ACSON International

Air Conditioners

AIR COOLED MODULAR CHILLER

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AIR COOLED MODULAR CHILLER

A5MAC 210D - A5MAC 3360D
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VRA
Variable Refrigerant Air-cond

* All specifications stated in this technical manual are for Cooling Only unit.
Please contact us for more information about Heat Pump unit.

1. FEATURES

AMAC-A & B series

AMAC units are high thermodynamic engineering products, studied with high accuracy in balancing compressors, condensers and evaporators in order to offer high performance and wide safety margins. The choosing of the materials and the equipment adopted for the products has been made without any compromises, taking care of quality and long life purpose. The products meet ISO 9001 requirements, an assurance beyond any doubt of the high producing standards followed by ACSON.

MODULAR DESIGN
AMAC 160A and AMAC 260B, are maximum designed as the 2 basic modules, different modules can be combined to satisfy different load. The number of combination is maximum 10 modules, however it's still very convenient to transport and install these units by separating them into single ones.

HIGH FLEXIBILITY
The AMAC units are available in size covering a range from 46 to 780kW nominal cooling capacity. With availability of many accessories, application of high tech control and safety devices, the units are of high flexibility for their installation in commercial, residential and industrial environment. They couple with different types of fan coil units or AHU. This series is ideal for various kinds of application, different areas by modular combination.

LOW INSTALLATION COST
The units are completely assembled at factory which reduces the cost of installation on site. A rigid steel base distributes the weight of the unit to the support points and allows simple installation by an easy access to the lifting points.

COMPRESSOR
Acson Modular Air Cooled Chiller is equipped with highly efficient, reliable and silent scroll compressor with internal overload protection. The compressor adopts hermetic type to further eliminate operating noise and vibration.

AIR-COOLED CONDENSER
The two air cooled condenser coils with V-shaped are made of staggered rows of 3/8" OD seamless copper tube, mechanically expanded onto die formed aluminum fins to ensure optimum heat exchange capability.

CONDENSER FAN MOTOR
To achieve the high air charge requirement, the unit is equipped with high airflow propeller fan which is made of acryl styrene resin. The fan is driven directly by weatherproof three-phase motor to ensure reliable continuous operation.

EVAPORATOR
The heat exchanger is made of stainless steel plates closely arranged and brazed together to ensure high heat exchange efficiency. The whole heat exchanger is insulated with thermal closed cell nitric rubber foam to give optimum thermal insulation.

REFRIGERANT CIRCUIT
The refrigerant circuit is factory brazed and evacuated before accurately charged with R22 to ensure optimum operating requirement. To ensure flawless continuous operation, each refrigerant circuit is equipped with a carefully sized thermostatic expansion valve, or a capillary tube.

ADDITIONAL SAFETY PROTECTION
The modular air-cooled chillers are equipped with intelligently designed safety control to ensure continuous safe operation. High and low pressure switch is provided to prevent the compressor damage resulting from both abnormally high discharge head pressure and low pressure due to insufficient gas. In addition, thermal and current overload protector are supplied with the units as well as phase sequencer protector.

A5MAC-D series

ACSON A5MAC series air-cooled chilled-water units are highly reliable, secure and flexible. This series of units are designed to be delicate and elegant. In addition, they are so flexible that they support fan coils and air handling units of various specifications and models. Units of this series are marked for their high efficiency, low noise, user-friendliness, secure operation, easy installation and maintenance etc, and are widely used in factories, stations, hotels, villas, office buildings, top-grade residences etc. Besides, they can alse be used in industrial chilling.

MULTI-GRADE MODULATION
A5MAC210/230 D series units feature 2-grade modulation which can be transformed to multi-grade modulations in modular combinations. For example, 8 A5MAC210 units can realize 16 modulation grades with effects very similar to that of stepless modulation. With operation grades controlled electronically, the unit exerts less shock to the power grid and saves more energy.

OUTSTANDING PERFORMANCE
A5MAC series units feature leading-edge technologies and name-brand accessories which are strictly tested for compatibility. Fully hermetic volute compressor and low-noise fans minimize the operation noise. With efficient volute compressors and precise throttling systems with electronic expansion valves, the units feature high EER and COP, especially at partial workload.

EASY CONTROL
Units can be controlled individually or together by an electronic controller. The controller is strongly interference proof and can exert control from as far as 1000 meters away. Failures are represented by error codes displayed on the controller to facilitate troubleshooting.

EASY INSTALLATION
The units are designed to best facilitate user installation. The cooling system is made hermetic in the factory. Customers do not need to connect any copper pipe or refill refrigerant. The water system has an inlet connector which is to be connected to the terminal equipment. Having installed the unit as instructed, customers just need to check that water and pump pipes are clean before pumping water and powering on the unit.

DEFROSTING
The controller defrosts the unit automatically according to the operation time of the unit and the temperature of the heat exchanger.

SECURITY MEASURES
The colling system is protected against extreme pressures: discharge pressure will not be too high, nor will inhaling pressure be too low; against extreme discharge temperature: discharge temperature will not be too high; against freezing during cooling operation: when the water temnperature is too low, the plate heat exchanger will not freeze up or burst internally; and against low temperature: during cold winter time, the water pipe and plate heat exchanger will not freeze up or burst internally (This feature works only when the system is working in the heating mode with the main power supply turned on).

HIGHLY ADAPTIVE
The unit shell is made of galvanized, phosphorized steel plate with pure polyester plating to withstand weathering. The unit is reasonably designed to save space. It can be mounted on walls, balconies or the roof, thus eliminating the need for a dedicated equipment room.The unit is highly adaptive and can operate smoothly in hostile conditions such as extremely high or low temperatures.

EASY MAINTENANCE
To access and service any part of the unit, you just need to dismantle the side panel or the front panel. When the unit stops working abnormally, the controller prompts the reason to facilitate troubleshooting.

A5MACY-E SERIES VRA

1.ENERGY SAVING

1.1 High IPLV – Help building to save energy

ACSON A5MACY-E series DC inverter air-cooled modular unit had passed through the testing conducted by national authoritative testing organizations and acquired the China Certificate for Energy Conservation Product. These products are using the advanced DC inverter technology, EER COP can up to 3.39, high efficiency for part load operation, IPLV can up to 4.38, about 20% higher than normal air-cooled modular unit. Its excellent performance can help the users to reduce the operation cost and help the owners to obtain greater value during building cycle.

1.2. Leading Inverter Technology

The outstanding energy-efficient performance is derived from the application of advanced DC inverter technology. The unit equipped with DC inverter compressor and fan motor DC inverter, and assort with advanced DC inverter control technology. The output of inverter motor will adjust for changes in real time according to the load capacity for driving the compressor and fan motor. Thus, the unit will always operate in the most optimal level of energy efficiency operation.

1.3. Optimized Efficient Component

The unit is not only using the advanced DC inverter technology, but also equipped with high quality and efficient components. All unit components are assorting with the optimized control system and form an energy saving unit.

1.3.1. Efficient Heat Exchanger

The water heat exchanger of the unit in air-conditioning mode is using high efficiency dual system configuration heat exchanger. The heat exchanger is small size and high efficiency.

1.3.2. Electronic Expansion Valve

Unit uses a 480-steps electronic expansion valve to perform precise throttle control and dynamic matching cooling system to keep the unit always operate at optimal levels of energy efficiency.

1.3.3. Semi-M-Type Heat Exchanger

The water heat exchanger of the unit in air-conditioning mode is using semi-M-type heat exchanger. Thus, the air flow is more smoothly, reducing frost and improve heat transfer capability. Heat exchanger with threaded brass is not only increases the heat exchange area, but also enhances the flow of refrigerant perturbation.

1.4. High Precision Stepless Capacity Control

Normal fixed-speed modular units enable perform two energy regulations (0, 50%, 100%). While A5MACY-E series DC inverter modular unit enable to achieve 15% to 100% stepless capacity control. This can be accurately achieve low load, low output and low energy consumption.

1.5. Energy Saving and zone layer friendly

As a leader in the field of HVAC, Acson plays an important role in promoting global energy conservation action. They pay their high degree of responsibility and mission toward the future living environment of mankind and society and have made an outstanding contribution to the environmental protection.

1.5.1. Reduce Greenhouse Gas Emissions

The units are saving electricity for the users. At the same time, the units also reduce the CO2 emissions and alleviate the greenhouse effect, which benefits the community social. When compared with third grade energy efficiency same cooling capacity fixed speed air-cooled modular unit, A5MACY-E series product can be reduced about 18% of CO2 emissions. If 10,000 units were using per year, each year could reduce CO2 emissions amounted to 60,000 tons for the community.

1.5.2. Does Not Destroy Ozone Layer

Acson A5MACY-E Series inverter air-cooled modular unit adopts environmentally friendly refrigerant R410A. Compared to conventional refrigerants R22, R410A refrigerant does not contain chlorine elements and thus will not damage the ozone layer. R410A will become long-term alternative for R22. From 2013 onwards, the usage of R22 refrigerant will be limited and will gradually be reduced.

2.RELIABLE QUALITY

2.1. Quality first, Consumers trust

Good quality and performance of products on the market won a good reputation, which also provide infinite power to our continuous improvement and the pursuit of perfection. All components of the unit are from overseas well-known brands, and are rigorously accredited testing. Each step of the unit production has been quality audits and records. Each unit has been test in the factory to ensure that quality products are delivered to customers.“

2.2. Multiple Safety Protection, Stable and Reliable

Units have more than 10 protection feature and a full range of integrated protection system. Protection functions perform to protect the unit from damage when the application environment of system malfunction and increase the durability of the unit to be used.

2.3. Backup system – Reducing the impact on the application unit failure

“The unit uses dual system design. When one system fails, another system can still function properly and protect the unit immediately. When a units inside the combination of modular unit need maintenance or service, this does not affect the normal operation of other units. The characteristic of mutual backup between units and system can minimize the impact of faulty unit toward the air conditioner system. When integral air-cooled heat pump fails, it will cause the system to crash or large cooling (heating) effect is insufficient. Thus, the applications which have high reliability requirements for air conditioning should prefer air-cooled modular unit. “

2.4. Low Starting Current – Reducing the impact on the grid

If combination application between inverter units is used, the frequency started is low and thus starting current is small. While combination application between Inverter unit and fix-speed unit is used, the unit will start grading to reduce the starting current. Low current startup not only can impact on the grid but also improve the safety of units.

2.5. Wide Operating Range, Greater Ease of Use

“The unit can operate properly no matter is cooling in hot weather that up to 48°C or heating in cold climate that is only -10°C. Units are sending to country accredited laboratory to undergo long time multi-condition test which is more stringent than national standard. The tested results are better than national standard.“

3. INTELLIGENT CONTROL

3.1. Humanized control features, easy operation

The units adopt humanized microcomputer control system, extra large screen LCD controller, and simple and quick usage. The individual controller can control up to 16 units, and the dynamic monitoring of the unit’s operation is ease of centralized control. The controller has a parameter display & setting, mode switching function etc.

3.1.1. Schedule management

“On a weekly cycle, it set the timer switch every day to let the unit to run automatically,thus enabling unmanned supervisory functions.“

3.1.2. Balanced compressor operation

“Real-time monitoring of the operating time of each assembly by the controller, intelligent balanced allocation of the compressor operation, extending the unit’s overall lifetime.“

3.1.3. Self-diagnosis function
When failure occurs in the unit, the controller will quickly and accurately display the defective positions, to assist rapid troubleshooting, easy management and maintenance.

3.2. Fully automated joint control function, peace of mine usage.
3.2.1. Terminal chain control
Control the unit operation status according to the on-off of the terminal equipment, to achieve fully automated operation.

3.2.2. Remotable on-off control
Control the on-off of the unit through the connection of the remote switch.

3.2.3. Chilled water pump interlock control
Control the on-off of the pump, and avoiding the hazards caused by the unsynchronization between pump and unit.

3.3. Precise water temperature control, improve air conditioning comfortability
The default unit controls the water outlet temperature, and precisely control the unit's water outlet temperature. The slight temperature fluctuation in the water temperature avoid the fluctuating conditions of the indoor air supply temperature, thus higher comfort of usage. For process cooling applications, the water supply temperature is constant, thus high cooling stability.

3.4. Low-noise design, for more peaceful night
Relying on national level sophisticated noise room and noise spectrum analysis, carry out a strict comparison, selection and improvement for fans, motors and other components, and a professional design for noise reduction for structures and piping. Unit noise is significantly improved. The stepless speed regulation fan adopted by the innovation unit can adjust the speed based on the unit operating conditions. At low load operation, the fan speed is automatically reduced, and the unit operating noise can be as low as 58dB(A).

3.5. Optional MODBUS gateway access BA system
The unit can select the Acson MODBUS gateway unit, easily connect the unit to building control system (BAS) for centralized control, easy to implement intelligent management to avoid unnecessary waste of energy, and saves the air-conditioning running costs. It can support up to 32 module units.

3.6. Monitoring air conditioning units
Monitoring functions include: group centralized control, unit on&off control, set the unit operating mode, set the unit application parameters, display the unit actual operating parameters, save operating records and fault history, password protection etc.

4. FLEXIBLE APPLICATION

4.1. Modular design, diversified portfolio applications

Unit employs a modular design, the maximum number of units of each combination can be up to 16 units, to meet different requirements of the building load. It can also adopt a “full frequency variation scheme” or “hybrid scheme”.

4.1.1. Full frequency variation scheme

[Inverter air-cooled modular machine (master) + N x inverter air-cooled modular machine (slave)]

4.1.2. Hybrid scheme

[Inverter air-cooled modular machine (master) + N x constant speed air-cooled modular machine (slave)]

4.2. Easy expansion, can cope with phased investment option

The unit employs a modular design, through different numbers of module combinations, will form different cooling (heating) capacity of air-conditioning host system. In the case of increased air-conditioning load as a result of application alteration or expansion, by appropriately increase the number of module units, it is able to meet the load demand. For a planned phased built option, you can reserve the pipeline in advance, and hire purchase the module unit.

4.3. Decentralized transportation of module, safe and convenient.

In transportation, the module unit is much simpler than the integral type air-cooled heat pump units. The integral type air-cooled heat pump units, regardless of its loading and unloading work of motor transport or construction site hoisting, will require the use of a large lifting equipment. Air-cooled module unit can be loaded or unloaded by using a small lifting equipment, even through freight elevator transport.

4.4. Simple system and high space utilization

Modular design unit can be install independently, achieved batch installation or multiperson simultaneous operation. The units are installed at outdoor ventilated locations, without specialized interior room, without having to install cooling tower and cooling water systems, and without having to install boilers and other heat source. The units can be flexibly adapted to irregular installation space, to improve space utilization.

2. SPECIFICATION

GENERAL DATA - R410A COOLING ONLY

A5MAC 210D - A5MAC 1260D

MODEL			A5MAC 210D	A5MAC 420D	A5MAC 630D	A5MAC 840D	A5MAC 1050D	A5MAC 1260D
NOMINAL CAPACITY		Btu/h	205,000	410,000	615,000	820,000	1,025,000	1,230,000
		kW	60	120	180	240	300	360
RATED TOTAL INPUT POWER		kW	18.8	37.6	56.4	75.2	94.0	112.8
RATED RUNNING CURRENT		A	35.50	71.00	106.50	142.00	177.50	213.00
EER		Btu/h	10.90					
		W/W	3.19					
POWER SOURCE		V/Ph/Hz	380 - 415 / 3 / 50					
Control			EXV					
Sound Level Pressure		dBA	66	69	71	72	73	74
Water Flow Rate		l/s (m³/h)	2.86 (10.3)	5.72 (20.6)	8.58 (30.9)	11.44 (41.2)	14.3 (51.5)	17.16 (61.8)
REFRIGERANT TYPE			R410A					
UNIT DIMENSION	HEIGHT	mm (in)	1,840 (72.44)					
	WIDTH	mm (in)	1,990 (78.35)					
	DEPTH	mm (in)	845 (33.3)	2,090 (82.3)	3,335 (131.3)	4,580 (180.3)	5,825 (229.3)	7,070 (278.3)
PACKING DIMENSION	HEIGHT	mm (in)	2,010 (79)					
	WIDTH	mm (in)	2,010 (79)					
	DEPTH	mm (in)	890 (35.0)	2,180 (86.0)	3,470 (136.6)	4,760 (187.4)	6,050 (238.2)	7,340 (289.0)
NET WEIGHT		kg (lb)	520 (1,146.40)	1,040 (2,292.81)	1,560 (3,439.21)	2,080 (4,585.62)	2,600 (5,732.02)	3,120 (6,878.42)
GROSS WEIGHT		kg (lb)	570 (1,256.63)	1,140 (2,513.27)	1,710 (3,769.90)	2,280 (5,026.54)	2,850 (6,283.17)	3,420 (7,539.81)
OPERATING WEIGHT		kg (lb)	540 (1,190.50)	1,080 (2,380.99)	1,620 (3,571.49)	2,160 (4,761.98)	2,700 (5,952.48)	3,240 (7,142.98)

Arbitrary combination up to 16 modules.

MODEL			A5MAC230D	A5MAC460D	A5MAC690D	A5MAC920D	A5MAC1150D	A5MAC1380D
NOMINAL CAPACITY		Btu/h	222,000	444,000	666,000	888,000	1,110,000	1,332,000
		kW	65	130	195	260	325	390
RATED TOTAL INPUT POWER		kW	19.2	38.4	57.6	76.8	96	115.2
RATED RUNNING CURRENT		A	36.90	73.80	110.70	147.60	184.50	221.40
EER		Btu/h	11.56					
		W/W	3.39					
POWER SOURCE		V/Ph/Hz	380 - 415 / 3 / 50					
Control			EXV					
Sound Level Pressure		dBA	66	69	71	72	73	74
Water Flow Rate		l/s (m³/h)	3.11 (11.2)	6.22 (22.4)	9.33 (33.6)	12.44 (44.8)	15.55 (56)	18.66 (67.2)
REFRIGERANT TYPE			R410A					
UNIT DIMENSION	HEIGHT	mm (in)	1,840 (72.4)					
	WIDTH	mm (in)	1,990 (78.3)					
	DEPTH	mm (in)	845 (33.3)	2,090 (82.3)	3,335 (131.3)	4,580 (180.3)	5,825 (229.3)	7,070 (278.3)
PACKING DIMENSION	HEIGHT	mm (in)	2,010 (79.1)					
	WIDTH	mm (in)	2,010 (79.1)					
	DEPTH	mm (in)	845 (33.3)	2,090 (82.3)	3,335 (131.3)	4,580 (180.3)	5,825 (229.3)	7,070 (278.3)
NET WEIGHT		kg (lb)	520 (1,146.40)	1,040 (2,292.81)	1,560 (3,439.21)	2,080 (4,585.62)	2,600 (5,732.02)	3,120 (6,878.42)
GROSS WEIGHT		kg (lb)	570 (1,256.63)	1,140 (2,513.27)	1,710 (3,769.90)	2,280 (5,026.54)	2,850 (6,283.17)	3,420 (7,539.81)
OPERATING WEIGHT		kg (lb)	540 (1,190.50)	1,080 (2,380.99)	1,620 (3,571.49)	2,160 (4,761.98)	2,700 (5,952.48)	3,240 (7,142.98)

Arbitrary combination up to 16 modules.

NOTE:

1) NOMINAL REFRIGERATING CAPACITY CONDITION: OUT-FLOWING WATER TEMPERATURE 7 °C, WATER FLOW 0.172 [m3/(h.kW)], OUTDOOR TEMPERATURE 35 °C.
2) NOMINAL HEATING CAPACITY CONDITION: OUT-FLOWING WATER TEMPERATURE 45 °C, WATER FLOW 0.172 [m3/(h.kW)], OUTDOOR DRY-BULB TEMPERATURE 7 °C, WET BULB TEMPERATURE 6 °C.
3) THE SPECIFICATIONS GIVEN IN THE TABLE WILL BE SUBJECT TO THE MODIFICATIONS ON PRODUCT DESIGN BY THE MANUFAC TURER. NO NOTICE WILL BE FURTHER GIVEN.

COMPONENT DATA - R410A COOLING ONLY

A5MAC 210D - A5MAC 1260D

MODEL				A5MAC 210D	A5MAC 420D	A5MAC 630D
EVAPORATOR	TYPE			BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER
	PLATE MATERIAL			STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
	WATER VOLUME		$m^3(ft^3)$	0.00656 (0.23166)	0.00656 (0.23166) x2	0.00656 (0.23166) x3
	NOMINAL WATER FLOW		L/s (US GPM)	2.86 (45.35)	2.86 (45.35) x2	2.86 (45.35) x3
WATER LINE	PIPING	INSTALLATION PIPE CONNECTION	mm (in)	Rc2	Rc2	Rc2
	PIPE SIZE		mm/in	≥50.8 (≥2)	≥76.2 (≥3)	≥76.2 (≥3)
	WATER PRESSURE DROP		kPa(psi)	38 (5.5)	38 (5.5) x2	38 (5.5) x3
CONDENSER COIL	TYPE			FIN-TUBE	FIN-TUBE	FIN-TUBE
	TUBE	MATERIAL		COPPER	COPPER	COPPER
		TYPE		INNER GROOVE	INNER GROOVE	INNER GROOVE
		WALL THICKNESS	mm (in)	0.71 (0.028)	0.71 (0.028)	0.71 (0.028)
		OUTER DIAMETER	mm (in)	7.94 (0.3126)	7.94 (0.3126)	7.94 (0.3126)
	FIN	MATERIAL		ALUMINIUM	ALUMINIUM	ALUMINIUM
		TYPE		WHITE FIN	WHITE FIN	WHITE FIN
		THICKNESS	mm (in)	0.12 (0.00472)	0.12 (0.00472)	0.12 (0.00472)
		ROWS		3	3	3
		FIN PER INCH		14	14	14
	TOTAL FACE AREA		$m^2(ft^2)$	3.43 (36.9)	3.43 (36.9) x2	3.43 (36.9) x3
CASING	MATERIAL			ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL
	FINISH			EPOXY POLYESTER POWER	EPOXY POLYESTER POWER	EPOXY POLYESTER POWER
	THICKNESS		mm (in)	0.8 (0.031)	0.8 (0.031)	0.8 (0.031)
CONDENSER FAN	TYPE/DRIVE			AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER
	QUANTITY			2	4	6
	BLADE MATERIAL			GALVANIZED STEEL	GALVANIZED STEEL	GALVANIZED STEEL
	BLADE DIAMETER		mm (in)	750 (29.53)	750 (29.53)	750 (29.53)
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	2.5	2.5 x2	2.5 x3
	RATED INPUT POWER		W	1385	1385 x2	1385 x3
	RATED OUTPUT POWER		W	900	900 x2	900 x3
	MOTOR POLES			6	6	6
	AIR VOLUME		CMH (CFM)	12,000 (7,059)	24,000 (14,118)	36,000 (21,177)
COMPRESSOR	TYPE			HERMETIC SCROLL	HERMETIC SCROLL	HERMETIC SCROLL
	QUANTITY			2	4	6
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	16.93 / 19.22	16.93 x 2 / 19.22 x 2	16.93 x 3 / 19.22 x 3
	RATED INPUT POWER		W	9,462 / 10,862	9,462 x 2 / 10,862 x 2	9,462 x 3 / 10,862 x 3
	MAXIMUM STARTING CURRENT		A	130	130	130
	PROTECTION DEVICES			H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR
REFRIGERANT	TYPE			R410A	R410A	R410A
	CONTROL			EXV	EXV	EXV
	REFRIGERANT CHARGE		kg (lb)	17 (37.48)	34 (74.96)	51 (112.44)

COMPONENT DATA - R410A COOLING ONLY

A5MAC 210D - A5MAC 1260D

MODEL				A5MAC 840D	A5MAC 1050D	A5MAC 1260D
EVAPORATOR	TYPE			BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER
	PLATE MATERIAL			STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
	WATER VOLUME		$m^3(ft^3)$	0.00656 (0.23166) x4	0.00656 (0.23166) x5	0.00656 (0.23166) x6
	NOMINAL WATER FLOW		L/s (US GPM)	2.86 (45.35) x4	2.86 (45.35) x5	2.86 (45.35) x6
WATER LINE	PIPING	INSTALLATION PIPE CONNECTION	mm (in)	Rc2	Rc2	Rc2
	PIPE SIZE		mm/in	≥101.6 (≥4)	≥101.6 (≥4)	≥127 (≥5)
	WATER PRESSURE DROP		kPa(psi)	38 (5.5) x4	38 (5.5) x5	38 (5.5) x6
CONDENSER COIL	TYPE			FIN-TUBE	FIN-TUBE	FIN-TUBE
	TUBE	MATERIAL		COPPER	COPPER	COPPER
		TYPE		INNER GROOVE	INNER GROOVE	INNER GROOVE
		WALL THICKNESS	mm (in)	0.71 (0.028)	0.71 (0.028)	0.71 (0.028)
		OUTER DIAMETER	mm (in)	7.94 (0.3126)	7.94 (0.3126)	7.94 (0.3126)
	FIN	MATERIAL		ALUMINIUM	ALUMINIUM	ALUMINIUM
		TYPE		WHITE FIN	WHITE FIN	WHITE FIN
		THICKNESS	mm (in)	0.12 (0.00472)	0.12 (0.00472)	0.12 (0.00472)
		ROWS		3	3	3
		FIN PER INCH		14	14	14
	TOTAL FACE AREA		$m^2(ft^2)$	3.43 (36.9) x4	3.43 (36.9) x5	3.43 (36.9) x6
CASING	MATERIAL			ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL
	FINISH			EPOXY POLYESTER POWER	EPOXY POLYESTER POWER	EPOXY POLYESTER POWER
	THICKNESS		mm (in)	0.8 (0.031)	0.8 (0.031)	0.8 (0.031)
CONDENSER FAN	TYPE/DRIVE			AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER
	QUANTITY			8	10	12
	BLADE MATERIAL			GALVANIZED STEEL	GALVANIZED STEEL	GALVANIZED STEEL
	BLADE DIAMETER		mm (in)	750 (29.53)	750 (29.53)	750 (29.53)
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	2.5 x4	2.5 x5	2.5 x6
	RATED INPUT POWER		W	1385 x4	1385 x5	1385 x6
	RATED OUTPUT POWER		W	900 x4	900 x5	900 x6
	MOTOR POLES			6	6	6
	AIR VOLUME		CMH (CFM)	48,000 (28,236)	60,000 (35,295)	72,000 (42,354)
COMPRESSOR	TYPE			HERMETIC SCROLL	HERMETIC SCROLL	HERMETIC SCROLL
	QUANTITY			8	10	12
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	16.93 x 4 / 19.22 x 4	16.93 x 5 / 19.22 x 5	16.93 x 6 / 19.22 x 6
	RATED INPUT POWER		W	9,462 x 4/ 10,862 x 4	9,462 x 5/ 10,862 x 5	9,462 x 6/ 10,862 x 6
	MAXIMUM STARTING CURRENT		A	130	130	130
	PROTECTION DEVICES			H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR
REFRIGERANT	TYPE			R410A	R410A	R410A
	CONTROL			EXV	EXV	EXV
	REFRIGERANT CHARGE		kg (lb)	68 (149.91)	85 (187.39)	102 (224.87)

Arbitrary combination up to 16 modules.

NOTE:
ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.

COMPONENT DATA - R410A COOLING ONLY

A5MAC 230D - A5MAC 1380D

MODEL				A5MAC230D	A5MAC460D	A5MAC690D
EVAPORATOR	TYPE			BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER
	PLATE MATERIAL			STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
	WATER VOLUME		$m^3(ft^3)$	0.00656 (0.23166)	0.00656 (0.23166) x2	0.00656 (0.23166) x3
	NOMINAL WATER FLOW		L/s (US GPM)	3.11 (49.29)	3.11 (49.29) x2	3.11 (49.29) x3
WATER LINE	PIPING	INSTALLATION PIPE CONNECTION	mm (in)	Rc2	Rc2	Rc2
	PIPE SIZE		mm/in	≥50.8 (≥2)	≥76.2 (≥3)	≥76.2 (≥3)
	WATER PRESSURE DROP		kPa(psi)	44 (6.4)	44 (6.4)x2	44 (6.4) x3
CONDENSER COIL	TYPE			FIN-TUBE	FIN-TUBE	FIN-TUBE
	TUBE	MATERIAL		COPPER	COPPER	COPPER
		TYPE		INNER GROOVE	INNER GROOVE	INNER GROOVE
		WALL THICKNESS	mm (in)	0.71 (0.028)	0.71 (0.028)	0.71 (0.028)
		OUTER DIAMETER	mm (in)	7.94 (0.3126)	7.94 (0.3126)	7.94 (0.3126)
	FIN	MATERIAL		ALUMINIUM	ALUMINIUM	ALUMINIUM
		TYPE		WHITE FIN	WHITE FIN	WHITE FIN
		THICKNESS	mm (in)	0.12 (0.00472)	0.12 (0.00472)	0.12 (0.00472)
		ROWS		3	3	3
		FIN PER INCH		14	14	14
	TOTAL FACE AREA		$m^2(ft^2)$	3.43 (36.9)	3.43 (36.9) x2	3.43 (36.9) x3
CASING	MATERIAL			ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL
	FINISH			EPOXY POLYESTER POWER	EPOXY POLYESTER POWER	EPOXY POLYESTER POWER
	THICKNESS		mm (in)	0.8 (0.031)	0.8 (0.031)	0.8 (0.031)
CONDENSER FAN	TYPE/DRIVE			AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER
	QUANTITY			2	4	6
	BLADE MATERIAL			GALVANIZED STEEL	GALVANIZED STEEL	GALVANIZED STEEL
	BLADE DIAMETER		mm (in)	750 (29.53)	750 (29.53)	750 (29.53)
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	2.5	2.5 x2	2.5 x3
	RATED INPUT POWER		W	1385	1385 x2	1385 x3
	RATED OUTPUT POWER		W	900	900 x2	900 x3
	MOTOR POLES			6	6	6
	AIR VOLUME		CMH (CFM)	12,000 (7,059)	24,000 (14,118)	36,000 (21,177)
COMPRESSOR	TYPE			HERMETIC SCROLL	HERMETIC SCROLL	HERMETIC SCROLL
	QUANTITY			2	4	6
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	19.22 x2	19.22 x4	19.22 x6
	RATED INPUT POWER		W	10,862 x2	10,862 x4	10,862 x6
	MAXIMUM STARTING CURRENT		A	130	130	130
	PROTECTION DEVICES			H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR
REFRIGERANT	TYPE			R410A	R410A	R410A
	CONTROL			EXV	EXV	EXV
	REFRIGERANT CHARGE		kg (lb)	17.2 (37.92)	34.4 (75.83)	51.6 (113.76)

COMPONENT DATA - R410A COOLING ONLY

A5MAC 230D - A5MAC 1380D

MODEL				A5MAC920D	A5MAC1150D	A5MAC1380D
EVAPORATOR	TYPE			BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER
	PLATE MATERIAL			STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
	WATER VOLUME		$m^3(ft^3)$	0.00656 (0.23166) x4	0.00656 (0.23166) x5	0.00656 (0.23166) x6
	NOMINAL WATER FLOW		L/s (US GPM)	3.11 (49.29) x4	3.11 (49.29) x5	3.11 (49.29) x6
WATER LINE	PIPING	INSTALLATION PIPE CONNECTION	mm (in)	Rc2	Rc2	Rc2
	PIPE SIZE		mm/in	≥101.6 (≥4)	≥101.6 (≥4)	≥127 (≥5)
	WATER PRESSURE DROP		kPa(psi)	44 (6.4) x4	44 (6.4) x5	44 (6.4) x6
CONDENSER COIL	TYPE			FIN-TUBE	FIN-TUBE	FIN-TUBE
	TUBE	MATERIAL		COPPER	COPPER	COPPER
		TYPE		INNER GROOVE	INNER GROOVE	INNER GROOVE
		WALL THICKNESS	mm (in)	0.71 (0.028)	0.71 (0.028)	0.71 (0.028)
		OUTER DIAMETER	mm (in)	7.94 (0.3126)	7.94 (0.3126)	7.94 (0.3126)
	FIN	MATERIAL		ALUMINIUM	ALUMINIUM	ALUMINIUM
		TYPE		WHITE FIN	WHITE FIN	WHITE FIN
		THICKNESS	mm (in)	0.12 (0.00472)	0.12 (0.00472)	0.12 (0.00472)
		ROWS		3	3	3
		FIN PER INCH		14	14	14
	TOTAL FACE AREA		$m^2(ft^2)$	3.43 (36.9) x4	3.43 (36.9) x5	3.43 (36.9) x6
CASING	MATERIAL			ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL
	FINISH			EPOXY POLYESTER POWER	EPOXY POLYESTER POWER	EPOXY POLYESTER POWER
	THICKNESS		mm (in)	0.8 (0.031)	0.8 (0.031)	0.8 (0.031)
CONDENSER FAN	TYPE/DRIVE			AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER
	QUANTITY			8	10	12
	BLADE MATERIAL			GALVANIZED STEEL	GALVANIZED STEEL	GALVANIZED STEEL
	BLADE DIAMETER		mm (in)	750 (29.53)	750 (29.53)	750 (29.53)
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	2.5 x4	2.5 x5	2.5 x6
	RATED INPUT POWER		W	1385 x4	1385 x5	1385 x6
	RATED OUTPUT POWER		W	900 x4	900 x5	900 x6
	MOTOR POLES			6	6	6
	AIR VOLUME		CMH (CFM)	48,000 (28,236)	60,000 (35,295)	72,000 (42,354)
COMPRESSOR	TYPE			HERMETIC SCROLL	HERMETIC SCROLL	HERMETIC SCROLL
	QUANTITY			8	10	12
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	19.22 x8	19.22 x10	19.22 x12
	RATED INPUT POWER		W	10,862 x8	10,862 x10	10,862 x12
	MAXIMUM STARTING CURRENT		A	130	130	130
	PROTECTION DEVICES			H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR
REFRIGERANT	TYPE			R410A	R410A	R410A
	CONTROL			EXV	EXV	EXV
	REFRIGERANT CHARGE		kg (lb)	68.8 (151.68)	86 (189.60)	103.2 (227.52)

Arbitrary combination up to 16 modules.

NOTE:
ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.

GENERAL DATA - R410A COOLING ONLY

A5MACY 230E - A5MACY 1380E VRA

Variable Refrigerant Air-cond

MODEL			A5MACY 230E	A5MACY 460E	A5MACY 690E	A5MACY 920E	A5MACY 1150E	A5MACY 1380E
NOMINAL CAPACITY		Btu/h	225,255	450,510	675,765	901,020	1,126,275	1,351,530
		kW	66.018	132.037	198.055	264.074	330.092	396.111
RATED TOTAL INPUT POWER		kW	19.5	39	58.5	78	97.5	117
RATED RUNNING CURRENT		A	39.2	78.4	117.6	156.8	196.0	235.2
EER		Btu/h	11.55					
		W/W	3.39					
POWER SOURCE		V/Ph/Hz	380 - 415 / 3 / 50					
Control			EXV					
Sound Level Pressure		dBA	58 - 66	61 - 69	63 - 71	64 - 72	65 - 73	66 - 74
Water Flow Rate		l/s (m³/h)	3.17 (11.4)	6.33 (22.8)	9.5 (34.20)	12.64 (45.6)	15.83 (570)	19 (68.4)
REFRIGERANT TYPE			R410A					
UNIT DIMENSION	HEIGHT	mm (in)	1,840 (72.44)					
	WIDTH	mm (in)	1,990 (78.35)					
	DEPTH	mm (in)	845 (33.3)	2,090 (82.3)	3,335 (131.3)	4,580 (180.3)	5,825 (229.3)	7,070 (278.3)
PACKING DIMENSION	HEIGHT	mm (in)	1,985 (78.15)					
	WIDTH	mm (in)	910(35.83)					
	DEPTH	mm (in)	2,090 (82.28)	2,090 (82.28) x2	2,090 (82.28) x3	2,090 (82.28) x4	2,090 (82.28) x5	2,090 (82.28) x6
NET WEIGHT		kg (lb)	565 (1,245.61)	1,130 (2,491.22)	1,695 (3,736.83)	2,260 (4,982.44)	2,825 (6,228.05)	3,390 (7,473.66)
GROSS WEIGHT		kg (lb)	605 (1,333.80)	1,210 (2,667.59)	1,815 (4,001.39)	2,420 (5,335.18)	3,025 (6,668.98)	3,630 (8,002.77)
OPERATING WEIGHT		kg (lb)	575 (1,267.66)	1,150 (2,535.31)	1,725 (3,802.97)	2,300 (5,070.63)	2,875 (6,338.28)	3,450 (7,605.94)

Arbitrary combination up to 16 modules.

1) NOMINAL REFRIGERATING CAPACITY CONDITION: OUT-FLOWING WATER TEMPERATURE 7 °C, WATER FLOW 0.172 [m3/(h.kW)], OUTDOOR TEMPERATURE 35 °C.
2) NOMINAL HEATING CAPACITY CONDITION: OUT-FLOWING WATER TEMPERATURE 45 °C, WATER FLOW 0.172 [m3/(h.kW)], OUTDOOR DRY-BULB TEMPERATURE 7 °C, WET BULB TEMPERATURE 6 °C.
3) THE SPECIFICATIONS GIVEN IN THE TABLE WILL BE SUBJECT TO THE MODIFICATIONS ON PRODUCT DESIGN BY THE MANUFACTURER. NO NOTICE WILL BE FURTHER GIVEN.

COMPONENT DATA - R410A COOLING ONLY

A5MACY 230E - A5MACY 1380E VRA

MODEL				A5MACY 230E	A5MACY 460E	A5MACY 690E
EVAPORATOR	TYPE			BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER
	PLATE MATERIAL			STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
	WATER VOLUME		$m^3(ft^3)$	0.00656 (0.23166)	0.00656 (0.23166) x2	0.00656 (0.23166) x3
	NOMINAL WATER FLOW		L/s (US GPM)	3.2 (50.19)	3.2 (50.19) x2	3.2 (50.19) x3
WATER LINE	PIPING	INSTALLATION PIPE CONNECTION	mm (in)	Rc2	Rc2	Rc2
	PIPE SIZE		mm/in	≥50.8 (≥2)	≥76.2 (≥3)	≥76.2 (≥3)
	WATER PRESSURE DROP		kPa(psi)	37 (5.4)	37 (5.4) x2	37 (5.4) x3
CONDENSER COIL	TYPE			FIN-TUBE	FIN-TUBE	FIN-TUBE
	TUBE	MATERIAL		COPPER	COPPER	COPPER
		TYPE		INNER GROOVE	INNER GROOVE	INNER GROOVE
		WALL THICKNESS	mm (in)	0.71 (0.028)	0.71 (0.028)	0.71 (0.028)
		OUTER DIAMETER	mm (in)	7.94 (0.3126)	7.94 (0.3126)	7.94 (0.3126)
	FIN	MATERIAL		ALUMINIUM	ALUMINIUM	ALUMINIUM
		TYPE		WHITE FIN	WHITE FIN	WHITE FIN
		THICKNESS	mm (in)	0.115 (0.00452)	0.115 (0.00452)	0.115 (0.00452)
		ROWS		4	4	4
		FIN PER INCH		13	13	13
	TOTAL FACE AREA		$m^2(ft^2)$	3.43 (36.9)	3.43 (36.9) x2	3.43 (36.9) x3
CASING	MATERIAL			ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL
	FINISH			Epoxy Polyester Power	Epoxy Polyester Power	Epoxy Polyester Power
	THICKNESS		mm (in)	0.8 (0.031)	0.8 (0.031)	0.8 (0.031)
CONDENSER FAN	TYPE/DRIVE			AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER
	QUANTITY			2	4	6
	BLADE MATERIAL			ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL
	BLADE DIAMETER		mm (in)	750 (29.53)	750 (29.53)	750 (29.53)
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	1.4x2	1.4x4	1.4x6
	RATED INPUT POWER		W	790x2	790x4	790x6
	RATED OUTPUT POWER		W	N/A	N/A	N/A
	MOTOR POLES			8	8	8
	AIR VOLUME		CMH (CFM)	12000x2	12000x4	12000x6
COMPRESSOR	TYPE			HERMETIC SCROLL	HERMETIC SCROLL	HERMETIC SCROLL
	QUANTITY			3	6	9
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	18.7 / 9.1 / 12.5	18.7x2 / 9.1x2 / 12.5x2	18.7x3 / 9.1x3 / 12.5x3
	RATED INPUT POWER		W	10800 / 5305 / 7745	10800x2 / 5305x2 / 7745x2	10800x3 / 5305x3 / 7745x3
	MAXIMUM STARTING CURRENT		A	124 / 70.4 / 87	124x2 / 70.4x2 / 87x2	124x3 / 70.4x3 / 87x3
	PROTECTION DEVICES			H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR
REFRIGERANT	TYPE			R410A	R410A	R410A
	CONTROL			EXV	EXV	EXV
	REFRIGERANT CHARGE		kg (lb)	19.6 (43.21)	39.2 (86.42)	58.8 (129.63)

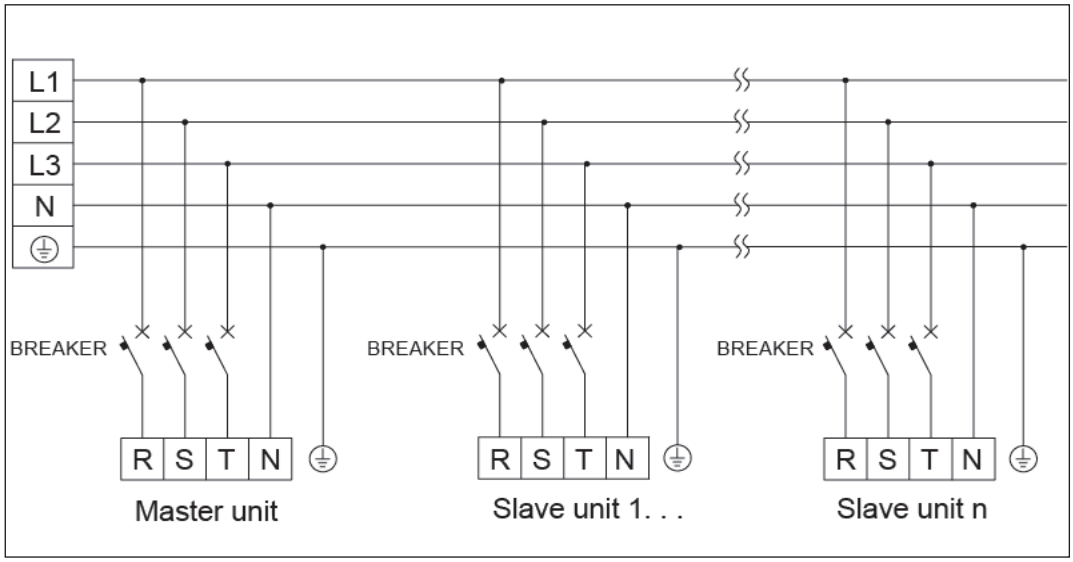
COMPONENT DATA - R410A COOLING ONLY

A5MACY 230E - A5MACY 1380E VRA

MODEL				A5MACY 920E	A5MACY 1150E	A5MACY 1380E
EVAPORATOR	TYPE			BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER	BRAZED PLATE HEAT EXCHANGER
	PLATE MATERIAL			STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
	WATER VOLUME		$m^3(ft^3)$	0.00656 (0.23166) x4	0.00656 (0.23166) x5	0.00656 (0.23166) x6
	NOMINAL WATER FLOW		L/s (US GPM)	3.2 (50.19) x4	3.2 (50.19) x5	3.2 (50.19) x6
WATER LINE	PIPING	INSTALLATION PIPE CONNECTION	mm (in)	Rc2	Rc2	Rc2
	PIPE SIZE		mm/in	≥101.6 (≥4)	≥101.6 (≥4)	≥127 (≥5)
	WATER PRESSURE DROP		kPa(psi)	37 (5.4) x4	37 (5.4) x5	37 (5.4) x6
CONDENSER COIL	TYPE			FIN-TUBE	FIN-TUBE	FIN-TUBE
	TUBE	MATERIAL		COPPER	COPPER	COPPER
		TYPE		INNER GROOVE	INNER GROOVE	INNER GROOVE
		WALL THICKNESS	mm (in)	0.71 (0.028)	0.71 (0.028)	0.71 (0.028)
		OUTER DIAMETER	mm (in)	7.94 (0.3126)	7.94 (0.3126)	7.94 (0.3126)
	FIN	MATERIAL		ALUMINIUM	ALUMINIUM	ALUMINIUM
		TYPE		WHITE FIN	WHITE FIN	WHITE FIN
		THICKNESS	mm (in)	0.115 (0.00452)	0.115 (0.00452)	0.115 (0.00452)
		ROWS		4	4	4
		FIN PER INCH		13	13	13
	TOTAL FACE AREA		$m^2(ft^2)$	3.43 (36.9) x4	3.43 (36.9) x5	3.43 (36.9) x6
CASING	MATERIAL			ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL
	FINISH			Epoxy Polyester Power	Epoxy Polyester Power	Epoxy Polyester Power
	THICKNESS		mm (in)	0.8 (0.031)	0.8 (0.031)	0.8 (0.031)
CONDENSER FAN	TYPE/DRIVE			AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER	AXIAL BIG VANE AND LOW NOISE BLOWER
	QUANTITY			8	10	12
	BLADE MATERIAL			ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL	ELECTRO-GALVANIZED MILD STEEL
	BLADE DIAMETER		mm (in)	750 (29.53)	750 (29.53)	750 (29.53)
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	1.4x8	1.4x10	1.4x12
	RATED INPUT POWER		W	790x8	790x10	790x12
	RATED OUTPUT POWER		W	N/A	N/A	N/A
	MOTOR POLES			8	8	8
	AIR VOLUME		CMH (CFM)	12000x8	12000x10	12000x12
COMPRESSOR	TYPE			HERMETIC SCROLL	HERMETIC SCROLL	HERMETIC SCROLL
	QUANTITY			12	15	18
	POWER SUPPLY		V/Ph/Hz	380 - 415 / 3 / 50	380 - 415 / 3 / 50	380 - 415 / 3 / 50
	RATED RUNNING CURRENT		A	18.7 x4 / 9.1 x4 / 12.5 x4	18.7 x5 / 9.1x5 / 12.5x5	18.7x6 / 9.1x6 / 12.5x6
	RATED INPUT POWER		W	10800 x4 / 5305 x4 / 7745 x4	10800x5 / 5305x5 / 7745x5	10800x6 / 5305x6 / 7745x6
	MAXIMUM STARTING CURRENT		A	124 x4 / 70.4 x4 / 87 x4	124x5 / 70.4x5 / 87x5	124x6 / 70.4x6 / 87x6
	PROTECTION DEVICES			H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR	H/L PRESSURE SWITCH/ THERMAL AND CURRENT OVERLOAD PROTECTOR
REFRIGERANT	TYPE			R410A	R410A	R410A
	CONTROL			EXV	EXV	EXV
	REFRIGERANT CHARGE		kg (lb)	78.4 (172.84)	98 (216.05)	117.6 (259.26)

3. ELECTRICAL DATA

POWER SOURCE WIRING DIAGRAM



R410A UNITS ELECTRIC PARAMETER

MODEL				A5MAC 210D	A5MAC 230D	A5MACY 230E
NOMINAL TOTAL INPUT OWER (COOLING)			W	18,800	19,200	26,700
NOMINAL RUNNING CURRENT (COOLING)			A	36	36.9	48.4
POWER SOURCE			V/Ph/Hz	380-415/3/50		
POWER SOURCE WIRE	MAIN WIRE (R/S/T)	SECTION AREA	mm2	≥10	≥10	≥10
		QTY		3	3	3
	NEUTRAL WIRE	SECTION AREA	mm2	≥6	≥6	≥6
		QTY		1	1	1
	EARTH WIRE	SECTION AREA	mm2	≥10	≥10	≥10
		QTY		1	1	1

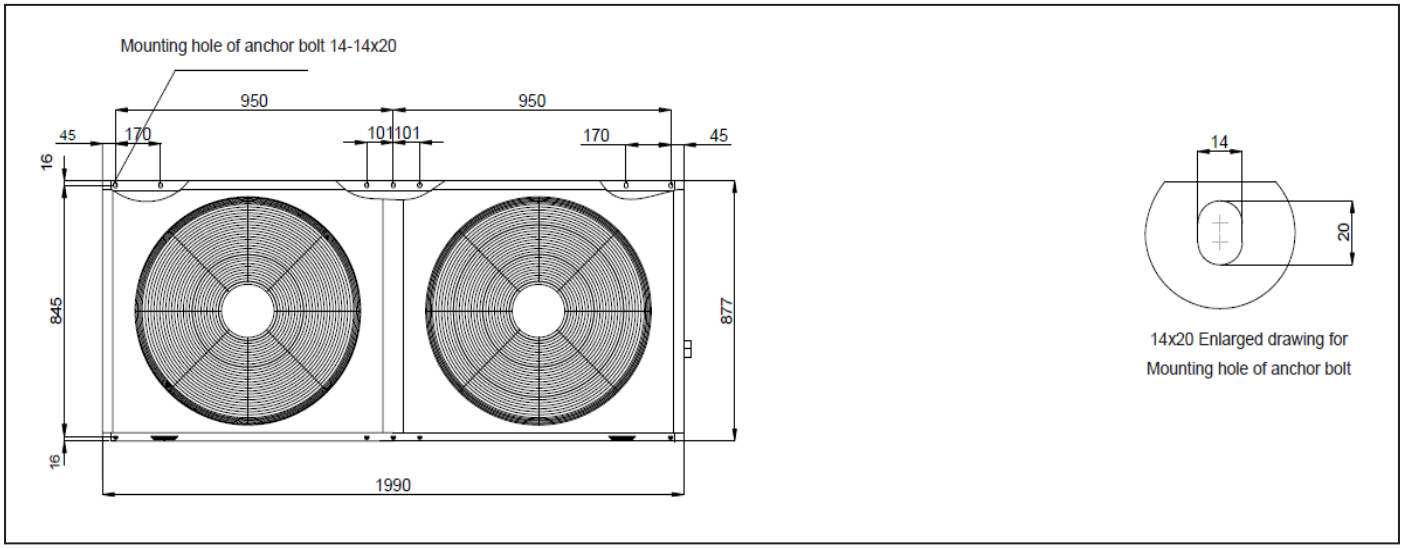
NOTE:
ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.

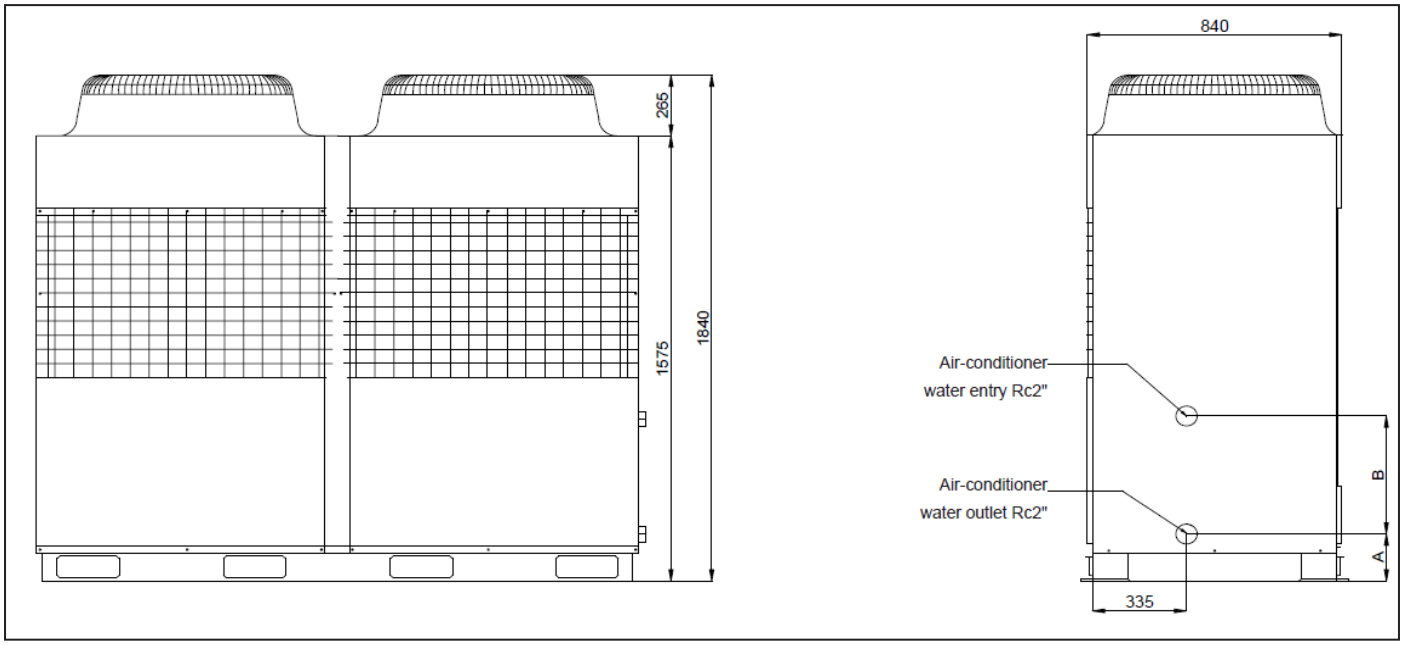
4. SOUND DATA

MODEL	1/1 Octave Sound Pressure Level (dB, ref 20μPa) (COOL)								(dBA)
	63Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	
A5MAC 210D	43.9	50.1	54	57.7	56.2	54.2	50.5	40.7	63.7
A5MAC 230D	45.3	52.6	55.5	59.6	59.8	57.7	50.2	41.2	65.8

NOTE:
ACCORDING TO: ISO3744:1994 “ACOUSTICS-DETERMINATION OF SOUND POWER LEVELS OF NOISE SOURCES USING SOUND PRESSURE-ENGINEERING METHOD IN AN ESSENTIAL FREE FIELD OVER A REFLECTING PLANE”

MODEL: A5MAC 210D / A5MAC 230D / A5MACY 230E



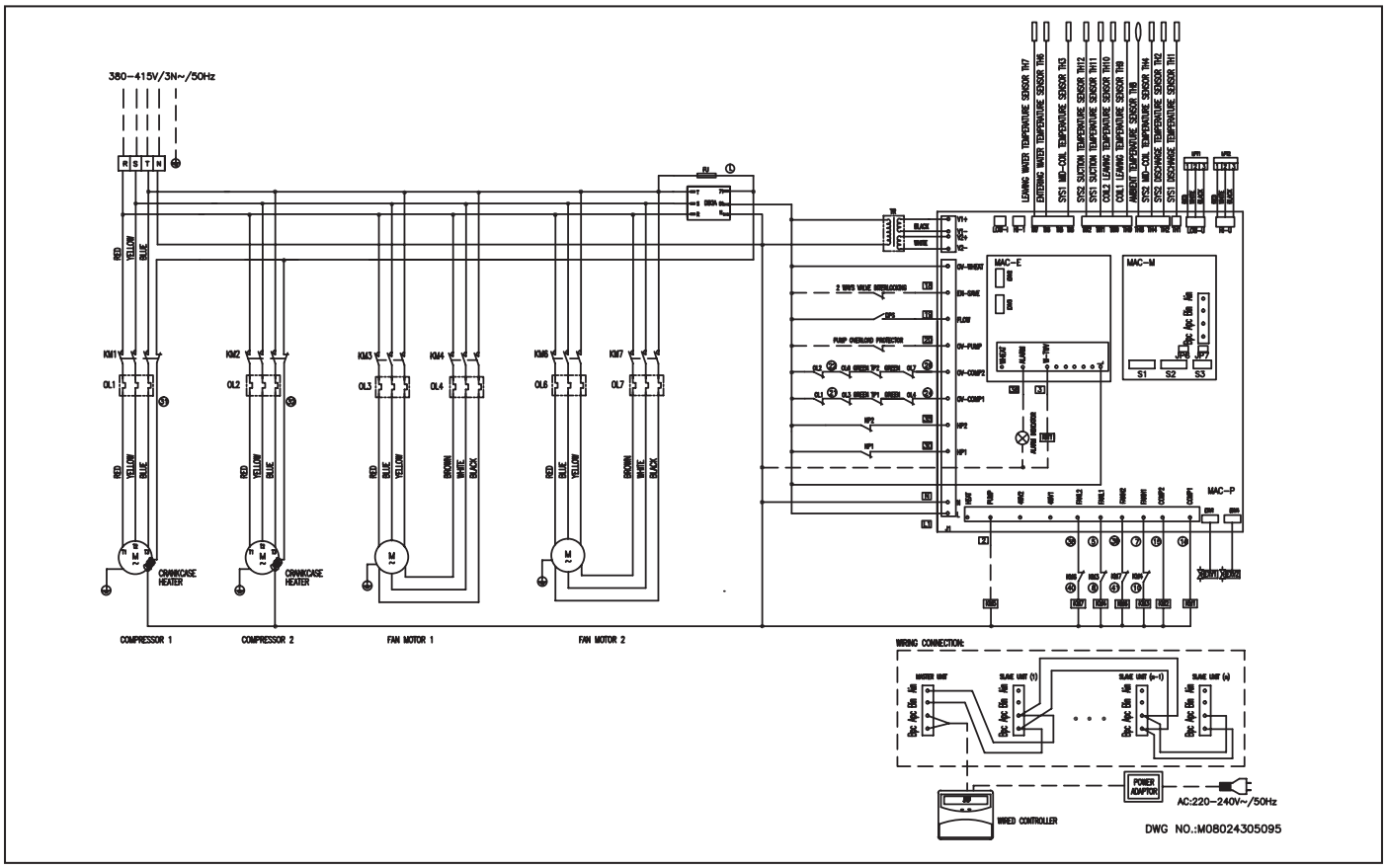


Unit:mm

Model	A (mm)	B (mm)
A5MAC 210D	171	369
A5MAC 230D	171	369
A5MACY 230E	165	390

6. WIRING DIAGRAM

MODEL: A5MAC 210D / 230D (MASTER UNIT)



SYMBOL DESCRIPTION:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
DB3A	PHASE PROTECTOR	FU	FUSE
KM	CONTACTOR	EXV	ELECTRONIC EXPANSIVE VALVE
HP	HIGH PRESSURE SWITCH	DPS	PRESSURE SWITCH
LPT	LOW PRESSURE SENSOR	OL	OVERLOAD PROTECTOR
TR	TRANSFORMER	TP	MOTOR TEMPERATURE PROTECTOR

OVERLOAD PROTECTOR SETTING:

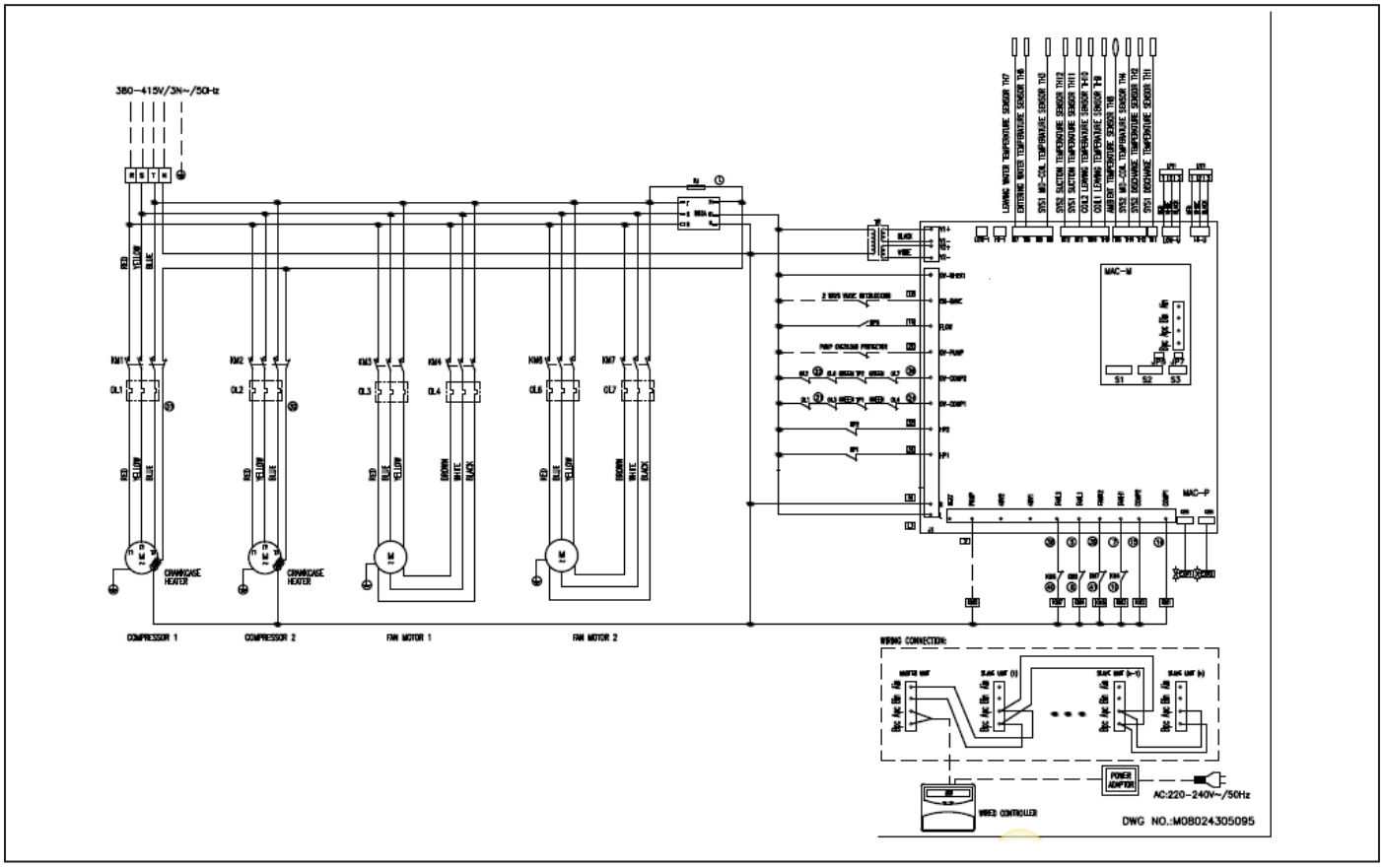
MODEL	OL1	OL2	OL3	OL4	OL6	OL7
210	27A	24A	2.8A	1.9A	2.8A	1.9A
230	27A	27A	2.8A	1.9A	2.8A	1.9A

SWITCH SETTING:

MODEL	S1.1	S1.2	S1.3	S1.4	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
210	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
230	OFF	ON	OFF	ON	OFF	ON	OFF	ON	ON	OFF

NOTE:
1. —— —— FIELD WIRING
2. ———— FACTORY WIRING
3. S1.5~S1.8: SLAVE UNIT QUANTITY SETTING, S2.4~2.8: ADDRESS SETTING.
4. S2.1 SETTING: THE MAIN UNIT IS SET TO ON, THE SLAVE IS SET TO OFF.
5. IF 2 WAYS VALVE INTERLOCKING FUNCTION IS PERMITTED, S1.1 IS SET TO ON.
6. JP6 AND JP7 IS SET TO OFF, IF THE LAST SLAVE UNIT, CLOSED JP6.
7. KM5: WATER PUMP CONTROL CONTACTOR, CUSTOMER INSTALLATION.
8. KM11: WATER SYSTEM 2 WAYS VALVE CONTROL CONTACTOR, CUSTOMER INSTALLATION.
9. THE SLAVE UNIT DO NOT HAVE MAC-E PCB AND WIRED CONTROLLER.

MODEL: A5MAC 210D / 230D (SLAVE UNIT)



SYMBOL DESCRIPTION:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
DB3A	PHASE PROTECTOR	FU	FUSE
KM	CONTACTOR	EXV	ELECTRONIC EXPANSIVE VALVE
HP	HIGH PRESSURE SWITCH	DPS	PRESSURE SWITCH
LPT	LOW PRESSURE SENSOR	OL	OVERLOAD PROTECTOR
TR	TRANSFORMER	TP	MOTOR TEMPERATURE PROTECTOR

OVERLOAD PROTECTOR SETTING:

MODEL	OL1	OL2	OL3	OL4	OL6	OL7
210	27A	24A	2.8A	1.9A	2.8A	1.9A
230	27A	27A	2.8A	1.9A	2.8A	1.9A

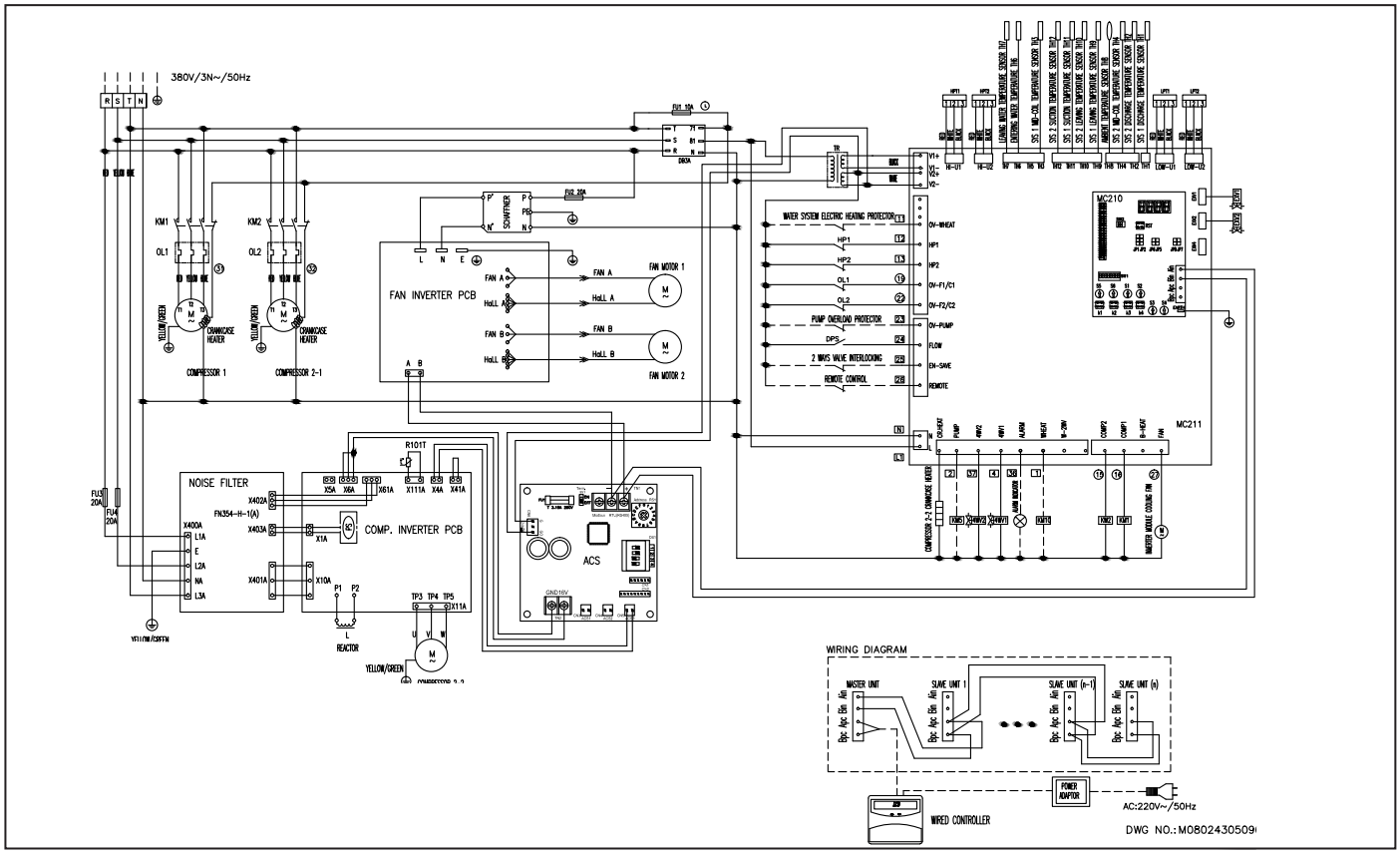
SWITCH SETTING:

MODEL	S1.1	S1.2	S1.3	S1.4	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
210	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
230	OFF	ON	OFF	ON	OFF	ON	OFF	ON	ON	OFF

NOTE:

1. —— —— FIELD WIRING
2. ———— FACTORY WIRING
3. S1.5–S1.8: SLAVE UNIT QUANTITY SETTING, S2.4–2.8: ADDRESS SETTING.
4. S2.1 SETTING: THE MAIN UNIT IS SET TO ON, THE SLAVE IS SET TO OFF.
5. IF 2 WAYS VALVE INTERLOCKING FUNCTION IS PERMITTED, S1.1 IS SET TO ON.
6. JP6 AND JP7 IS SET TO OFF, IF THE LAST SLAVE UNIT, CLOSED JP6.
7. KM5: WATER PUMP CONTROL CONTACTOR, CUSTOMER INSTALLATION.
8. KM11: WATER SYSTEM 2 WAYS VALVE CONTROL CONTACTOR, CUSTOMER INSTALLATION.
9. THE SLAVE UNIT DO NOT HAVE MAC–E PCB AND WIRED CONTROLLER.

MODEL: A5MACY 230E VRA



SYMBOL DESCRIPTION:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
DB3A	PHASE PROTECTOR	FU	FUSE
4WV	4-WAY VALVE	EXV	ELECTRONIC EXPANSION VALVE
KM	CONTACTOR	DPS	PRESSURE SWITCH
HP	HIGH PRESSURE SWITCH	OL	OVERLOAD PROTECTOR
LPT	LOW PRESSURE SENSOR	TR	TRANSFORMER
HPT	HIGH PRESSURE SENSOR	R101T	TEMPERATURE SENSOR
TP	MOTOR TEMPERATURE PROTECTOR		

JUMPER JP5/JP6/JP7/JP8 SETTING:

MODEL	JP5	JP6	JP7	JP8
MASTER UNIT	CLOSE	CLOSE	OPEN	OPEN
SLAVE UNIT	OPEN	OPEN	OPEN	OPEN
LAST SLAVE UNIT	OPEN	OPEN	CLOSE	CLOSE
SINGLE UNIT	OPEN	OPEN	OPEN	OPEN

OVERLOAD PROTECTOR SETTING:

OL1	OL2	S4	S5	S6
27A	13.5A	0	2	0

ACS COMMUNICATION BOARD DIP SWITCH SETTING

DS1.1	DS1.2	DS1.3	DS1.4	RS1	SS1
ON	ON	OFF	OFF	E	OFF

MC210 DIP SWITCH SW SETTING

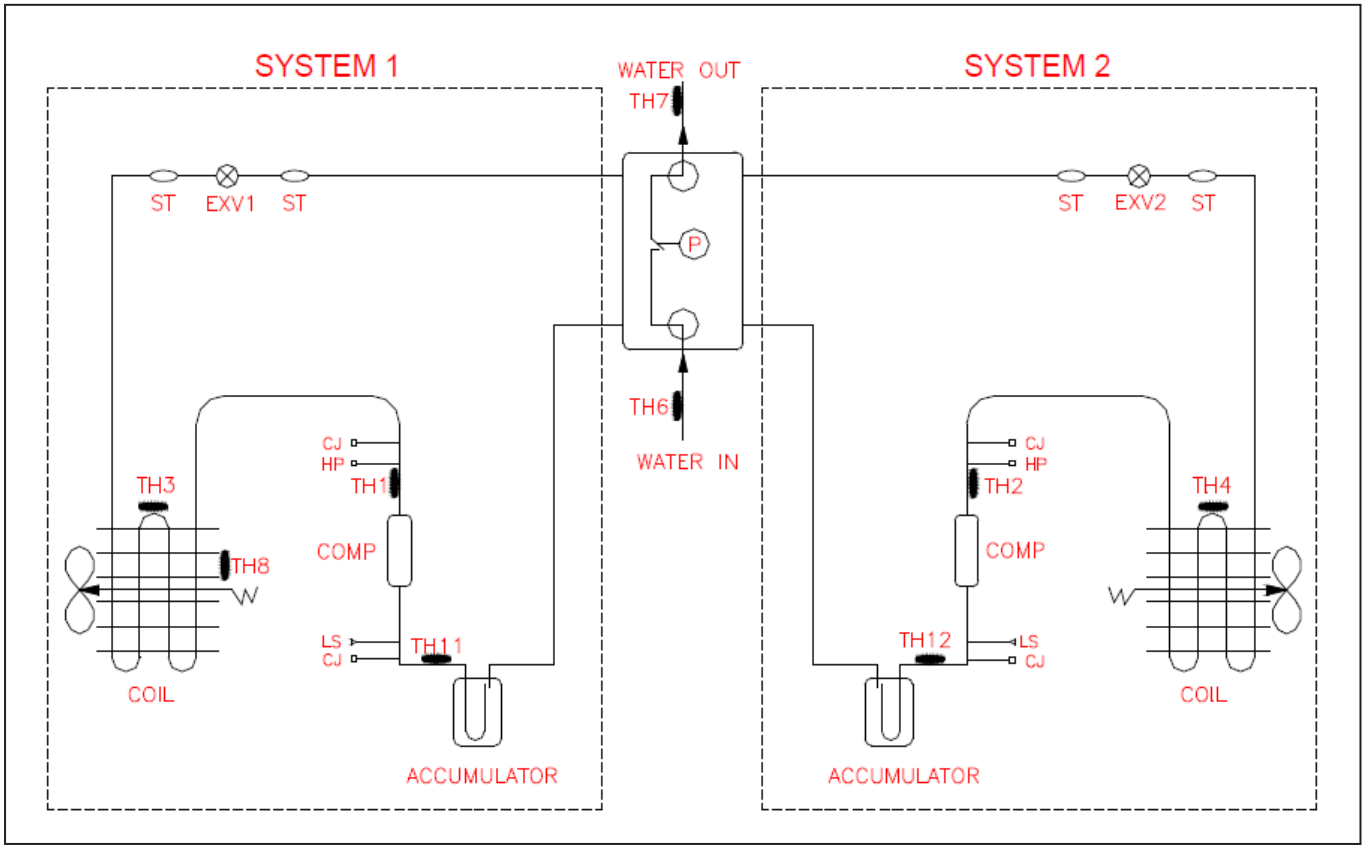
SW	1.2	1.3	1.4	1.5	1.6	1.7	1.8	2.1	2.2
/	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

NOTE:

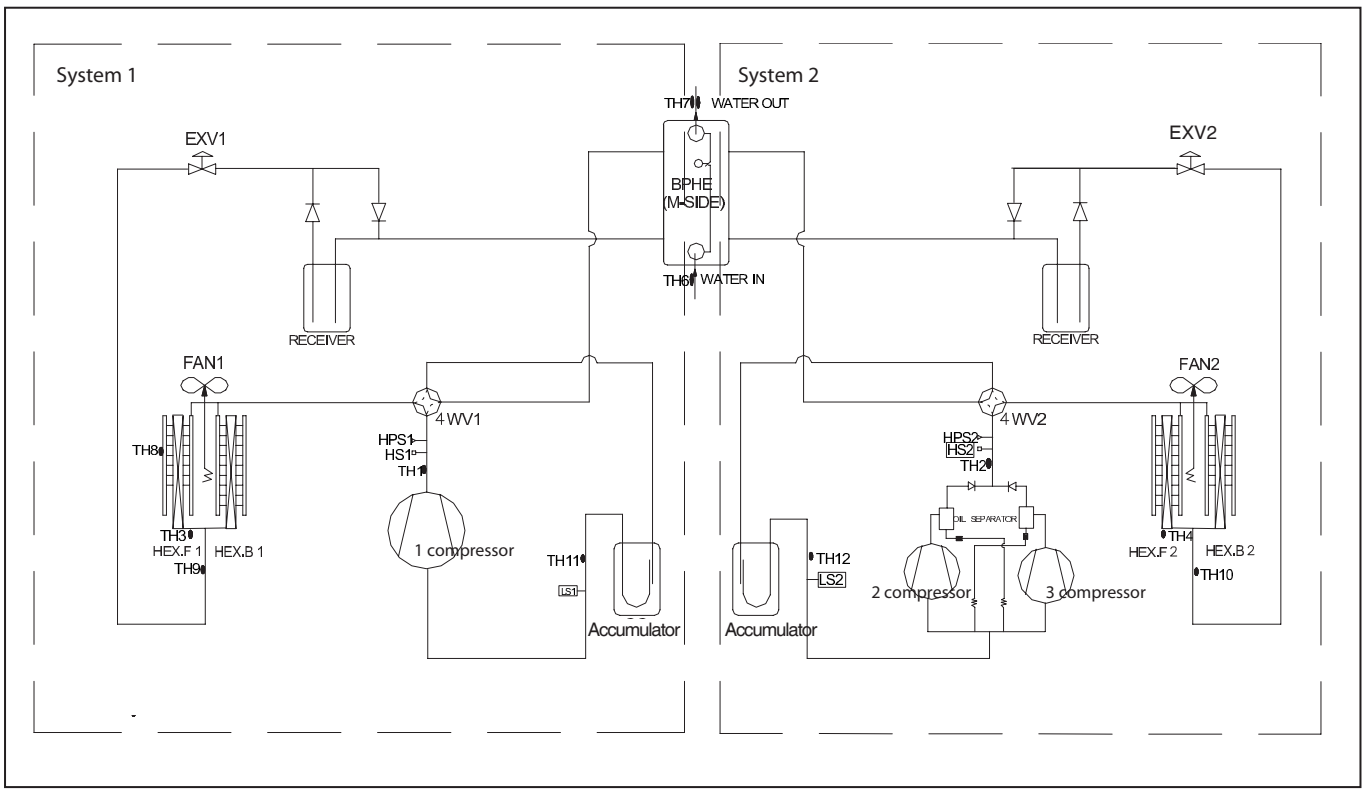
1. – – – FIELD WIRING
2. ——— FACTORY WIRING
3. S1,S2:ADDRESS SETTING,S3:SLAVE UNIT QUANTITY SETTING,SITE SETTING AND FACTORY SETTING ARE SET TO 0
   JUMPER JP1 AND JP2 ABOVE TWO PIN ARE SET TO CLOSE;
   SW1 IS MASTER AND SLAVE SETTING, MASTER IS SET TO ON, AND SLAVE IS SET TO OFF
4. WHEN USING AUTO START FUNCTION SW1.3 IS SET TO ON, FACTORY SETTING IS OFF
5. KM5:WATER PUMP CONTROL CONTACTOR,CUSTOMER INSTALLATION
6. KM10:HEATER CONTROL CONTACTOR,CUSTOMER INSTALLATION
7. 2-WAY VALVE CONTROL AND REMOTE CONTROL SWITCH
8. WIRING CONNECTION OF MASTER UNIT AS RIGHT DIAGRAM,THE SLAVE UNIT DOESN'T HAVE WIRED CONTROLLER.
9. □:NUMBER INSIDE IS TERMINAL BLOCK LINE 0: NUMBER LINE IS CONTROL LINE

7. REFRIGERANT CIRCUIT

MODEL: A5MAC-210D/230D



MODEL: A5MACY-230E VRA Variable Refrigerant Air-cond



A5MAC 210/230 D

Error Code and Running Status

■ Characters displayed by the LED indicator are explained in the following table

Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning
0	0/O	2	2	4	4	6	6	8	8	A	A
1	1	3	3	5	5	7	7	9	9	b	B

Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning
C	C	E	E	H	H	n	N	r	R	U	U
d	D	F	F	L	L	P	P	t	T	y	Y

■ Codes representing normal operation statuses are explained in the following table

Code	Status	Code	Status	Code	Status
nULL	NULL: standby	CSP	CSP: shutdown during cooling	HEAt	HEAT: heating
rESt	REST: reset	dEF	DEF: defrosting	HSP	HSP: shutdown during heating
COOL	COOL: cooling				

S/N	Error Code	Description	Possible causes for the failure	Solution
1	**Wire controller F6 alarm**	**Communication failure between wire controller and master unit**	1. A/B communication lines of the wire controller and master unit are incorrectly connected.	Check and troubleshoot the communication lines
			2. The communication lin has broken off.	
			3. Communication wires between the wire controller and the master unit cross over strong-current cables.	Rewire the unit, use shielded communication lines or keep the communication lines away from strong current cables.
			4. Control panel of the master unit is not powered on.	check and troubleshoot the control panel
			5. The communication line between the master unit and the wire controller is too long.	1. Use shield lines
				2. Short the JP7 jumper on the control panel
			6. Can communicate with the monitoring software while the wire controller sends out the alarm F6.	Remove the R44 resistor on the wire controller or replace the wire controller.
			7. Failure of communication ports on the control panel of the master unit.	Replace
			8. Failure of communication ports on the wire controller	Replace
			9. Incorrect address setting for the master unit	Reset the S2 DIP switch of the master unit according to the technical specifications.
2	The LED indicator of the unit displays ECXX and the wire controller displays XX (XX represents 00 ~ 14)	Communication failure of Slave Unit No. XX	1. Communication line of Slave Unit No. XX has broken off.	Check and troubleshoot the communication lines.
			2. The control panel of Slave Unit No. XX is not powered on.	Check and troubleshoot the control panel
			3. Incorrect DIP address setting for the slave unit	Reset the address of all slave units and check that there is no duplicte address.
			4. The number of slave unit is set incor-rectly for the master unit	Reset the number of slave units and check that the number macth with all the addresses.
			5. The PC communication port of the slave unit has broken down.	1. Exchange positions of the two 485 on Slave Unit No. XX
				2. Replace the control panel
			6. The communication line of Slave Unit No. XX is incorrecly connected.	Connect the communication line of Slave Unit No. XX to Ap/Bpc port.

S/N	Error Code	Description	Possible causes for the failure	Solution
3	**The LED indicator of the unit displays EC78**	**Communication failure for all slave units**	1. The Bin/Ain communication line of th master unit has broken off	Reconnect the communication line to the Bin/ Ain port and screw down the wire terminal.
			2. One of the A/B communication lines is connected incorrectly	Check the communication line.
			3. The Bin/Ain port of th master unit has broken down.	Replace the control panel of the master unit.
4	The LED indicator of the unit displays ER 16 and the wire controller displays 16	Compressor overload in #1	Over current in the compressor has triggered the overload protector.	1. Check whether the electric current parameter of the overload protector is configured correctly by referring to the electric circuit.
				2. Check whether the resistor of the malfunctioned compressor meets specification requirements.
		Fan overload in #1	Over current in the fan has triggered the overload protector.	1. Check whether the electric current parameter of the overload protector is configured correctly by referring to the electric circuit.
				2. Check whether the resistor of the malfunctioned fan meets specification requirements.
5	The LED indicator of the unit displays ER 17 and the wire controller displays 17	Compressor overload in #2	Over current in the compressor has triggered the overload protector.	1. Check whether the electric current parameter of the overload protector is configured correctly by referring to the electric circuit.
				2. Check whether the resistor of the malfunctioned compressor meets specification requirements.
		Fan overload in #2	Over current in the fan has triggered the overload protector.	1. Check whether the electric current parameter of the overload protector is configured correctly by referring to the electric circuit.
				2. Check whether the resistor of the malfunctioned fan meets specification requirements.
6	The LED indicator of the unit displays ER 18 and the wire controller displays 18	Pump overload	Over current in the pump has triggered the overload protector	1. Check whether the electric current parameter of the overload protector is configured correctly for the pump by referring to the electric circuit.
				2. Check whether the resistor of the malfunctioned pump meets specification requirements.
7	The LED indicator of the unit displays ER 19 and the wire controller displays 19	Alarm from the differential water pressure switch	1. The pump model is too small	Replace the pump
			2. The water filter is clogged up	Clean the water filter
			3. Air in the water system is not completely discharged	Turn on the pump to further discharge residual air
			4. The differential water pressure swicth is clogged up	Repair or replace the differential water pressure switch
			5. The differential waterpressure switch has broken down	Replace the differential water pressure switch.
			6. Pressure drop in the water system is too sharp and unbalanced	Optimize the water system
			7. Other parts in the water system are clogged up	Check and repair

S/N	Error Code	Description	Possible causes for the failure	Solution
8	The LED indicator of the unit displays ER20 and the wire controller displays 20	Low pressure of #1	1. The motor has broken down (cooling)	Check and troubleshoot
			2. Circulatory air is shorted (cooling)	
			3. The heat exchanger needs cleaning (cooling)	
			4. The fluorine-side filter is clogged up	Check and replace
			5. The water temperature is too high (heating)	Tune down the water temperature
			6. The water flow is too small (heating)	Check and troubleshoot
			7. The water filter is clogged up (heating)	Clean the water filter
			8. The ambient temperature is too high (cooling)	OFF
			9. Too much refrigerant	Release a proper amount of refrigerant
			10. Failure of high-voltage modular output port	Replace the module
			11. The switch has broken down.	Replace pressure switch
9	The LED indicator of the unit displays ER21 and the wire controller displays 21	Low pressure of #1	1. Malfunction of heat exchanger during heating	Check and troubleshoot the outdoor unit
			2. Malfunction of motor during heating	Check and troubleshoot the outdoor motor
			3. Insufficient refrigerant or leakage	Check and replenish refrigerant
			4. Failure of low-volatge modular input port	Replace the module
			5. The low pressure sensor has broken down	Replace the pressure sensor
10	The LED indicator of the unit displays ER24 and the wire controller displays 24	High pressure of #2	1. The motor has broken down (cooling)	Check and troubleshoot
			2. Circulatory air is shorted (cooling)	
			3. The heat exchanger needs cleaning (cooling)	
			4. The fluorine-side filter is clogged up	Check and replace
			5. The water temperature is too high (heating)	Tune down the water temperature
			6. The water flow is too small (heating)	Check and troubleshoot
			7. The water filter is clogged up (heating)	Clean the water filter
			8. The ambient temperature is too high (cooling)	OFF
			9. Too much refrigerant	Release a proper amount of refrigerant
			10. Failure of high-voltage modular output port	Replace the module
			11. The switch has broken down.	Replace pressure switch

S/N	Error Code	Description	Possible causes for the failure	Solution
11	The LED indicator of the unit displays ER25 and the wired controller displays 25	Temperature of inlet/ outlet water is too low	1. The temperature of return water is set too low	Change the temperature setting for return water
			2. The water flow is too small, resulting in a large pressure drop	Check the water system (see Item 7 in the table)
12	The LED indicator of the unit displays ER26 and the wired controller displays 26	Overload of electric heater in water system	1. Check whether the water system is equipped with an electric heater	Short the overload switch for the electric heater if there is no electric heater in the water system.
			2. The heating wire of the electric heater in the water system is shorted.	Replace the electric heater of the water system.
13	The LED indicator of the unit displays ER27 and the wired controller displays 27	Ambient temperature is too high/low	1. The ambient temperature sensor has broken down	Replace the ambient temperature sensor
			2. The ambient temperature is too high/ low	OFF
14	The LED indicator of the unit displays ER29 and the wired controller displays 29	Superheat of #1 is too low	1. The low pressure sensor or temperature sensor has broken down	Replace
			2. The electronic expansion valve fails to provide proper control	Upgrade the modular program
15	The LED indicator of the unit displays ER31	Communication failure between the master unit and slave units	1. Communication line of the slave unit has broken off	Check and troubleshoot the communication lines
			2. Incorrect DIP address setting for the slave unit	Reset the addresses of all salve units and check that there is no duplicate address
			3. The number of slave unit is set incorrectly for the master unit	Reset the number of slav units and check that the number match with all the addresses
			4. The PC communication port of the slave unit has broken down	1. Exchnage position of the two 485 on the slave unit
				2. Replace the control panel of the unit
			5. The communication line of the slave unit is incorrectly connected	Connect the communication line of the slave unit to the Apc/Bpc port
16	The LED indicator o the unit displays ER32 and the wired controller displays 32	Temperature of return air in #1 is too high (40°C)	1. The slider of the 4-way valve is jammed in the middle	Restart the unit and slap slightly on both sides of the 4-way valve. If the problem persists, replace the 4-way valve.
			2. The winding of the 4-way valve operates abnormally	Replace the winding
			3. The temperature of discharge air is too high and has triggered the racing protector of the compressor	(see item 17 in the table)

S/N	Error Code	Description	Possible causes for the failure	Solution
17	The LED indicator o the unit displays ER33 and the wired controller displays 33	Temperature of discharge air in #1 is too high	1. The fan motor has broken down (cooling)	Check and troubleshoot the unit
			2. Circulatory air is shorted (cooling)	
			3. The heat exchanger needs cleaning (cooling)	
			4. The electronic expansion valve is not opened as expected (heating)	Check and troubleshoot the electronic expansion valve
			5. The water temperature is too high	Change the setting for return water temperature (to be performed by service personnel)
			6. Insufficient refrigerant or leakage	Replenish a proper amount of refrigerant
			7. Incomplete defrosting	Change the defrosting parameter (to be performed by service personnel)
18	The LED indicator of the unit displays ER34 and the wired controller displays 34	Temperature of return air in #2 is too high (40°C)	1. The slider of the 4-way valve is jammed in the middle	Restart the unit and slap slightly on both sides of the 4-way valve. If the problem persists, replace the 4-way valve.
			2. The winding of the 4-way 18 valve operates abnormally	Replace the winding
			3. The temperature of discharge air is too high and has triggered the racing protector of the compressor	(see Item 19 in the table)
19	The LED indicator of the unit displays ER35 and the wired controller displays 35	Temperature of discharge air in #2 is too high	1. The fan motor has broken down (cooling)	Check and troubleshoot the unit
			2. Circulatory air is shorted (cooling)	
			3. The heat exchanger needs cleaning (cooling)	
			4. The electronic expansion valve is not opened as expected (heating)	Check and troubleshoot the electronic expansion valve
			5. The water temperature is too high	Change the setting for return water temperature (to be performed by service personnel)
			6. Insufficient refrigerant or leakage	Replenish a proper amount of refrigerant
			7. Incomplete defrosting	Change the defrosting parameter (to be performed by service personnel)
20	The LED indicator of the unit displays ER36 and the wired controller displays 36	Low pressure of #2	1. Malfunction of heat exchanger during heating	Check and troubleshoot the outdoor unit
			2. Malfunction of motor during heating	"Check and troubleshoot the outdoor motor"
			3. Insufficient refrigerant or leakage	Check and replenish refrigerant
			4. Failure of low-voltage modular input port	Replace the module
			5. The low pressure sensor has broken down	Replace the pressure sensor

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S/N	Error Code	Description	Possible causes for the failure	Solution
21	"The LED indicator of the unit displays ER37 and the wired controller displays 37"	Superheat of #2 is too low	1. The low pressure sensor or temperature sensor has broken down	Replace
			2. The electronic expansion valve fails to provide proper control	Upgrade the modular program
22	The LED indicator of the unit displays ER38 and the wired controller displays 38	Refrigerant leakage in #1	1. Low pressure sensor failure	Replace the low pressure sensor
			2. Insufficient refrigerant	Add refrigerant
23	"The LED indicator of the unit displays ER39 and the wired controller displays 39"	Refrigerant leakage in #2	1. Low pressure sensor failure	Replace the low pressure sensor
			2. Insufficient refrigerant	Add refrigerant
24	The LED indicator of the unit displays ER40	TH1 temperature sensor failure	1. TH1 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH1 temperature sensor is shorted/ open	Test whether the resistance of TH1 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
25	The LED indicator of the unit displays ER41	TH2 temperature sensor failure	1. TH2 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH2 temperature sensor is shorted/ open	Test whether the resistance of TH2 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
26	The LED indicator of the unit displays ER42	TH3 temperature sensor failure	1. TH3 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH3 temperature sensor is shorted/ open	Test whether the resistance of TH3 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
27	The LED indicator of the unit displays ER43	TH4 temperature sensor failure	1. TH4 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH4 temperature sensor is shorted/ open	Test whether the resistance of TH4 sensor meets specification requirements/replace if not
			"3. There is something wrong with the test circuit of the temperature sensor in the control module"	Replace the control module

A5MAC 210/230 D

S/N	Error Code	Description	Possible causes for the failure	Solution
28	The LED indicator of the unit displays ER45	TH6 temperature sensor failure	1. TH6 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH6 temperature sensor is shorted/ open	Test whether the resistance of TH6 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
29	The LED indicator of the unit displays ER46	TH7 temperature sensor failure	1. TH7 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH7 temperature sensor is shorted/ open	Test whether the resistance of TH7 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
30	The LED indicator of the unit displays ER47	TH8 temperature sensor failure	1. TH8 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH8 temperature sensor is shorted/ open	Test whether the resistance of TH8 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
31	The LED indicator of the unit displays ER48	TH9 temperature sensor failure	1. TH9 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH9 temperature sensor is shorted/ open	Test whether the resistance of TH9 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
32	The LED indicator of the unit displays ER49	TH10 temperature sensor failure	1. TH10 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH10 temperature sensor is shorted/ open	Test whether the resistance of TH10 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
33	The LED indicator of the unit displays ER50	TH11 temperature sensor failure	1. TH11 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH11 temperature sensor is shorted/ open	Test whether the resistance of TH11 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
34	The LED indicator of the unit displays ER51	TH12 temperature sensor failure	1. TH12 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH12 temperature sensor is shorted/ open	Test whether the resistance of TH12 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module

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S/N	Error Code	Description	Possible causes for the failure	Solution
35	The LED indicator of the unit displays ER52	Low pressure sensor failure of #2	1. Three lines of the low pressure sensor is incorrectly connected	Reconnect the connecting lines of the low pressure sensor
			2. The low pressure sensor is shorted/ open	Repair or replace the lines of the low pressure sensor
			3. The Low pressure sensor has broken down	Replace the low pressure sensor
			4. There is something wrong with the test circuit of the low pressure sensor in the control module	Replace the control module
36	The LED indicator of the unit displays ER53	Low pressure sensor failure of #1	1. Three lines of the low pressure sensor is incorrectly connected	Reconnect the connecting lines of the low pressure sensor
			2. The low pressure sensor is shorted/ open	Repair or replace the lines of the low pressure sensor
			3. The Low pressure sensor has broken down	Replace the low pressure sensor
			4. There is something wrong with the test circuit of the low pressure sensor in the control module	Replace the control module

A5MACY 230E VRA

Variable Refrigerant Air-cond

Error Code and Running Status

■ Characters displayed by the LED indicator are explained in the following table

Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning
0	0/O	2	2	4	4	6	6	8	8	A	A
1	1	3	3	5	5	7	7	9	9	b	B

Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning	Character	Meaning
C	C	E	E	H	H	n	N	r	R	U	U
d	D	F	F	L	L	P	P	t	T	y	Y

■ Codes representing normal operation statuses are explained in the following table

Code	Status	Code	Status	Code	Status
nULL	NULL: standby	CSP	CSP: shutdown during cooling	HEAt	HEAT: heating
rESt	REST: reset	dEF	DEF: defrosting	HSP	HSP: shutdown during heating
COOL	COOL: cooling				

S/N	Error Code	Description	Possible causes for the failure	Solution
1	Wired controller F6 alarm	Communication failure between wire controller and master unit	1. A/B communication lines of the wire controller and master unit are incorrectly connected.	Check and troubleshoot the communication lines
			2. The communication lin has broken off.	
			3. Communication wires between the wire controller and the master unit cross over strong-current cables.	Rewire the unit, use shielded communication lines or keep the communication lines away from strong current cables.
			4. Control panel of the master unit is not powered on.	check and troubleshoot the control panel
			5. The communication line between the master unit and the wire controller is too long.	1. Use shield lines
				2. Short the JP7 jumper on the control panel
			6. Can communicate with the monitoring software while the wire controller sends out the alarm F6.	Remove the R44 resistor on the wire controller or replace the wire controller.
			7. Failure of communication ports on the control panel of the master unit.	Replace
			8. Failure of communication ports on the wire controller	Replace
			9. Incorrect address setting for the master unit	Reset the S2 DIP switch of the master unit according to the technical specifications.
2	The LED indicator of the unit displays ECXX and the wired controller displays XX (XX represents 00 ~ 14)	Communication failure of Slave Unit No. XX	1. Communication line of Slave Unit No. XX has broken off.	Check and troubleshoot the communication lines.
			2. The control panel of Slave Unit No. XX is not powered on.	Check and troubleshoot the control panel
			3. Incorrect DIP address setting for the slave unit	Reset the address of all slave units and check that there is no duplicte address.
			4. The number of slave unit is set incorrectly for the master unit	Reset the number of slave units and check that the number macth with all the addresses.
			5. The PC communication port of the slave unit has broken down.	1. Exchange positions of the two 485 on Slave Unit No. XX
				2. Replace the control panel
			6. The communication line of Slave Unit No. XX is incorrecly connected.	Connect the communication line of Slave Unit No. XX to Ap/Bpc port.
3	The LED indicator of the unit displays EC78 and the wired ontroller displays 78	Communication failure for all slave units	1. The Bin/Ain communication line of th master unit has broken off	Reconnect the communication line to the Bin/ Ain port and screw down the wire terminal.
			2. One of the A/B communication lines is connected incorrectly	Check the communication line.
			3. The Bin/Ain port of the master unit has broken down.	Replace the control panel of the master unit.
4	The LED indicator of the unit displays ER 16 and the wired ontroller displays 16	Compressor overload in #1	Over current in the compressor has triggered the overload protector.	1. Check whether the electric current parameter of the overload protector is configured correctly by referring to the electric circuit.
				2. Check whether the resistor of the malfunctioned compressor meets specification requirements.
5	The LED indicator of the unit displays ER 17 and the wired ontroller displays 17	Compressor overload in #2	Over current in the fan has triggered the overload protector.	1. Check whether the electric current parameter of the overload protector is configured correctly by referring to the electric circuit.
				2. Check whether the resistor of the malfunctioned compressor meets specification requirements.

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S/N	Error Code	Description	Possible causes for the failure	Solution
6	The LED indicator of the unit displays ER 18 and the wired controller displays 18	Pump overload	Over current in the pump has triggered the overload protector	1. Check whether the electric current parameter of the overload protector is configured correctly for the pump by referring to the electric circuit.
				2. Check whether the resistor of the malfunctioned pump meets specification requirements.
7	The LED indicator of the unit displays ER 19 and the wired controller displays 19	Alarm from the differential water presure switch	1. The pump model is too small	Replace the pump
			2. The water filter is clogged up	Clean the water filter
			3. Air in the water system is not completely discharged	Turn on the pump to further discharge residual air
			4. The differential water pressure swicth is clogged up	Repair or replace the differential water pressure switch
			5. The differential waterpressure switch has broken down	Replace the differential water pressure switch.
			6. Pressure drop in the water system is too sharp and unbalanced	Optimize the water system
			7. Other parts in the water system are clogged up	Check and repair
8	The LED indicator of the unit displays ER20 and the wired controller displays 20	High pressure of #1	1. The motor has broken down (cooling)	Check and troubleshoot
			2. Circulatory air is shorted (cooling)	
			3. The heat exchanger needs cleaning (cooling)	
			4. The fluorine-side filter is clogged up	Check and replace
			5. The water temperature is too high (heating)	Tune down the water temperature
			6. The water flow is too small (heating)	Check and troubleshoot
			7. The water filter is clogged up (heating)	Clean the water filter
			8. The ambient temperature is too high (cooling)	OFF
			9. Too much refrigerant	Release a proper amount of refrigerant
			10. Failure of high-voltage modular output port	Replace the module
			11. The switch has broken down.	Replace pressure switch

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S/N	Error Code	Description	Possible causes for the failure	Solution
9	The LED indicator of the unit displays ER21 and the wire controller displays 21	Low pressure of #1	1. Malfunction of heat exchanger during heating	Check and troubleshoot the outdoor unit
			2. Malfunction of motor during heating	Check and troubleshoot the outdoor motor
			3. Insufficient refrigerant or leakage	Check and replenish refrigerant
			4. Failure of low-volatge modular input port	Replace the module
			5. The low pressure sensor has broken down	Replace the pressure sensor
10	The LED indicator of the unit displays ER22 and the wire controller displays 22	Superheat discharge #1 too small	1. The low pressure sensor or temperature sensor has broken down	Replace
			2. The electronic expansion valve fails to provide proper control	Upgrade the modular program
11	The LED indicator of the unit displays ER23 and the wire controller displays 23	Superheat discharge #2 too small	1. The low pressure sensor or temperature sensor has broken down	Replace
			2. The electronic expansion valve fails to provide proper control	Upgrade the modular program
12	The LED indicator of the unit displays ER24 and the wire controller displays 24	High pressure of #2	1. The motor has broken down (cooling)	Check and troubleshoot
			2. Circulatory air is shorted (cooling)	
			3. The heat exchanger needs cleaning (cooling)	
			4. The fluorine-side filter is clogged up	Check and replace
			5. The water temperature is too high (heating)	Tune down the water temperature
			6. The water flow is too small (heating)	Check and troubleshoot
			7. The water filter is clogged up (heating)	Clean the water filter
			8. The ambient temperature is too high (cooling)	OFF
			9. Too much refrigerant	Release a proper amount of refrigerant
			10. Failure of high-voltage modular output port	Replace the module
			11. The pressure switch has broken down.	Replace pressure switch
13	The LED indicator of the unit displays ER25 and the wire controller displays 25	Temperature of inlet/ outlet water is too low	1. The temperature of return water is set too low	Change the temperature setting for return water
			2. The water flow is too small, resulting in a large pressure drop	Check the water system (see Item 7 in the table)

S/N	Error Code	Description	Possible causes for the failure	Solution
14	The LED indicator of the unit displays ER26 and the wire controller displays 26	Overload of electric heater in water system	1. Check whether the water system is equipped with an electric heater	Short the overload switch for the electric heater if there is no electric heater in the water system.
			2. The heating wire of the electric heater in the water system is shorted.	Replace the electric heater of the water system.
15	The LED indicator of the unit displays ER27 and the wire controller displays 27	Ambient temperature is too high/low	1. The ambient temperature sensor has broken down	Replace the ambient temperature sensor
			2. The ambient temperature is too high/ low	OFF
16	The LED indicator of the unit displays ER28 and the wire controller displays 28	Entering/leaving water temperature difference too small	1. Inlet/outlet water temperature sensor is incorrectly connected	Replace the 4-way valve
			2. The 4-way valve has broken down	Replace
17	The LED indicator of the unit displays ER29 and the wire controller displays 29	Superheat of #1 is too low	1. The low pressure sensor or temperature sensor has broken down	Replace
			2. The electronic expansion valve fails to provide proper control	Upgrade the modular program
18	The LED indicator of the unit displays ER30 and the wire controller displays 30	High pressure sensor failure of #1	1. Three lines of the high pressure sensor is incorrectly connected	Reconnect the connecting lines of the high pressure sensor
			2. The high pressure sensor is shorted/ open	Repair or replace the lines of the high pressure sensor
			3. The high pressure sensor has broken down	Replace the high pressure sensor
			4. There is something wrong with the test circuit of the low pressure sensor in the control module	Replace the control module
19	The LED indicator of the unit displays ER31 and the wire controller displays 31	Communication failure between the master unit and slave units	1. Communication line of the slave unit has broken off	Check and troubleshoot the communication lines
			2. Incorrect DIP address setting for the slave unit	Reset the addresses of all salve units and check that there is no duplicate address
			3. The number of slave unit is set incorrectly for the master unit	Reset the number of slav units and check that the number match with all the addresses
			4. The PC communication port of the slave unit has broken down	1. Exchange position of the two 485 on the slave unit
				2. Replace the control panel of the unit
			5. The communication line of the slave unit is incorrectly connected	Connect the communication line of the slave unit to the Apc/Bpc port

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S/N	Error Code	Description	Possible causes for the failure	Solution
20	The LED indicator o the unit displays ER32 and the wire controller displays 32	Teperature of return air in #1 is too high (40°C)	1. The slider of the 4-way valve is jammed in the middle	Restart the unit and slap slightly on both sides of the 4-way valve. If the problem persists, replace the 4-way valve.
			2. The winding of the 4-way valve operates abnormally	Replace the winding
			3. The temperature of discharge air is too high and has triggered the racing protec-tor of the compressor	(see item 17 in the table)
21	The LED indicator o the unit displays ER33 and the wire controller displays 33	Temperature of discharge air in #1 is too high	1. The fan motor has broken down (cooling)	Check and troubleshoot the unit
			2. Circulatory air is shorted (cooling)	
			3. The heat exchanger needs cleaning (cooling)	
			4. The electronic expansion valve is not opened as expected (heating)	Check and troubleshoot the electronic expansion valve
			5. The water temperature is too high	Change the setting for return water temperature (to be performed by service personnel)
			6. Insufficient refrigerant or leakage	Replenish a proper amount of refrigerant
			7. Incomplete defrosting	Change the defrosting parameter (to be performed by service personnel)
22	The LED indicator of the unit displays ER34 and the wire controller displays 34	Temperature of return air in #2 is too high (40°C)	1. The slider of the 4-way valve is jammed in the middle	Restart the unit and slap slightly on both sides of the 4-way valve. If the problem persists, replace the 4-way valve.
			2. The winding of the 4-way 18 valve operates abnormally	Replace the winding
			3. The temperature of discharge air is too high and has triggered the racing protector of the compressor	(see Item 19 in the table)
23	The LED indicator of the unit displays ER35 and the wire controller displays 35	Temperature of discharge air in #2 is too high	1. The fan motor has broken down (cooling)	Check and troubleshoot the unit
			2. Circulatory air is shorted (cooling)	
			3. The heat exchanger needs cleaning (cooling)	
			4. The electronic expansion valve is not opened as expected (heating)	Check and troubleshoot the electronic expansion valve
			5. The water temperature is too high	Change the setting for return water temperature (to be performed by service personnel)
			6. Insufficient refrigerant or leakage	Replenish a proper amount of refrigerant
			7. Incomplete defrosting	Change the defrosting parameter (to be performed by service personnel)
24	The LED indicator of the unit displays ER36 and the wire controller displays 36	Low pressure of #2	1. Malfunction of heat exchanger during heating	Check and troubleshoot the outdoor unit
			2. Malfunction of motor during heating	"Check and troubleshoot the outdoor motor"
			3. Insufficient refrigerant or leakage	Check and replenish refrigerant
			4. Failure of low-voltage modular input port	Replace the module
			5. The low pressure sensor has broken down	Replace the pressure sensor

S/N	Error Code	Description	Possible causes for the failure	Solution
25	"The LED indicator of the unit displays ER37 and the wire controller displays 37"	Superheat of #2 is too low	1. The low pressure sensor or temperature sensor has broken down	Replace
			2. The electronic expansion valve fails to provide proper control	Upgrade the modular program
26	The LED indicator of the unit displays ER38 and the wire controller displays 38	Refrigerant leakage in #1	1. Low pressure sensor failure	Replace the low pressure sensor
			2. Insufficient refrigerant	Add refrigerant
27	"The LED indicator of the unit displays ER39 and the wire controller displays 39"	Refrigerant leakage in #2	1. Low pressure sensor failure	Replace the low pressure sensor
			2. Insufficient refrigerant	Add refrigerant
28	"The LED indicator of the unit displays ER40 and the wire controller displays 40"	TH1 temperature sensor failure	1. TH1 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH1 temperature sensor is shorted/ open	Test whether the resistance of TH1 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
29	"The LED indicator of the unit displays ER41 and the wire controller displays 41"	TH2 temperature sensor failure	1. TH2 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH2 temperature sensor is shorted/ open	Test whether the resistance of TH2 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
30	"The LED indicator of the unit displays ER42 and the wire controller displays 42"	TH3 temperature sensor failure	1. TH3 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH3 temperature sensor is shorted/ open	Test whether the resistance of TH3 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
31	"The LED indicator of the unit displays ER43 and the wire controller displays 43"	TH4 temperature sensor failure	1. TH4 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH4 temperature sensor is shorted/ open	Test whether the resistance of TH4 sensor meets specification requirements/replace if not
			"3. There is something wrong with the test circuit of the temperature sensor in the control module"	Replace the control module

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S/N	Error Code	Description	Possible causes for the failure	Solution
32	" The LED indicator of the unit displays ER45 and the wire controller displays 45"	TH6 temperature sensor failure	1. TH6 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH6 temperature sensor is shorted/ open	Test whether the resistance of TH6 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
33	"The LED indicator of the unit displays ER46 and the wire controller displays 46"	TH7 temperature sensor failure	1. TH7 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH7 temperature sensor is shorted/ open	Test whether the resistance of TH7 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
34	"The LED indicator of the unit displays ER47 and the wire controller displays 47"	TH8 temperature sensor failure	1. TH8 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH8 temperature sensor is shorted/ open	Test whether the resistance of TH8 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
35	"The LED indicator of the unit displays ER48and the wire controller displays 48"	TH9 temperature sensor failure	1. TH9 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH9 temperature sensor is shorted/ open	Test whether the resistance of TH9 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
36	"The LED indicator of the unit displays ER49 and the wire controller displays 49"	TH10 temperature sensor failure	1. TH10 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH10 temperature sensor is shorted/ open	Test whether the resistance of TH10 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
37	"The LED indicator of the unit displays ER50 and the wire controller displays 50"	TH11 temperature sensor failure	1. TH11 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH11 temperature sensor is shorted/ open	Test whether the resistance of TH11 sensor meets specification requirements/replace if not
			3. There is something wrong with the test circuit of the temperature sensor in the control module	Replace the control module
38	"The LED indicator of the unit displays ER51 and the wire controller displays 51"	TH12 temperature sensor failure	1. TH12 temperature sensor is not properly plugged or has broken off	Check the control module and re-plug the temperature sensor
			2. TH12 temperature sensor is shorted/ open	Test whether the resistance of TH12 sensor meets specification requirements/replace if not

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S/N	Error Code	Description	Possible causes for the failure	Solution
39	"The LED indicator of the unit displays ER52 and the wire controller displays 52"	Low pressure sensor failure of #2	1. Three lines of the low pressure sensor is incorrectly connected	Reconnect the connecting lines of the low pressure sensor
			2. The low pressure sensor is shorted/open	Repair or replace the lines of the low pressure sensor
			3. The Low pressure sensor has broken down	Replace the low pressure sensor
			4. There is something wrong with the test circuit of the low pressure sensor in the control module	Replace the control module
40	"The LED indicator of the unit displays ER53 and the wire controller displays 53"	Low pressure sensor failure of #1	1. Three lines of the low pressure sensor is incorrectly connected	Reconnect the connecting lines of the low pressure sensor
			2. The low pressure sensor is shorted/open	Repair or replace the lines of the low pressure sensor
			3. The Low pressure sensor has broken down	Replace the low pressure sensor
			4. There is something wrong with the test circuit of the low pressure sensor in the control module	Replace the control module
41	"The LED indicator of the unit displays ER54 and the wire controller displays 54"	Memory failure	Memory has broken down	Replace memory
42	"The LED indicator of the unit displays ER55 and the wire controller displays 55"	Inverter compressor failure	1. ACS and inverter compressor module communication has broken off	Reconnect ACS and inverter module communication line
			2. ACS and communication control line has broken off	Reconnect ACS and communication control line
			3. ACS communication port has broken down	Replace
			4. Inverter compressor and module communication port has broken down	Replace
			5. Communication control port has broken down	Replace
			6. Inverter compressor module has broken down	Replace Inverter compressor module
43	"The LED indicator of the unit displays ER56 and the wire controller displays 56"	Inverter fan motor failure in #1	Inverter fan motor module has broken down	Replace Inverter fan motor module
44	"The LED indicator of the unit displays ER57 and the wire controller displays 57"	Inverter fan motor failurer in #2	Inverter fan motor module has broken down	Replace Inverter fan motor module
45	"The LED indicator of the unit displays ER59 and the wire controller displays 59"	High pressure sensor malfunction in #2	1. Three lines of the high pressure sensor is incorrectly connected	Reconnect the connecting lines of the high pressure sensor
			2. The high pressure sensor is shorted/open	Repair or replace the lines of the high pressure sensor
			3. The high pressure sensor has broken down	Replace the high pressure sensor
			4. There is something wrong with the test circuit of the low pressure sensor in the control module	Replace the control module
46	The LED indicator of the unit displays ERRO	Incorrect DIP switch setting	Incorrect DIP switch setting	Reset DIP switch setting

ACSON MALAYSIA SALES & SERVICE SDN.BHD. (129688-D)
a member of ***DAIKIN*** *group*

Lot 4, Lorong 19/1A, Seksyen 19, 46300 Petaling Jaya,
Selangor Darul Ehsan, MALAYSIA.
Tel : +603 7964 8200 Sales Fax : +603 7956 9909
Sernice Fax : +603 7956 9907 Acson Careline : 1300 22 3344

Penang : +604-5377 176
Perak : +605-3129 828
Melaka : +606-2926 196
Johor : +607-3551 599

Pahang : +609 5178 696
Kelantan : +609-7733 688
Sarawak : +6082-344 128
Sabah : +6088-420 205

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