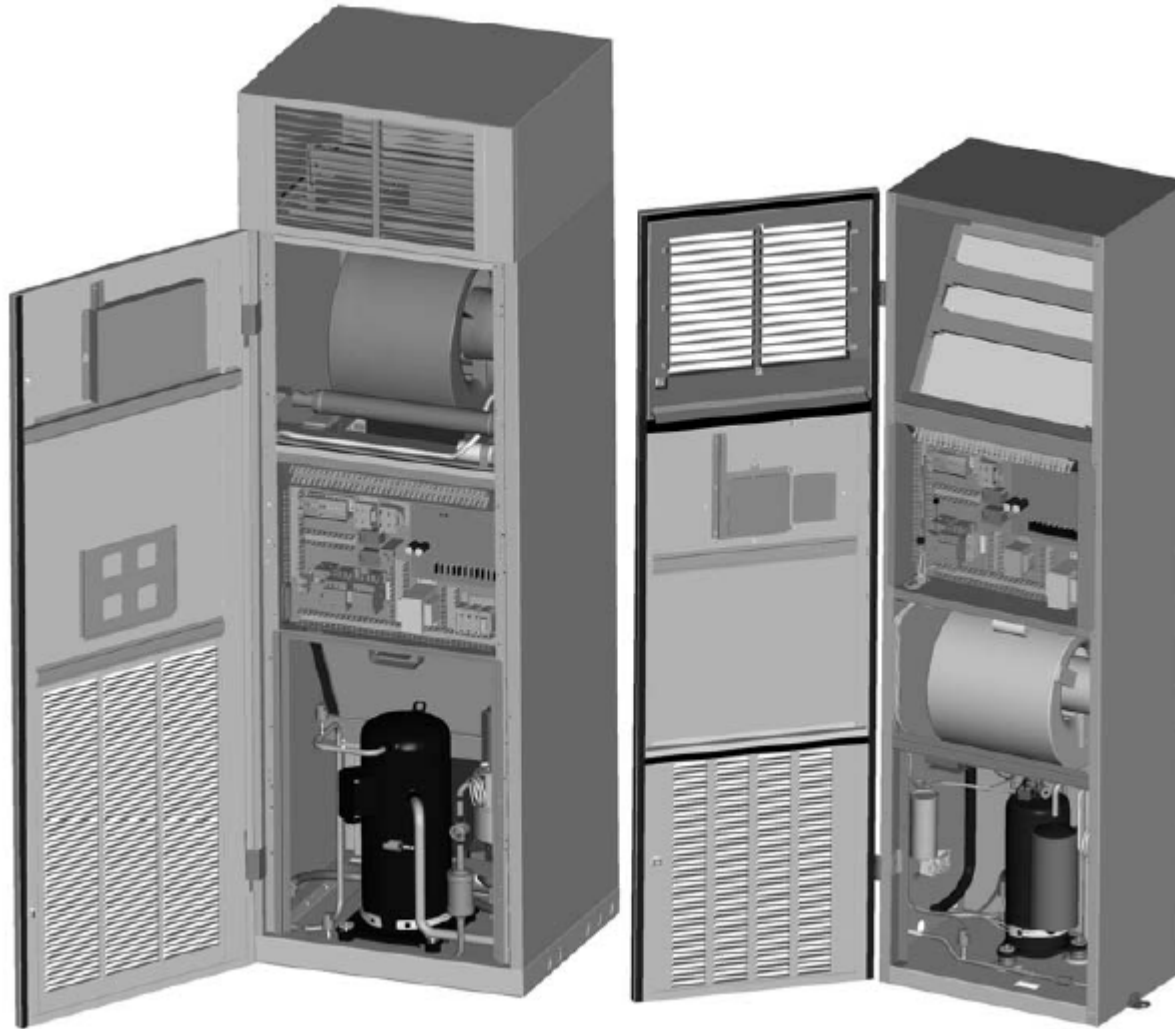


Liebert DM installation

The Chai Huei
Regional Cooling Product



Indoor unit



Outdoor unit



Nomenclature

DM E - 07 M H 1

- Revision 1.0
- C: Cooling Only O: With Electric Reheat H: With Humidifier and Reheat
- W: 220V-1 ph-50Hz M: 380V-3 ph-50Hz
- 07: 7kW Evaporator 12: 12kW Evaporator
- E: Indoor Unit C: Standard Outdoor Unit; L: Lee Temp Outdoor Unit
- DataMate 3000 Air Conditioner



Preservation

Storage requirement before installation at site

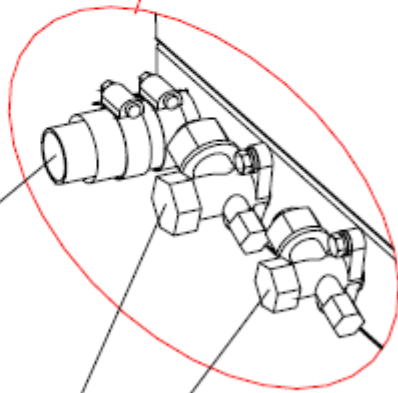
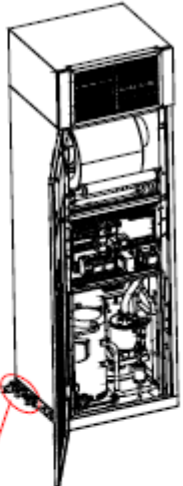
Item	Requirement
Storage environment	Indoor, without dust
Relative humidity	5%~95%RH
Environmental temperature	-40°C~70°C
Storage time	The shipment and storage time should not exceed 12 months. Otherwise, the system shall be re-tested

Operating environment

- -15°C – 45°C ambient
- < 1000m height altitude
- 50m equivalent length max. for horizontal run from indoor to outdoor unit
- $-5\text{m} \leq$ outdoor unit height against indoor unit $\leq 20\text{m}$
- 220V $\pm 15\%$ for single phase unit or 380V $\pm 15\%$ for 3 phase unit input power

Indoor unit connection detail

Coupling size	N.m
#6	7 ~ 8
#10; #11	25 ~ 32



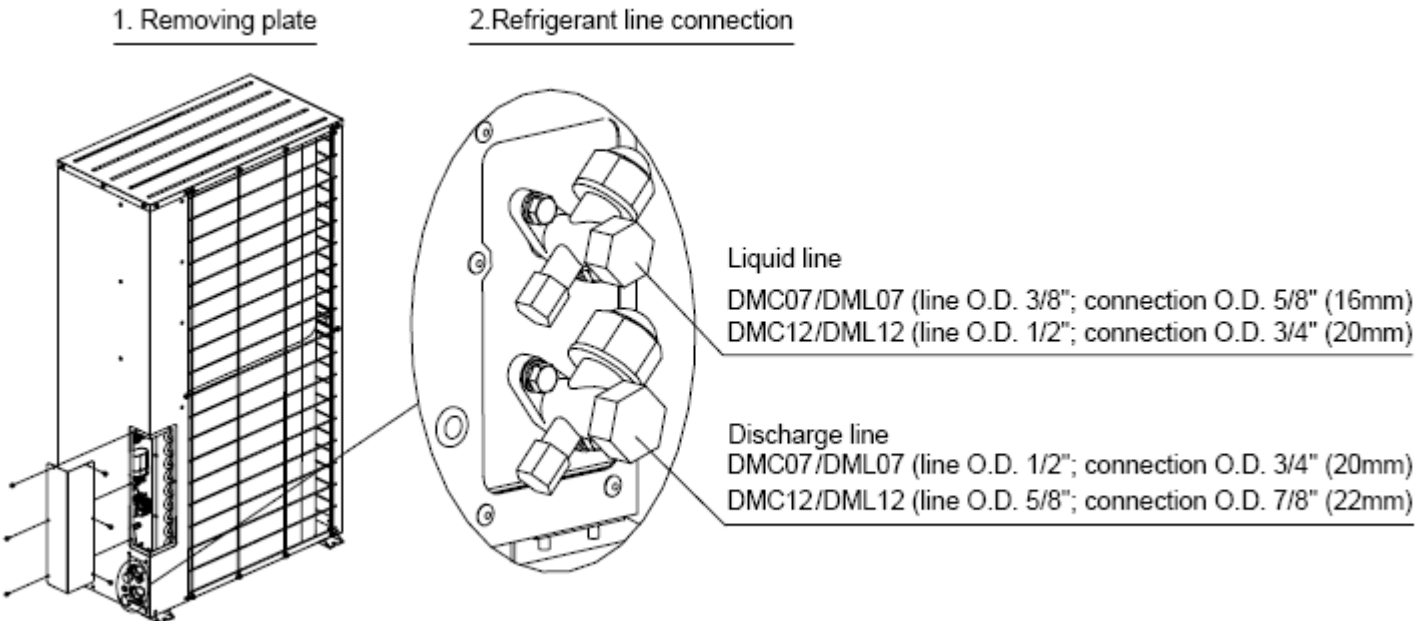
Chilled water drain outlet (O.D. 20mm)

Discharge line
 DME07 line O.D. 1/2" connection O.D. 3/4" (20mm)
 DME12 line O.D. 5/8" connection O.D. 7/8" (22mm)

Liquid line
 DME07 line O.D. 3/8" connection O.D. 5/9" (16mm)
 DME12 line O.D. 1/2" connection O.D. 3/4" (20mm)



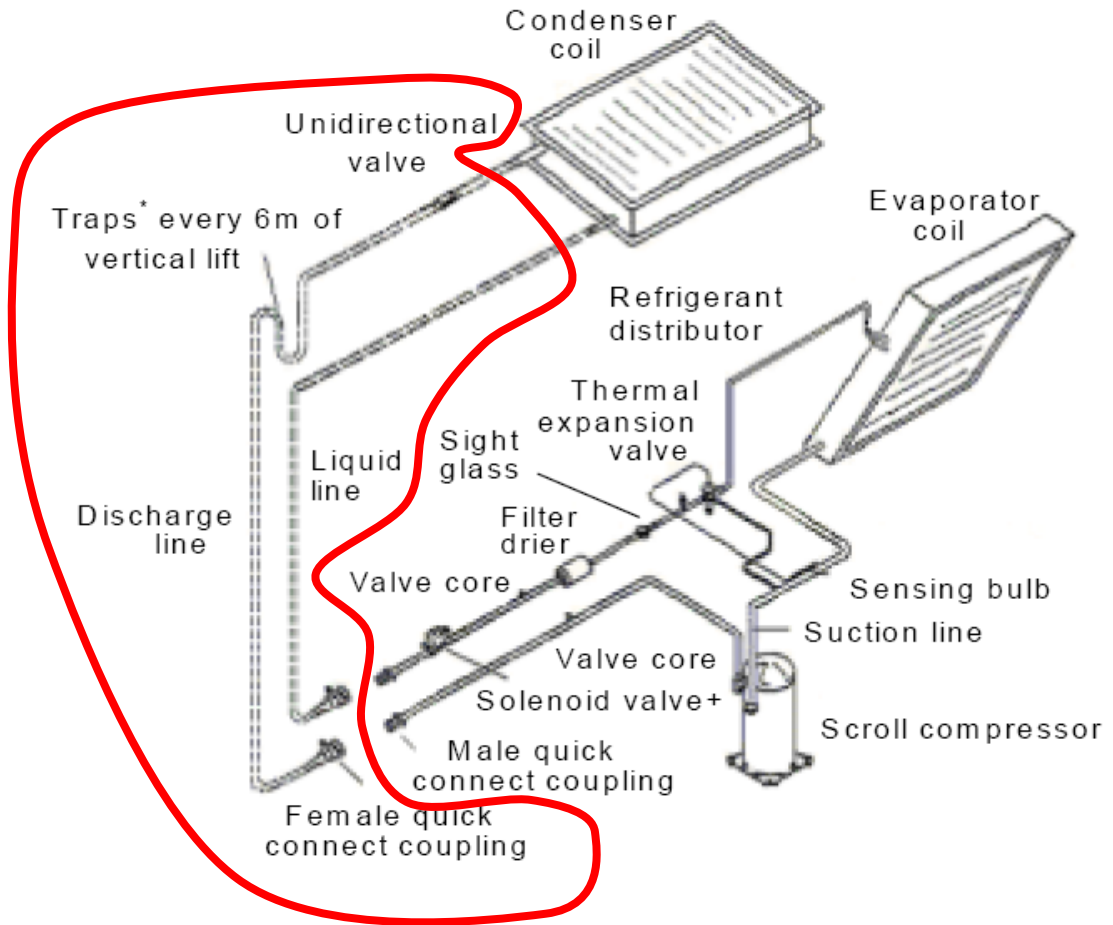
Outdoor unit connection detail



Coupling size	N.m
#6	7 ~ 8
#10; #11	25 ~ 32

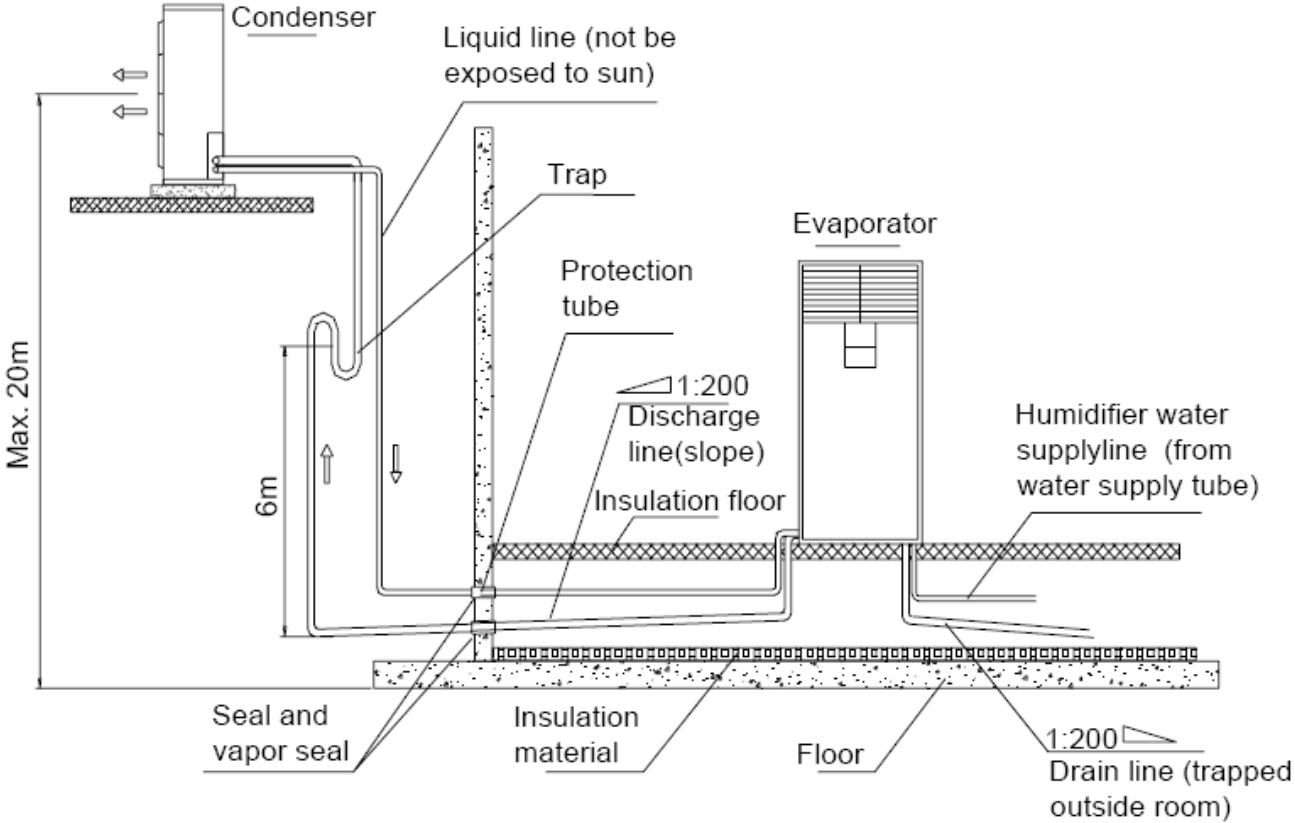
Pipe connection

Fielding piping

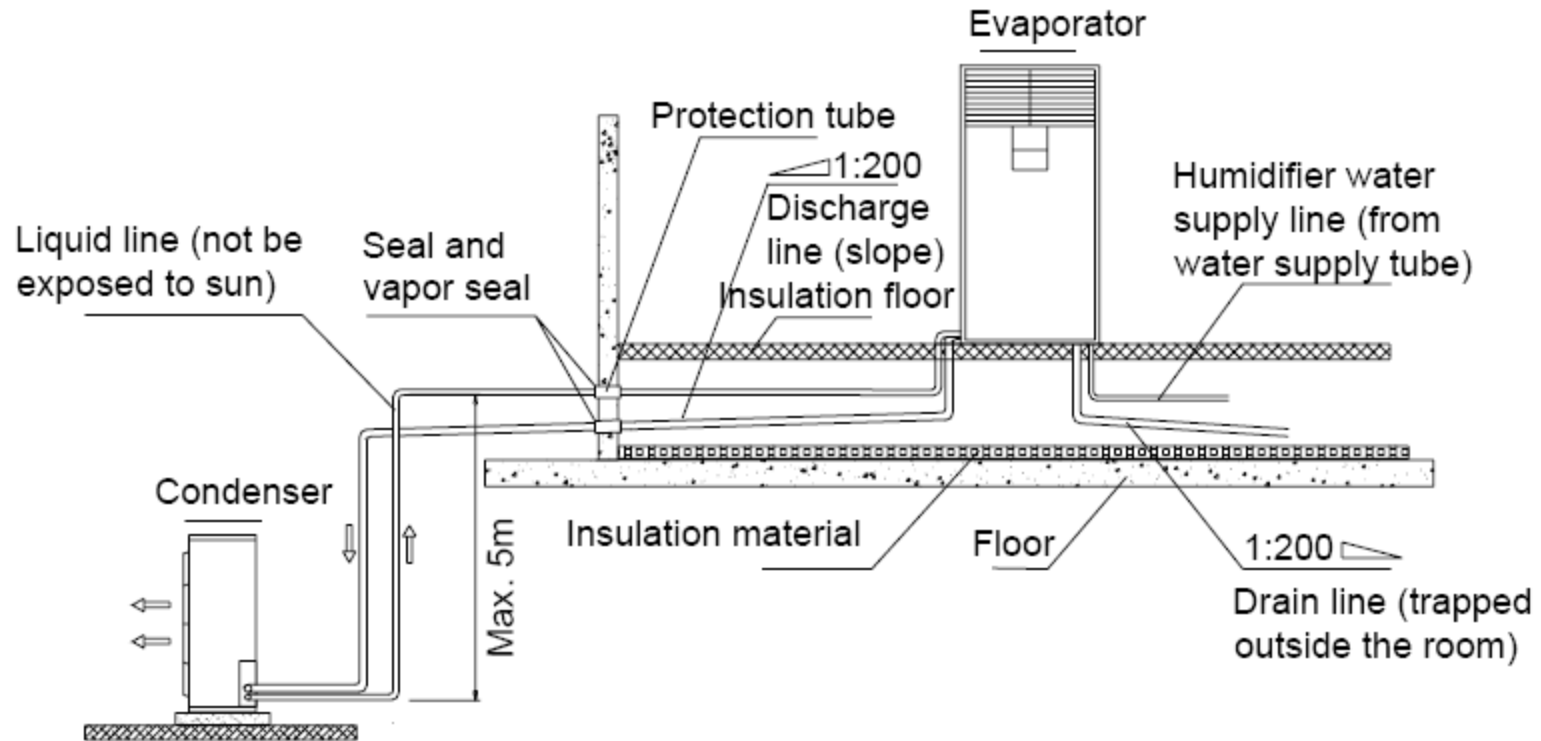


Actual capacity	Length	Discharge line O.D	Liquid line O.D
7.5kW (6500 calories; 2.2 tons)	10m	1/2" (12.7mm)	3/8" (9.52mm)
12.5kW (10800 calories; 3.6 tons)	10m	5/8" (15.88mm)	1/2" (12.7mm)

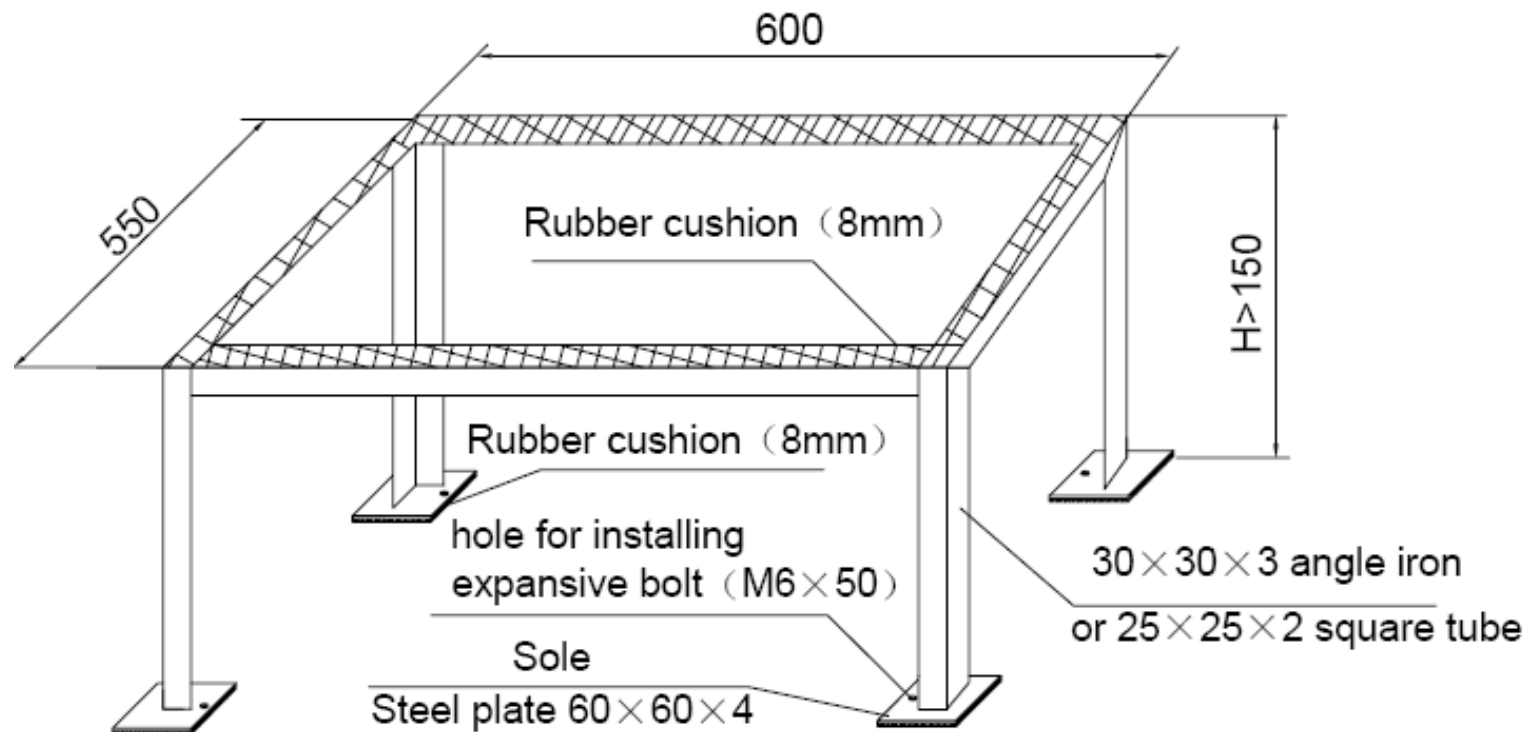
System installation - Condenser at high level



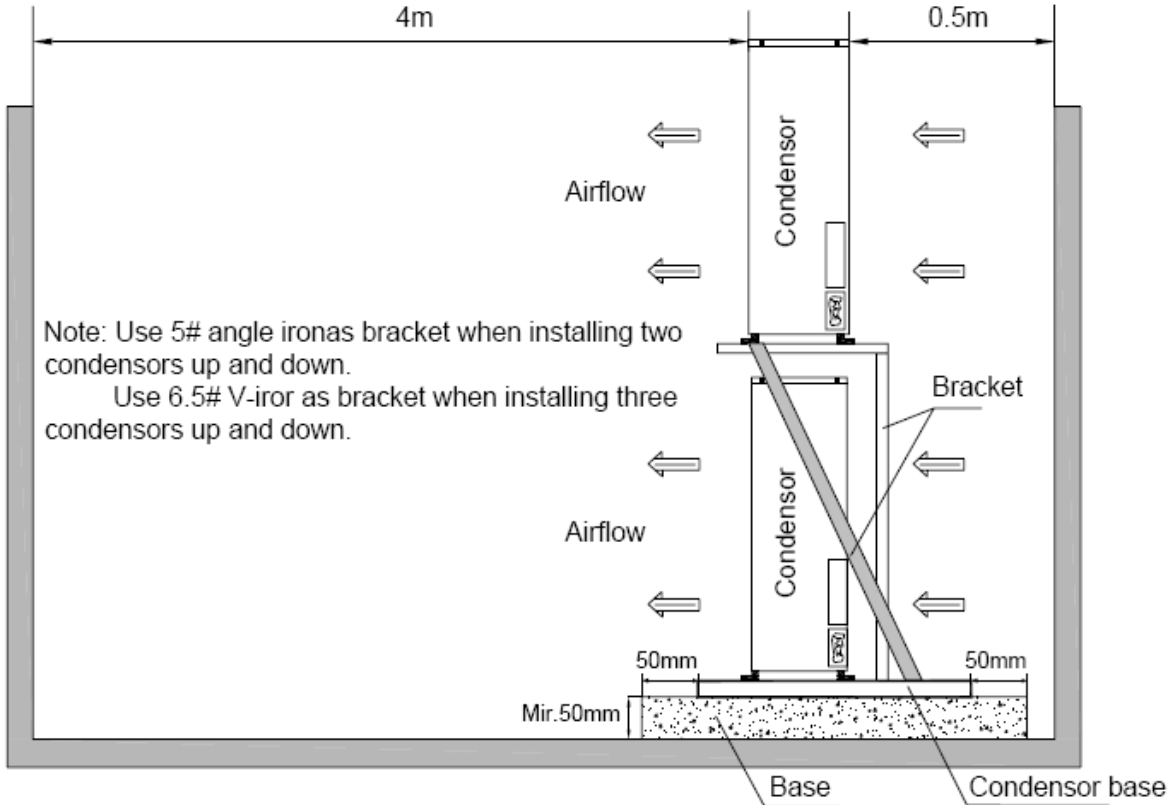
System installation - Condenser at low level



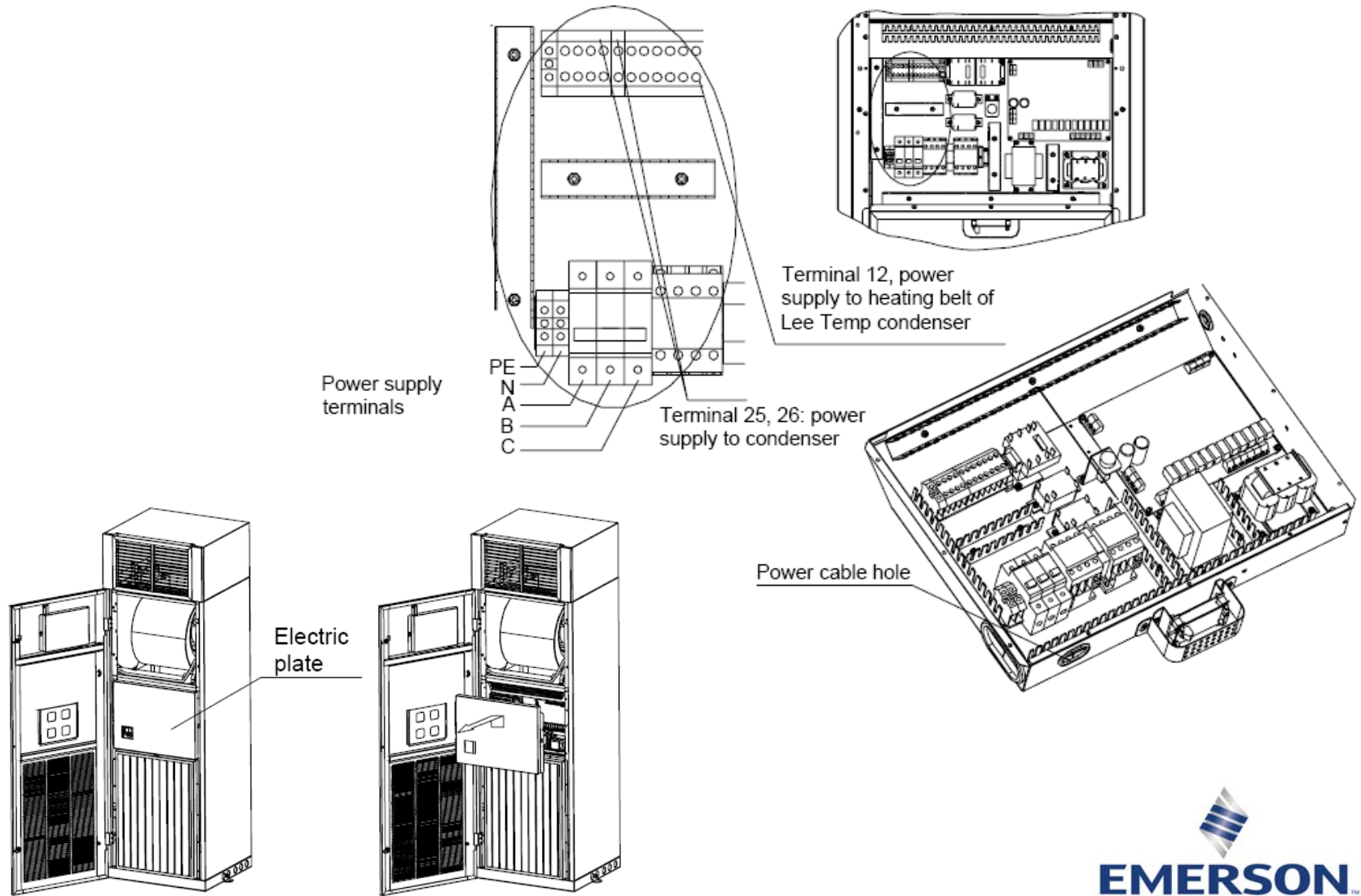
Indoor unit installation



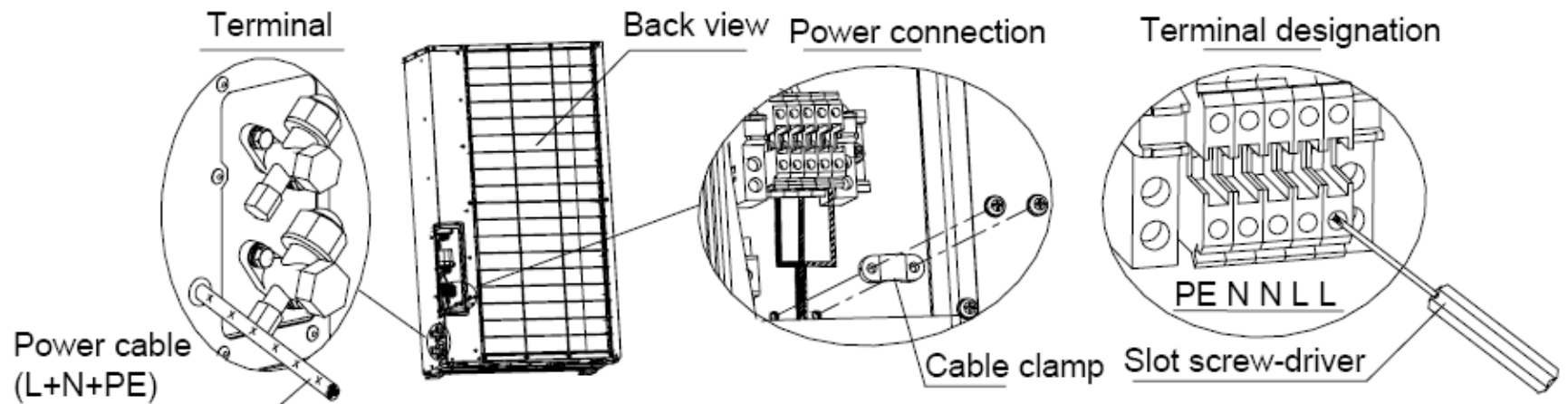
Outdoor unit installation



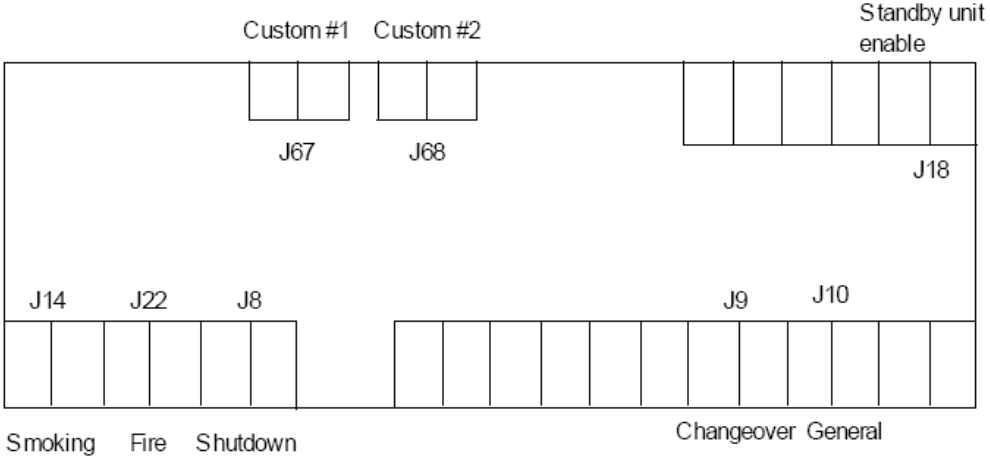
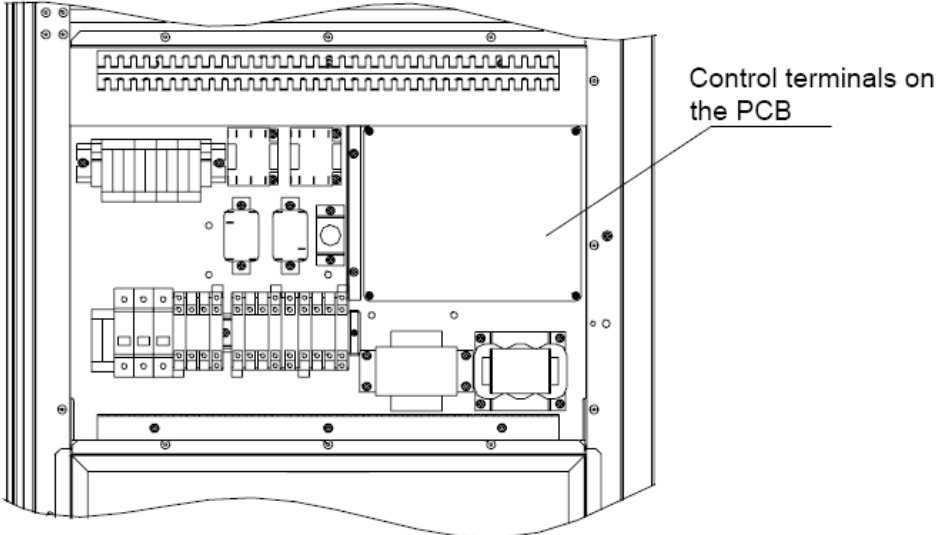
Wiring to indoor unit



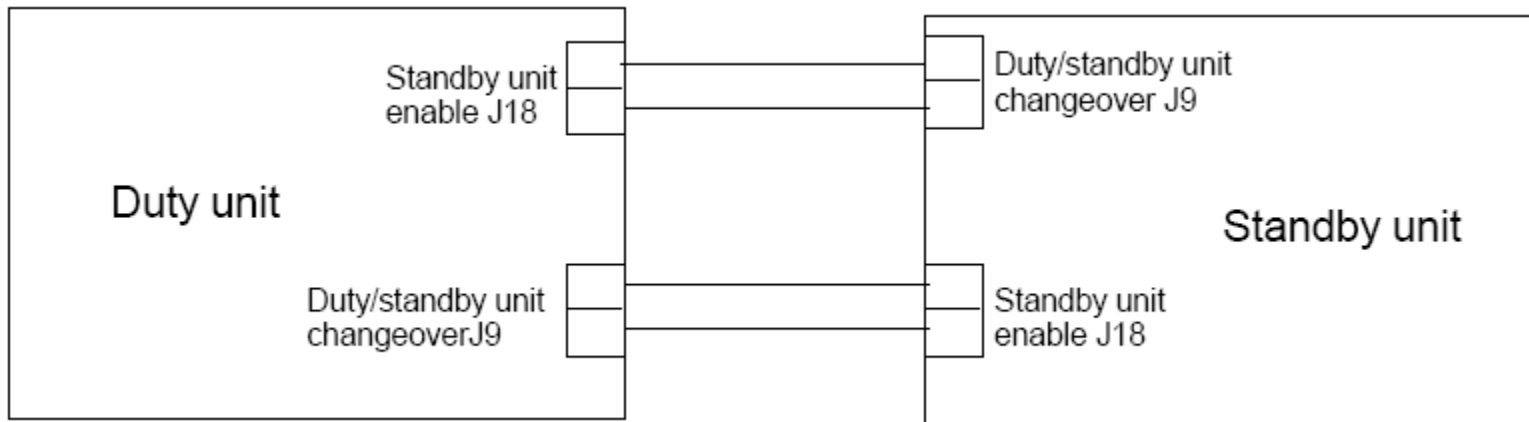
Wiring to outdoor unit



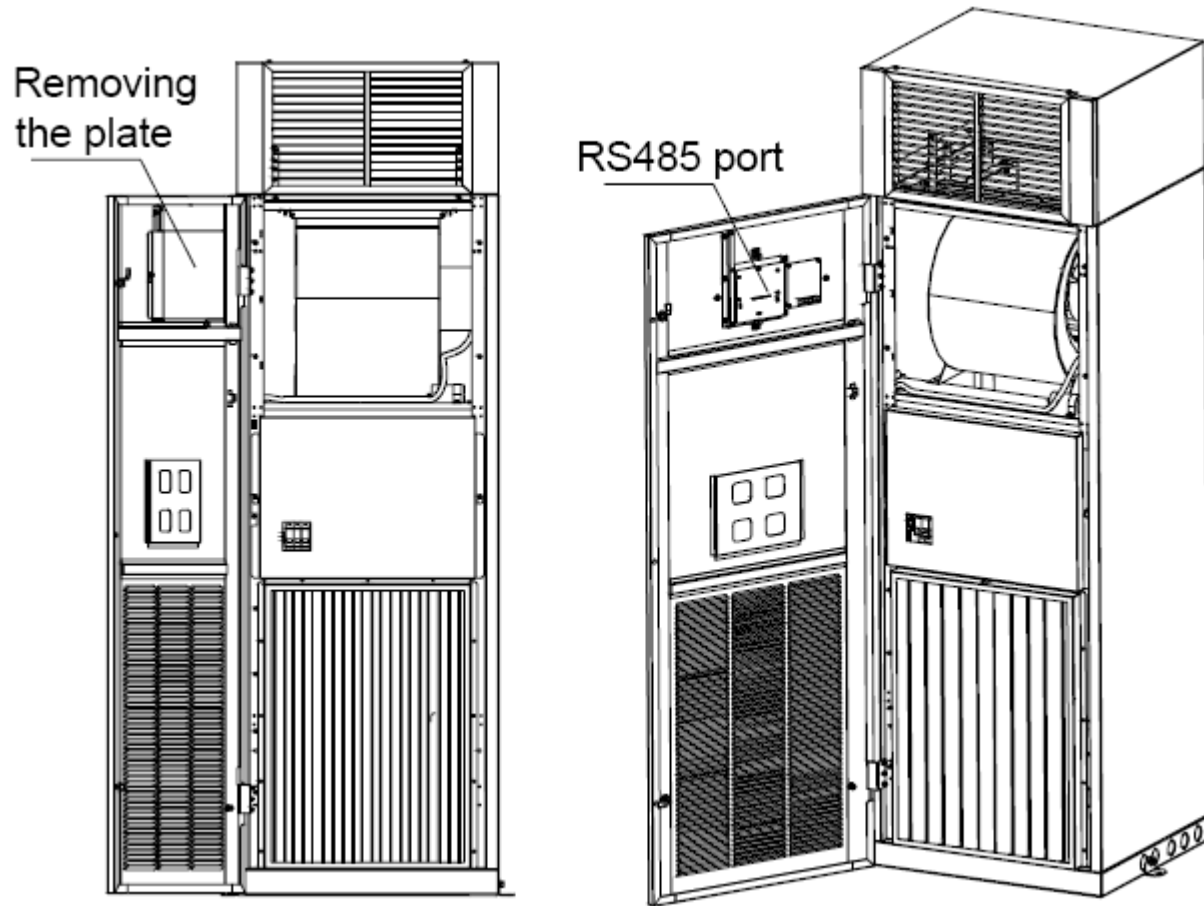
Control cables



Duty & standby wiring



RS485 port



Before commissioning

Mechanical part

1. Check that the protection materials for transportation have been removed. For the upflow series unit, check that the transportation bolts of the fan have been removed; check that the motor pulley and the fan pulley are fixed, the motor bearing and fan bearing are parallel, the belt is perpendicular to the two bearings and the tension of the belt is proper.
2. The cooling pipe system has completed the pressure leak test.
3. The total charge has been roughly calculated. If the pipe is too long, the rated amount of refrigerant oil should have been charged into the system.
4. The water supply & drain pipe-system of the humidification system has been reliably connected, the material requirement is met and the leak detection has been done.
5. The heating tape of the compressor has been preheated for over 12 hours.
6. Make sure the equipment room is above 68°F with certain heat load. Otherwise, pre-heat the equipment room with any heating device, or by forcedly running the heaters of the unit (in this case, go through the following procedures till the third entry of 4.2.2 *Commissioning Procedures* first) and of other equipment in the room. Ensure sufficient heat load for the commissioning.
7. In the winter, it may be necessary to manually raise the condensing pressure to 16Bar.

Electric part

1. Check that the voltage of the main power supply is within $\pm 10\%$ of the rating, and that the isolation switch of the air-cooled condenser of the outdoor unit has been closed.
2. Check that the power or control circuits are reliably connected. Fasten all the connecting terminals.
3. The power cables and the control cables are laid away from each other.
4. Check the phase sequence. The phase sequences of all three-phase devices have been adjusted consistent before delivery. During commissioning, you only need to ensure the phase sequence of a random three-phase device is correct.

Charging refrigerant into system

- Vacuum the whole system down to -30in.Hg for at least 3 hrs and hold for 4 hrs. The pressure should not rise.
- Repeat above process for 3 times
- Charging the necessary refrigerant into the system and run the unit.

Extended length (m) = Total liquid line (m) – 10 m

Liquid line O.D. (inch)	Amount of refrigerant per meter (kg/m)
3/8	0.060
1/2	0.112
5/8	0.181
3/4	0.261
7/8	0.362
1-1/8	0.618

Trouble shooting

Symptom	Possible cause	Check or remedy
Unit will not start	No power to system	Check voltage at input terminal block
	Control voltage circuit breaker (at transformer) open	Locate short and reset circuit breaker
	Float switch relay has closed due to high water level in the condensate pump sump	Check drain and line as well as for failed pump
	Jumper not in place	Check jumpers on the interface board
No cooling	Compressor contactor not pulling in	Check for 24Vac±2Vac at terminal J74 on the interface board. If voltage, check contactor
	Compressor high head pressure	See "High pressure alarm" for cause
	Plugged filter/drier	Replace filter/drier
	Low refrigerant charge	Check pressure gauges. Check if there is evident bubbles from the sight glass
High pressure alarm	Insufficient air flow across condenser coil	Remove debris from coil and air inlet
	Condenser fan not operating	Check fan operation
Humidifier does not operate	Humidity function disabled	Set "Humidity" to OPEN, refer to section 5.9.2
	No humidify demand from the controller	Increase humidity control setpoint and sensitivity to require humidification
	Humidity sensor failure	Humidity display will indicate dashes. Check wiring from temperature/humidity board to the control board
Heater does not operate	Heat function disabled	Set "Heat" to OPEN, refer to section 5.9.2
	No heat demand from controller	Increase temperature setpoint to require heating
	Elements is burned out	Trun off power. Check element continuity with Ohm meter
Display abnormal	Static discharge	Disconnect the system power, and then restart
	Loose connection between keypad and control board	Connection tightening after power off, and then restart
No display and control pads do not respond. Equipment operates normally	Connection between keypad and control board open	Check the connection between keypad and control board
	Keypad failure	Replace the keypad

Symptom	Possible cause	Check or remedy
No display, control ler does not respond. Equipment has no output	Equipment power voltage too low	Check for power voltage
	Communication between control board and interface board interrupted	Check connection between control board and interface board
Short cycle alarm	Room cooling load is small compared with system capacity	Increase the temperature sensitivity setpoint
	Temperature sensitivity setpoint too small	Increase the temperature sensitivity setpoint
Low pressure alarm	Refrigerant leaked	Check for leaking place and recharge
	External environment temperature too low	Contact Emerson
High temperature alarm	High temperature setpoint unreasonable	Change the setpoint
	Room cooling load exceeds the system capacity	Check for room seal or make capacity extension
Low temeperature alarm	Low temperature setpoint unreasonable	Change the setpoint
	Heater operation current unreasonable	Check the heater operation
High humidity alarm	Setpoint unreasonable	Change it
	Vapor barrier is not done in the room	Check for the vapor barrier
Low humidity alarm	Humidifier not used	Use optional humidifier
	Humidifier needs to be serviced	Check the humidifier
	Setpoint unreasonable	Change it
Power failure alarm	Mains voltage abnormal	Check the input power
	Power connection incorrect	Check the input power
Service alarm	A service interval is end	Service relative components and reset the alarm

The End

Please refer to
Liebert DM Installation Manual
for complete information

