0	Temperature setting	F9~ F8	25	25	Constant temperature control effecting
2	F1	Temperature difference values	-15~+5	-2	-2	Intelligent control effecting
3	F2	Cooling hysteresis	0.1~3.0	0.8	0.3	
4	F3	Way of control	0~1	1	0	1: intelligent 0: constant temperature
5	F4	Alarm for Ultrahigh water temperature	1~20	10	10	
6	F5	Alarm for Ultralow water temperature	1~20	15	15	
7	F6	Alarm for Ultrahigh room temperature	40~50	45	45	
8	F7	Password	00~99	8	8	
9	F8	The allowed highest water temperature	F0~40	30	30	
10	F9	The allowed lowest water temperature	1 ~F0	20	20	

4. Restore to factory setting

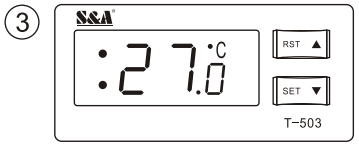
Restore to factory setting



Press and hold ▲▼ buttons then turn on the chiller.



Release the buttons until rE displayed.

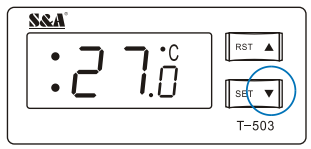


Actual water temperature is displayed.

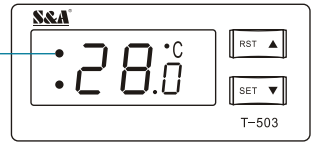
5. Check the ambient temperature

Check the ambient temperature

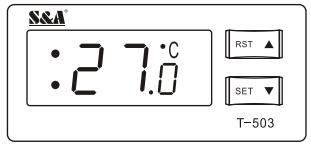
Default display status:



Press ▼ button to display ambient temperature.



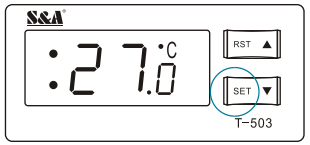
D1 flashes to show ambient temperature and default display is restored after 6 sec.



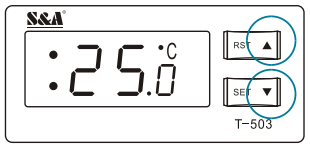
6. General settings adjustment

Under constant temperature mode

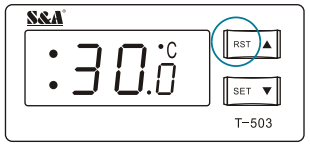
Default display status:



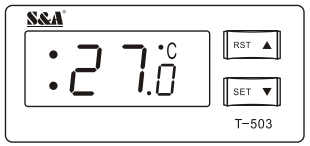
Press SET button to display set water temperature value.



Press ▲ or ▼ button to modify temperature value.

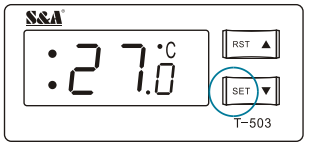


Press RST button to save and exit parameters setting and return to temperature display (if no button is pressed in 20 sec, the controller will automatically exit parameters setting without saving the modified values).

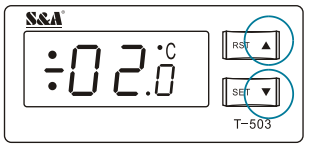


Under intelligent temperature mode

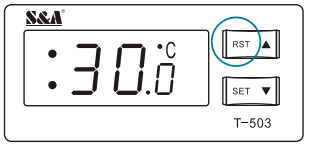
Default display status:



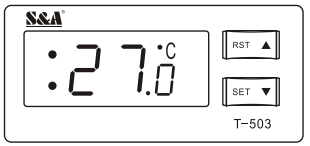
Press SET button to display temperature difference value.



Press ▲ or ▼ button to modify temperature difference value.

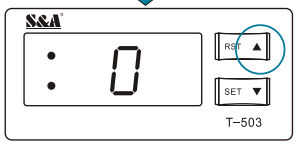


Press RST button to save and exit parameters setting and return to temperature display (if no button is pressed in 20 sec, the controller will automatically exit parameters setting without saving the modified values).

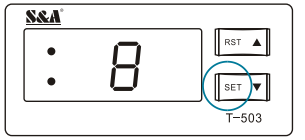


7. Advanced settings adjustment

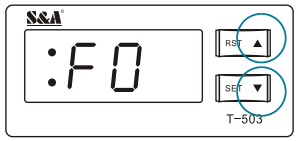
Press and hold ▲ button then press SET button for 5 sec until 0 is displayed.



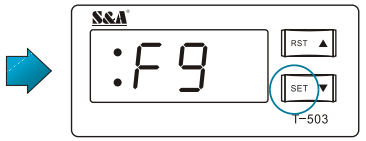
Press ▲ button to switch 0 to 8 (default password).



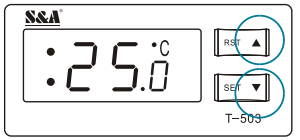
Press SET button to enter into set item code and F0 is displayed with correct password (it will return to actual water temperature if password is incorrect).



Press ▲ or ▼ button to modify set item codes F0 ~ F9.

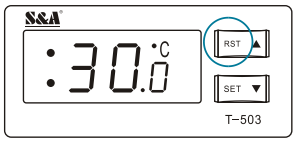


Press SET button to enter into set values after set item is selected.



Press SET button to return to set item.

Press ▲ or ▼ button to modify set values parameters.



Press RST button to save and exit parameters setting and return to temperature display (if no button is pressed in 20 sec, the controller will automatically exit parameters setting without saving the modified values).

Note:

1. During parameters setting condition, system still runs under original parameters;
2. Under temperature control mode, the water temperature is controlled by (F0) parameters;
3. Under intelligent control mode, the water temperature will be automatically adjusted according to temperature changes. The temperature difference is commanded by (F1) parameter.

8. Advanced parameters adjustment case:

Order	Code	Item	Value in case 1	Value in case 2	Value in case 3	T-503 Temperature controller Factory Setting	T-504 Temperature controller Factory Setting
1	F0	Temperature setting		28	25	25	25
2	F1	Temperature difference values	-3			-2	-2
3	F2	Cooling hysteresis	0.5	2.0	1.0	0.8	0.3
4	F3	Way of control	1	0	0	1	0
5	F4	Alarm for ultrahigh water temperature	10	5	4	10	10
6	F5	Alarm for ultralow water temperature	10	10	14	15	15
7	F6	Alarm for ultrahigh room temperature	45	45	45	45	45
8	F7	Password	8	8	8	8	8
9	F8	The allowed highest water temperature	31	30	30	30	30
10	F9	The allowed lowest water temperature	25	5	5	20	20

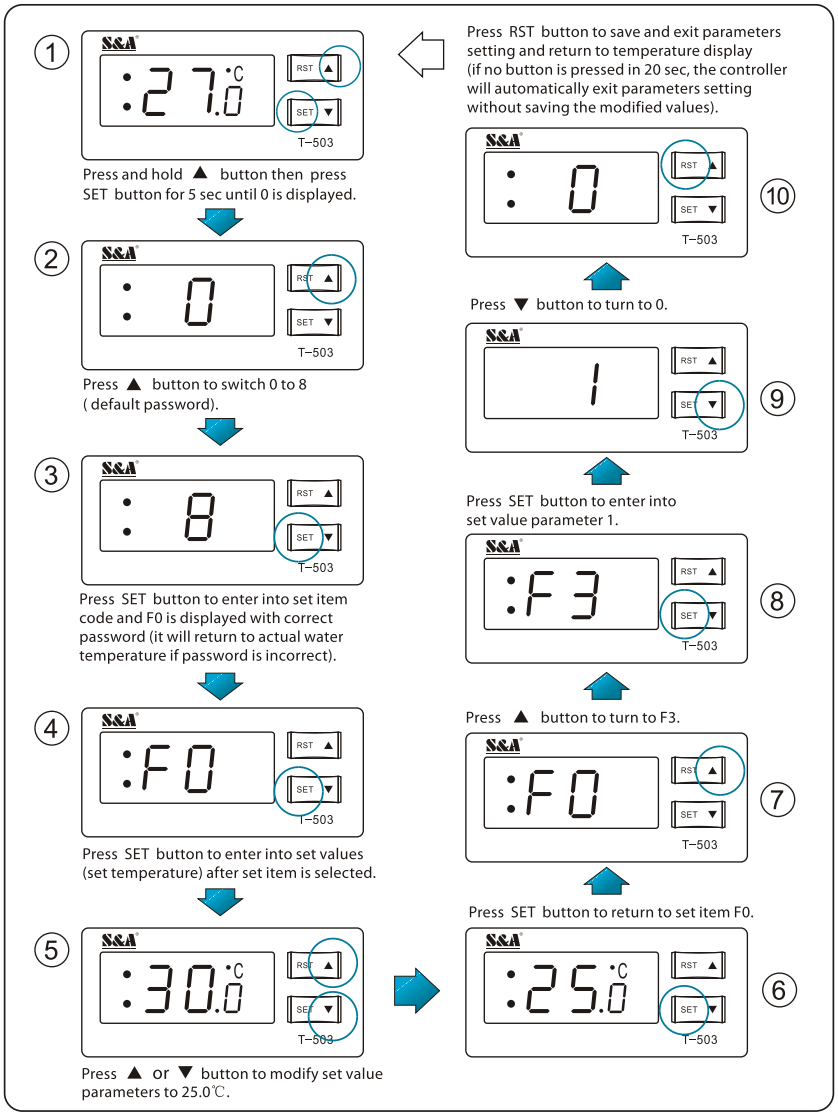
(1) Case 1: cooling water temperature is controlled by intelligent mode. Requiring water temperature to be between 25℃ and 31℃. Ambient temperature keeping constant, when the set water temperature is 3℃ lower than the ambient, the fluctuation will not exceed ±0.5℃. There will be an alert when water temperature is 10℃ lower or higher than target. (e.g. when ambient temperature is 30.0℃, cooling water temperature is between 27.5℃ and 26.5℃, if ambient temperature is up to 30.5℃, water temperature will be between 28.0℃ and 27.0℃.)

(2) Case 2: cooling water temperature is controlled by constant mode. Requiring water temperature is constant in 28℃, and the fluctuate does not exceed ±2℃. The ultrahigh water temperature alarm will be on when water temperature is 5℃ higher than normal, and the ultrlow water temperature alarm will be on when water temperature is 10℃ lower than normal.

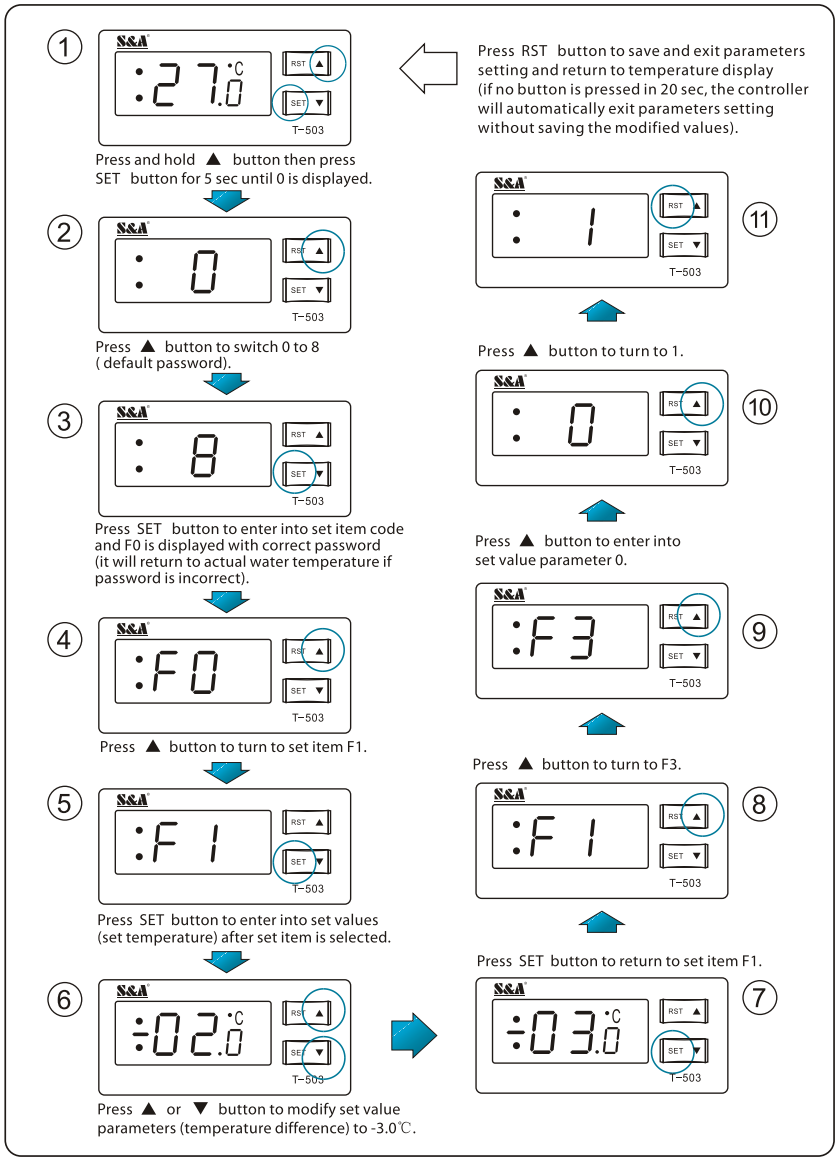
(3) Case 3: cooling water temperature is controlled by constant mode. Requiring water temperature is constant in 25℃, and the fluctuate does not exceed ±1℃. The ultrahigh water temperature alarm will be on then water temperature is higher than 30℃, and the ultralow water temperature alarm will be on when water temperature is lower than 10℃. (No matter what is the ambient temperature, the cooling water temperature is constant in 24.0℃ to 26.0℃)

9. Temperature controller operation cases

How to set the water at 25℃ in constant temperature mode under running in intelligent mode.



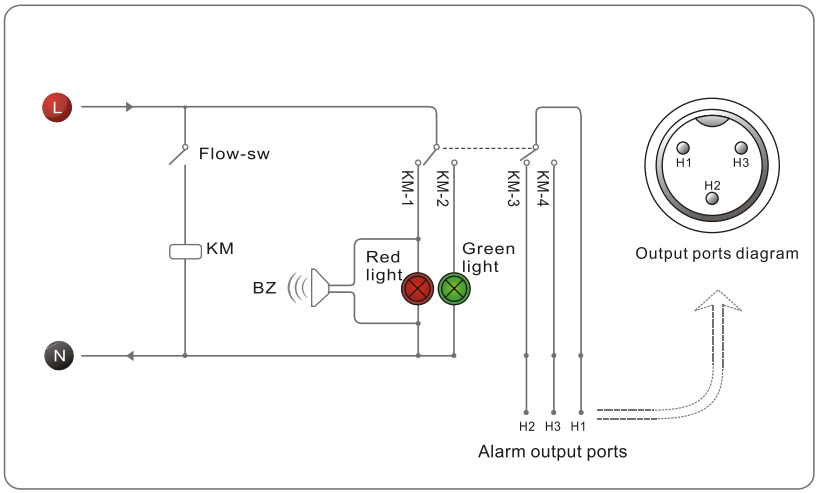
How to set -3.0℃ temperature difference in intelligent mode under running in constant temperature mode.



FLOW ALARM AND OUTPUT PORTS

In order to guarantee the equipment will not be damaged while cooling water circulation is out of control, CW-5000/5200 series chillers possess a low flow alarm protection.

1. Flow alarm output ports and the wiring diagram



2. Flow alarm causes of circulating cooling water and working state

DISPLAY / CONDITION	Normal flow indicator	Flow alarm indicator	BUZZER	OUT H1、H2	OUT H1、H3
Circulating pump works properly	On	Off	No sound	Disconnection	Breakover
Blocked cooling water circulation loop	Off	On	Sounds	Breakover	Disconnection
Alarm of water shortage	Off	On	Sounds	Breakover	Disconnection
Faulted circulating pump	Off	On	Sounds	Breakover	Disconnection
Power interruption				Breakover	Disconnection

Note: the flow alarm is connected to the normally open relay and normally closed relay contacts, requiring operating current less than 5A, working voltage less than 300V.

SPECIFICATIONS

CW-5000 Series compressional type chiller

MODEL	CW-5000AG	CW-5000BG	CW-5000DG	CW-5000AH	CW-5000BH	CW-5000DH	CW-5000AI	CW-5000BI	CW-5000DI
Voltage	AC 1P 220V	AC 1P 220V	AC 1P 110V	AC 1P 220V	AC 1P 220V	AC 1P 110V	AC 1P 220V	AC 1P 220V	AC 1P 110V
Frequency	50Hz	60Hz	60Hz	50Hz	60Hz	60Hz	50Hz	60Hz	60Hz
Current	0.15~2.2A	0.15~2.3A	0.3~4A	0.25~2.3A	0.25~2.4A	0.45~4.15A	0.7~2.75A		1~4.7A
Compressor power	0.295 KW	0.38KW	0.305KW	0.295 KW	0.38KW	0.305KW	0.295 KW	0.38KW	0.305KW
	0.40HP	0.52HP	0.41HP	0.40HP	0.52HP	0.41HP	0.40HP	0.52HP	0.41HP
Refrigeration capacity	2361Btu/h	2999Btu/h	2866Btu/h	2361Btu/h	2999Btu/h	2866Btu/h	2361Btu/h	2999Btu/h	2866Btu/h
	0.692KW	0.879KW	0.84KW	0.692KW	0.879KW	0.84KW	0.692KW	0.879KW	0.84KW
	595Kcal/h	756Kcal/h	722Kcal/h	595Kcal/h	756Kcal/h	722Kcal/h	595Kcal/h	756Kcal/h	722Kcal/h
Refrigerant	R-134a								
Refrigerant charge	300g	320g	280g	300g	320g	280g	300g	320g	280g
Precision	± 0.3℃								
Reducer	Capillary								
Protection	Overcurrent protection for compressor, flow alarm, over temperature alarm								
Pump power	0.03KW			0.05KW			0.1KW		
Tank capacity	6L								
Inlet and outlet	External Φ10mm barbed connector						Φ10mm speedy connector		
Max. Lift	10M			12M			25M		
Max. Flow	10L/min			13L/min			16L/min		
N.W	24Kgs								
G.W	27Kgs								
Dimension	58 X 29 X 47 cm (L * W * H)								
Package dimension	70 X 43 X 58 cm (L * W * H)								

Note: other electric sources can be customized; heating and higher temperature control precision functions are optional.

CW-5200 Series compressional type chiller

MODEL	CW-5200AG	CW-5200BG	CW-5200DG	CW-5200TG	CW-5200AH	CW-5200BH	CW-5200DH	CW-5200AI	CW-5200BI	CW-5200DI
Voltage	AC 1P 220V	AC 1P 220V	AC 1P 110V	AC 1P 220V	AC 1P 220V	AC 1P 220V	AC 1P 110V	AC 1P 220V	AC 1P 220V	AC 1P 110V
Frequency	50Hz	60Hz	60Hz	50/60 Hz	50Hz	60Hz	60Hz	50Hz	60Hz	60Hz
Current	0.15~3.8A	0.15~4A	0.3~5.55A	0.15~3.8A	0.25~3.9A	0.25~4.1A	0.45~5.7A	0.7~4.35A	0.7~4.55A	1~6.25A
Compressor power	0.52KW	0.5KW	0.68KW	0.49/0.57KW	0.52KW	0.5KW	0.68KW	0.52KW	0.5KW	0.68KW
	0.71HP	0.68HP	0.93HP	0.66/0.77HP	0.71HP	0.68HP	0.93HP	0.71HP	0.68HP	0.93HP
Refrigeration capacity	5084Btu/h	4982Btu/h	5186Btu/h	4825/5797Btu/h	5084Btu/h	4982Btu/h	5186Btu/h	5084Btu/h	4982Btu/h	5186Btu/h
	1.49KW	1.46KW	1.52KW	1.41/1.70KW	1.49KW	1.46KW	1.52KW	1.49KW	1.46KW	1.52KW
	1281Kcal/h	1256Kcal/h	1307Kcal/h	1219/1465Kcal/h	1281Kcal/h	1256Kcal/h	1307Kcal/h	1281Kcal/h	1256Kcal/h	1307Kcal/h
Refrigerant	R-22 / R-410a									
Refrigerant charge	360g	380g	350g	360/380g	360g	380g	350g	360g	380g	350g
Precision	± 0.3℃									
Reducer	Capillary									
Protection	Overcurrent protection for compressor, flow alarm, over temperature alarm									
Pump power	0.03KW				0.05KW			0.1KW		
Tank capacity	6L									
Inlet and outlet	External Φ10mm barbed connector							Φ10mm speedy connector		
Max. Lift	10M				12M			25M		
Max. Flow	10L/min				13L/min			16L/min		
N.W	26Kgs									
G.W	29Kgs									
Dimension	58 X 29 X 47 cm (L * W * H)									
Package dimension	70 X 43 X 58 cm (L * W * H)									

Note: other electric sources can be customized; heating and higher temperature control precision functions are optional.

SIMPIE TROUBLESHOOTING

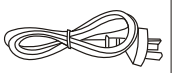
FAILURE	FAULT CAUSE	APPROACH
Machine turned on but unelectrified	Power cord is not plugged in place	Check and ensure the power interface and the power plug is plugged in place and in good contact.
	Fuse burnt-out	Replace the protective tube in the power socket on the back of chiller.
Flow Alarm (panel red light is on) use a water pipe directly connect to the water outlet and inlet but still without water flowing	Water level in the storage water tank is too low	Check the water level gauge display, add water until the level shown in the green area; And check whether water circulation pipe leaks.
Flow alarm occurs while running with other equipment (panel red light is on), but there is water flowing and no alarm when use a water pipe directly connected to the chiller water outlet and inlet.	Water circulation pipes are blocked or a pipe bending deformation.	Check water circulation pipe
Ultrahigh water temperature alarm (controller displays E2)	Blocked dust gauze, bad thermolysis	Unpick and wash the dust gauze regularly
	Poor ventilation for air outlet and inlet	To ensure a smooth ventilation for air outlet and inlet
	Voltage is extremely low or astable	To improve the power supply circuit or use a voltage regulator
	Improper parameter settings on thermostat	To reset controlling parameters or restore factory settings
	Switch the power frequently	To ensure there is sufficient time for refrigeration (more than 5 minuets)
	Excessive heat load	Reduce the heat load or use other model with larger cooling capacity
Ultrahigh room temperature alarm (controller displays E1)	The working ambient temperature is too high for the chiller	To improve the ventilation to guarantee that the machine is running under 40℃.
Serious problem of condensate water	Water temperature is much lower than ambient temperature, with high humidity	Increase water temperature or to preserve heat for pipeline
Water drains slowly from drainage nozzle during water changing	Water supply inlet is not open	Open the water supply inlet

PACKING LIST

1 1 unit of industrial chiller

2 1 copy of user manual

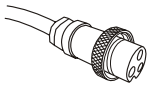
3 1 pc of power cord



4 1 pc of connection hose

5 2 pcs of sealed hoop (optional)

6 1 pc of alarm signal output plug



7 1 pc of spare fuse
(Held in the spare fuseholder of power socket)