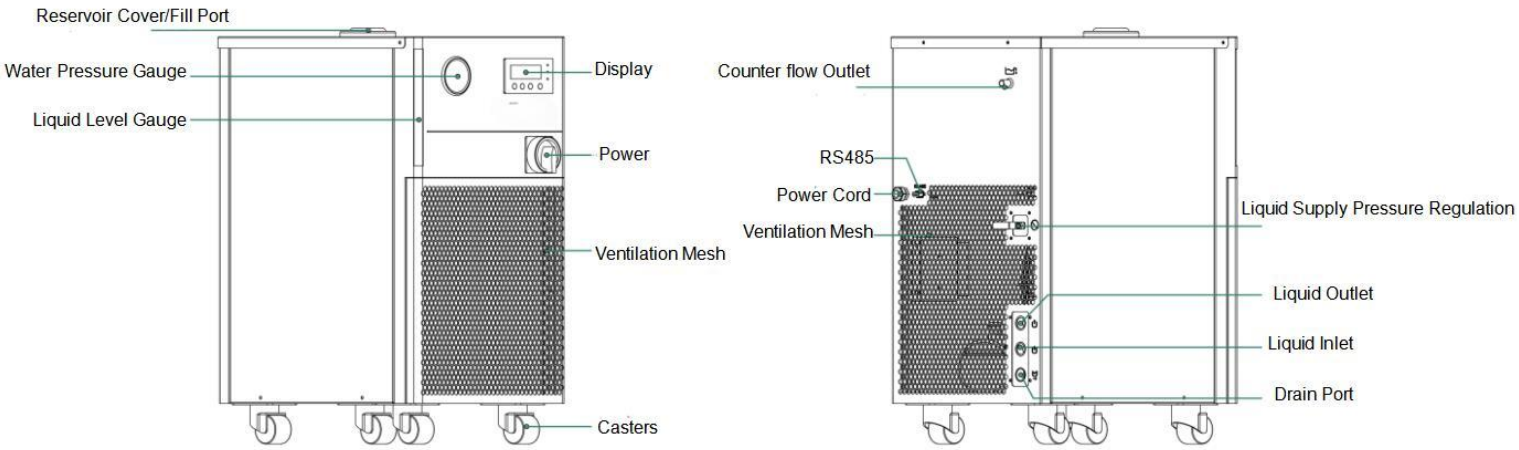
Specification

Recirculating Chiller

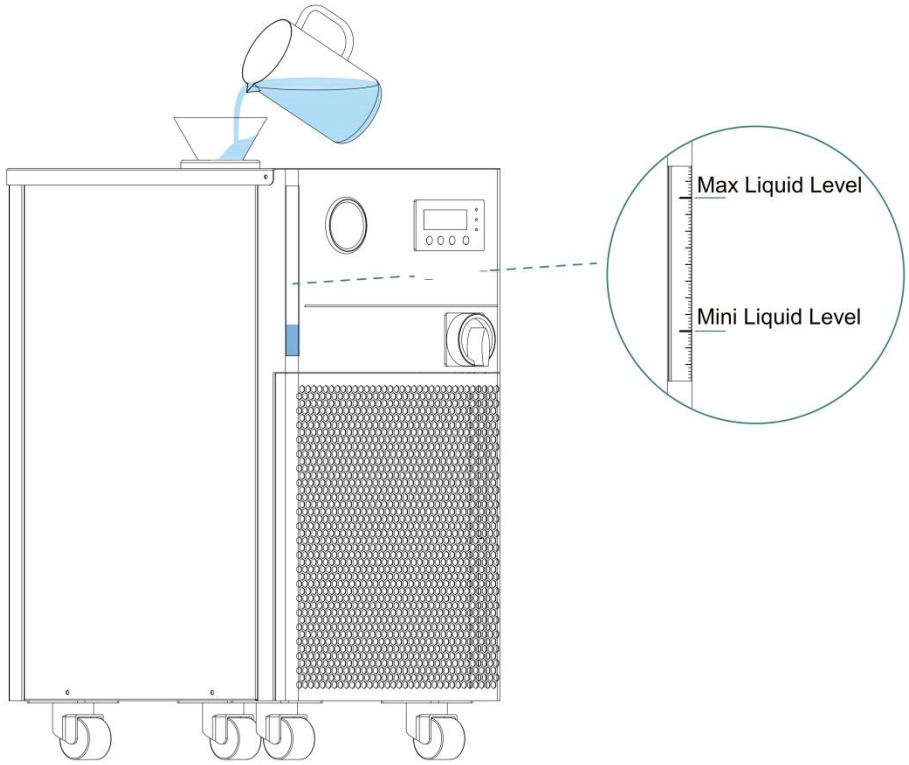
1. Specification

Product	Recirculating Chiller	
Model Number	RG-Midicool-4046	
Temperature Range	-40℃~20℃	
Cooling Capacity	20℃	4.6KW
	0℃	3.8KW
	-10℃	2.4KW
	-20℃	1KW
	-40℃	0.25KW
Temperature Display	LED	
Display Accuracy	0.1℃	
Temperature Sensor	NTC10K	
Pump Type	Pressure Pump	
Max. Pump Pressure	1.2 bar	
Max. Flow Rate	20L/min	
Pump Connection	G1/2 internal thread	
Tank Volume	25L	
Dimensions (W×D×H)	600x425x880mm/23.62x16.73x34.65 in	
Packing Dimensions (W×D×H)	780× 525 ×1000mm/30.71x20.67x39.37in	
Continuous Operation	100%	
Max. Relative Humidity	80%	
Power Supply	220V/50Hz	
Weight	67Kg	
Communication Interface	RS485	
Protection Class	IP20	
Power Consumption	1.75KW	

2. Configuration



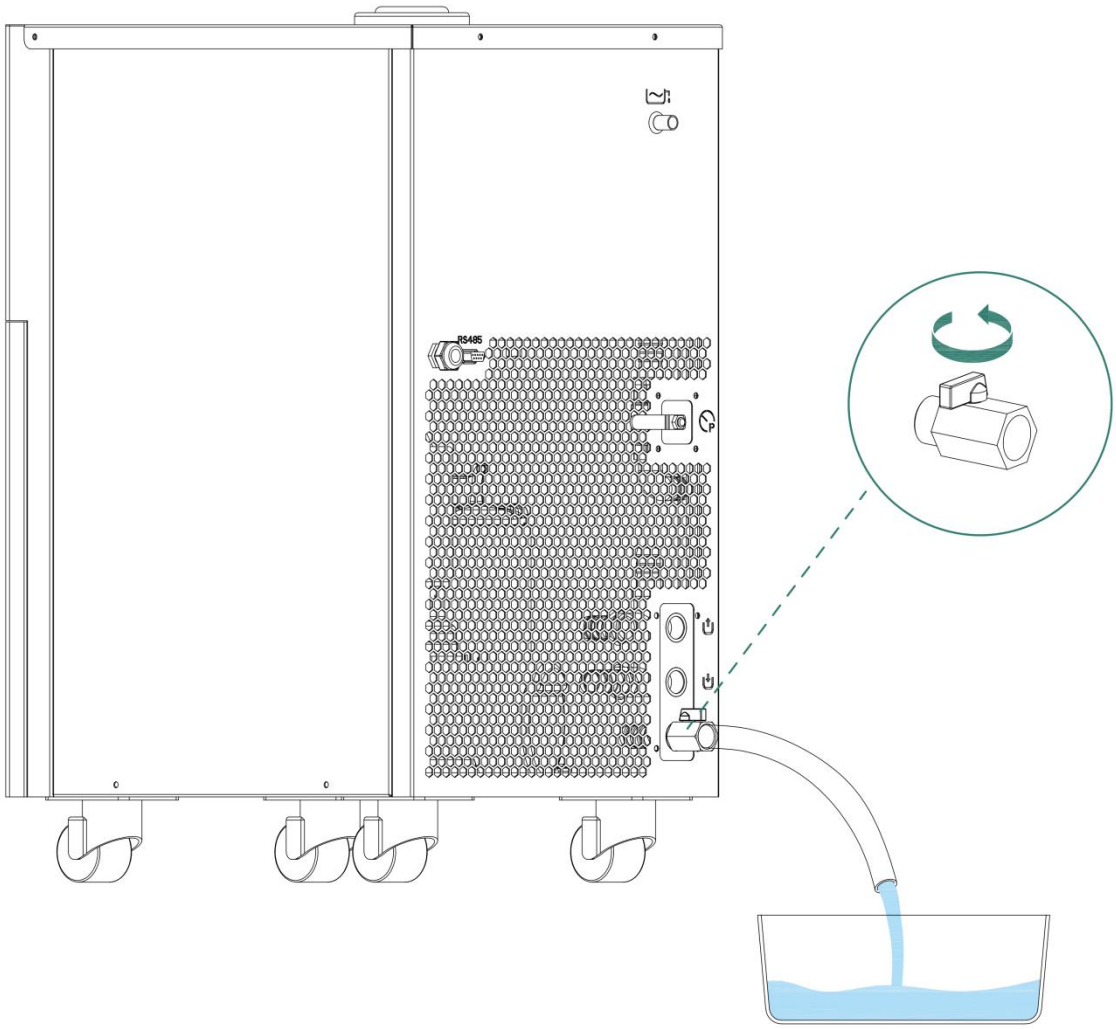
3. Liquid Addition Demonstration



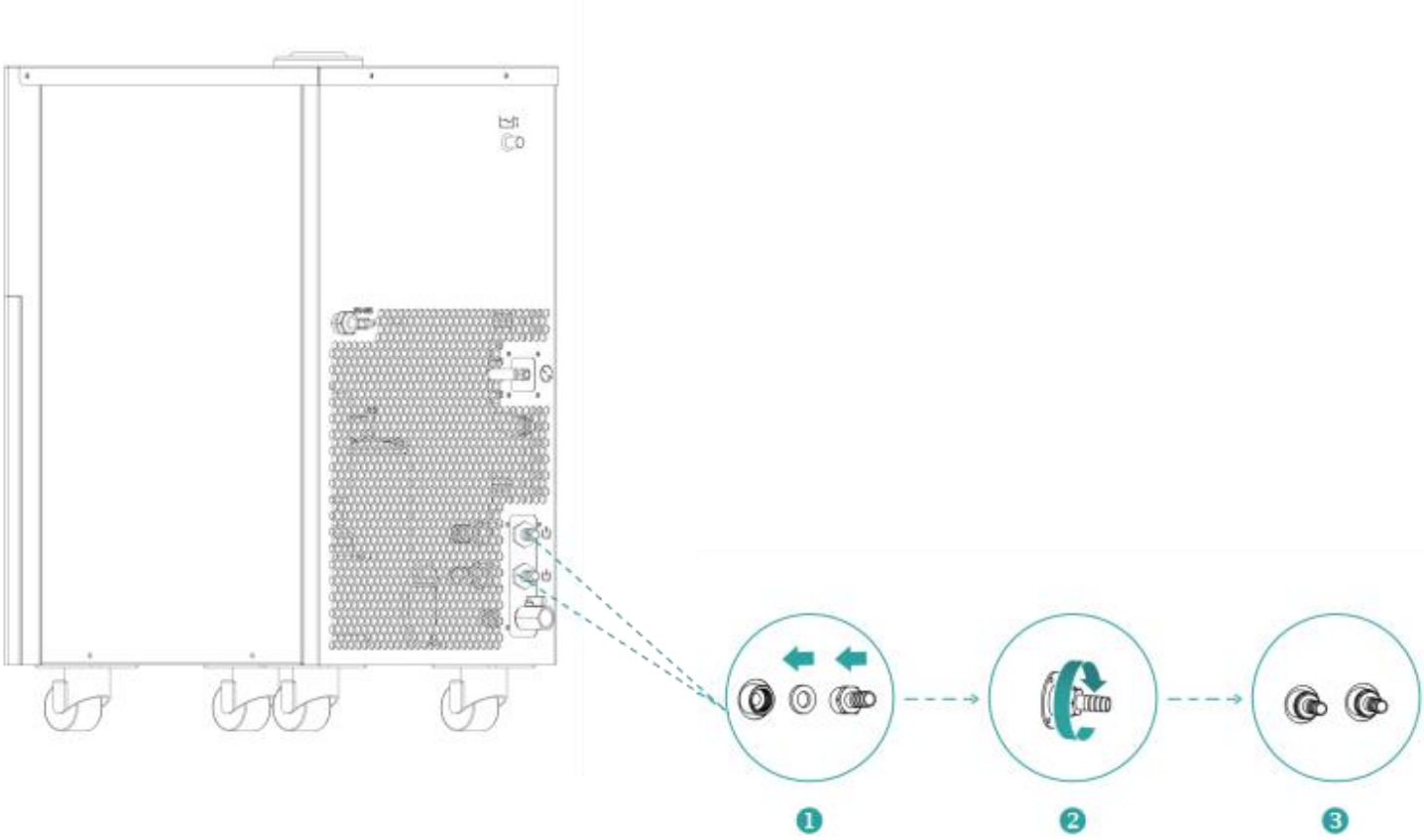
Caution: Before adding liquid, check to make sure if the drain port is plugged.

4. Empty The Liquid:

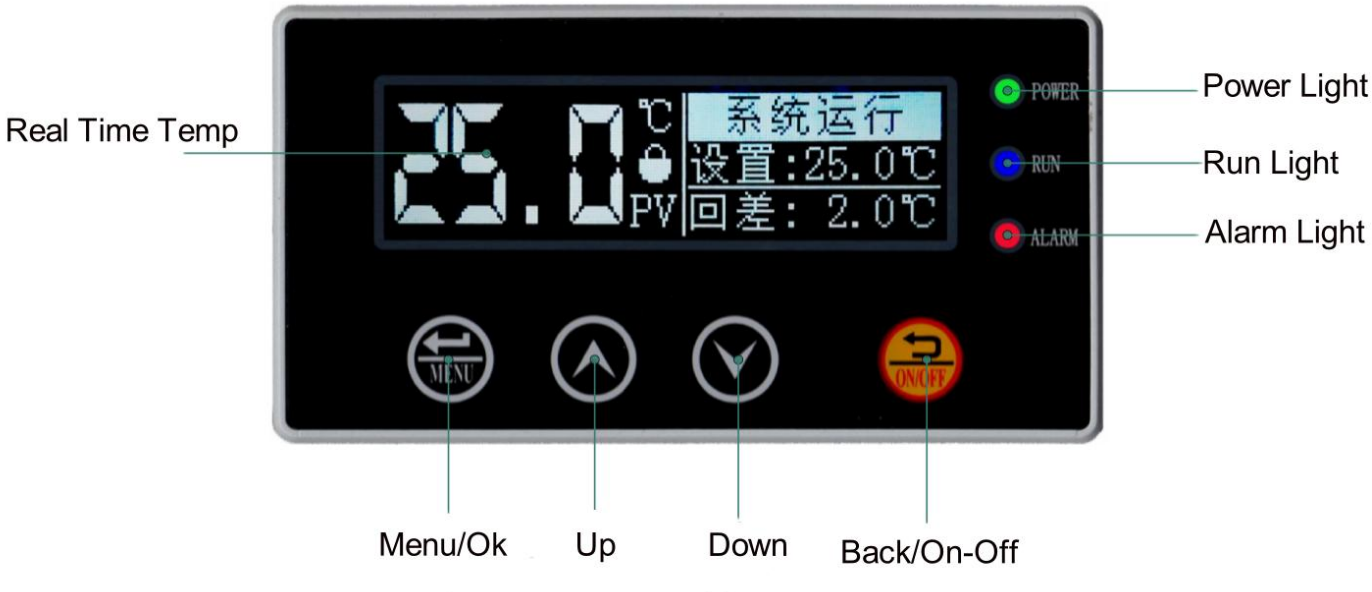
When the chiller is not used for a long time or the liquid is changed, the liquid in the reservoir needs to be drained. When draining the liquid, please prepare a sufficiently large container. Pull out the drain pipe, remove the plug, and drain the liquid into the container. (To facilitate the discharge of residual liquid into the liquid container, we recommend installing a drain hose at the drain port).



5. Chiller Connection Pipe Operation



6. Display Operation



Power On/Off Operation:

When the system is powered on, the power indicator lights up. Press the "On/Off" button to turn the system on and off. Press the "On/Off" button to turn the system on when it is powered off. Press the "On/Off" button to turn the system off when it is powered on.

Parameters Setting:

Press the "Menu" button on the main screen to enter the main menu. Press the "Up" and "Down" buttons to select a submenu. Press the "Menu" button to enter a submenu. Press the "On/Off" button to return to the previous menu. Once in the root menu, press the "Up" and "Down" buttons to adjust parameter values. Press the "Menu" button to save the settings. If no button is pressed for 10 seconds during the setting process, the system will automatically return to the main screen.

*Administrator parameter password: 359

7. Parameters Menu:

Symbol	Meaning	Setting Range	Initial Value	Remark
1	Set Temperature	-20.0~70.0℃	25℃	
2	Set The Hysteresis Value	0.1~8.0	2	
3	Follow Temperature Difference	-30.0~30.0	0	
4	Incoming Power Start/stop Mode	0-3	2	1: Standby for incoming power 2: Power on for incoming power 3: Memory for incoming power
5	Temperature Alarm Upper Limit	25.0~80.0	50	
6	Temperature Alarm Lower Limit	-25.0~20.0℃	5	

System Parameters:

Symbol	Meaning	Setting Range	Initial Value	Remark
33	Local Host	1~125	1	
34	Backlight Delay	0~3000S	60S	
35	Lock Delay	0~300S	30	
36	Display Contrast	5~255	130	
37	Language	Chinese/English	0	0：Chinese 1：English

Function Code:

▲The hardware uses 485 half-duplex communication, and the software communication protocol uses MODBUS-RTU.

▲The start bit is 1, the data bits are 8, the stop bit is 1, and there is no parity bit. The baud rate is 9.6 kb/s.

▲The default slave address (configurable) is 1. This device does not actively send data, but only receives and responds to data sent by the maste

Function Code (Decimal)	Parameters Address (Decimal)	Describe		Range	Remark	Attribute
01	0	Digital Output	Bit0：Alarm			R
			Bit1：Pump			
			Bit2：Compressor			
			Bit3：Reverse Valve			
			Bit4：Multi-purpose Output			
02	0	Digital Input	Bit0: Flow switch			R
			Bit1: Multi-purpose Input			
	15	Restore Factory Settings		1	*1	W
	25	System Status	0x01：Standby			R/W
			0x02：Power On			
			0x03：Fault			R
			0：Normal and trouble-free			
			1: Ambient temperature sensor failure			
			2: Media temperature sensor failure			
			8：Power failure			
			9：Power reverse phase protection			

03/06/16	29	Fault Code	10：Liquid level protection			R
			13：Flow protection			
			16：Pump overload			
			17：Flow lower limit protection			
			18：Compressor overload			
			33：System operation abnormality			
			45：Temperature upper limit alarm			
			54：Temperature lower limit alarm			
	30	System Running Time	Unsigned integer		*1	R
	34	Compressor Running Time	Unsigned integer		*1	R
	37	Local Host		1~125	*1	
	47	Setting Temp		-20.0~70.0	*10	
	48	Setting Hysteresis Value		0.1~8.0	*10	
	49	Follow Temperature Difference		-30.0~30.0	*10	
	50	Incoming Power Start/stop Mode		0~2	*1	
	51	Temperature Alarm Upper Limit		25.0~80.0	*10	
	52	Temperature Alarm Lower Limit		-25.0~20.0	*10	
	53	Flow protection lower limit		0.0~90.0	*10	

8. Precautions and Daily Maintenance:

Notes:

▲The heat transfer medium should not fall below the pump body, heating tube, or the "L" area of the liquid level indicator. If it falls too low, refill immediately.

▲If the temperature is operated below the dew point for extended periods, be aware that condensate may mix with the heat transfer medium, preventing the temperature from being reduced.

▲After changing the liquid, check the liquid level to ensure it is at the correct level. If changing to another liquid, completely drain the liquid from the water tank and connecting pipes.

▲After use, turn off all switches, unplug the power cord, drain the liquid from the tank, and wipe away any excess water. The recommended operating time for the instrument is no more than 72 hours.

Chiller Maintenance:

▲Before inspecting or maintaining the device, always turn off the instrument and disconnect the power cord.

▲Check the power cord: Inspect the power cord for damage or cracks. If any signs of damage or deterioration are found, discontinue use immediately and contact us for a replacement.

▲Check the hoses and hose connectors: Visually inspect the hoses and connectors for wear. If any signs of deterioration are found, replace them promptly. Generally, we recommend inspecting the hoses and connectors every six months and replacing any worn hoses.

▲Check and clean the heat sink grille: Wipe clean the heat sink grille with a damp cloth. Disassemble the radiator air inlet, remove the filter, and clean any dust from the filter surface with tap water or a vacuum cleaner. Depending on the operating environment, we recommend cleaning the heat sink grille and heat sink air inlet every two to four weeks.

▲Check and replace the liquid:

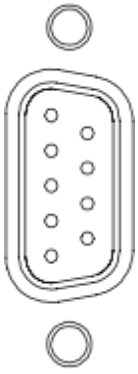
▪When using water as the liquid, we generally recommend replacing the bath fluid every one to two weeks.

▪When using ethanol or ethylene glycol as the liquid, it's generally recommended to replace the bath fluid every three months.

▪When using thermal oil as the liquid, it's generally recommended to replace the bath fluid every six months to one year.

9. Device Interface and Communication Protocol:

Commnication	RS485		
Type	DATA-	DATA+	GND
DB9 pin	1	2	5
Communication Distance	Theoretical distance ≤1200m Recommend distance≤400 ~ 1000m		
Protocol	Standard ModBus-RTU		



RS485 Communication Protocol(Optional Function):

Communication Configuration:
Baud Rate: 9600
Parity: Even
Data Bits: 8
Stop Bits: 1

Command Syntax:
1.A space (0x20) is used between each command and the following parameter, and between each parameter.
2.Each command is followed by a carriage return (0x0d and 0x0a; no space is required between them).