

[8] TROUBLESHOOTING GUIDE

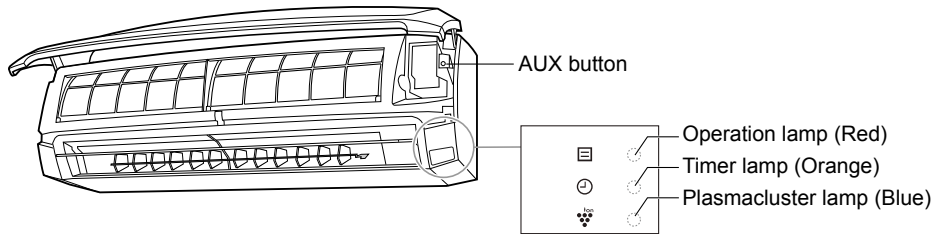
1. Self-diagnosis Function

1) Indoor Unit

To display the self-diagnosis, hold down the AUX button for over 5 seconds on the indoor unit when the indoor unit is not operating.

(AH-XP18SHV, AH-XP24SHV, AH-XP18SHV-1, AH-XP24SHV-1)

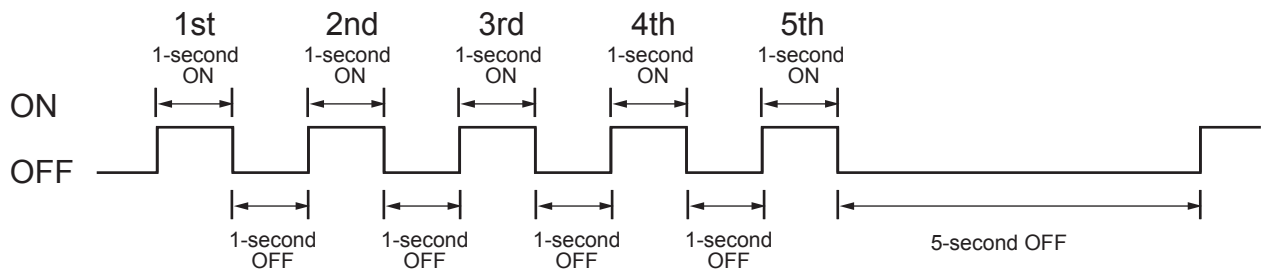
· The operation lamp(red), the timer lamp(orange) and the plasmacluster lamp(blue) flash to indicate the information of



(Display of self-diagnosis result)

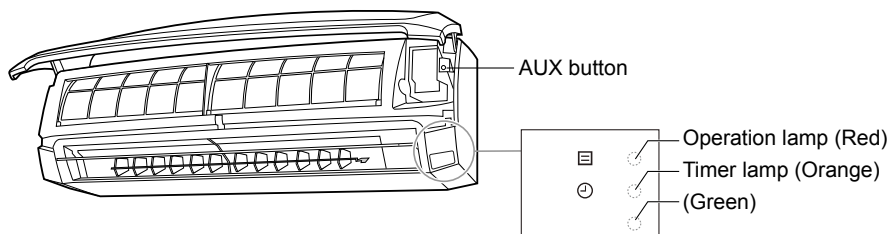
The operation lamp(red) and the plasmacluster lamp(blue) flash in synchronization with the timer lamp(orange).

(Timer lamp (1 cycle))



(AH-X18SEV, AH-X24SEV, AH-X18SEV-1, AH-X24SEV-1)

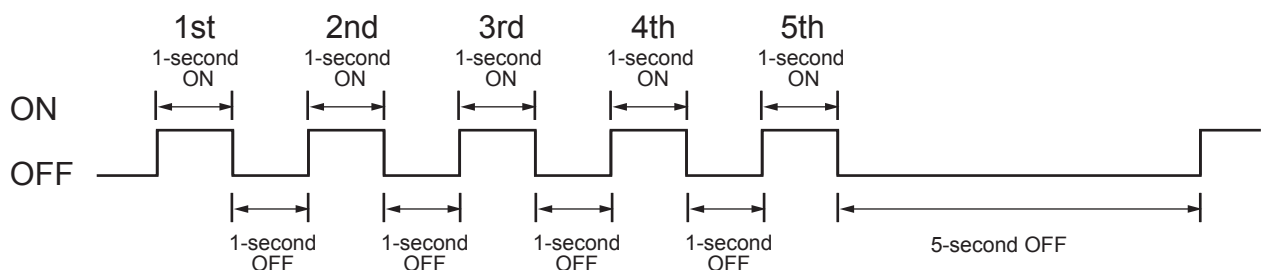
· The operation lamp(red), the timer lamp(orange) and the green lamp flash to indicate the information of malfunction.



(Display of self-diagnosis result)

The operation lamp(red) and the green lamp flash in synchronization with the timer lamp(orange).

(Timer lamp (1 cycle))

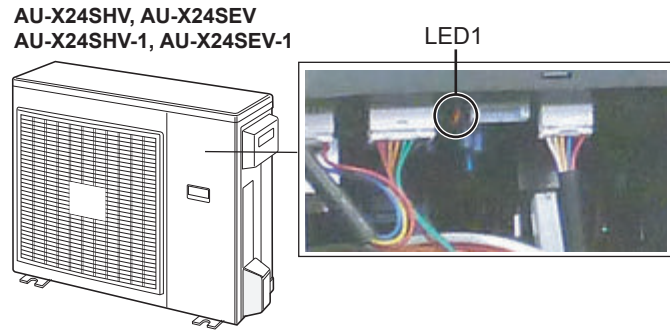
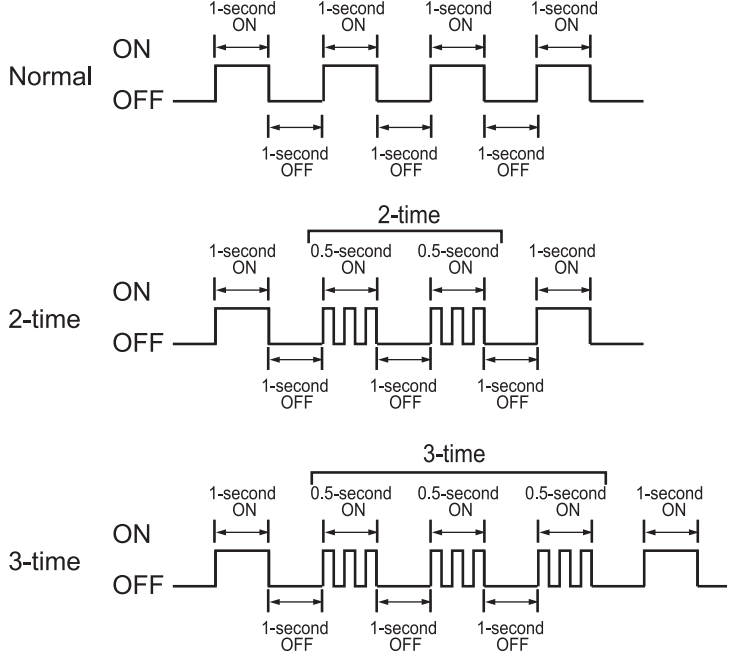
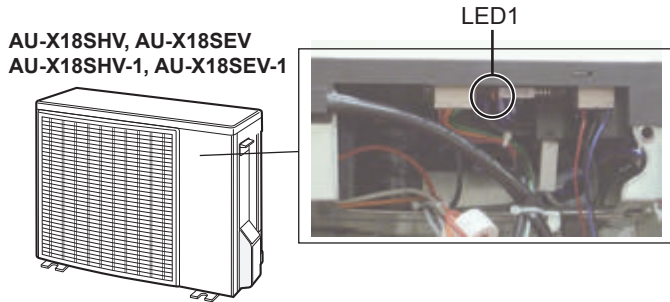


Remark

· If the power cord is unplugged or the circuit breaker is turned off, the self-diagnosis memory is lost.

2. Outdoor unit

- The self-diagnosis is indicated the error information by flashing LED1 on the outdoor unit.
- The self-diagnosis of outdoor unit is displayed for about 3-10 minutes. Then, the LED1 returns to normal display.



3. CHART

<INDOOR UNIT> ○: 1 second ON/ 1 second OFF PCI: Plasmacluster

Indoor and outdoor units operate	Outdoor unit indication (LED1)	Indoor unit					Malfunction No.		Content of diagnosis		Check point	Action					
		○	○	○	○	○	Main	Sub	Main	Sub							
Normal condition	Normal blinking	○	○	○	○	○	Timer (Orange)	0	0	Normal							
		○	○	○	○	○							Operation (Red)				
		○	○	○	○	○							PCI(Blue)/(Green)				
Indoor and outdoor units do not operate.	1-time	○	○	○	○	○	Timer (Orange)	1	0	Outdoor unit thermistor short-circuit	Heat exchanger thermistor short circuit error	1) Measure the resistance of the outdoor unit thermistors. 2) Check the lead wire of the outdoor unit thermistor for torn sheath and short circuit. 3) No abnormality found in above inspections (1) and 2).	1) Replace the outdoor unit thermistor assembly. 2) Replace the outdoor unit thermistor assembly.				
		○	○	○	○	○								Operation (Red)			
		○	○	○	○	○								PCI(Blue)/(Green)			
		○	○	○	○	○	Timer (Orange)	1	1		Outdoor temperature thermistor short circuit error.						
		○	○	○	○	○								Operation (Red)			
		○	○	○	○	○								PCI(Blue)/(Green)			
		Indoor and outdoor units do not operate.	2 time	○	○	○	○	○	Timer (Orange)	2	0		Cycle temperature	Compressor high temperature error	1) Check the outdoor unit air outlet for blockage. 2) Check if the power supply voltage is AC 230V at full power. 3) Check the pipe connections for refrigerant leaks. 4) Measure resistance of the outdoor unit compressor thermistor. 5) Check the expansion valve for proper operation.	1) Ensure unobstructed air flow from the outdoor unit air outlet. 2) Connect power supply of proper voltage. 3) Charge the specified amount of refrigerant. 4) Replace the outdoor unit compressor thermistor assembly. 5) Replace the expansion valve coil, expansion valve or outdoor unit control PWB assembly.	
				○	○	○	○	○									Operation (Red)
				○	○	○	○	○									PCI(Blue)/(Green)
				○	○	○	○	○	Timer (Orange)	2	2			Suction thermistor short circuit error			
				○	○	○	○	○									Operation (Red)
				○	○	○	○	○									PCI(Blue)/(Green)
Indoor and outdoor units do not operate.	2 time	○	○	○	○	○	Timer (Orange)	3	3	2 way valve thermistor short circuit error							
		○	○	○	○	○					Operation (Red)						
		○	○	○	○	○					PCI(Blue)/(Green)						

Indoor and outdoor units operate	Outdoor unit indication (LED1)	Indoor unit				Malfunction No.		Content of diagnosis		Check point	Action							
		Lamp	Main	Sub	Main	Sub												
Indoor unit operates. Outdoor unit does not operate temporarily	2 time	○ ○ ○ ○ ○	2	1	Cycle temperature	Compressor discharge overheat.	(Temporary stop for cycle protection)	-	Timer (Orange)									
		○ ○ ○ ○ ○							Operation (Red)									
		○ ○ ○ ○ ○							PCI(Blue)/(Green)									
		○ ○ ○ ○ ○	2	2					Timer (Orange)	Outdoor unit heat exchanger overheat.	(Temporary stop for cycle protection)	-						
		○ ○ ○ ○ ○							Operation (Red)									
		○ ○ ○ ○ ○							PCI(Blue)/(Green)									
		○ ○ ○ ○ ○	3	3					Timer (Orange)	Indoor unit heat exchanger overheat.	(Temporary stop for cycle protection)	-						
		○ ○ ○ ○ ○							Operation (Red)									
		○ ○ ○ ○ ○							PCI(Blue)/(Green)									
		○ ○ ○ ○ ○	4	4					Timer (Orange)	IPM high temperature error	(Temporary stop for cycle protection)	-						
		○ ○ ○ ○ ○							Operation (Red)									
		○ ○ ○ ○ ○							PCI(Blue)/(Green)									
Indoor and outdoor units do not operate.		○ ○ ○ ○ ○	5	5	IPM high temperature error	1) Measure resistance of the heat-sink thermistor.	1) Replace the outdoor unit PFCM PWB or control PWB assembly or change the heat-sink thermistor.	Timer (Orange)										
		○ ○ ○ ○ ○						Operation (Red)										
		○ ○ ○ ○ ○						PCI(Blue)/(Green)										
Indoor unit operates. Outdoor unit does not operate temporarily.	3 time	○ ○ ○ ○ ○	3	0	Dry operation	Temporary stop due to dehumidifying operation	(Temporary stop for cycle protection)	-	Timer (Orange)									
		○ ○ ○ ○ ○							Operation (Red)									
		○ ○ ○ ○ ○							PCI(Blue)/(Green)									
Indoor and outdoor units do not operate.	5 time	○ ○ ○ ○ ○	5	0	Outdoor unit thermistor open-circuit	Heat exchanger thermistor open circuit error	1) Check connector of the outdoor unit thermistor for secure installation. 2) Measure resistance of outdoor thermistors. 3) Check the lead wires of thermistors on the outdoor unit control PWB for open-circuit. 4) No abnormality found in above inspections 1), 2), 3).	1) Correct the installation. 2) Replace the outdoor unit thermistor assembly. 3) Replace the outdoor unit thermistor assembly. 4) Replace the outdoor unit control PWB assembly.	Timer (Orange)									
		○ ○ ○ ○ ○							1	Operation (Red)								
		○ ○ ○ ○ ○								PCI(Blue)/(Green)								
		○ ○ ○ ○ ○							2	Timer (Orange)	Suction thermistor open circuit error							
		○ ○ ○ ○ ○								Operation (Red)								
		○ ○ ○ ○ ○							3	Timer (Orange)	2 way valve thermistor open circuit error.							
		○ ○ ○ ○ ○								Operation (Red)								
		○ ○ ○ ○ ○							4	Timer (Orange)	Discharge thermistor open circuit error							
		○ ○ ○ ○ ○								Operation (Red)								
		○ ○ ○ ○ ○							5	Timer (Orange)	Heat sink thermistor open circuit error							
		○ ○ ○ ○ ○								Operation (Red)								
		○ ○ ○ ○ ○								PCI(Blue)/(Green)								
		Indoor and outdoor units do not operate.							6 time	○ ○ ○ ○ ○	6	0	Outdoor unit DC Current	DC over current error	Go to "DC Over Current Error (6-0 error)".		Timer (Orange)	
										○ ○ ○ ○ ○							1	Operation (Red)
										○ ○ ○ ○ ○								PCI(Blue)/(Green)
○ ○ ○ ○ ○	1		Timer (Orange)	IPM pin level error	Check the IPM is attached correctly to the outdoor unit IPM PWB.	Replace the outdoor unit IPM PWB assembly.												
○ ○ ○ ○ ○			Operation (Red)															
Indoor and outdoor units do not operate.	7 time	○ ○ ○ ○ ○	7	0	Outdoor unit AC Current	AC over current error	1) Check the outdoor unit air outlet for blockage. 2) Check the outdoor unit fan for proper rotation.	1) Ensure unobstructed air flow from the outdoor unit air outlet. 2) Check the outdoor unit fan motor.	Timer (Orange)									
		○ ○ ○ ○ ○							1	Operation (Red)								
		○ ○ ○ ○ ○								PCI(Blue)/(Green)								
		○ ○ ○ ○ ○							1	Timer (Orange)	AC current error when OFF	IPM continuity check	Replace the outdoor IPM PWB					
		○ ○ ○ ○ ○								Operation (Red)								
		○ ○ ○ ○ ○							2	Timer (Orange)	AC maximum current error	1) Check the outdoor unit air outlet for blockage. 2) Check the outdoor unit fan for proper rotation.	1) Ensure unobstructed air flow from the outdoor unit air outlet. 2) Check the outdoor unit fan motor.					
		○ ○ ○ ○ ○								Operation (Red)								
		○ ○ ○ ○ ○								PCI(Blue)/(Green)								

Indoor and outdoor units operate	Outdoor unit indication (LED1)	Indoor unit					Malfunction No.		Content of diagnosis		Check point	Action
		Lamp	Main	Sub	Main	Sub						
Indoor and outdoor units do not operate.	7 time	o o o o o	7	3	Outdoor unit AC Current	AC current deficiency error	1) Check if there is an open-circuit in the secondary winding of the current transformer of the outdoor unit control PWB. 2) Check if the refrigerant volume is abnormally low. 3) Check if the refrigerant flows properly.	1) Replace the outdoor unit control PWB assembly. 2) Charge the specified amount of refrigerant. 3) Correct refrigerant clogs. (Stop valve, pipe, expansion valve)				
		o o o							Timer (Orange)			
		o o o							Operation (Red)			
Indoor and outdoor units do not operate.	8 time	o o o o o	8	0	Abnormal wire check	Abnormal wire check error	1) Check the expansion valve. (unit A - C) 2) Are four expansion valves connected by mistake 3) Check the wiring between units.	1) Replace the outdoor control board assembly. 2) Reattach 3) Check the wiring between units.				
		o o o							Timer (Orange)			
		o o o							Operation (Red)			
Indoor and outdoor units do not operate.	9 time	o o o o o	9	0	Cycle temperature	Thermistor installation error or *4 way valve error. *(Only for cooling - heating model)	1) Check the thermistor (heat exchanger) and (2 way valve) are installed in correct positions. 2) Check resistance of thermistors (heat exchanger and 2 way valve). 3) Check the 4 way valve for proper operation. 4) No abnormality found in above inspections 1), 2), 3).	1) Correct the installation. 2) Change the specified amount of refrigerant. 3) Replace the 4 way valve. 4) Replace the outdoor unit control PWB assembly.				
		o o o							Timer (Orange)			
		o o o							Operation (Red)			
Indoor and outdoor units do not operate.	9 time	o o o o o	9	4	*4 way valve error or Gas leak error *(Only for cooling - heating model)	1) Check the indoor/outdoor heat exchanger thermistors are installed in correct positions. 2) Check if the refrigerant volume is abnormally low. 3) Check the 4 way valve for proper operation.	1) Correct the installation. 2) Change the specified amount of refrigerant. 3) Replace the 4 way valve.					
		o o o						Timer (Orange)				
		o o o						Operation (Red)				
Indoor and outdoor units do not operate.	10 time	o o o o o	10	0	EEPROM error	EEPROM (outdoor) data error	Replace the outdoor unit control PWB assembly.					
		o o o						Timer (Orange)				
		o o o						Operation (Red)				
		o o o						PCI(Blue)/(Green)				
		o o o o o						Timer (Orange)				
		o o o						Operation (Red)				
		o o o						PCI(Blue)/(Green)				
Indoor and outdoor units do not operate.	11 time	o o o o o	11	0	Outdoor unit DC fan	Outdoor unit DC fan rotation error	1) Check connector CN3 of the outdoor unit DC fan motor for secure installation. 2)Check the outdoor unit fan motor for proper rotation. 3) Check fuse FUSE5. 4) No abnormality found in above inspections 1), 2), 3).	1) Correct the installation. 2) Replace the outdoor unit fan motor. 3) Replace the outdoor unit control PWB assembly. 4) Replace the outdoor unit control PWB assembly.				
		o o o							Timer (Orange)			
		o o o							Operation (Red)			
		o o o							PCI(Blue)/(Green)			
		o o o o o							Timer (Orange)			
		o o o							Operation (Red)			
		o o o							PCI(Blue)/(Green)			
Indoor and outdoor units do not operate.	11 time	o o o o o	11	1	Outdoor unit DC fan drive IC error	1) Check if the fan IPM terminal resistance values are uniform. 2) Outdoor unit fan motor continuity check.	1) Replace the outdoor unit control PWB assembly. 2) Replace the outdoor unit fan.					
		o o o						Timer (Orange)				
		o o o						Operation (Red)				
Indoor and outdoor units do not operate.	11 time	o o o o o	11	0	Outdoor unit DC fan	Outdoor unit DC fan rotation error	1) Check connector CN3 of the outdoor unit DC fan motor for secure installation. 2)Check the outdoor unit fan motor for proper rotation. 3) Check fuse FUSE5. 4) No abnormality found in above inspections 1), 2), 3).	1) Correct the installation. 2) Replace the outdoor unit fan motor. 3) Replace the outdoor unit control PWB assembly. 4) Replace the outdoor unit control PWB assembly.				
		o o o							Timer (Orange)			
		o o o							Operation (Red)			
Indoor and outdoor units do not operate.	11 time	o o o o o	11	1	Outdoor unit DC fan drive IC error	1) Check if the fan IPM terminal resistance values are uniform. 2) Outdoor unit fan motor continuity check.	1) Replace the outdoor unit control PWB assembly. 2) Replace the outdoor unit fan.					
		o o o						Timer (Orange)				
		o o o						Operation (Red)				
Indoor and outdoor units do not operate.	11 time	o o o o o	11	0	Outdoor unit DC fan	Outdoor unit DC fan rotation error	1) Check connector CN3 of the outdoor unit DC fan motor for secure installation. 2)Check the outdoor unit fan motor for proper rotation. 3) Check fuse FUSE5. 4) No abnormality found in above inspections 1), 2), 3).	1) Correct the installation. 2) Replace the outdoor unit fan motor. 3) Replace the outdoor unit control PWB assembly. 4) Replace the outdoor unit control PWB assembly.				
		o o o							Timer (Orange)			
		o o o							Operation (Red)			
Indoor and outdoor units do not operate.	11 time	o o o o o	11	1	Outdoor unit DC fan drive IC error	1) Check if the fan IPM terminal resistance values are uniform. 2) Outdoor unit fan motor continuity check.	1) Replace the outdoor unit control PWB assembly. 2) Replace the outdoor unit fan.					
		o o o						Timer (Orange)				
		o o o						Operation (Red)				
Indoor and outdoor units do not operate.	11 time	o o o o o	11	0	Outdoor unit DC fan	Outdoor unit DC fan rotation error	1) Check connector CN3 of the outdoor unit DC fan motor for secure installation. 2)Check the outdoor unit fan motor for proper rotation. 3) Check fuse FUSE5. 4) No abnormality found in above inspections 1), 2), 3).	1) Correct the installation. 2) Replace the outdoor unit fan motor. 3) Replace the outdoor unit control PWB assembly. 4) Replace the outdoor unit control PWB assembly.				
		o o o							Timer (Orange)			
		o o o							Operation (Red)			
Indoor and outdoor units do not operate.	11 time	o o o o o	11	1	Outdoor unit DC fan drive IC error	1) Check if the fan IPM terminal resistance values are uniform. 2) Outdoor unit fan motor continuity check.	1) Replace the outdoor unit control PWB assembly. 2) Replace the outdoor unit fan.					
		o o o						Timer (Orange)				
		o o o						Operation (Red)				

Indoor and outdoor units operate	Outdoor unit indication (LED1)	Indoor unit				Malfunction No.		Content of diagnosis		Check point	Action
		Lamp	Main	Sub	Main	Sub					
		○ ○ ○ ○ ○	Timer (Orange)	2	Outdoor unit DC fan lock error	1) Check the outdoor unit fan motor for proper rotation. 2) 1):Normal	1) Replace the outdoor unit control PWB assembly. 2) Replace the outdoor unit fan.				
		○ ○ ○ ○ ○						Operation (Red)			
		○ ○ ○ ○ ○							PCI(Blue)/(Green)		
		○ ○ ○ ○ ○	Timer (Orange)	3	Detection error of DC fan negative rotation before compressor is driven	(Temporary stop for DC fan circuit protection)					
		○ ○ ○ ○ ○					Operation (Red)				
		○ ○ ○ ○ ○						PCI(Blue)/(Green)			
		○ ○ ○ ○ ○	Timer (Orange)	4	Detection error of inverter current for DC fan	-	Replace the outdoor unit control PWB assembly.				
		○ ○ ○ ○ ○						Operation (Red)			
		○ ○ ○ ○ ○							PCI(Blue)/(Green)		
		○ ○ ○ ○ ○	Timer (Orange)	5	Outdoor unit DC fan open connector error	1) Check connector CN3 of the outdoor unit DC fan motor for secure installation. 2) No abnormality found in above inspection 1).	1) Correct the installation. 2) Replace the outdoor unit control PWB assembly.				
		○ ○ ○ ○ ○						Operation (Red)			
		○ ○ ○ ○ ○							PCI(Blue)/(Green)		
Indoor and outdoor units do not operate.	12 time	○ ○ ○ ○ ○	Timer (Orange)	12	0	Thermal fuse in terminal board	Thermal fuse error in terminal board (for power supply)	1) Check the thermal fuse in terminal board (for Power supply) 2) Check connector CN5 of the outdoor unit. 3) No abnormality found in above inspection 1).		1) Replace terminal board for Power supply 2) Correct the installation. 3) Replace the outdoor unit control PWB assembly.	
		○ ○ ○ ○ ○							Operation (Red)		
		○ ○ ○ ○ ○									PCI(Blue)/(Green)
Indoor and outdoor units do not operate.	13 time	○ ○ ○ ○ ○	Timer (Orange)	13	0	D C c o m - p r e s s o r	Compressor start-up error	1) Check the colors (red, white, orange) of the compressor cords for proper connection. (PWB side, compressor side) 2) Check if the IPM terminal resistance values are uniform. 3) Check if outdoor main relay (MRY1) turns on and voltage of both end of the condenser (C10) has become DC290-330V. 4) No abnormality found in above inspections 1), 2), 3).	1) Correct the installation. (U: Red, V: White, W: Orange) 2) Replace the outdoor unit control PWB assembly. 3) Replace the outdoor unit control PWB assembly. 4) Replace the compressor.		
		○ ○ ○ ○ ○								Operation (Red)	
		○ ○ ○ ○ ○									PCI(Blue)/(Green)
		○ ○ ○ ○ ○	Timer (Orange)	1	Compressor rotation error.(at 120° energizing)						
		○ ○ ○ ○ ○				Operation (Red)					
		○ ○ ○ ○ ○					PCI(Blue)/(Green)				
		○ ○ ○ ○ ○	Timer (Orange)	2	Compressor rotation error (at 180° energizing)						
		○ ○ ○ ○ ○				Operation (Red)					
		○ ○ ○ ○ ○					PCI(Blue)/(Green)				
		Indoor and outdoor units operate.		○ ○ ○ ○ ○	Timer (Orange)	3			Detection error of inverter current.	Check the circuit of detection of inverter current.	Replace the outdoor unit control PWB assembly.
				○ ○ ○ ○ ○			Operation (Red)				
				○ ○ ○ ○ ○							
Indoor and outdoor units do not operate.	14 time	○ ○ ○ ○ ○	Timer (Orange)	14	0	Outdoor unit PAM	PAM over voltage error	1) Check the AC power supply voltage for fluctuation. 2) No abnormality found in above inspection.	1) Correct the installation. 2) Replace the PWB assembly.		
		○ ○ ○ ○ ○								Operation (Red)	
		○ ○ ○ ○ ○									PCI(Blue)/(Green)
		○ ○ ○ ○ ○	Timer (Orange)	1	PAM clock error	Check the PAM clock for proper input.	Replace the outdoor unit control PWB assembly.				
		○ ○ ○ ○ ○						Operation (Red)			
		○ ○ ○ ○ ○							PCI(Blue)/(Green)		
		○ ○ ○ ○ ○	Timer (Orange)	2	PAM under voltage error	1) Check the AC power supply voltage for fluctuation. 2) No abnormality found in above inspection.	1) Correct the installation. 2) Replace the PWB assembly.				
		○ ○ ○ ○ ○						Operation (Red)			
		○ ○ ○ ○ ○							PCI(Blue)/(Green)		

Indoor and outdoor units operate	Outdoor unit indication (LED1)	Indoor unit					Malfunction No.		Content of diagnosis		Check point	Action
		Lamp	Main	Sub	Main	Sub						
Indoor unit operates. Outdoor unit does not operate.	Lighting or OFF	○ ○ ○ ○ ○ ○	Timer (Orange)	17	0	Wiring between units	Serial open-circuit	1) Check the wires between units. 2) Check voltage between N and 1 the indoor/outdoor unit terminal boards. 3) Check the outdoor unit fuse. 4) Check 15-V,13-V and 5-V voltages on the PWB. Check resistance between IPM terminals. 5) Check pins No.5 and 8 of connector CN3 of the outdoor unit fan motor for short-circuit. 6) No abnormality found in above inspections 1), 2), 3), 4), 5).	1) Connect stable power supply. Correct the wiring. 2) Replace the outdoor unit control PWB assembly. 3) Replace the fuse/outdoor unit control PWB assembly. 4) Replace the outdoor unit control PWB assembly. 5) Replace the outdoor unit fan motor. 6) Replace the outdoor unit control PWB board.			
		○ ○ ○ ○ ○ ○								Operation (Red)		
		○ ○ ○ ○ ○ ○									PCI(Blue)/(Green)	
Indoor unit operates. Outdoor unit does not operate.	Lighting or OFF	○ ○ ○ ○ ○ ○	Timer (Orange)	18	0	Wiring between units	Serial short-circuit	Check the wiring between units.	Correct the wiring.			
		○ ○ ○ ○ ○ ○	Operation (Red)									
		○ ○ ○ ○ ○ ○	PCI(Blue)/(Green)									
Indoor and outdoor units do not operate.	Lighting or OFF	○ ○ ○ ○ ○ ○	Timer (Orange)	1	1	Serial erroneous wiring	Check the wiring between units.	Correct the wiring.				
		○ ○ ○ ○ ○ ○	Operation (Red)									
		○ ○ ○ ○ ○ ○	PCI(Blue)/(Green)									
Indoor and outdoor units do not operate.	Normal blinking or OFF	○ ○ ○ ○ ○ ○	Timer (Orange)	19	0	Indoor unit fan	Indoor unit fan error	1) Check the indoor fan motor for proper rotating operation. (Check fan lock.) 2) Check the lead wire of the indoor fan motor for open-circuit. 3) Check connector of the indoor unit fan motor for secure installation. 4) No abnormality found in above inspections 1), 2), 3).	1) Replace the indoor fan motor. 2) Replace the indoor fan motor. 3) Correct the installation of the indoor fan motor connector. 4) Replace the indoor unit control PWB.			
		○ ○ ○ ○ ○ ○	Operation (Red)									
		○ ○ ○ ○ ○ ○	PCI(Blue)/(Green)									
Indoor and outdoor units do not operate.	Normal blinking or OFF	○ ○ ○ ○ ○ ○	Timer (Orange)	20	0	Indoor unit control PWB	EEPROM data error	EEPROM read data error	Replace the indoor unit control PWB.			
		○ ○ ○ ○ ○ ○	Operation (Red)									
		○ ○ ○ ○ ○ ○	PCI(Blue)/(Green)									
Horizontal air flow louvers do not move when press the lock on sensor button	Normal blinking or OFF	○ ○ ○ ○ ○ ○	Timer (Orange)	22	1	Lock on sensor	Lock on sensor function error	1) Check the connector CN205 on sensor PWB is connected. 2) ● Check the lead wire between the indoor unit control PWB and display PWB. ● Check the lead wire between sensor PWB and display PWB. 3) Check the two voltages pin6-8 and pin7-8 of connector CN7 on the main control PWB at the timing when the unit receives the lock on sensor signal. 4) No abnormality in 1),2),3).	1) If the CN205 is disconnected, connect it. 2) If either of the two wires or both of them are broken/damaged, replace the display Assy. 3) Both voltage should show more than 4.8V. If not, replace the main control PWB 4) Replace the display Assy.			
		○ ○ ○ ○ ○ ○	Operation (Red)									
		○ ○ ○ ○ ○ ○	PCI(Blue)/(Green)									

Indoor and outdoor units operate	Outdoor unit indication (LED1)	Indoor unit					Malfunction No.		Content of diagnosis		Check point	Action
		Lamp	Main	Sub	Main	Sub						
Indoor and outdoor units operate.	Normal blinking or OFF	○ ○ ○ ○ ○	26	1	Indoor unit room temperature thermistor	Indoor unit room temperature thermistor	1) Check connector of thermistor for secure installation. 2) Check the temperature properties of the thermistor.	1) Replace the thermistor. 2) Replace the thermistor.				
		○ ○ ○ ○ ○							2	Indoor unit pipe temperature thermistor	1) Check connector of thermistor for secure installation. 2) Check the temperature properties of the thermistor.	1) Replace the thermistor. 2) Replace the thermistor.
		○ ○ ○ ○ ○										
		○ ○ ○ ○ ○	3	Indoor unit valve temperature thermistor	Indoor unit valve temperature thermistor	1) Check connector of thermistor for secure installation. 2) Check the temperature properties of the thermistor.	1) Replace the thermistor. 2) Replace the thermistor.					
		○ ○ ○ ○ ○										
		○ ○ ○ ○ ○										
		○ ○ ○ ○ ○	26	2	Indoor unit room temperature thermistor	Indoor unit room temperature thermistor	1) Check connector of thermistor for secure installation. 2) Check the temperature properties of the thermistor.	1) Replace the thermistor. 2) Replace the thermistor.				
		○ ○ ○ ○ ○							2	Indoor unit pipe temperature thermistor	1) Check connector of thermistor for secure installation. 2) Check the temperature properties of the thermistor.	1) Replace the thermistor. 2) Replace the thermistor.
		○ ○ ○ ○ ○										
○ ○ ○ ○ ○	3	Indoor unit valve temperature thermistor	Indoor unit valve temperature thermistor	1) Check connector of thermistor for secure installation. 2) Check the temperature properties of the thermistor.	1) Replace the thermistor. 2) Replace the thermistor.							
○ ○ ○ ○ ○												
○ ○ ○ ○ ○												

***Remark**

The malfunction No. is calculated using the following way.

Example)

Indoor unit lamp	→Lamp					Calculation	Main	Sub
	16	8	4	2	1			
Timer (Orange)	○	○	○	○	○			
Operation (Red)			○		○	4+1=5	5	
PCI (Blue)/(Green)				○		2		2

Malfunction indications due to miswiring.

Inter-unit wiring error mode		Symptom
1		Malfunction diagnosis display "18-1"
2		Malfunction diagnosis display one (Displays "17-0" when malfunction code is called out.)
3		Malfunction diagnosis display None (Displays "17-0" when malfunction code is called out.)
4		Malfunction diagnosis display "18-1"
5		Malfunction diagnosis display "18-1"

8. Maintenance

8.1 Error Code

AH-A9/12/18/24NCV
AH-A9/12/18/24PCV

No.	Malfunction Name	Error Code	Display Method of Indoor Unit			A/C Status	Possible Causes(For specific maintenance method, please refer to the following procedure of troubleshooting)
			Indicator lamp (Only for the unit with indicator; during blinking, ON for 0.5S and OFF for 0.5S)	Operation Lamp	COOL Lamp		
1	Indoor ambient temperature sensor is open/short-circuited	F1	Blinks once every 3s			The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except IDU fan motor operates, other loads stop operation; During heating operation, the system stops operation.	<ol style="list-style-type: none"> 1. The wiring terminal between indoor ambient temperature sensor and main board is loosened or poorly contacted; 2. There's short circuit due to trip-over of the parts on controller; 3. Indoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board is broken.
2	Indoor evaporator temperature sensor is open/short-circuited	F2	Blinks twice every 3s			The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except IDU fan operates, other loads stop operation; During heating operation, the complete unit stops operation.	<ol style="list-style-type: none"> 1. The wiring terminal between indoor evaporator temperature sensor and main board is loosened or poorly contacted; 2. There's short circuit due to the trip-over of the parts on controller; 3. Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board is broken.
3	Blocked protection of IDU fan motor	H6	Blinks 11 times every 3s			IDU fan, ODU fan, compressor and electric heat tube stop operation. Horizontal louver stops at the current position.	<ol style="list-style-type: none"> 1. The feedback terminal of PG motor is not connected tightly. 2. The control terminal of PG motor is not connected tightly. 3. Fan blade rotates unsmoothly. 4. Malfunction of motor 5. Main board is broken.
4	Malfunction protection of jumper cap	C5	Blinks 15 times every 3s			Operation of remote controller or control panel is available, but the unit won't act.	<ol style="list-style-type: none"> 1. There's not jumper cap on the main board. 2. Jumper cap is not inserted properly and tightly. 3. Jumper cap is damaged. 4. Controller is damaged.
5	Zero-crossing inspection circuit malfunction of the IDU fan motor	U8	Blinks 17 times every 3s			Operation of remote controller or control panel is available, but the unit won't act.	<ol style="list-style-type: none"> 1. Quick de-energization and energization. Wrong judgement by the controller because the electric-discharging of capacitor is slow. 2. Zero-crossing inspection circuit of main board for controller is abnormal.

4.2 Indoor Unit's Error Indicating:

LED	No error	Flash times every two seconds	Error description
yellow: Timing indicating lamp	It goes on as per the set time, And it flashes when the temperature sensor error occurs	once	the indoor ambient temperature sensor error
		twice	the evaporator temperature sensor error
		three times	the condenser temperature sensor error
		four times	the outdoor ambient temperature sensor error
		five times	the discharge air temperature sensor error
green: Compressor indicating lamp	It goes on/off as the compressor is turned on/off. And it flashes when defrosting or the compressor error occurs	twice	Defrosting
		three times	high pressure protection
		four times	the low pressure protection
		five times	Overload protection
		six times	Discharge high temperature protection
red: Running indicating lamp	It goes on/off as the unit is turned on/off, And it flashes when the indoor unit error occurs	twice	the water overflow protection
		three times	the anti-freezing error
		four times	Anti-high temperature protection

Trouble Code	Trouble Name	Origin of Trouble Signal	Control Description
F1	Failure of Evaporator Temp. Sensor	Indoor Evaporator Temp Sensor	If detect evaporator temp sensor is open circuit or short circuit for continuous 5s, system will be turned off when cooling and dehumidifying, and all loads will be turned off except for 4-way valve when heating. LED will blink or display error code F1. When error is cleared, it can resume running automatically and clear error display. Under air supply mode, only display error and inner fan runs normally. After error is cleared, error display disappears.
F2	Failure of Condenser Temp. Sensor	Outdoor Condenser Temp Sensor	If detect that condenser temp sensor is open circuit or short circuit for 5s, system will be turned off when cooling and dehumidifying, and all loads will be turned off except for 4-way valve when heating. LED will blink or display error code F2. When error is cleared, it can resume running automatically and clear error display. Under air supply mode, only display error and inner fan runs normally. After error is cleared, error display disappears. For cooling-only unit, no models but air duct type unit detect the condenser temp sensor error.
F3	Failure of Outdoor Ambient Sensor	Outdoor Ambient Temp Sensor	If detect that outdoor ambient temp sensor is open circuit or short circuit for 5s, system will be turned off when cooling and dehumidifying, and all loads will be turned off except for 4-way valve when heating. LED will blink or display error code F3. When error is cleared, it can resume running automatically and clear error display. Under air supply mode, only display error and inner fan runs normally. After error is cleared, error display disappears.
F4	Failure of Exhaust Temp. Sensor	Discharge Temp Sensor	After startup of compressor, if detect that discharge temp sensor is open circuit for continuous 5s, Under cooling and dehumidifying, all loads will be turned off. When heating, all loads will be turned off except for 4-way valve when heating. LED will blink and E4 will be displayed. At the same time, buzzer will sound. When error is cleared, it can resume running and erase the error code. If discharge temp sensor is short circuit, Under cooling and dehumidifying, all loads will be turned off. When heating, all loads will be turned off except for 4-way valve when heating. LED will blink and E4 will be displayed. At the same time, buzzer will sound. When error is cleared, it can resume running and erase the error code.
F5	Failure of Indoor Room Sensor at Wire Controller	Wired Controller	If detect that temp sensor of wired controller is open circuit or short circuit for continuous 5s, ambient temp will be compulsively set as 24 °C , and there is no any performance of the system. Only LED blinks or display error code F0. When error is cleared, it can resume running automatically and clear error display. Under air supply mode, only display error and inner fan runs normally. After error is cleared, error display disappears.

4. MAINTENANCE

4.1 ERROR CODE TABLE

Error Code	Problem Name	Origin of Error Signal	Control Description
E0	Pump Failure	Water Pump	If full water protection has not been recovered for continuous 2 hours, it is believed that there is water pump error. All loads will be turned off and it cannot be automatically recovered.
E1	Compressor High Pressure Protection	High Pressure Switch	When high pressure protection has been detected for continuous 3s, all loads will be turned off(except for 4-way valve for heating). Sheild all buttons and remote signal except ON/OFF button. They cannot be recovered automatically. The error cannot be cleared until turn on/off the unit or de-energized error has been recovered.
E2	Indoor Frost-Proof Protection	Evaporator Temp. Sensor of indoor unit	When defrosting and dehumidifying have been executed for a period of time, if detect that evaporator temp. sensor is lower than -2°C , the unit will warn and ompressor and outer fan will stop. When the temp. $\geq 10^{\circ}\text{C}$ and the compressor has been stopped for 3min, the unit can run.
E3	Compressor Low Pressure Protection	Low Pressure Switch	When the unit is on or standby(if the compressor is on, detection will be executed after 3min of the running), if detect that low pressure switch breaks up for continuous 30s, this error will be warned. The first 2 times of errors within 30min can be recovered automatically, but over 3 times, the error cannot be automatically recovered.
E4	Compressor Exhaust High Temperature Protection	Discharge Temp. Sensor	After the running of compressor, if detect that discharge temp. is higher that 130°C in continuously 30s, error code "E4"will de displayed and all loads will be turned off. After 3min stop of compressor, if detect that the discharge temp. is lower than 90°C for continuously 5s, the compressor will resume running. if detect that there are 3 times of high temp. protections, it cannot be recovered automatically.
E5	Compressor Overheat	Compressor	After running of compressor, if detect that overload switch of compressor breaks for continuous 3s, this error will be warned. All loads will be turned off(except 4-way valve for heating) and the error will be displayed. After the compressor has been stopped for 3min, if the error has been recovered, it will resume running. From the first error detected, if 3 times of compressor overload protections have been detected within 30min, it cannot be recovered automatically and buzzer will sound. Press ON/OFF button to clear the sound. By press it again, it will resume running if high pressure protection disappears. If not, error will be displayed.
E6	Communications Failure	Communication	After energization, if the outdoor unit has not received any data from indoor unit for continuous 30s, there is communication error of indoor unit. Compressor and outer fan will stop and when heating, 4-way valve will stop after 2m stop of compressor If indoor unit has not received the data from outdoor unit, there is communication error. Indoor unit will stop and LED will blink. If display panel has not received any data from outdoor unit, it will judge as communication error and display the error. The unit will stop but after the communication becomes normal, the system will run at the previous status, which can be recovered automatically.
E8	Indoor Fan Protection	Inner Fan	If fan overload protection has been detected for continuous 3s, compressor and fan will stop immediately, E8 will be displayed and buzzer will sound. If the error is cleared, press ON/OFF button and the error display will disappear. Press it again to restart it.
E9	Full Water Protection	Liquid Level Switch	After energization, full water is detected for continuous 8sm, full water protection will be entered and LED will blink (or E9 will be displayed): Under cooling and dehumidifying, outer fan and compressor will stop and inner fan will stop 1min later; under heating, outer fan and compressor will stop, 4-way valve keep previous status and inner fna will stop 1min delay; under air supply mode, loads of indoor unit will not be turned off.
F0	Failure of Indoor Room Sensor at Air Intake	Indoor Ambient Temp. Sensor	If detect that indoor temp sensor is short circuit or open circuit for continuous 5s, indoor ambient temp will be compulsively set as 24°C and there is no any performance of the system..LED will blink or display error code F0. After clearing the error, it can automatically resume running. Under air supply mode, just display error code which will disappear after error is cleared and inner fan will normally run.

MAINTENANCE

1 TROUBLE TABLE

GX-X18/24/36/42SCR
GB-X18/24/36SCR

1.1 Main Control Malfunction

Table 1 Fault Display on Indoor Wired Controller

No.	Error code	Malfunction name	Origin of malfunction signal	Control description
1	E1	High pressure protection	High pressure switch	When outdoor unit detects the high pressure switch is cut off for 3s successively, high pressure protection will occur. All the loads (except the 4-way valve in heating mode) will be switched off. In this case, all the buttons and remote control signals except ON/OFF button will be disabled and cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this protection.
2	E2	Freeze protection	Indoor evaporator temperature sensor	If detecting that the evaporator temperature is lower than protective temp. Value after the unit has been running for a period of time under cooling or dry mode, the unit will report this fault, in which case the compressor and outdoor fan motor will be stopped. The unit will not run until evaporator temperature is higher than the protective temp. value and the compressor is stopped for 3min.
3	E3	Low pressure protection	Low pressure switch	If it is detected within 30s successively that the low-pressure switch is cut off under ON or standby state, the unit will report low pressure protection. If the fault occurs successively 3 times within 30min, the unit cannot be recovered automatically.
		Refrigerant lacking protection		If the unit reports system refrigerant lacking within 10min after turning on the unit, the unit will stop operation. If the fault occurs successively 3 times, the unit cannot be recovered automatically.
		Refrigerant recycling mode		If enter refrigerant recycling mode through special operation, E3 will be displayed. After exiting refrigerant recycling mode, the code will disappear.
4	E4	Compressor high discharge temperature protection	Compressor discharge temperature is high	If outdoor unit detects that the discharge temperature is higher than protective temp. Value, the unit will report high discharge temperature protection. If the protection occurs over 6 times, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this protection.
6	E6	Communication malfunction	Communication between indoor and outdoor mainboard	If the outdoor unit does not receive data from indoor unit, communication malfunction will be reported. If there is communication abnormality between display board and indoor unit, communication malfunction will be reported too.
8	E8	Malfunction of indoor fan motor	Indoor fan motor	If the indoor unit does not receive signal from indoor fan motor for 30s successively when the fan motor is operating, indoor fan motor malfunction will be reported. In this case, the unit can automatically resume operation after stopping. If the malfunction occurs 6 times within one hour, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this malfunction.
9	E9	Full water protection	Water level switch	If cut-off of water level switch is detected for 8s successively once energized, the system will enter full water protection. In this case, switch off the unit and then switch it on to eliminate this malfunction.
10	F0	Malfunction of indoor ambient temperature sensor at air return port	Indoor ambient temperature sensor	If the indoor ambient temperature sensor is detected of open circuit or short circuit for 5s successively, indoor ambient temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears. If indoor ambient temperature sensor malfunction occurs in fan mode, only the error code is displayed and the indoor unit can work normally.
11	F1	Malfunction of evaporator temperature sensor	Evaporator temperature sensor	If the indoor evaporator temperature sensor is detected of open circuit or short circuit for 5s successively, evaporator temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears. If evaporator temperature sensor malfunction occurs in fan mode, only the error code is displayed and the indoor unit can work normally.

No.	Error code	Malfunction name	Origin of malfunction signal	Control description
12	F2	Malfunction of condenser temperature sensor	Condenser temperature sensor	If the outdoor condenser temperature sensor is detected of open circuit or short circuit for 5s successively, condenser temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears. If condenser temperature sensor malfunction occurs in fan mode, only the error code is displayed and the indoor unit can work normally.
13	F3	Malfunction of outdoor ambient temperature sensor	Outdoor ambient temperature sensor	If the outdoor ambient temperature sensor is detected of open circuit or short circuit for 5s successively, outdoor ambient temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears. If outdoor ambient temperature sensor malfunction occurs in fan mode, only the error code is displayed and the indoor unit can work normally.
14	F4	Malfunction of discharge temperature sensor	Discharge temperature sensor	If the outdoor discharge temperature sensor is detected of open circuit or short circuit for 5s successively after the compressor has been operating for 3min, outdoor discharge temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears.
15	F5	Malfunction wired controller temperature sensor	Wired controller	If the wired controller detects open circuit or short circuit of its temperature sensor for 5s successively, wired controller temperature sensor malfunction will be reported.
18	ee	Malfunction of outdoor drive memory chip	Outdoor drive board	If the memory chip of outdoor drive board is broken, the unit cannot be started. The unit cannot be recovered automatically. If the malfunction cannot be eliminated after switching off the unit and then energizing the unit for several times, please replace the outdoor drive board.
20	H3	Compressor overload protection	Compressor overload switch	If it is detected within 3s successively that the overload switch is cut off under ON or standby state, the unit will report overload protection. If the fault occurs successively 3 times, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this protection.
21	H4	Overload protection	Evaporator temperature, condenser temperature	If outdoor unit detects that the tube temperature is higher than protective temp. Value, the unit will report overload protection. The unit will not restart operation until tube temperature is lower than the protective temp. Value and the compressor is stopped for 3min. If the protection occurs over 6 times, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this protection.
23	H6	Malfunction of outdoor fan motor	Outdoor fan motor	If the outdoor unit does not receive signal from outdoor fan motor for 30s successively when the fan motor is operating, outdoor fan motor malfunction will be reported. In this case, the unit can automatically resume operation after stopping. If the malfunction occurs 6 times within one hour, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this malfunction.
32	U7	Direction changing malfunction of 4-way valve	4-way valve	After the compressor starts operation in heating mode, if the outdoor unit detects the difference between evaporator temperature and indoor ambient temperature is lower than the protective value for 10min successively, direction changing malfunction of 4-way valve will be reported and the outdoor unit will stop operation. The unit can automatically resume operation in the first two malfunctions. If the malfunction occurs 3 times, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this malfunction.
35	P6	Communication malfunction between main control and drive	Communication between main control board and drive board	If the outdoor main control board does not receive data from drive board, communication malfunction between main control and drive will be reported. This malfunction can be eliminated automatically.
47	EE	Malfunction of outdoor main control memory chip	Outdoor main control board	If the memory chip of outdoor main control board is broken, the unit cannot be started. The unit cannot be recovered automatically. If the malfunction cannot be eliminated after switching off the unit and then energizing the unit for several times, please replace the outdoor main control board.

1.2 Description of Drive Malfunction

Main board dual 8 numeral tube Display Codes for Outdoor Unit of 09~48k

Malfunction Item	Indoor Unit Display	Outdoor unit display of dual 8 numeral tube
DC busbar over-voltage protection	PH	PH
IPM or PFC over-temperature protection	P8	P8
Current sense circuit error	Pc	Pc
IPM or PFC temperature sensor error	P7	P7
Compressor current protection	P5	P5
DC busbar under-voltage protection	PL	PL
Compressor startup failure	Lc	Lc
Drive module reset	P0	P0
Compressor motor desynchronizing	H7	H7
Phase loss	Ld	Ld
Drive-to-main-control communication error	P6	P6
IPM protection	H5	H5
Compressor overload protection	H3	H3
AC current protection (input side)	PA	PA
Charging circuit error	PU	PU
PFC protection	HC(48k only)	HC(48k only)
DC fan error	H6	H6
Input AC voltage abnormality	PP	PP
Driving board memory chip error	ee(09-42k)	ee(09-42k)