Specification

Compact Liquid Chiller Module

Model: DV3220E-C (24V)

1-Specification:

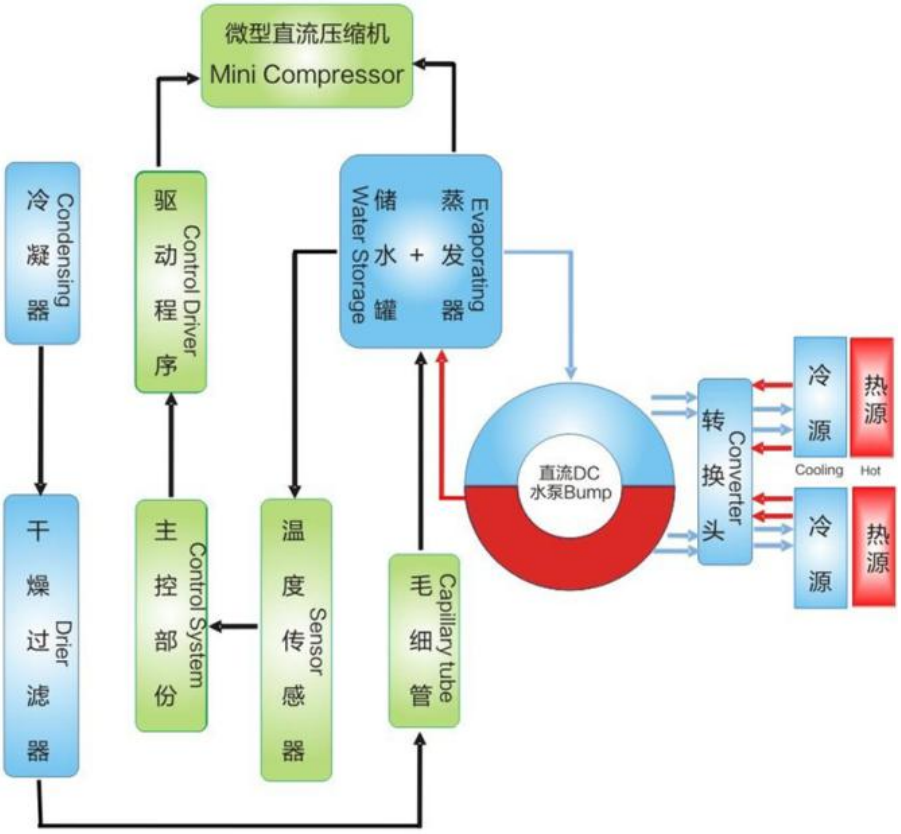
Model Name	DV3220E-C
DC Compressor Model	QX3202VD
Refrigerant	R134a
Rated Voltage	24V DC
Voltage Range	20 V - 32 V
Start-up Voltage	20V
Temperature Range	-16C ~ 30C degree
Rated Current	10.3A
Max Current	12.5A
Cooling Capacity	100W~550 W
Oil Filling Amount	80 cc
Capillary Tube	Φ2 * 0.8 m
Noise	40↓dB(A)
Vibration	≤0.65 m/s2
N.W	8.82lbs/4.0 Kgs
Motor Speed	2000 ~ 4500rpm
Driver Board	2,000~6,500 rpm variable frequency controller

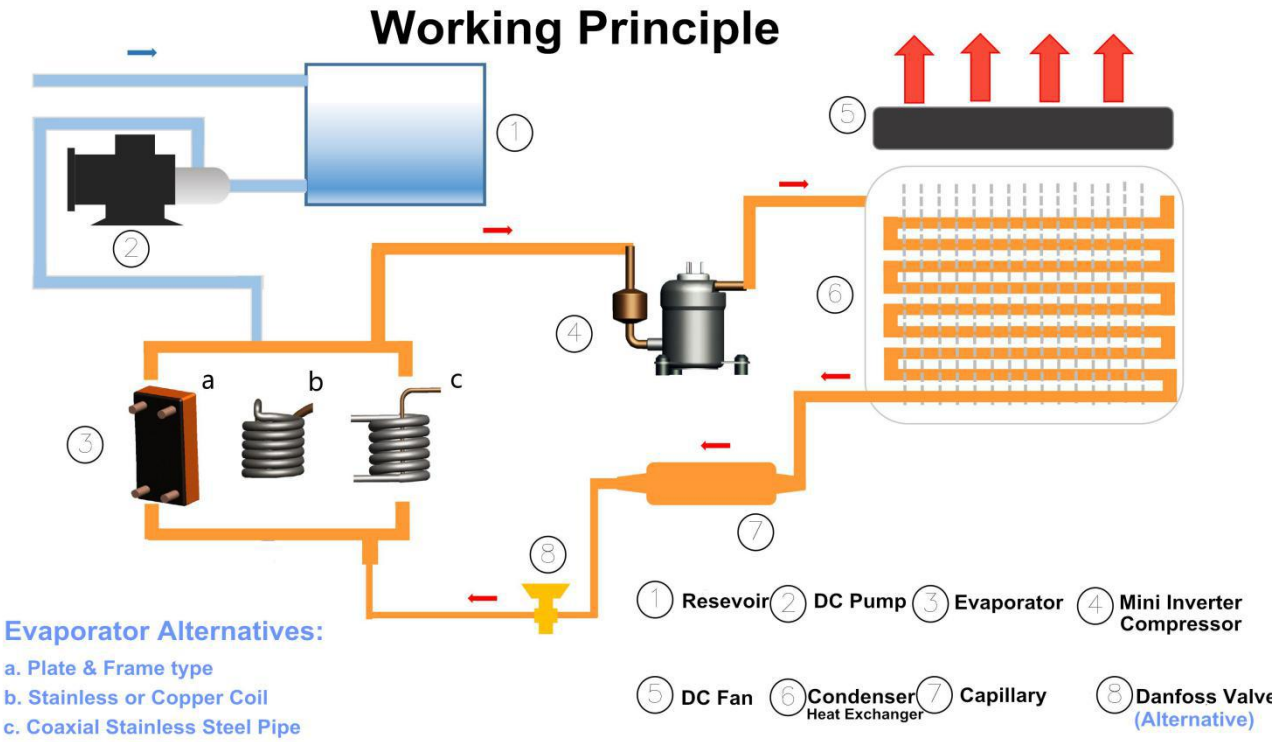
2-Other Parameters:

Item	Standard	Overload	Note
Compression Ratio	＜6	＜8	Compressor will shut down for protection when temp reach to 105° degree
Discharge Temp	84° degree	105° degree	
Start-up Pressure	Only when system's high-low pressure under balance can operate compressor (Compressor has this built-in setting)		
Water pressure test for strength and tightness (Low)	7.45MPa (76 kg/㎠)		
Water pressure test for strength and tightness (High)	16.2MPa (165 kg/㎠)		
Max Tilt Angle	40° Degree		
Compressor Protection	Controller Automatic Protection		

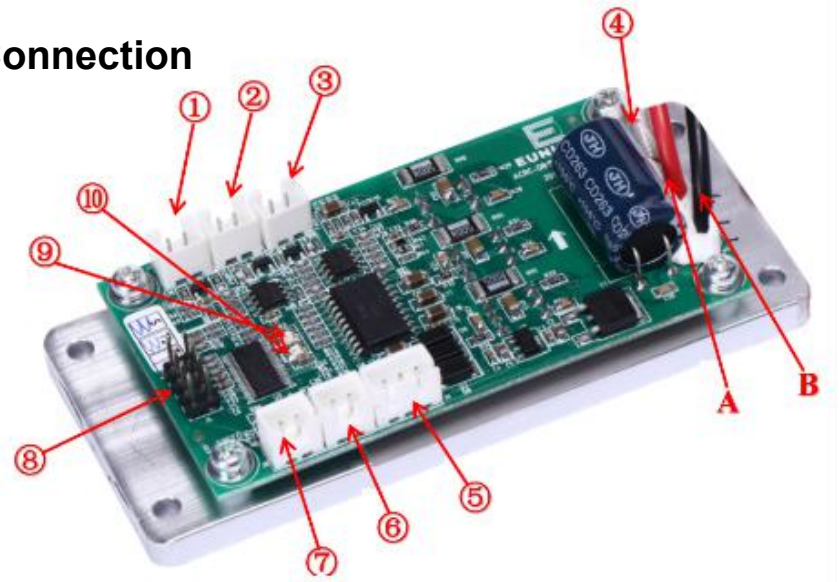
3. Small Water Circulating Cooling System

The diagram are just for reference only. We're able to customize according to users' demand for whole system optimization.





4. Controller Wire Connection



A Positive wire Power " + "

B Negative wire Power " - "

① EN Switch EN, Enable terminal, reservation for EN.

② PWN speed control terminal (1K~10KHz).

③ Fault alarm compressor failure alarm, high level-normal, low level-failure.

④ Connecting lines (Any direction connecting the compressor is workable).

⑤ TTL communication port.

⑥ 0~5V to adjust the speed.

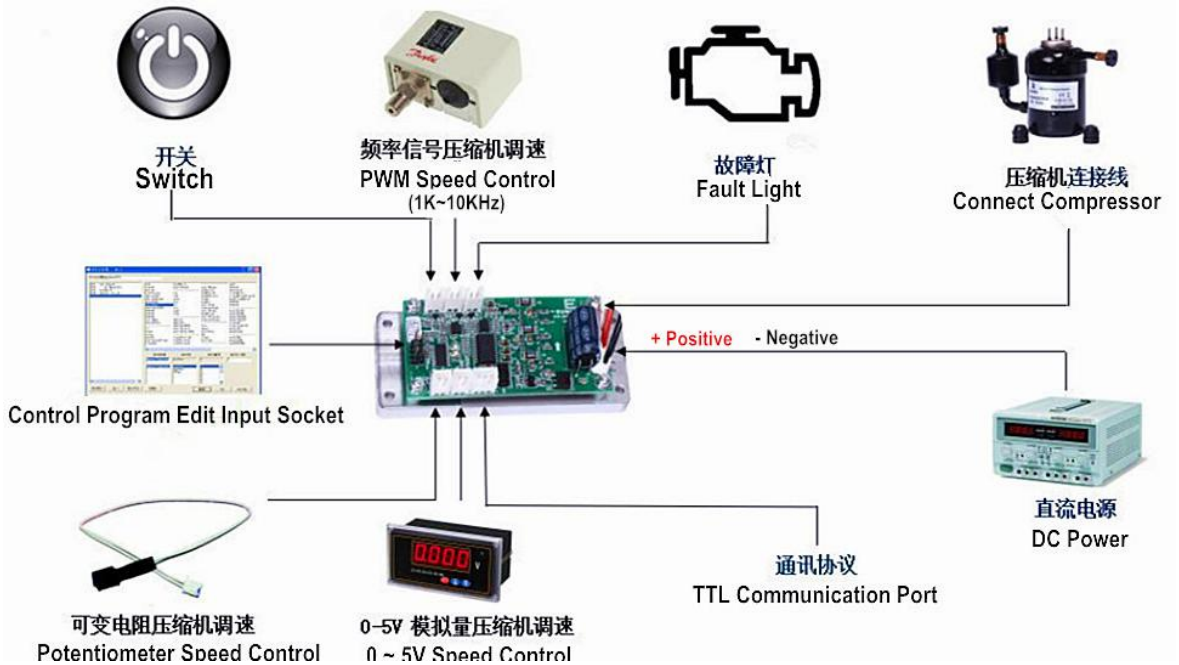
⑦ Terminal for potentiometer with 50kohm to adjust speed.

⑧ Control program edit input socket.

⑨ Green LED.

⑩ Red LED.

The Driver Board Wiring Diagram



5. Attentions:

1. Please check evaporator & condenser installation properly, when compressor is failed or poor refrigerating. Make sure the system is complete vacuum and no water inside. Refrigerant oil lacking also leads to poor refrigerating capacity.

2. Notice, Refrigerant oil will be released when we are charging refrigerant gas. Make sure the compressor has enough refrigerant oil (25g). Or compressor motor will face possible jammed or stuck due to oil shortage.

3. Operation Instructions

3.1 Analog speed control is default speed control mode. The mode can be temporarily changed via communication software provided by EUNICUM, but the changed mode can NOT be stored in the product.

3.2 Under the communication control mode, the user can control the compressor speed by setting-up 'Control Instruction' and 'Speed Setup'. The communication protocol is MODBUS RTU.

3.3 Under analog speed control mode, the higher corresponding speed will have priority among analog voltage, potentiometer and PWM.

3.3.1 Analog Voltage Mode-the relationship between voltage and speed is linear relation:0V-0.5V, compressor stops; ≥0.7V, compressor starts to run;0.7V-5V, corresponding speed is 2000rpm-6500rpm.

3.3.2 PW Mode-the frequency and speed is linear relation:300-500Hz, corresponding speed is 2000rpm-6500rpm.

3.3.3 Potentiometer Mode-50kΩ, compressor stops; 30kΩ-0kΩ, corresponding speed is 2000rpm-6500rpm.

3.4 Controller

This controller has two LED lights (Red and Green), following are definitions:

Controller State	Green LED	Red LED
Motor Standby	Flash（On-0.25s, Off-0.25s）	Off
Motor Failure	Off	Flash "N"（On-0.25s, Off-0.25s）, then off 2s, repeat as above cycle（N means Error Number, see below definition)）
Motor Normal Operation	Flash (On-0.25s, Off-0.25s） Red light is off when the green light is on.	Flash（Off-0.25s，On-0.25s） Red light is on when the green light is off.

3.5 Trouble Shooting Manual

Signal	Fault Type	State
1	Over-Current	Drive board will report over-current failure when current is over 30A. It will restore in 3mins. Compressor needs to be restarted if current is overloaded up to 7 times within 1 hour.
2	Motor Block up	Drive board will stop working if motor block up, it will recover in 3mins. However, it takes 10mins to restore if motor blocks up 3 times continuously.
3	Temperature Sensor Failure	Drive board won't work if temperature sensor fails to connection.
4	Inverter temperature overload	Power Module, Max temperature is 105℃， it will restore when temperature is 85℃, Drive board will start to work again after 3mins pause if temperature overloads several times.
5	V_Bus Low Voltage	V_Bus will report default when voltage is less than 8.2V, controller stops.
6	V_Bus Over Voltage	V_Bus will report default when voltage is over 17V and restore when voltage below 16V. Drive board will stop working under voltage overloaded.
7	Output default phase	Compressor can't work if fails to connect the controller. Output default phase, will recover in 3mins.

6. Outer Dimension:

(330x200x160mm / 13x7.9x6.3inch)