LO-800W Water Chiller Operation Manual
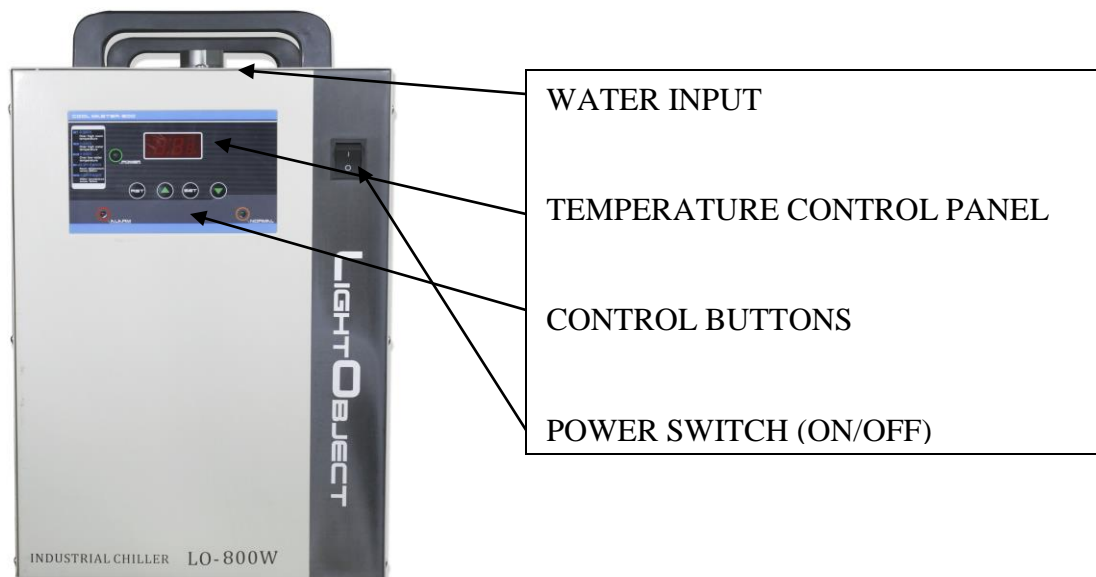

Specifications Water Chiller LO-800W

- Cooling Power: 800 Watt
- BTU: 3500 Btu/h
- Input power: AC 110V, 60Hz
- Current: 3.5A
- Compressor power: 0.5HP, 398 Watt
- Freon: R410A
- Pump power: 30 W
- Lift (cut off) : 5m (16 ft)
- Rate: 10L/min, 158 GPH
- Inlet/Outlet size: 10 mm
- Ambient Temp.: ≤35'C (95'F)
- Chilled Water Temp. 18~30'C
- Weight: 25KG (50lb)
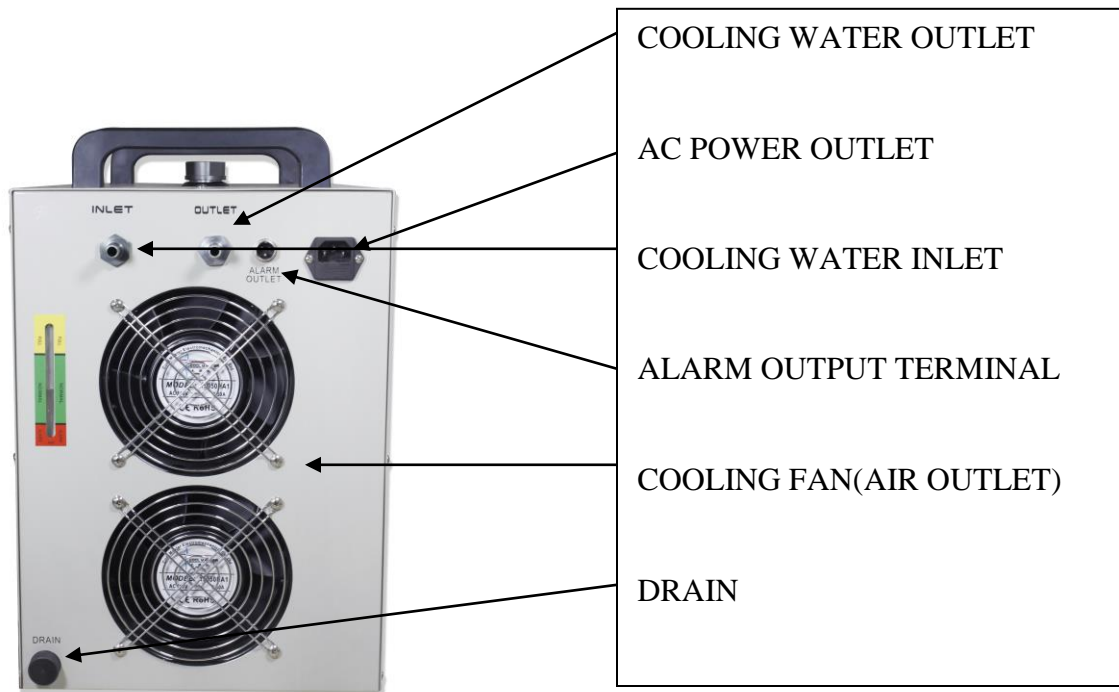- Dimension: 550×280×430mm (21.6" x 11.0" x 17")

Cautions and Conditions

1) Ensure good contacts on the AC power plug: Lead, Neutral, and Ground

2) Stable AC voltage is necessary for operation. AC 110V +/-5%

3) Stable AC frequency (Hz) is required. No square wave or modified sinusoid wave accepted.

4) Do not operate the water chiller without water or the machine will suffer damage.

5) Remove any obstacles that may be blocking the fan.

6) Air filter must be cleaned on a regular basis to prevent blockage.

7) Change water every 2 weeks. Distilled water is highly recommended.

8) Operate the unit by trained personnel only.

Introduction

The LO-800W is an industrial grade water chiller with a high efficiency compressor running on R134A environmental friendly Freon. Two control modes, Intelligence and Constant, provide a fast and accurate control to the change of temperature.

WATER INPUT

TEMPERATURE CONTROL PANEL

CONTROL BUTTONS

POWER SWITCH (ON/OFF)

COOLING WATER OUTLET

AC POWER OUTLET

COOLING WATER INLET

ALARM OUTPUT TERMINAL

COOLING FAN(AIR OUTLET)

DRAIN

Startup procedures

Before proceeding, make sure that all parts and components of the machine are intact.

1) Remove the cap on the top of the unit and fill with water until the water level reaches the green (normal) zone. **Be careful not to overfill the water chiller.** You will need to fill in more water after the chiller fill in the tube.

2) Use the silicone water tubing to connect the water chiller to the machine. To connect it so that the water flows properly, have the input of the water chiller connected with the output of the machine. (Input >Output) The same applies for the output of the water chiller, connect that to the input of the machine. (Output>Input) .

3) Connect an AC power cord from the back of the chiller to a wall mount AC outlet. By default, the system will start 10 seconds after the switch is pressed. (**Do not start if there is no water in the chiller!!**)

4) Check water level 1 minute after system begins to run. Add more water if the water level drops below the green zone. Make sure to put the cap back on.

Quick Start Guide for Controls

Hold SET and the ▲ button for approx. 5 seconds. This will lead to where you put in the password for the machine. The password set on the machine is 8. Input the correct password and it will lead to the next menu. If the password is incorrect, it will bring the display back to the home screen.

This will lead to the F menu where a lot of the parameters and options can be changed.

The main F menu's to focus on:

> **F0** which is what the temperature of the chiller is set as. Example: 22℃
> **F2** is the cooling hysteresis. For example, when set at 3. This means that when the temperature of the water reaches 25℃, the compressor will turn on and cool down at full power until it reaches 22℃. It will continue cooling it down to 20℃ at half power.
> **F3** is the way of control. This is typically set at 0 for the constant temperature controlling. 1 for intelligence controlling

Once every parameter is set accordingly, press the RESET button to return back to home display and will apply the new changes.

Note: When turned on, the Chiller will always be on full power cooling mode for about 20 seconds regardless of the temperature.

Controls

The temperature controller is set to constant temperature control mode by default with water temperature at 20 degrees Celsius. User can adjust it as needed.

1. Temperature controller panel description
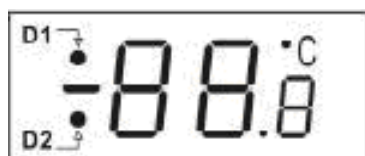
> 1) Indicators **D1**, **D2** (as shown) of thermostat working state
> > **D1 ON**: thermostat works in intelligent control mode;
> > **D1 OFF**: thermostat works in temperature control mode;
> > **D1 FLASHING**: thermostat works in parameters setting mode or displays value of room temperature;
> > **D2 ON**: chiller works in refrigerating state; cooling at full power.
> > **D2 OFF**: chiller works in the insulation working state; cooling at half-power.
> > **D2 FLASHING**: chiller works in the energy-saving state; the water is circulating.
>
> 2) Press▼ button to show the room temperature, Hold the ▲▼ button when turning on for approx. 6 seconds to restore to default settings. (When D1 is flashing, the room temperature is being displayed.)

3) ▲▼ keys are for adjusting the display status of the controller, parameter selection and adjustment.

4) **RST** key: enter key that applies settings and returns back to home screen.

5) **SET** key: function setting key, shows the temperature difference value.

2. Restoring factory settings

Before ON/OFF switch is pressed, press and hold ▲▼button until the controller displays rE. Five seconds later after releasing the button, the controller will work in normal order. All of the parameters settings of the controller have been restored to factory settings.

3. Alarm function
Alarm Display:

E1	E2	E3	E4	E5
Over high room temperature	Over high water temperature	Over low water temperature	Room temperature sensor failure	Water temperature sensor failure

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

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

4. **Thermostat parameters list(all unit to be Celsius/C)**

Code	Item	Range	Temperature Controller Factory Setting	Note
F0	Temperature setting	20-30	20	Constant temperature control effecting
F1	Temperature Difference values	-15~+5	-2	Constant control effecting
F2	Cooling hysteresis	0.1~3.0	0.8	
F3	Way of control	0~1	0	1:Intelligent 0: Constant temperature
F4	Alarm for over high water temperature	1~20	10	
F5	Alarm for over low water temperature	1~20	15	
F6	Alarm for over high room temperature	40~50	45	Intelligent mode only.
F7	Password	00~99	8	
F8	The allowed highest water temperature	F0~40	30	Intelligent mode only
F9	The allowed lowest water temperature	1~F0	10	Keep temperature within range.

5. General settings adjustment

Press **SET** button (**SET** to enter into the user-defined state. **D1** will be flashing to indicate that the controller is in parameters setup status.

1) Under intelligent mode, the control panel displays the temperature difference value between water and air (**F2**).

2) Under constant temperature mode the control panel displays the set temperature value (F0).
   At this moment, press ▲▼ key to change settings. After modifying the value, press the **RST** button to save and exit, then new parameters take effect, or press SET key to exit without saving parameters. If there is no more action within 20 seconds, it will automatically exit modifying status without saving.

6. Advanced settings adjustment

1) Press and hold the ▲key while press **SET** button for 5 seconds until 0 is displayed. Then press ▲button to select the password that has been set, and then press the SET button again. If the password is correct, F0 will be shown. In entering the set status, D1 flashes to indicate that the controller is under parameters setup status. If the password selected is incorrect, then the panel will return back to temperature display.

2) To enter setup state, press ▲key to enter and select set items circularly, or press ▼to go in contrary direction circulation. Select an item, click **SET** button to proceed to next parameters modifying, original settings being displayed, then press ▲▼key to modify parameter values, and press **SET** button to return to the previous setup menu. Press **RST** button at any time to exit parameters setup with saving modified parameters and return to temperature display. The chiller will run under the new parameters applied. If no button is pressed within 20 seconds, the controller will automatically exit parameters setup without saving the modified parameters.

Note:
1) During parameters setting condition, system will run 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 (F2) parameter.
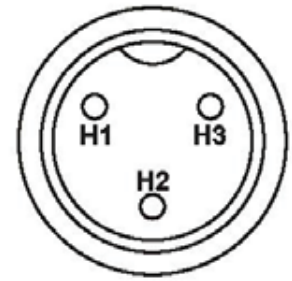
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Flow alarm and output ports

In order to guarantee the equipment will not be damaged while cooling water circulation is out of control, chillers possess a unique low flow alarm protection.

1) **Flow alarm output ports and the wiring diagram**

(Flow alarm function circuit diagram)

(Alarm output ports)

(Output ports diagram)
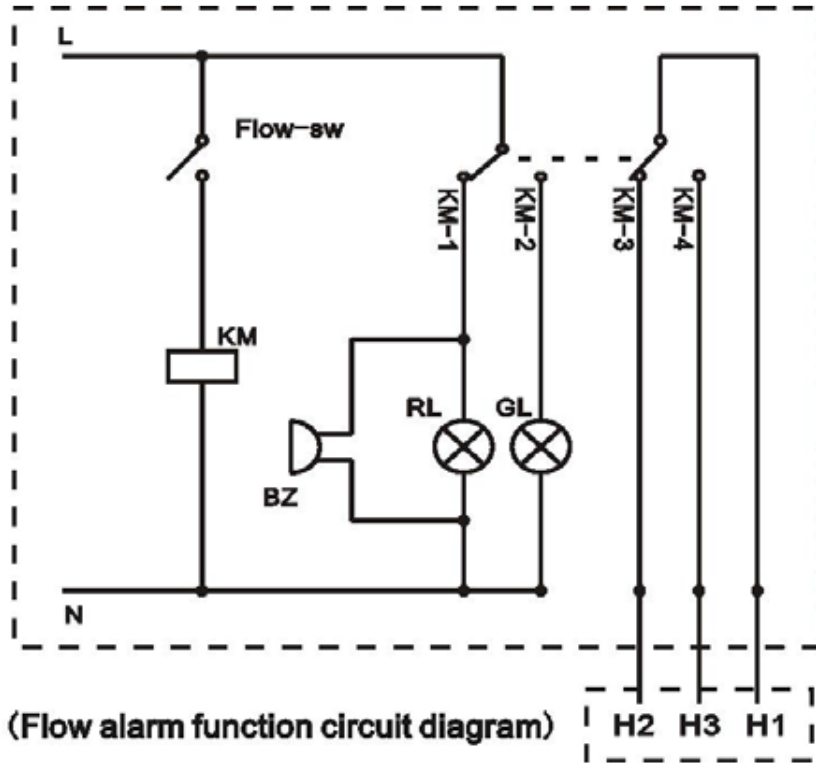
H1 and H2 normally open, when the chiller is working.
H1 and H3 normally close, when the chiller is working.

2) **Flow alarm causes of circulating cooling water and working state**

	Normal flow indicator	Flow alarm indicator	Buzzer	Output ports H1, H2	Output ports H1, H3
Circulating pump works properly	ON	OFF	NOT RING	DISCONNECTION	BREAKOVER
Blocked cooling water circulation loop	OFF	ON	RING	BREAKOVER	DISCONNECTION
Alarm of water shortage	OFF	ON	RING	BREAKOVER	DISCONNECTION
Faulted circulating pump	OFF	ON	RING	BREAKOVER	DISCONNECTION
Power interruption				BREAKOVER	DISCONNECTION

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

Troubleshooting

Failure	Failure Cause	Solution
Machine turned on but not working.	Power cord is not plugged in correctly.	Check and ensure the power plug is plugged in correctly into the machine and power socket.
	Fuse burn-out	Pull out the fuse box from the power supply of the chiller and check the fuse. Replace fuse with spare fuse if necessary.
Flow Alarm (panel red light is on)	Water level in the storage tank is too low	Check the water level gauge and add water until the water level is in the green normal zone.
	Water circulation pipes are blocked or a pipe bending deformation.	Check water circulation pipe.
Ultra-High temperature alarm	Blocked dust gauze, bad thermolysis	Remove 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 unstable	To improve the power supply circuit, use a voltage regulator
	Improper parameter settings on thermostat	To reset controlling parameters or restore to factory settings
	Switch the power frequently	To ensure there is sufficient time for refrigeration (more than 5 minutes)
	Excessive heat load	Reduce the heat load or use other model with larger cooling capacity.
Alarm for ultra-high room temperature	The working ambient temperature is too high for the chiller	To improve ventilation, ensure 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 to preserve heat for pipeline.
Water drains slowly from outfall during water changing	Injection port is not open	Open the injection port.