MINI CHILLER

(GC201104)

TTER CONDITINERS GREE MAKING BETTER CONDITINERS GREE MAKING BETTER CONDITINERS GREE MAKING BETTER CONDITINER

TECHNICAL SALES GUIDE-50Hz

CAPACITY RANGE:8~45kW

SUPER HIGH AMBIENT OPERATION TO 48℃

TTER CONDITINER ER CONDITINERS GREE MAKING BETTER CONDITINERS GREE MAKING BETTER CONDITINER

R410A

GREE ELECTRIC APPLIANCES INC.OF ZHUHAI

CONTENTS

1 MODELS LIST

1.1 Split Type

Nominal Capacity	Model		Power Supply	Appearance	
kW	Refrigerant	Model Name	Ph, V, Hz	Outdoor Unit	indoor Unit
8	R410A	HLR8WZNa-M	3,380,50		
10		HLR10WZNa-M	3,380,50		
12.5		HLR12.5WZNa-M	3,380,50		
15		HLR15WZNa-M	3,380,50		

1.2 Simple Wiring

Nominal Capacity	Model		Power Supply	Appearance
kW	Refrigerant	Model Name	Ph, V, Hz	
22	R410A	HLR22SNa-M	3,380,50	
25		HLR25SNa-M	3,380,50	
35		HLR35SNa-M	3,380,50	
45		HLR45SNa-M	3,380,50	

2 NOMENCLATURE

2.1 Split Type

HL	R	15	W	Z	Na	-	M	(O)

Model	Model number description	Options
HL	Mini chiller	
R	Product type	R=pump Heat
15	Nominal cooling capacity	8=8kW=27300Btu/h 10 =10kW=34120Btu/h 12.5=12.5kW=42650Btu/h 15=15kW=51180Btu/h
W	Structure feature	Default=vertical type W=horizontal type
Z	Product configuration	Z=combination
Na	Refrigerant	Na=R410A
M	Voltage	M=3Ph,380~415V,50Hz
(O)	Indoor and outdoor unit code	I = indoor unit O=outdoor unit

2.2 Integral Type

HL	R	35	S	Na	-	M

Model	Model number description	Options
HL	Mini chiller	
R	Product type	R=pump Heat
35	Nominal cooling capacity	22=22kW=75065Btu/h 25 =25kW=85300Btu/h 35=35kW=119420Btu/h 45=45kW=153540Btu/h
S	Structure feature	S =twin circuits
Na	Refrigerant	Na=R410A
M	Voltage	M=3Ph,380~415V,50Hz

3 FEATURES

GREE Mini Chiller which has the capacity from 27300 Btu/h to 153540 Btu/h is a kind of small central air conditioning unit.
GREE Mini Chiller can offer the perfect combination of high quality,energy saving and low cost. These units are CE certified and manufactured under strict quality control.
GREE Mini Chiller can be widely used in high-grade flats, combination buildings, high-grade townhouse, and unitary office, restaurants, department stores, entertaining places and other places that have special air conditioning requirements. The units can work normally in heating mode when the outdoor temperature drops to even -15°C.

Use of new refrigerant friendly to earth

GREE Mini Chiller uses the new refrigerant R410A which contains hydro-fluorocarbon (HFC) and of which ODP is zero. This means the new refrigerant is more friendly to the global environment in comparison with the conventional one (HCFC22) of which ODP is 0.055.

Careful safety measures

If the GREE Mini Chillers are out of order, their operation is automatically stopped by various safety and protective devices listed below before trouble occurs.

- Electric system
  Over-current relay, compressor thermal protector.
- Refrigerant system
  High pressure switch、low pressure switch.
- Water system
  Water flow switch,auto water fill valve,auto exhaust valve,safety valve.

Energy-saving and High efficiency

The compressor with High efficiency and reliable quality and the most optimum refrigerant system make the GREE Mini Chiller energy-saving and high efficiency .

High reliability

Heat transfer media of this unit is water and with no distance limitation, only considering enough water pump lift can realize long-distance heating and cooling.

Low noise

High-quality low-noise fan, water pump and varieties of silencing technologies are used for large reduction of running noise, keeping your rooms away from noise pollution.

Excellent Control System

It is available to conduct on or off control to chiller in rooms, that is, when order of turning on from only a single room, chiller on; when all rooms send unit off order, chiller off; general control spot can be set at living room to conduct prior control to unit.

Economic Installation And Convenient Usage

Water pump, expansion vessel, automatic water replenishing valve and safety valve are integrated. It's unnecessary to install expansion vessel and just directly connect the water pipe ,which saves more installation costs.

Superior Anti-freeze（Split Type）

Indoor unit could install in the house to protect the tube-in-tube-exchanger from being frozen.
Sloping air-out (Integral Type)
Prevent seasonal wind and installation position from affecting cooling/heating result. It is especially suitable for installation limited by height or distance between buildings.

Versatile Functions

The controller has versatile functions that is not only supplying the basic functions such as Power on/off, mode setting, temperature & malfunction displaying, but also supporting water temperature setting and physical parameter checking(including inlet/outlet water temperature, outdoor ambient temperature, antifreeze temperature, defrost temperature and exhaust temperature).

4 PRODUCT DATA

4.1 Split Type

Models				HLR—WZNa-M			
				8	10	12.5	15
Nominal Capacity	Cooling		kW	7.5	10	12.5	14.2
			Btu/h	25590	34120	42650	48451
			RT	2.1	2.9	3.6	4.0
	Heating		kW	9	12	13	16.5
			Btu/h	30708	40944	44357	56298
			RT	2.6	3.4	3.7	4.7
Power Consumption	Cooling		kW	3.5	4.4	5.7	5.7
	Heating		kW	3.3	4.4	4.8	5.3
Power Supply	V,Ph,Hz			380~415,3,50			
Safeties				High/low pressure switch、compressor thermal protection、over current protection、lose of phase/anti-phase protection、antifreeze protection、water flow switch			
Refrigerant	Type			R410a			
	Charge		kg	3.1	3.55	4.5	5.5
Compressor	Type			scroll	scroll	scroll	scroll
	NO.			1	1	1	1
Evaporator	Heat Exchanger			Tube-in-Tube			
	Water In/Out Pipe Diameter		Inch	1″	1″	1″	1″
Condenser	Heat Exchanger			Aluminum fin-copper tube			
	Fan Motor Power Input		kW	0.092	0.068	0.092	0.092
	Fan		quantity	1	2	2	2
Pump	Water Flow		L/s	0.38	0.48	0.59	0.72
			GPM	5.0	6.3	7.79	9.5
	Delivery Lift		m	18	18	18	18
	Power Input		W	550	550	550	550
Expansion vessel Tankage			L	5	5	5	5
IndoorUnit	Unit / Packing Dimension	Height	mm	288/385	288/385	288/385	288/385
		Width	mm	1100/1285	1100/1285	1100/1285	1100/1285
		Depth	mm	50/682	450/682	450/682	450/682
	Net/Gross Weight		kg	84/96	84/96	84/96	84/96
OutdoorUnit	Unit / Packing Dimension	Height	mm	840/985	1250/1385	1250/1385	1250/1385
		Width	mm	950/1110	950/1110	950/1110	950/1110
		Depth	mm	412/450	412/450	412/450	412/450
	Net/Gross Weight		kg	90/100	112/123	115/126	123/134

4.2 Integral Type

Models			HLR_SNa-M			
			22	25	35	45
Nominal Capacity	Cooling	kW	21.5	22.8	31	42
		Btu/h	73358	77794	105773	143304
		RT	6.1	6.5	8.8	11.9
	Heating	kW	25	25	37.5	49
		Btu/h	85301	85301	127950	167189
		RT	7.1	7.1	10.7	13.9
Power Consumption	Cooling	kW	8.6	8.8	11.9	18.3
	Heating	kW	8.6	8.9	12.5	17.5
Power Supply	V,Ph,Hz		380~415,3,50			
Safeties			High/low pressure switch、compressor thermal protection、over current protection、lose of phase/anti-phase protection、antifreeze protection、water flow switch			
Refrigerant	Type		R410a			
	Charge	kg	3.6×2	4.8×2	6.5×2	7.3×2
Compressor	Type		scroll	scroll	scroll	scroll
	NO.		2	2	2	2
Evaporator	Heat Exchanger		Tube-in-Tube		Shell in tube	Shell heat exchanger
	Water In/Out Pipe Diameter	Inch	1"	1"	1-1/2"	1-1/2"
Condenser	Heat Exchanger		Aluminum fin-copper tube			Fin sleeve Heat exchange
	Fan Motor Power Input	kW	0.4	0.4	0.6	0.8
Pump	Water Flow	L/s	1.05	1.2	1.4	2.2
		GPM	13.9	15.8	22	29
	Delivery Lift	m	22	24	25	27
	Power Input	W	750	750	1500	1500
Expansion vessel Tankage		L	8	8	8	8
Unit / Packing Dimension	Height	mm	1850/2100	1850/2100	1760/1970	1760/1970
	Width	mm	1460/1540	1460/1540	1750/1910	1750/1910
	Depth	mm	530/610	530/610	800/960	800/960
Net/Gross Weight		kg	370/380	390/400	680/690	755/765

Notes:

1.Cooling capacity is based on the following conditions:leaving chilling water temp. 7℃ (44.5℉),entering chilling water temp.12℃ (53.6℉),and outdoor air temp. 35℃ DB (95 ℉ DB).

2.Heating capacity is based on the following conditions:leaving heating water temp.45 ℃ (113 ℉),entering heating water temp.40 ℃ (104 ℉),and outdoor air temp. 7 ℃ DB (44.6 ℉ DB).

3. water flow rang for operation must be from 70% to 120% of the rated water flow.

4.The maximum alloable pressure for water pipe is 0.9 MPa.

5.The delivery lift value showing in the table above equals to the difference between the delivery lift of pump and the lose water pressure of the unit.

5 PERFORMANCE CORRECTION

5.1.Correction of Temperature

1) Cooling Capacity Correction

Performance correction					
Leaving Chilling Water℃（℉）	Ambient Temperature℃（℉）				
	25(77)	30(86)	35(95)	40(104)	45(113)
5(41.0)	0.995	0.955	0.905	0.855	0.805
6(42.8)	1.045	1.005	0.955	0.905	0.855
7(44.6)	1.090	1.050	1.000	0.950	0.900
8(46.4)	1.145	1.102	1.052	1.000	0.950
9(48.2)	1.190	1.150	1.100	1.050	1.002
10(50.0)	1.245	1.200	1.150	1.100	1.050
11(51.8)	1.290	1.250	1.202	1.152	1.102
12(53.6)	1.340	1.300	1.252	1.200	1.152
13(55.4)	1.390	1.350	1.302	1.252	1.202
14(57.2)	1.442	1.402	1.350	1.302	1.252
15(59.0)	1.490	1.450	1.400	1.350	1.302

Calculation of actual cooling capacity:Actual cooling capacity = nominal cooling capacity × cooling capacity correction coefficient.

2) Heating Capacity Correction

Ambient Temperature℃（℉）							
Leaving Chilling Water℃（℉）	Performance correction						
	-15(5)	-10(14)	-5(23)	0(32)	5(41.0)	10(50.0)	15(59.0)
30(86)	0.81	0.91	1.00	1.10	1.18	1.26	1.35
35(95)	0.74	0.84	0.93	1.03	1.11	1.19	1.28
40(104)	0.67	0.77	0.87	0.96	1.04	1.12	1.20
45(113)	0.60	0.70	0.80	0.89	0.97	1.05	1.13
50(122)	0.53	0.63	0.73	0.82	0.90	0.98	1.06
55(131)	0.46	0.56	0.66	0.74	0.83	0.90	0.98

Calculation of actual heating capacity:Actual heating capacity = nominal heating capacity × heating capacity correction coefficient.

5.2 Correction of Connection Piping (For split type)

1) Connection Piping

Model	Diameter of Piping				The Max. Length	The Max. Fall	Replenishment Charge of Refrigerant (g/m)
	Liquid		Gas				
	mm	inch	mm	inch	m	m	g/m
HLR8WZNa-M	Φ12.7	1/2	Φ19.05	3/4	20	15	118
HLR10WZNa-M	Φ12.7	1/2	Φ19.05	3/4	20	15	118
HLR12.5WZNa-M	Φ12.7	1/2	Φ19.05	3/4	20	15	118
HLR15WZNa-M	Φ12.7	1/2	Φ19.05	3/4	20	15	118

2) Correction Value

Total Piping Length(Actual Length)			Correction Factor						
			5m	10m	15m	20m	25m	30m	35m
Height difference between The Indoor and Outdoor	The Indoor Unit Below The Outdoor Unit	0m	1.0	0.98	0.96	0.94	0.92	0.9	0.88
		5m	1.0	0.97	0.95	0.93	0.91	0.89	0.87
		10m	-	0.96	0.94	0.92	0.90	0.88	0.86
		15m	-	-	0.93	0.91	0.89	0.87	0.85
		20m	-	-	-	0.90	0.88	0.86	0.84
		25m	-	-	-	-	0.87	0.85	0.83
	BelowThe Indoor Unit The Outdoor Unit	0m	1.0	0.98	0.96	0.94	0.92	0.9	0.88
		5m	1.0	0.98	0.96	0.94	0.92	0.9	0.88
		10m	-	0.98	0.96	0.94	0.92	0.9	0.88
		15m	-	-	0.96	0.94	0.92	0.9	0.88
		20m	-	-	-	0.94	0.92	0.9	0.88
		25m	-	-	-	-	0.92	0.9	0.88

6 ANTIFREEZE

For heat pump unit, antifreeze fluid must be added to the water system. For cooling unit that will not be used in winter, the water inside the unit and pipe must be thoroughly drained to avoid freezing the tube-in-tube heat exchanger, pipe and water pump. If the water cannot be thoroughly drained out of the pipe, antifreeze fluid must be added. Do not cut off the power supply after the unit is stopped, otherwise the auto antifreeze protection will be disabled.
Ethylene glycol solution causes a variation in unit performance. To obtain the effective performance. It is necessary to multiply the water performance data by correction factors corresponding to the ambient temperature or Ethylene glycol percentage indicated in the following table.

% by Weight	0	12	22	30	36	41	46	50
Freeing Piont℃ (℉)	0(32)	5(23)	-10(14)	-15(5)	-20(-4)	-25(-13)	-30(-22)	-35(-31)
Ambient Temperature℃ (℉)	8.3(47)	3.3(38)	-1.7(29)	-6.7(20)	-11.7(11)	-16.7(2)	-21.7(-7)	-26.7(-16)
Cooling Capacity Correction Factor	1.0	0.985	0.980	0.974	0.970	0.965	0.964	0.960
Water Flow Correction Factor	1.0	1.02	1.04	1.075	1.11	1.14	1.17	1.20
Pressure Drop Correction Factor	1.0	1.07	1.11	1.18	1.22	1.24	1.27	1.30

7 ELECTRICAL DATA

7.1 Split Type

Model	Rated Power Supply	Compressor			Fan Motor Outdoor		Pump	Total	
	(Ph,V,Hz)	NO.	LRA each (A)	MRC each(A)	NO.	MRC (A)	MRC (A)	MRC (A)	MRC (A)
HLR8WZNa-M	3,380~415,50	1	67	9.1	1	1.5	0.7	9.4	7
HLR10WZNa-M		1	66	11.6	2	2	0.7	13.0	8.5
HLR12.5WZNa-M		1	67	13.7	2	2	0.7	14.5	10.5
HLR15WZNa-M		1	67	13.7	2	2	0.7	14.5	10.5

7.2 Integral Type

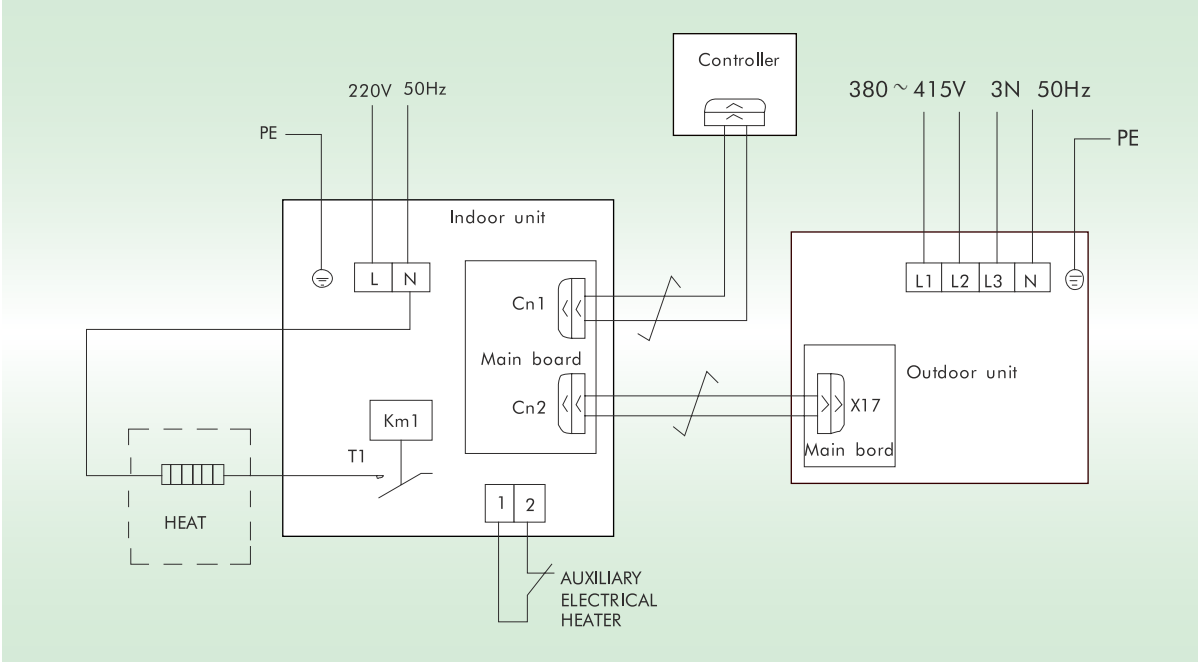
Model	Rated Power Supply	Compressor			Fan Motor Outdoor		Pump	Total	
	(Ph,V,Hz)	NO.	LRA each (A)	MRC each(A)	NO.	MRC (A)	MRC (A)	MRC (A)	MRC (A)
HLR22SNa-M	3,380~415,50	2	73	11.6	2	5	1.5	19.5	14.5
HLR25SNa-M		2	66	13.5	2	5	1.5	23.5	18.5
HLR35SNa-M		2	101	16.4	2	7.5	3.0	28.5	24.5
HLR45SNa-M		2	118	22.5	2	7.5	3.0	45	31

Notes:

LRA: Locked rotor amps (A).
MRC: Maximum running current (A).
NRC: Nominal running current (A).

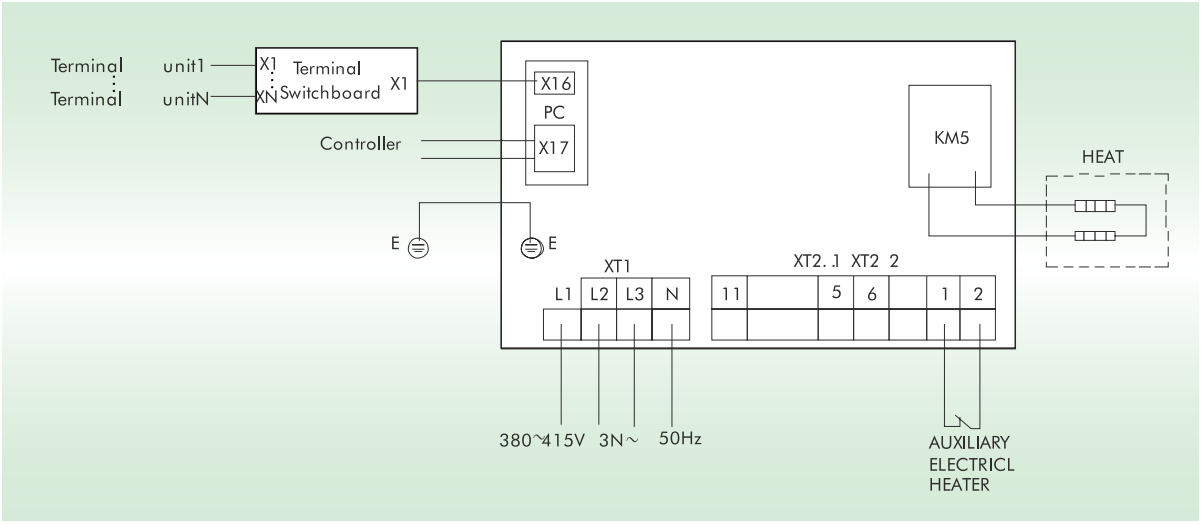
8 FIELD WIRING DIAGRAM

Split Type

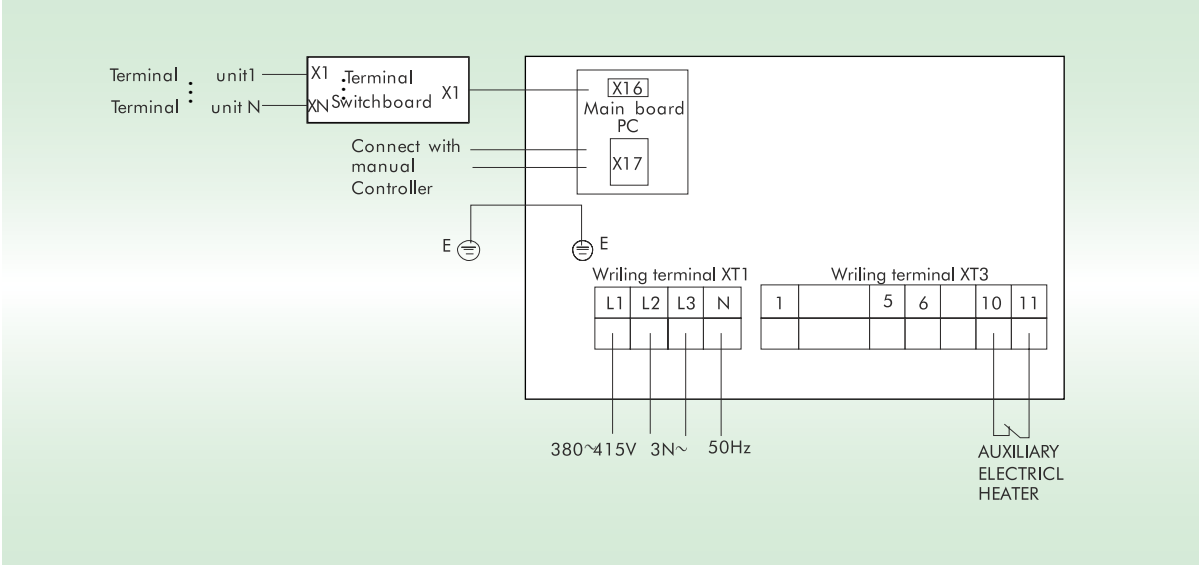


Integral Type

◆ HLR22SNa-M、HLR25SNa-M

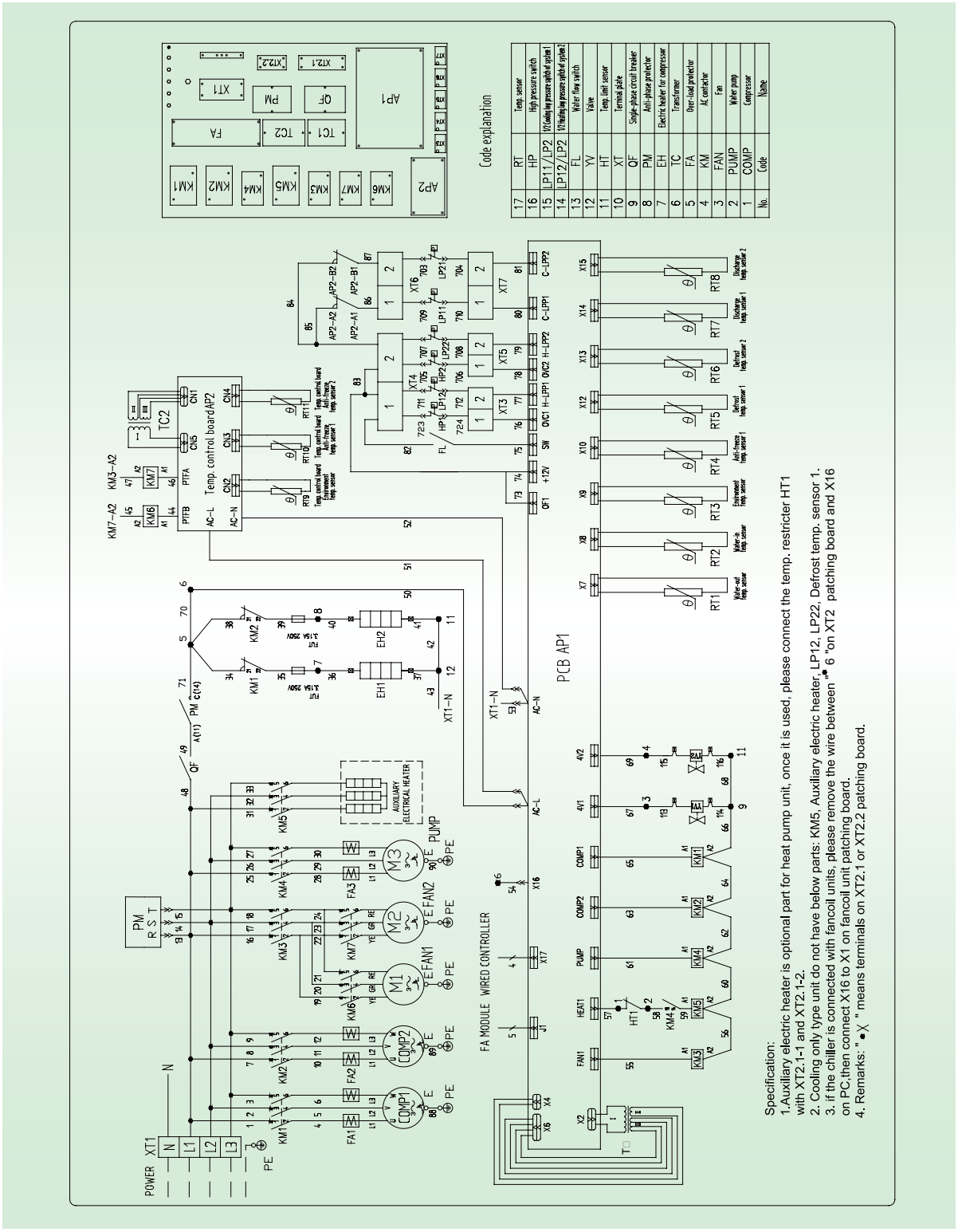


◆ HLR35SNa-M、HLR45SNa-M

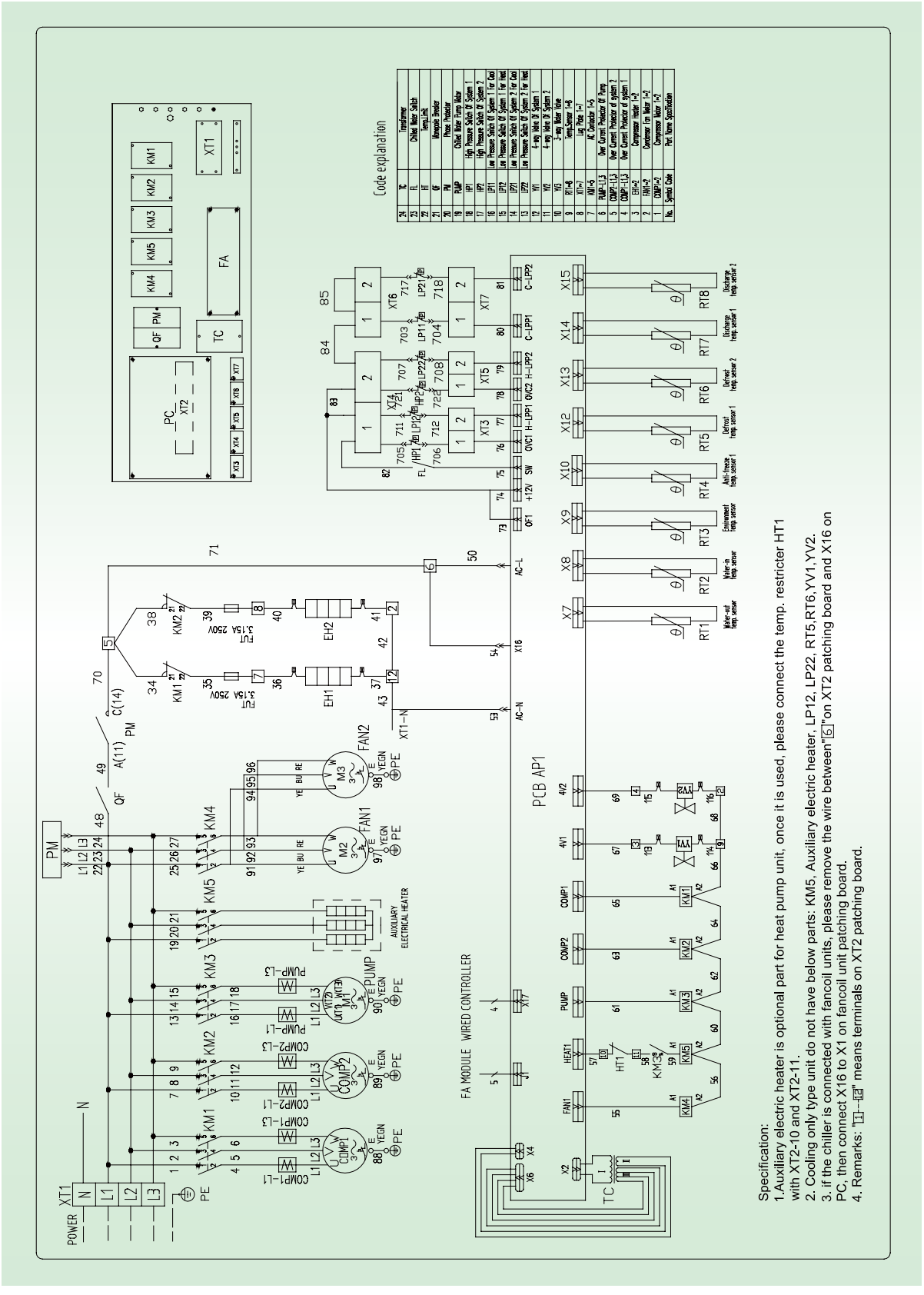


9 WIRING DIAGRAM

◆ HLR22SNa-M、HLR25SNa-M



◆ HLR35SNa-M、HLR45SNa-M



10 INSTALLATION

10.1 Location of Installation

1.The Mini Chiller unit can be installed on roof, ceiling, special flat or other place that is easy for installation and be able to stand its weight.
2.Select a place with well ventilation and smooth exhausting, and the place will not produce short-circuit circulation, and where exhausted air from the unit will not bother neighbors.
3.When placing the unit at roof, pay attention to wind direction to prevent direct up wind; when placing it on ground, avoid placing it at where there is strong wind.
4.There should be no heat source, exhaust vent of other facilities, strong steam and flammable gas around the unit.
5.When installing several units, ensure there is enough suction space to prevent short-circuit circulation.
6.Place where there is no large snow in winter.
7.There should be no obstruction near air intake vent or air outlet vent.
8.Place where with drainage pipe around the unit to drain cooling or heating water.
9.Place where near power for easy wiring.
10.Place where near supply water source for convenient pipe construction.
11.There should be open space around the unit.

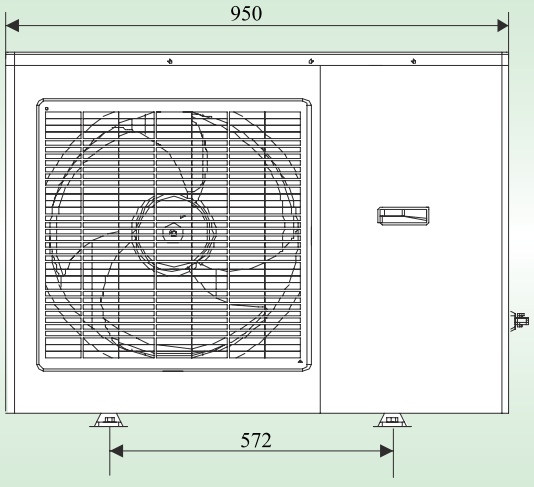
10.2 Unit Dimension

10.2.1 Split Type

1) Outdoor Unit

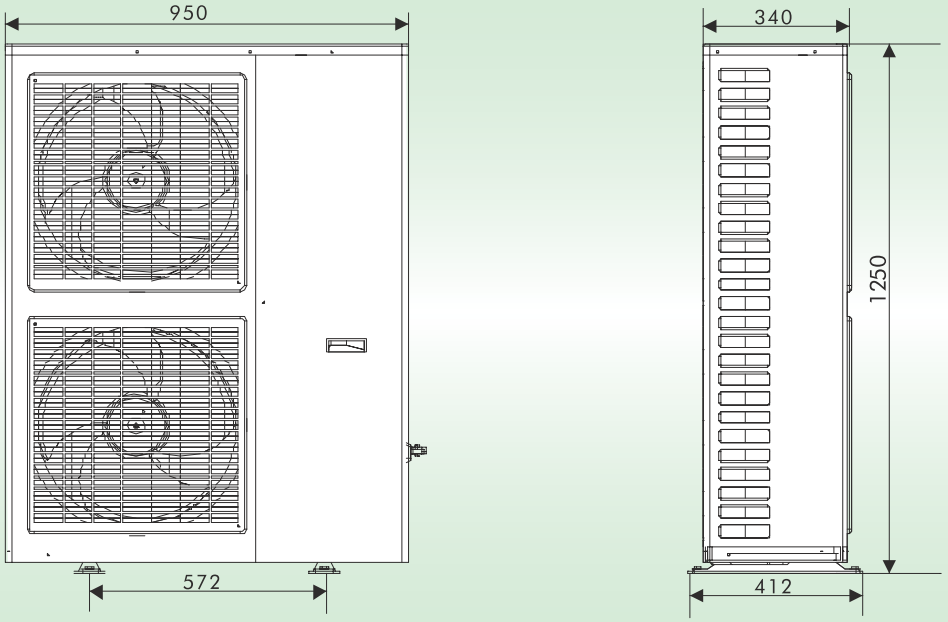
◆ HLR8WZNa-M(O)

Unit:mm



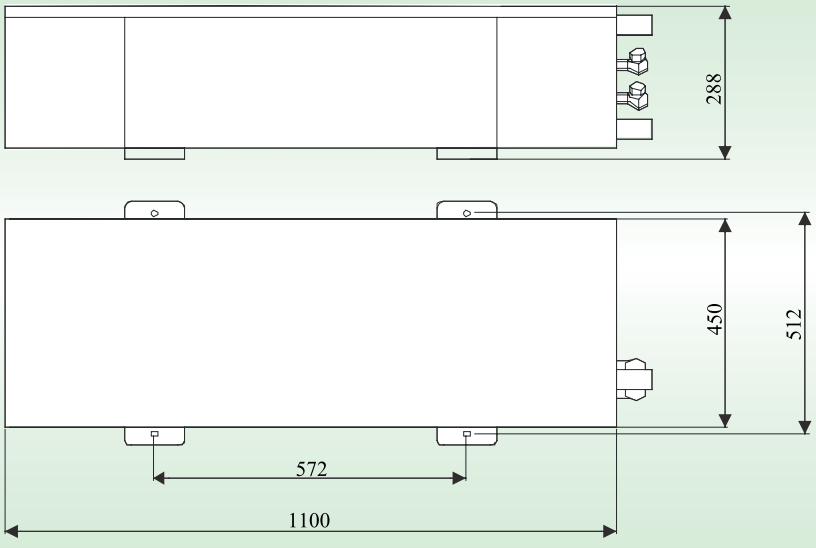
◆ HLR10WZNa-M(O)、HLR12.5WZNa-M(O)、HLR15WZNa-M(O)

Unit:mm



2) Indoor Unit

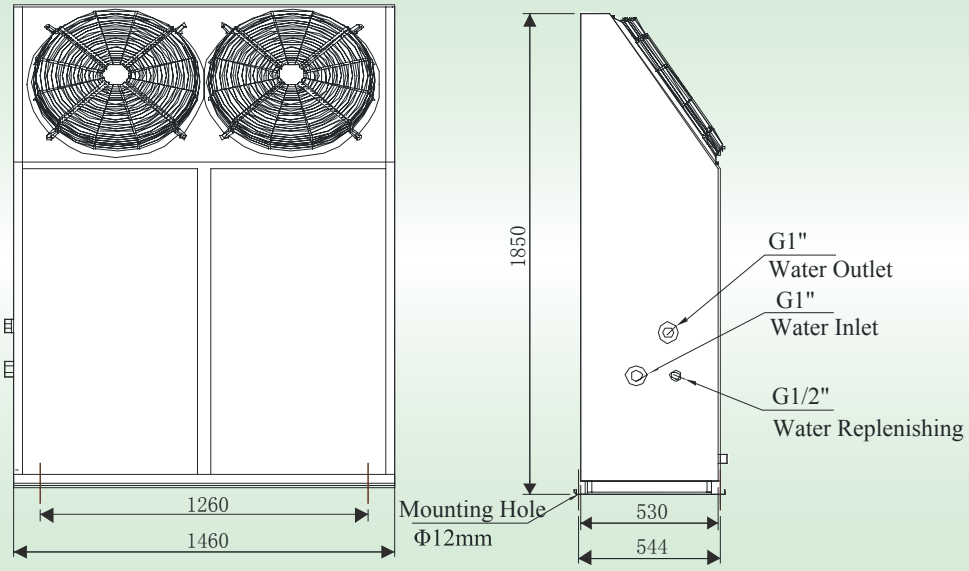
Unit:mm



10.2.2 Integral Type

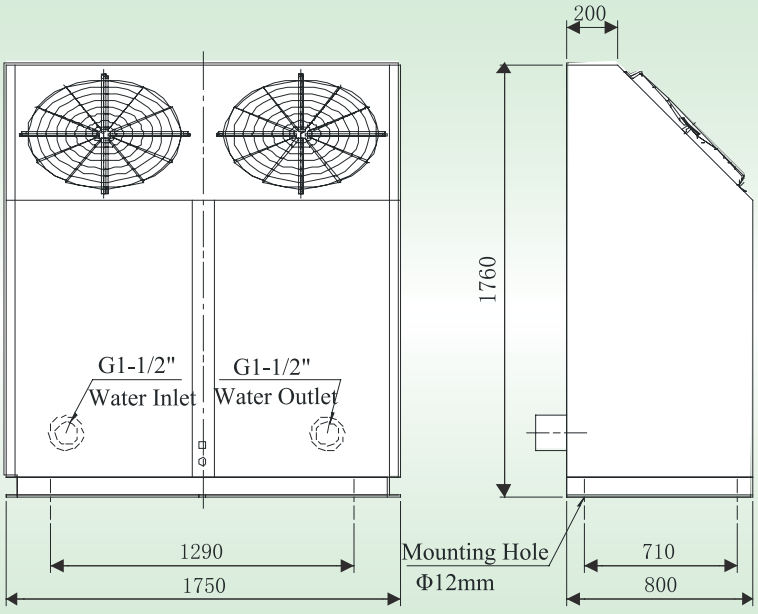
◆ HLR22SNa-M、HLR25SNa-M

Unit:mm



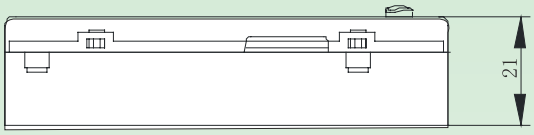
◆ HLR35SNa-M、HLR45SNa-M

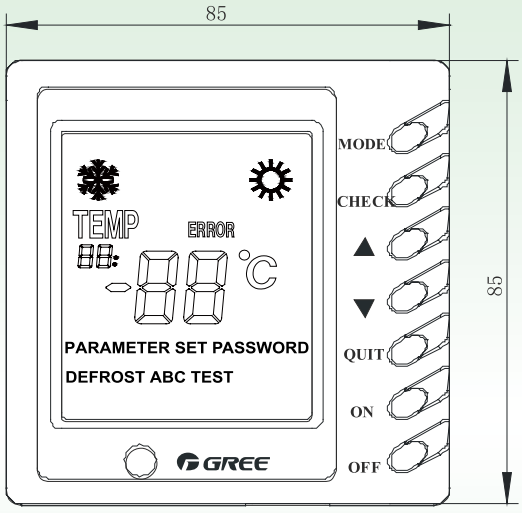
Unit:mm

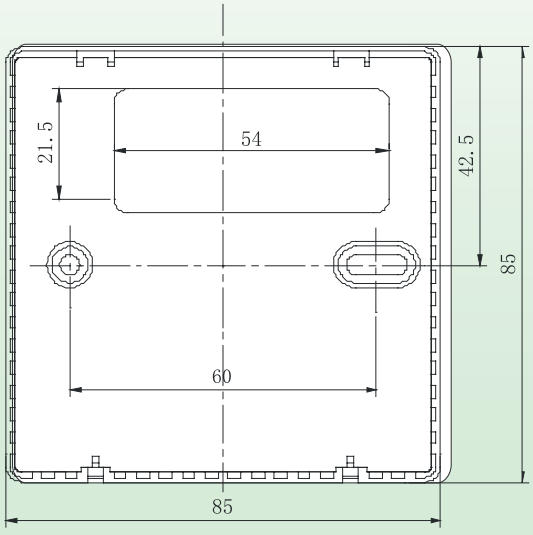


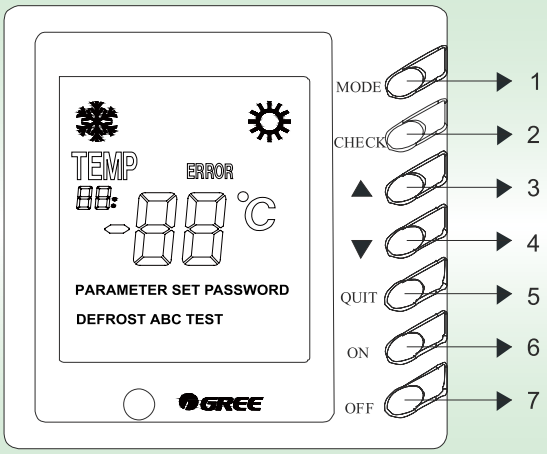
10.2.3 Wired Controller

Unit:mm







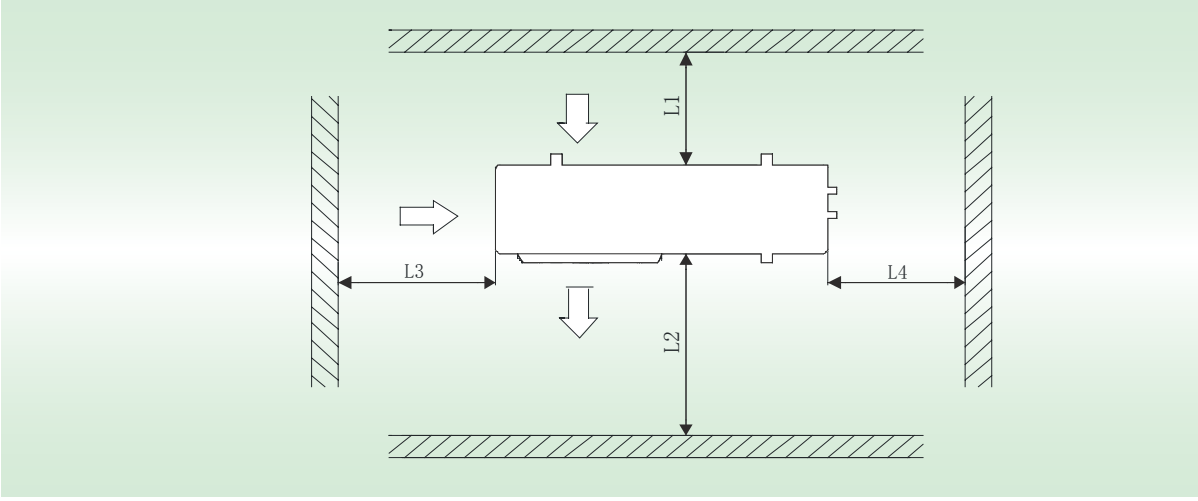


NO.	Key Name	Function description
1	MODE	It can switch between cooling and heating, this button is available only on cooling and heating unit.
2	CHECK	Press it once under normal state to enter check mode, under check mode, press this button when "17" is displayed can change the value of "17". Under parameter set mode, press this once can switch the adjusting objection between parameter and value, press this button for long (about 5s) to save and quit this parameter setting.
3	▲	To increase present set value or change set/check object.
4	▼	To decrease present set value or change set/check object.
5	QUIT	Under Set and Check mode, press it once to quit this mode. Under parameter set mode, this set value would not be saved. Press this button for long (about 5s) to set sound, and make sound switches between always on and always off.
6	ON	It is used to turn on the unit. Press the button for 1 second when unit is off to turn on the unit. This button cannot be pressed continuously.
7	OFF	It is used to turn off the unit. Press the button for 1 second when unit is on to turn off the unit. This button cannot be pressed continuously.

10.3 Installation Clearance

10.3.1 Split Type

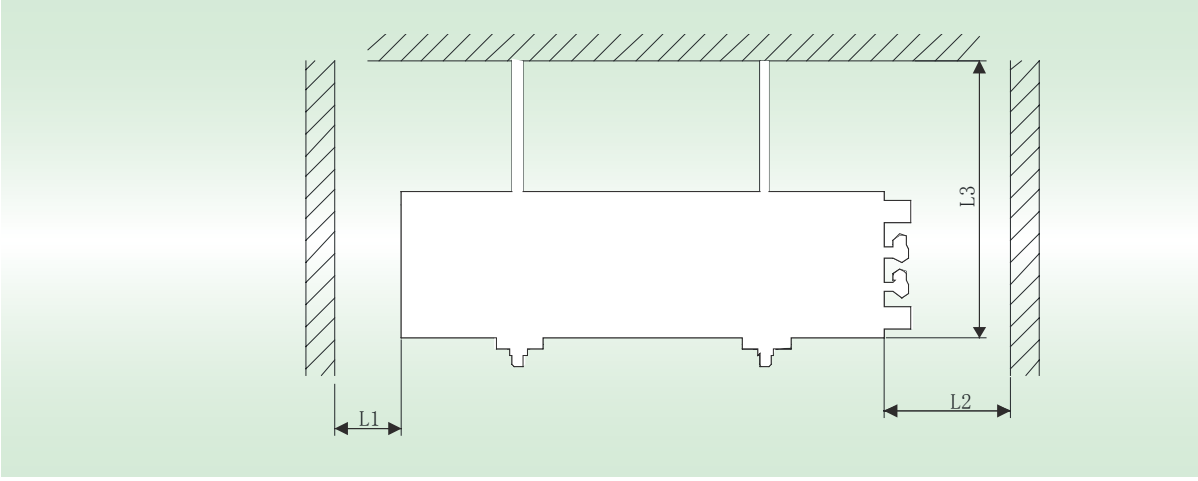
1）Outdoor unit



Unit:mm

Code	L1	L2	L3	L4
Spacing	>500	>1000	>500	>500

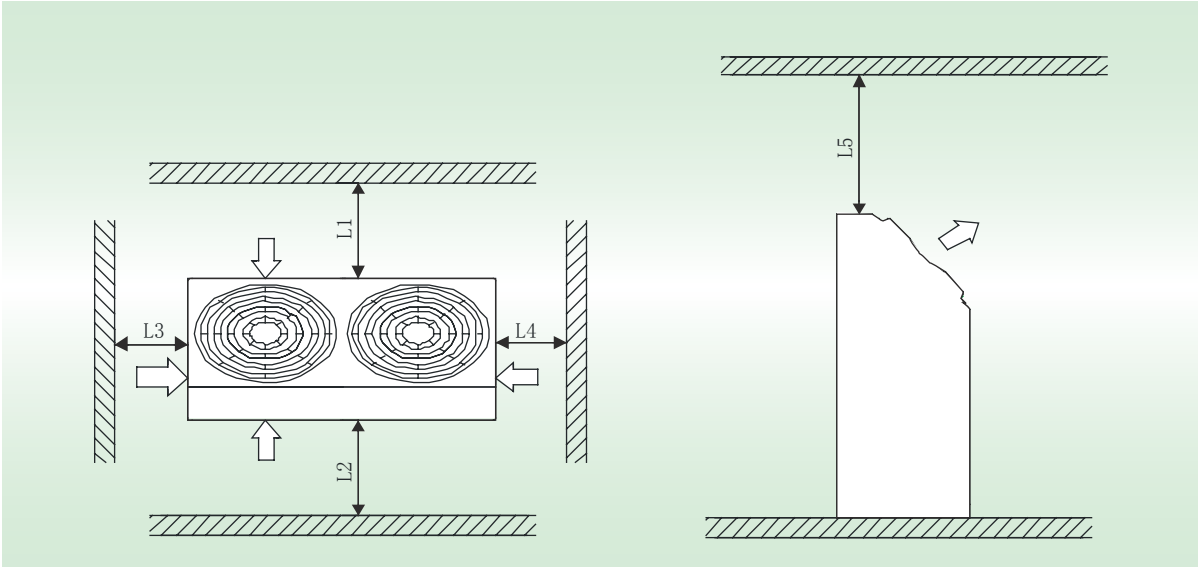
2）Indoor unit



Unit:mm

Code	L1	L2	L3
Spacing	>250	>800	>1200

10.3.2 Integral Type

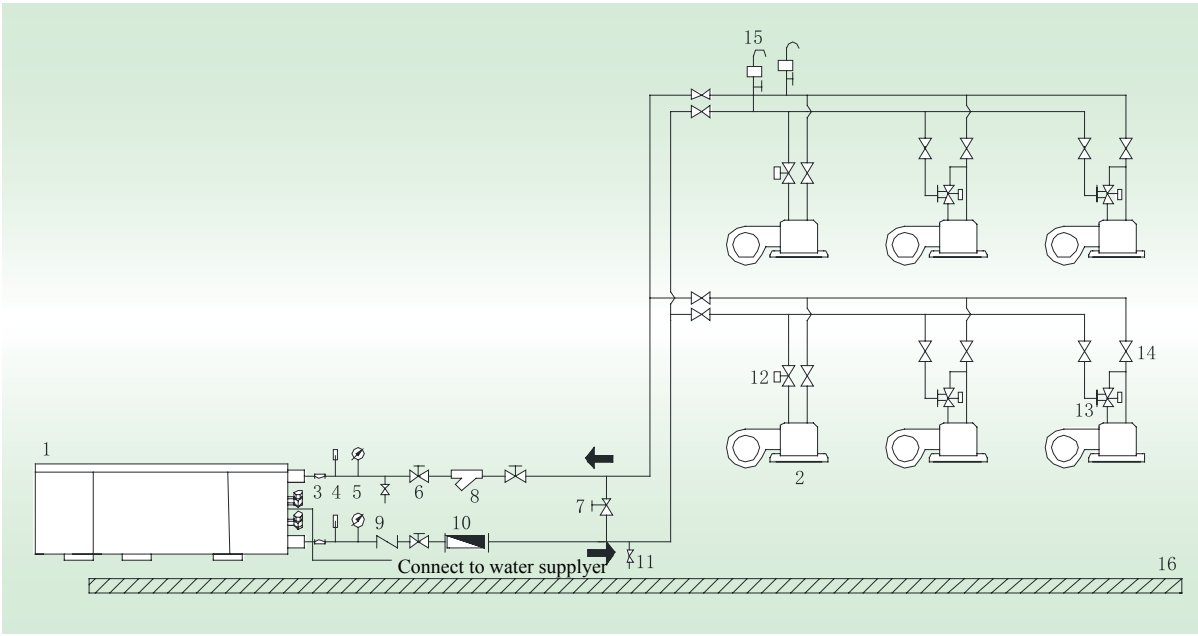


Unit:mm

Code	L1	L2	L3	L4	L5
Spacing	>1000	>1200	>1000	>1000	>2000

10.4 Sketch Map of Installation of Water System

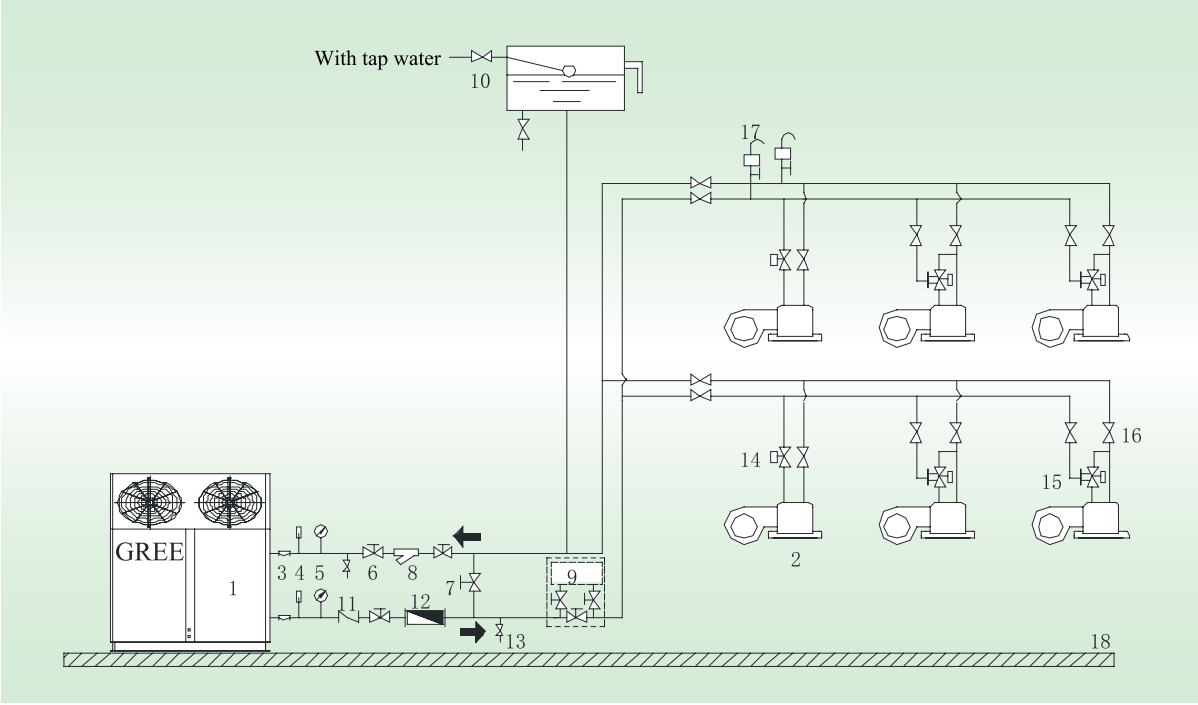
10.4.1Split Type



1	Host air conditioner	9	Check valve
2	Fan coil	10	Flowmeter
3	Rubber soft contact	11	Water drainage valve
4	Thermometer	12	Electric 2-way valve
5	Manometer	13	Electric 3-way valve
6	Cut-off valve	14	Ball valve
7	By-pass control valve	15	Auto exhaust valve
8	Y-type filter	16	Base

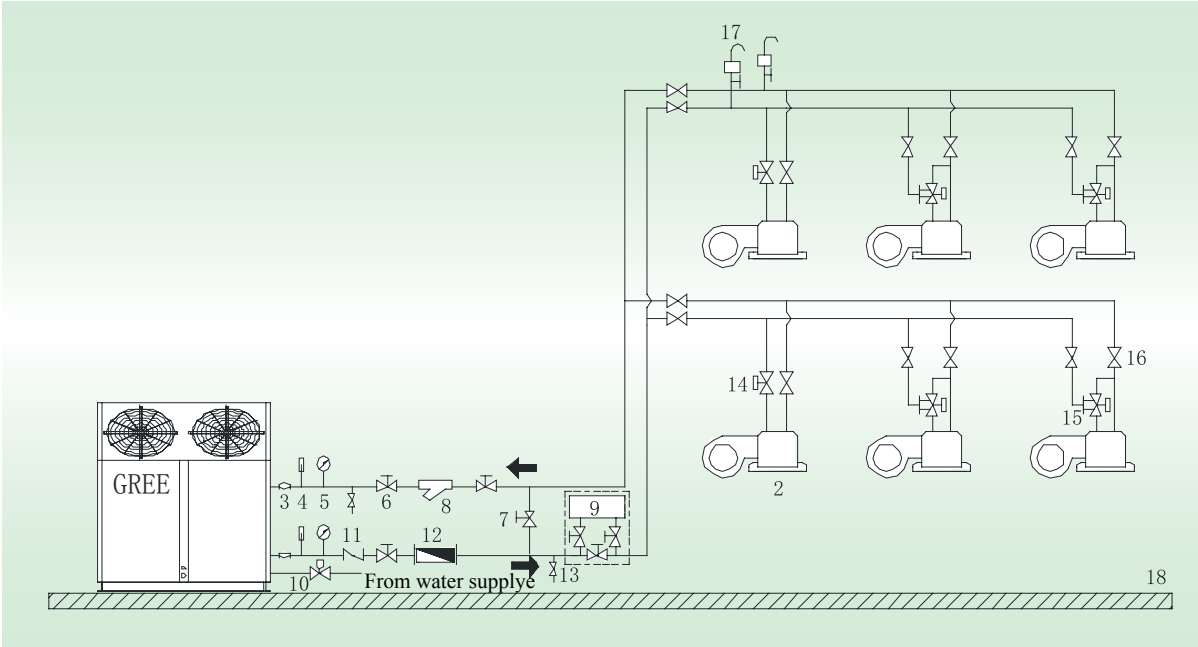
10.4.2 Integral Type

1) Open expansion water tank system



1	Host air conditioner	10	Float-ball water valve
2	Fan coil	11	Check valve
3	Rubber soft contact	12	Flowmeter
4	Thermometer	13	Water drainage valve
5	Manometer	14	Electric 2-way valve
6	Cut-off valve	15	Electric 3-way valve
7	By-pass control valve	16	Ball valve
8	Y-type filter	17	Auto exhaust valve
9	Auxiliary electric heater/hot-water boiler	18	Base

2) Closed expansion water tank system



1	Host air conditioner	10	Auto water fill valve
2	Fan coil	11	Check valve
3	Rubber soft contact	12	Flowmeter
4	Thermometer	13	Water drainage valve
5	Manometer	14	Electric 2-way valve
6	Cut-off valve	15	Electric 3-way valve
7	By-pass control valve	16	Ball valve
8	Y-type filter	17	Auto exhaust valve
9	Auxiliary electric heater/hot-water boiler	18	Base

11 ACCESSORIES

Name	Standard	Optional	Field supplied
Auto water fill valve	√	×	×
Safety valve	√	×	×
Auto exhaust valve	√	×	×
Wired controller	√	×	×
Water pump	√	×	×

Gree Electric Appliance, Inc. of Zhuhai, founded in 1991, is the world's largest air conditioner enterprise integrating R&D, manufacturing, marketing and services.

Technology Innovation and quality are always our priority. With efforts of thousands of Gree's engineers, we own more than 3500 patents for our products.

Nowadays, we have 7 production bases in Zhuhai, Chongqing, Hefei and Zhengzhou(China), as well as Brazil, Pakistan and Vietnam, with annual production capacity of 30 million sets of residential air conditioners and 4 million sets of commercial air conditioners.

With the installation of Gree commercial air conditioners in important projects at home and abroad like Media Village for 2008 Beijing Olympic Games, Stadiums for 2010 World Cup in South Africa, as well as India Telecom base station, Gree commercial air conditioners are ready to develop steadily to every corner in the world, to present a more comfortable and harmonious working environment and family atmosphere.

GREE MAKING BETTER CONDITINERS GREE MAKING BETTER CONDITINERS GREE MAKING BETTER CONDITINERS GREE MAKING BE

GREE

Add: West Jinji Rd,Qianshan Zhuhai,Guangdong,China519070
Tel: (+86-756)8614883 Fax: (+86-756)8614998
Http://www.gree.com Email: gree@gree.com.cn

SN00300039