Air Cooled Scroll Chiller

Aqua Tempo Super

Midea Aqua Tempo Super chillers use H shape heat exchanger at air side and single unit's capacity from 25kW to 130kW. Super chillers are divided to SS,SS-LA, SP-LA and SP-HMLA series according to their water side heat exchanger and inner components. SS series use tube-in-tube or shell-tube heat exchanger and SP series use plate type heat exchanger at water side. SS-LA and SP-LA series are products with low ambient temperature cooling function based on SS and SP series. SP-HMLA series are products built-in with hydraulic module based on SP-LA products.

CE

Product Lineup

Capacity (kW)	25	35	65	80	130
Appearance / Series					
SP-LA	●	●	●		
SP-HMLA	●	●	●		
SS		●	●	●	●
SS-LA		●	●	●	●

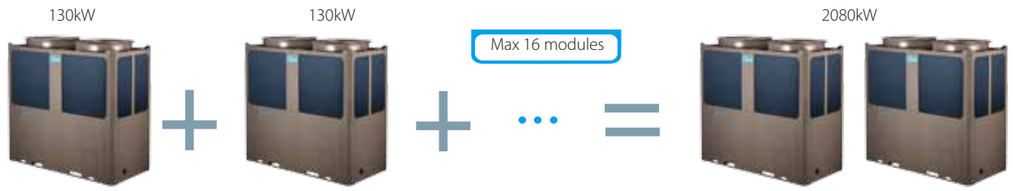
SP: Super series use plate type heat exchanger
SP-LA: Super series with low ambient temperature cooling function based on SP series
SP-HMLA: Super series built-in hydraulic module based on SP-LA series
SS:Super series use tube-in-tube or shell-tube heat exchanger
SS-LA: Super series with low ambient temperature cooling function based on SS series

Aqua Tempo Super

Features

Wide application range »

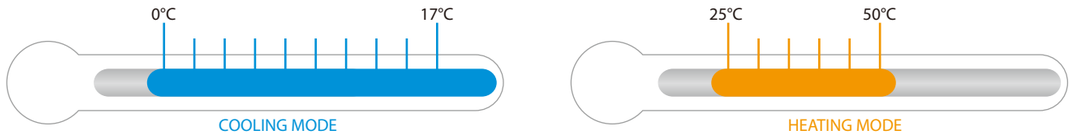
- 14 basic models with cooling capacity ranging from 25kW to130kW, combination model's maximum capacity ups to 2080kW.



- Freely combine with fan oil units and air handling units. Home owners may choose the best types according to their functional needs.

- Wide range of ambient temperature

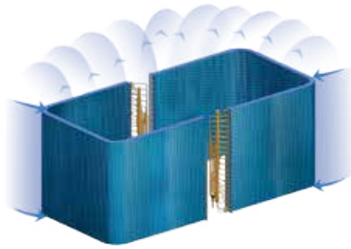
- Wide range of outlet water temperature



Advanced technology »

- H shape high performance heat exchanger

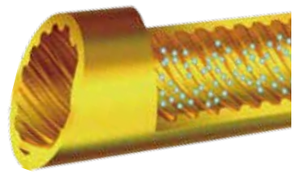
The chillers use new structure design, H shape condenser, 360°air intake, increase the heat exchanging area, efficiently enhance the heat exchange efficiency, and decrease the covering area.

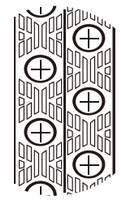


H shape condenser uses inner grooved copper tube and hydrophilic aluminum foil, greatly improve the heat exchange efficiency.

Inner grooved copper tube

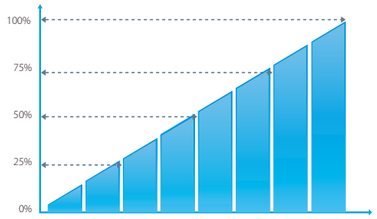
Hydrophilic aluminum foil





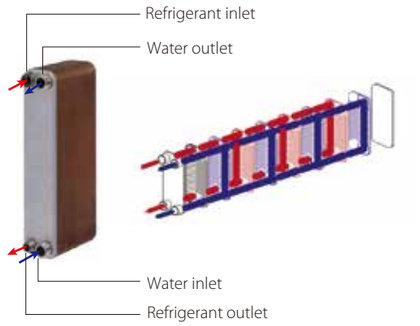
❖ EXV for more precisely flow control

Patented liquid distribution components to maximize performance and minimize defrost impact.
500 steps EXV plus capillary for stable and accurate gas flow control.
Fast respond resulting in higher efficiency and improved reliability.

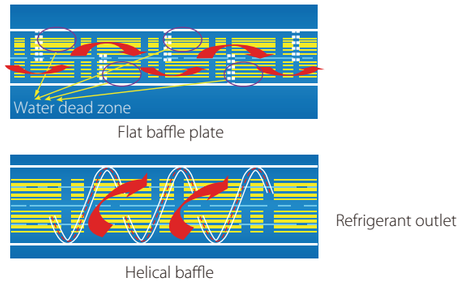


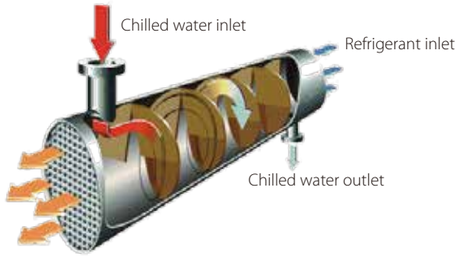
❖ High efficiency plate heat exchanger (For SP series)

Plate heat exchanger uses metal plates to transfer heat between refrigerant and water. The fluids are exposed to a much larger surface area because the fluids spread out over the plates, so both heat transfer efficiency and heat exchanger speed are greatly improved.
Multi protections including voltage protection, current protection, anti-freezing protection and water flow protection ensure system safety running.



❖ Tube-in-tube & shell-tube heat exchanger (For SS series)



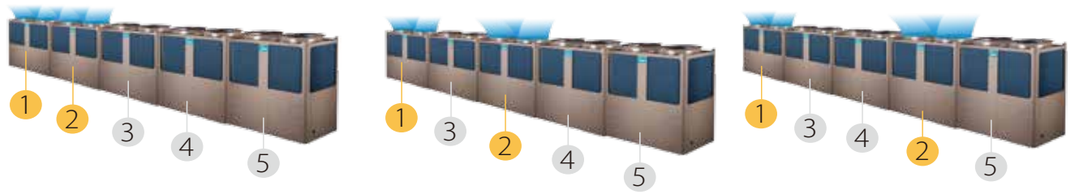


For shell-tube heat exchanger, the module adopts the new helical baffle design to avoid the rectangular place of water dead zone, greatly improve the heat exchange efficiency.

High reliability »

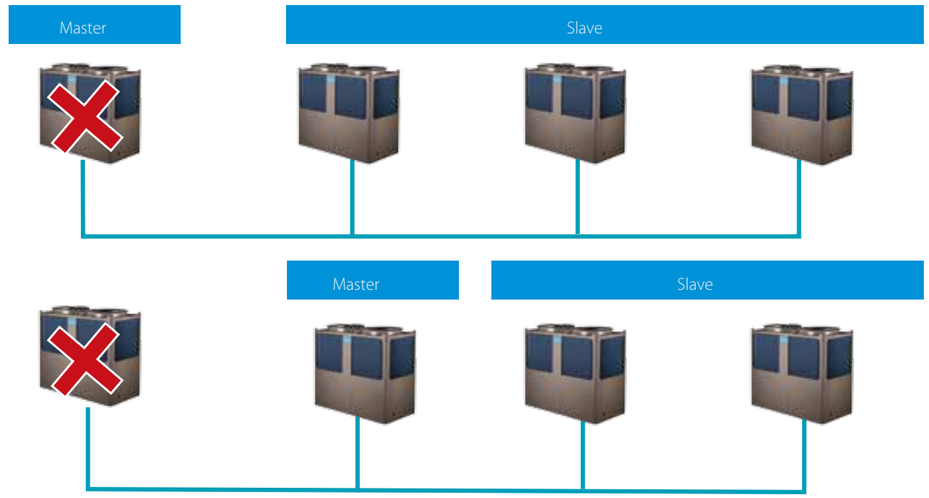
❖ Alternative cycle duty operation

In one combination module, all slave units operate as alternative in cycle duty to keep equal running time, realize higher stability, better reliability and longer lifespan.
For example, five modules combination, no.1 is master unit, others are slave units.



❖ Back-up functions

In a combination system, if one module failed, other modules can be back-up instead of the failed one for continuing operation.



❖ Reliable protections

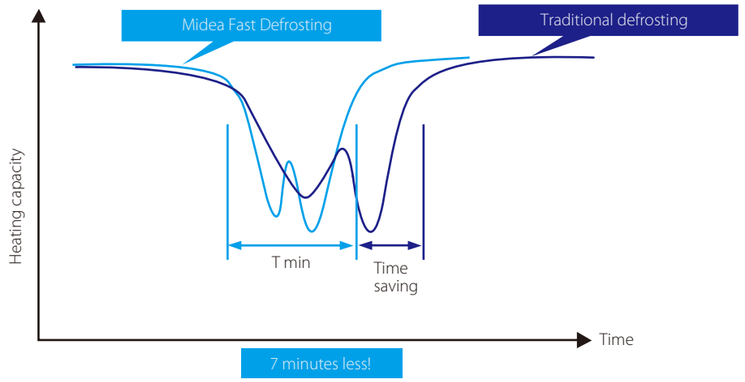
Multiple protections are adopted to ensure system stable running.

- High/low pressure protection of compressor
- Power phases sequence protection
- Evaporator low temperature protection in cooling
- System anti-freezing protection in winter
- Frequently ON/OFF protection of compressor
- Over-current protection of compresor
- Air discharge temperature protection of compressor
- System high temperature protection
- Water flow protection
- Sensor malfunction protection

Aqua Tempo Super

❖ Intelligent defrosting technology

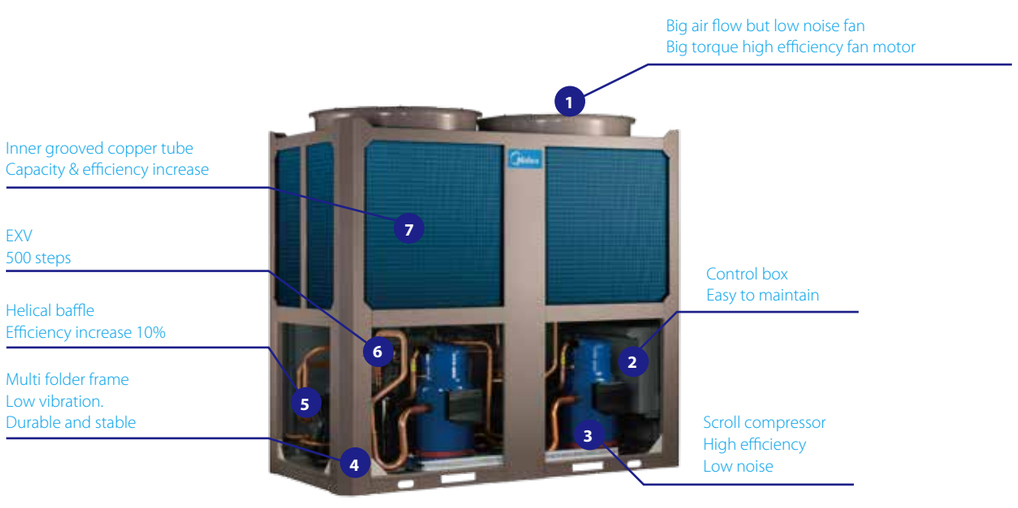
Model alternative defrosting technology ensures little fluctuation on water temperature.
Manual defrosting program is available for service purpose.



Flexible installation »

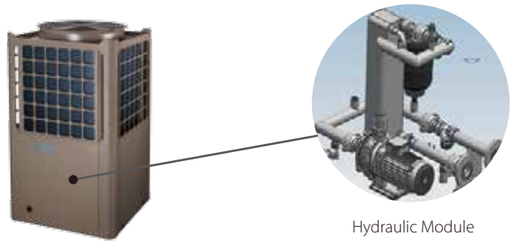
❖ Compact structure design

Super power chiller uses compact structure design, light weight, easy for transportation and installation.



❖ Built-in hydronic module

For SP series, built-in hydraulic module products are available. The modules are fully integrated and built-in expansion tank, plate heat exchanger, water circulating pump, etc. It saves you much installation space and cost.



Hydraulic Module

❖ Individual hydronic module optional

Individual hydronic module compatible with cooling capacity of 65kW and 130kW is optional.
Water box, expansion water tank, two water pumps are built in the hydronic box. The integral structure design saves you much installation labor and cost.

HM/II-65S
HM/II-130S

Easy control »

❖ Touch key wire controller as standard accessory to control the chillers.

❖ Remote control functions for convenient operation

There are ON/OFF, Heat/Cool and Alarm terminals ports on PCB, connect switches from these terminal ports and remote control functions can be easily realized.

Note: When use the remote control function, the wired controller will be invalid for ON/OFF and mode selection.

Specifications

SP-LA series

Model			MC-SP25-RN1L	MC-SP35-RN1L	MC-SP65-RN1L
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50
Cooling[1]	Capacity	kW	25	35	65
	Input	kW	8.0	11.5	20.4
	EER		3.13	3.04	3.19
Heating[2]	Capacity	kW	26	37	69
	Input	kW	8.0	11.3	21.5
	COP		3.27	3.27	3.21
Max. running current		A	20.7	28.8	54.5
Compressor	Type		Fixed Scroll	Fixed Scroll	Fixed Scroll
	Quantity	Pieces	1	1	1
Air side heat exchanger	Type		Finned tube	Finned tube	Finned tube
	Fan motor type		AC Motor	AC Motor	AC Motor
	Quantity of fan motor	Pieces	1	1	2
	Air flow	m^3/h	13,500	13,500	27,000
Water side heat exchanger	Type		Plate type	Plate type	Plate type
	Water pressure drop	kPa	77	63	55
	Volume	L	1.89	2.77	4.44
	Water flow volume	m^3/h	4.3	6	11.2
Refrigerant	Type		R410A	R410A	R410A
	Charged volume	kg	3.1	5.4	10
	Throttle type		EXV	EXV	EXV
Sound pressure level[3]		dB(A)	65	65	67
Unit net dimension(D×H×W)		mm	1,020×1,770×980	1,020×1,770×980	2,000×1,770×960
Packing dimension(D×H×W)		mm	1,070×1,900×1030	1,070×1,900×1030	2,090×1,890×1030
Net/Gross weight		kg	276/286	304/314	470/490
Pipe connections	Water inlet/outlet	mm	DN40	DN40	DN50
Controller			Wired controller	Wired controller	Wired controller
Ambient temperature range	Cooling	℃	-10~46	-10~46	-10~46
	Heating	℃	-15~24	-15~24	-15~24
Water outlet temperature range	Cooling	℃	5~17	5~17	5~17
	Heating	℃	45~50	45~50	45~50
Water outlet temperature range[4]	Cooling	℃	0~17	0~17	0~17
	Heating	℃	25~50	25~50	25~50

1. Cooling: Chilled water inlet/outlet temperature: 12/7℃, outdoor ambient temperature 35℃ DB.
2. Heating: Warm water inlet/outlet temperature: 40/45℃, outdoor ambient temperature 7℃ DB/6℃ WB.
3. 1m away in open field.
4.The data is for low water outlet temperature function.

SP-HMLA series

Model			MC-SP25M-RN1L	MC-SP35M-RN1L	MC-SP65M-RN1L
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50
Cooling[1]	Capacity	kW	25	35	65
	Input	kW	9.2	12.7	22.6
	EER		2.72	2.76	2.88
Heating[2]	Capacity	kW	26	37	69
	Input	kW	9.2	12.5	23.7
	COP		2.84	3.04	2.91
Max. running current		A	24.0	32.1	60.4
Compressor	Type		Fixed Scroll	Fixed Scroll	Fixed Scroll
	Quantity	Pieces	1	1	1
Air side heat exchanger	Type		Finned tube	Finned tube	Finned tube
	Fan motor type		AC Motor	AC Motor	AC Motor
	Quantity of fan motor	Pieces	1	1	2
	Air flow	m^3/h	13,500	13,500	27,000
Water side heat exchanger	Type		Plate type	Plate type	Plate type
	Volume	L	1.89	2.77	4.44
	Water flow volume	m^3/h	4.3	6	11.2
Refrigerant	Type		R410A	R410A	R410A
	Charged volume	kg	3.1	5.4	10
	Throttle type		EXV	EXV	EXV
Sound pressure level[3]		dB(A)	65	65	67
Unit net dimension(D×H×W)		mm	1,020×1,770×980	1,020×1,770×980	2,000×1,770×960
Packing dimension(D×H×W)		mm	1,070×1,900×1,030	1,070×1,900×1,030	2,090×1,890×1,030
Net/Gross weight		kg	313/323	343/353	540/560
Pipe connections	Water inlet/outlet	mm	DN40	DN40	DN50
Controller			Wired controller	Wired controller	Wired controller
Ambient temperature range	Cooling	℃	-10~46	-10~46	-10~46
	Heating	℃	-15~24	-15~24	-15~24
Water outlet temperature range	Cooling	℃	5~17	5~17	5~17
	Heating	℃	45~50	45~50	45~50
Water outlet temperature range[4]	Cooling	℃	0~17	0~17	0~17
	Heating	℃	25~50	25~50	25~50

1. Cooling: Chilled water inlet/outlet temperature: 12/7℃, outdoor ambient temperature 35℃ DB.
2. Heating: Warm water inlet/outlet temperature: 40/45℃, outdoor ambient temperature 7℃ DB/6℃ WB.
3. 1m away in open field.
4.The data is for low water outlet temperature function.

Aqua Tempo Super

SS series & SS-LA series

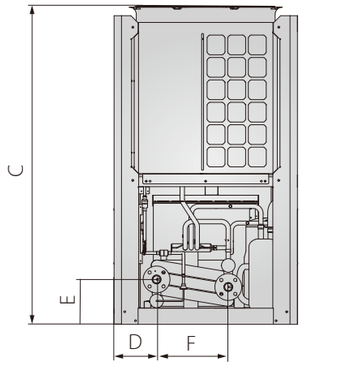
Model			MC-SS35/RN1 MC-SS35/RN1L	MC-SS65/RN1 MC-SS65/RN1L	MC-SS80/RN1 MC-SS80/RN1L	MC-SS130/RN1 MC-SS130/RN1L
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Cooling[1]	Capacity	kW	35	65	80	130
	Input	kW	10.0	20.4	20.4	20.4
	EER		3.04	3.19	3.10	3.07
Heating[2]	Capacity	kW	37	69	85	138
	Input	kW	9.8	21.5	21.5	21.5
	COP		3.27	3.21	3.21	3.21
Max. running current		A	27.0	54.5	65	109
Compressor	Type		Fixed Scroll	Fixed Scroll	Fixed Scroll	Fixed Scroll
	Quantity	Pieces	1	1	2	2
Air side heat exchanger	Type		Finned tube	Finned tube	Finned tube	Finned tube
	Fan motor type		AC Motor	AC Motor	AC Motor	AC Motor
	Quality of fan motor	Pieces	1	2	2	2
	Air flow	m^3/h	13,500	27,000	27,000	50,000
Water side heat exchanger	Type		Double-pipe	Shell-tube	Shell-tube	Shell-tube
	Water pressure drop	kPa	55	30	30	40
	Volume	L	10	35	47.5	60
	Water flow volume	m^3/h	6	11.2	13.8	22.4
Refrigerant	Type		R410A	R410A	R410A	R410A
	Charged volume	kg	5.4	11.5	13	21
	Throttle type		EXV	EXV	EXV	EXV
Sound pressurer level[3]		dB(A)	65	67	67	68
Unit net dimension(D×H×W)		mm	1,020×1,770×980	2,000×1,770×960	2,000×1,770×960	2,200×2,060×1,120
Packing dimension(D×H×W)		mm	1,070×1,900×1,030	2,090×1,890×1,030	2,090×1,890×1,030	2,250×2,200×1,180
Net/Gross weight		kg	320/330	530/590	645/710	950/1,020
Pipe connections	Water inlet/outlet	mm	DN40	DN65	DN65	DN65
Controller			Wired controller	Wired controller	Wired controller	Wired controller
Ambient temperature range	Cooling	℃	10~46	10~46	10~46	10~46
	Heating	℃	-15~24	-15~24	-15~24	-15~24
Ambient temperature range[4]	Cooling	℃	-10~46	-10~46	-10~46	-10~46
	Heating	℃	-15~24	-15~24	-15~24	-15~24
Water outlet temperature range	Cooling	℃	5~17	5~17	5~17	5~17
	Heating	℃	45~50	45~50	45~50	45~50
Water outlet temperature range[5]	Cooling	℃	0~17	0~17	0~17	0~17
	Heating	℃	25~50	25~50	25~50	25~50

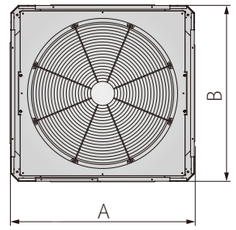
1. Cooling: Chilled water inlet/outlet temperature: 12/7℃, outdoor ambient temperature 35℃ DB.
2. Heating: Warm water inlet/outlet temperature: 40/45℃, outdoor ambient temperature 7℃ DB/6℃ WB.
3. 1m away in open field.
4. The date is for SS-LA series .
5.The data is for low water outlet temperature function

Dimensions (Unit:mm)

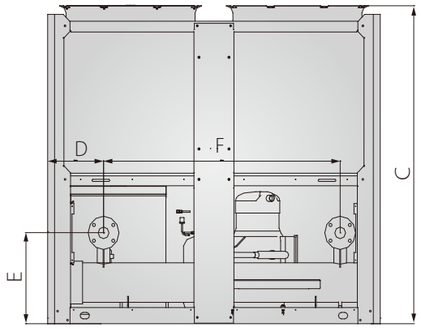
25/35kW module »

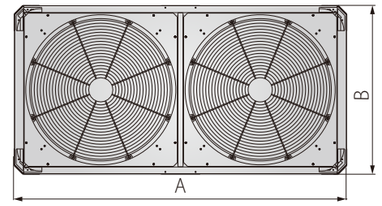
-15～24



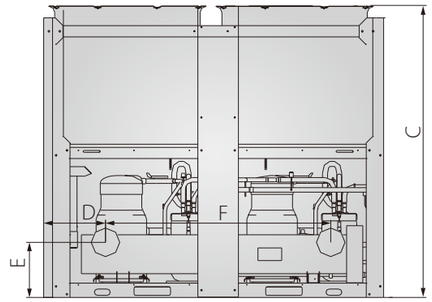


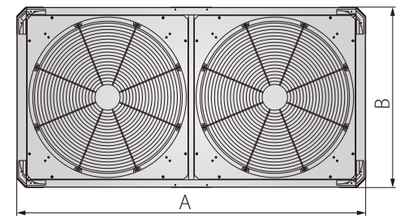
65/80kW module »





130kW module »





Model	A	B	C	D	E	F
MC-SP25(M)-RN1L MC-SP35(M)-RN1L MC-SS35/RN1(L)	1020	980	1770	237	250	400
MC-SP65(M)-RN1L MC-SS65/RN1(L) MC-SS80/RN1(L)	2000	960	1770	336	506	1420
MC-SS130/RN1(L)	2200	1120	2060	390	347	1420

Aqua Tempo Super

Control System

Wired controller »

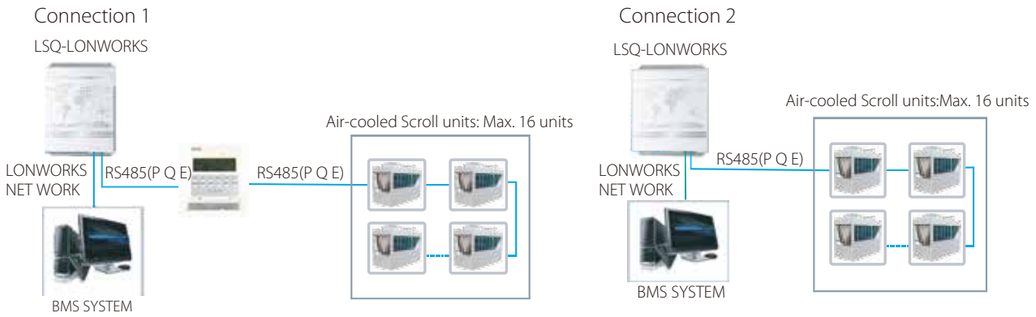
Model	KJRM-120D/BMK-E(standard)	KJR-120A/MBTE(optional)
Appearance		
Main Functions	❖ Parameter setting and display. ❖ Real time clock control. ❖ Manual reset. ❖ Remote control icon display. ❖ Hysteresis temperature setting. ❖ Touch key operation	❖ Parameter setting and display. ❖ Real time clock control. ❖ Manual reset. ❖ Remote control icon display. ❖ Hysteresis temperature setting. ❖ Weekly timing function.
Applied Range	Aqua Tempo Power & Aqua Tempo Super	Aqua Tempo Power & Aqua Tempo Super
Max. connection PCBs	16	16
Compatible Gateway	Modbus & Lon Works	Lon Works

Modbus gateway can be customized by adding X, Y, E ports on wired controller KJRM-120D/BMK-E. It can connect Max. 16 wired controllers and each controller can control Max. 16 units.

LonWorks gateway »

LonWorks gateway controls the central A/C to facilitate the building management system (BMS). Main settings of LonWorks: operation Mode, outlet water temperature, hysteresis temperature and clear alarm.

There are two connection methods for LonWorks:



Standard features/options

Description	Standard features	Options
Hermetic scroll compressor	●	
Compressor crankcase heaters	●	
Compressor circuit breakers	●	
Compressor overload protection	●	
Condenser fan-direct drive, axial type	●	
Condenser fan(Metal)	●	
Condenser fan guard	●	
Condenser motor circuit breakers		●
Aluminum fins condenser coils	●	
Low pressure switch	●	
High pressure switch	●	
Wired controller KJRM-120D/BMK-E	●	
Wired controller KJR-120A/MBTE		●
BMS gateway(Lonworks)		●
MODBUS gateway		●
Remote control input	●	
Alarm signal output	●	
Anti-freezing protection	●	
Over-load protection	●	
Power phases sequence protection	●	
Anti-corrosion fins		●
Water flow switch		●
Three phase power protector		●
65kW hydraulic module		●
130kW hydraulic module		●