

11 FAULT FINDING

11.1 Error Code Display

In the event that a fault is detected, a red LED on the ON/OFF switch of the remote controller will flash and a warning icon and error code will be displayed on LCD screen and also on the Terminal PCB display.

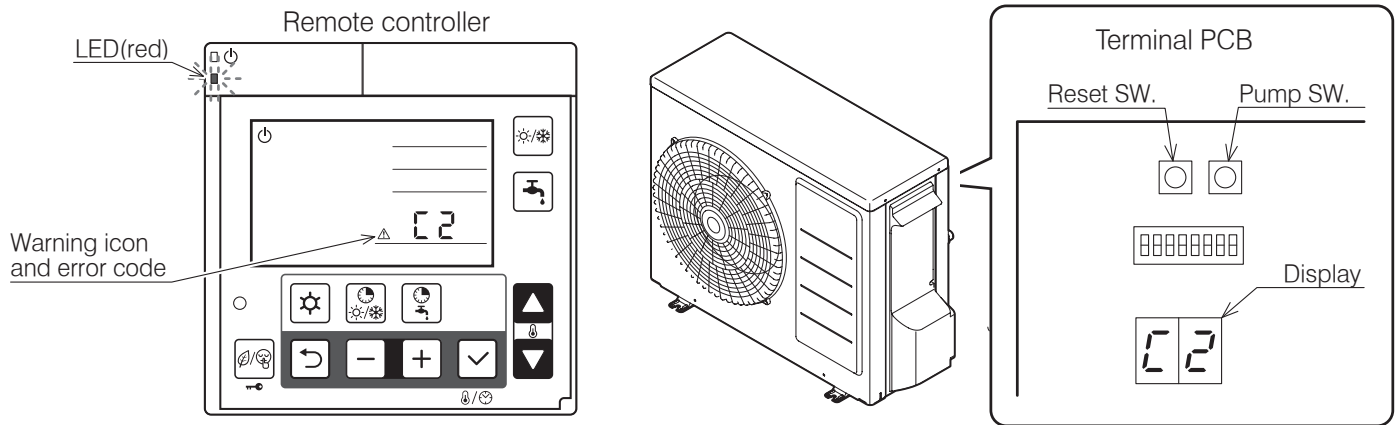


Figure 11-1: Error code display

11.2 Error History Display

The previous 10 error codes can be displayed on Terminal PCB display.

Procedure to display on Terminal PCB display:

1. Press Pump SW and Reset SW on Terminal PCB at the same time for five seconds and the error history order and error code will be displayed alternately. The first one is the latest error code.
2. Press Pump SW to go through the history order up to the 10th error code and then go back to the latest error code.
3. When there is no error history, '--' will be displayed.

If no operation is carried out for five minutes or both the Pump SW and Reset SW are pressed together for five seconds, the display returns to normal display.

Deletion of the error history:

During error code display, press Reset SW and Pump SW for ten seconds to delete the error history.

11.3 Reset Error Code Display

Auto

Once it returns to normal condition, the error will automatically be reset.

When the heat pump stops, it may not possible to reset automatically. In this case, reset manually.

Manual

To reset, press – and + O buttons on the Remote Controller at the same time for three seconds, or press Reset SW on the Terminal PCB.

Refer to Figure 11-2.

It is possible to reset by turning the mains power supply switch OFF ON, although this is not recommended.

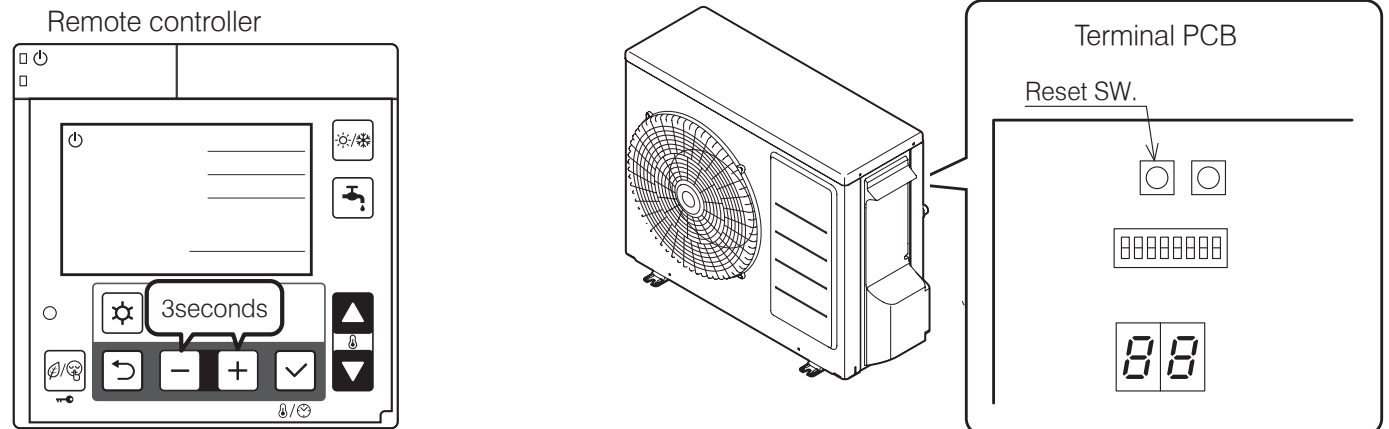


Figure 11-2: Resetting error code display

11.4 Error Codes

Error code	Error	Method of check	Troubleshooting	Figure/ table	Error reset
-	-	Power supply	Check the power supply	Confirm the power supply	-
		Fuse CF1 HPID6: 250V 15A HPID10: 250V 25A HPID16: 250V 30A	Check the electric continuity of Fuse CF1 by tester	If CF1 is blown, Main PCB should be replaced	Figure 11-3
		Fuse CF3 (250V 3A)	Check the electric continuity of Fuse CF3 by tester	If CF3 is blown, Main PCB should be replaced	
		Fuse CF4 HPID6: 250V 3A HPID10: 250V 3A	Check the electric continuity of Fuse CF4 by tester	If CF4 is blown, Main PCB should be replaced	
		Main PCB	Other than described above	Main PCB should be replaced	-
A0	DC voltage error	Fan motor	Operate without lead wire for Fan motor Check the electric continuity of Fuse by tester	If the same error code appears again, Main PCB or Pump should be replaced If other error codes appear, Fan motor should be replaced	-
		Fuse CF6 HPID16: 250V 3A		If CF6 is blown, it should be replaced	Figure 11-4
		Fuse CF7 HPID10: 250V 3A HPID16: 250V 3A		If CF7 is blown, it should be replaced	
		Pump	Operate without lead wire for Pump	If the same error code appears again, Main PCB or Fan motor should be replaced If other error codes appear, Pump should be replaced	-
		Reactor	Check the resistance by tester (0.1Ω at 20°C)	If the reactor is faulty, it should be replaced.	-
		Main PCB	Check the voltage of Fan motor by tester Check the voltage of Pump by tester	If the voltage is abnormal, PCB (Main should be replaced)	Figure 11-4, 11-6
		Power supply	Check the power supply	Confirm the power supply	-
A1	Discharge temperature error	Sensor, Temp. Discharge	Check the resistance by tester	If the sensor is faulty, it should be replaced	Figure 11-13
		Gas leakage	Check the service valve and refrigerant circuit (pipe)	Collect refrigerant once, then recharge with prescribed mass	-
A2	Protective action against excess Current DC current detection	Unreasonable operation under/ overload	Check the place of installation (blockage of air inlet & outlet) Check the excess gas	Ensure the installation position to avoid blockage of air inlet & outlet If excess gas is observed, collect all refrigerant once, then recharge with prescribed mass	-
		Drop of power voltage	Check the power voltage (230V)	Confirm the power supply voltage (230V)	
		Main PCB	Operate without the junction connector of Compressor lead wire	If the same error code appears again, Main PCB should be replaced	
		Momentary stop of power (In case of lightning)	-	Restart operation	
		Compressor	Other than described above	Compressor should be replaced	
A3	CT disconnection	Main PCB	-	Main PCB should be replaced	-
A4	Protective action against excess Current AC current detection	Unreasonable operation under/ overload	Check the place of installation (blockage of air inlet & outlet) Check the excess gas	Ensure the installation position to avoid blockage of air inlet & outlet If excess gas is observed, collect all refrigerant once, then recharge with prescribed mass	-
		Drop of power voltage	Check the power voltage (230V)	Confirm the power supply voltage (230V)	
		Momentary stop of power (In case of lightning)	-	Restart operation	

Error code	Error		Method of check	Troubleshooting	Figure/ table	Error reset
A5	Abnormal revolution of compressor	Unreasonable operation under/ overload	Check the place of installation (blockage of air inlet & outlet) Check the excess gas	Ensure the installation position to avoid blockage of air inlet & outlet If excess gas is observed, collect all refrigerant once, then recharge with prescribed mass	-	Manual
		Drop of power voltage	Check the power voltage (230V)	Confirm the power supply voltage (230V)		
		Fuse CF6 HPID6: 250V 15A HPID10 : 250V 25A	Check the electric continuity Fuse CF6 by tester	If CF6 is blown, Main PCB should be replaced	Figure 11-5	
		Clogged the water Pump and/or water circuit	Check the Pump and water circuit	Remove the blockage, then restart operation		
		Drop of power voltage	Check the power voltage (230V) during operation	Confirm the power supply voltage (230V)		
		Momentary stop of power (In case of lightning)	-	Restart operation		
		Compressor or Main PCB	Other than described above	Compressor should be replaced		
		A6	Suction temperature sensor error	Sensor, Temp. Suction	Check the resistance by tester	
A7	Defrost tem sensor error	Sensor, Temp. Defrost	Check the resistance by tester	If the sensor is faulty, it should be replaced	Figure 11-14	
A8	Discharge temp. sensor error	Sensor, Temp. Discharge	Check the resistance by tester (* 1)	If the sensor is faulty, it should be replaced	Figure 11-13	
C1	Upper fan motor error (HPID13R32 & HPID17R32)	Fuse CF7 (250V T3.15A)	Check the electric continuity Fuse CF7 by tester	If CF7 is blown, Fan motor and CF7 should be replaced If CF7 is not blown, check the voltage of Fan motor If the voltage is normal, Fan motor should be replaced If the voltage is abnormal, Main PCB should be replaced	Figure 11-4	Auto
		Fan motor (*2)				
		Main PCB				
C2	Outdoor temp. sensor error	Sensor, Temp. Outdoor	Check the resistance by tester	If the sensor is faulty, it should be replaced	Figure 11-12	Auto
C3	Lower Fan motor error (HPID13R32 & HPID17R32)	Fuse CF6 (HPID16: 250V T3.15A)	Check the electric continuity of Fuse CF6 by tester	If CF6 is blown, it should be replaced	Figure 11-4	Manual
		Fuse CF7 (HPID10: 250V T3.15A)	Check the electric continuity of Fuse CF7 by tester	If CF7 is blown, it should be replaced		
	Fan motor error (HPID6R32 & HPID10R32)	Fan motor	Check the voltage of Fan motor by tester	If the voltage is normal, Fan motor should be replaced If the voltage is normal, Main PCB should be replaced		
		Main PCB				
C4	Rise of temperature (above 110°C) of Main PCB	Mis-installation	Check the place of installation (blockage of air inlet & outlet)	Ensure the installation position to avoid blockage of air inlet & outlet	-	
		Sensor, Temp. Main PCB	-	Main PCB should be replaced		
C5	Main PCB sensor error	Sensor, Temp. Main PCB	-	Main PCB should be replaced	-	Auto
C6	Main PCB error	Main PCB	-	Main PCB should be replaced	-	Power OFF
C7	Controller PCB serial error	Mis wiring or rare contact [Main PCB - Controller PCB connecting cable]	Check the wiring connection and rare contact	After correcting mis wiring, restart operation	-	Auto
		Controller PCB	Other than described above	Controller PCB should be replaced		
		Main PCB	Other than described above	Main PCB should be replaced		
		Earth wire	-	Check if earth wire is properly installed		

(*1) In case of detecting open circuit of the discharge temperature sensor, error display appears 10 minutes after start operating.

In case of detecting short circuit of the discharge temperature sensor, error display appears immediately.

(*2) When checking fan motor and/or pump, turn OFF the power supply completely and check at their terminal or connector.

Error code	Error		Method of check	Troubleshooting	Figure/ table	Error reset
C8	Main PCB error	Main PCB	Turn off the power supply, wait for about 3 minutes, then power up again	If the same error code appears, Main PCB should be replaced	-	Power OFF
			Check loose cable connections and contacts of reactor			
E4	Outgoing water temp. sensor error	Sensor, Temp. Outgoing water	Check the resistance by tester	If the sensor is faulty, it should be replaced	Figure 11-15	Auto
E5	Return water temp. sensor error	Sensor, Temp. Return water	Check the resistance by tester	If the sensor is faulty, it should be replaced		
FU	High pressure switch is operating (HPID13R32 & HPID17R32)	Outside air recirculation	Check temperature difference of Outgoing/ Return water (see Monitor display function) Large difference means flow rate is too low	Make sure the position doesn't block the air inlet and outlet	-	
		Clogged water circuit		Remove the blockage, then restart operation		
P1	Pump error	Pump (*2)	Check the voltage of Pump	If the voltage is normal, Pump should be replaced If the voltage is abnormal, Main PCB should be replaced	Figure 11-6	Manual
		Main PCB				
		The pump is blocked/air-locked or water circuit restricted.	Check the pump and water circuit	Remove the blockage, then restart operation	-	
P3	High pressure switch error (HPID13R32 & HPID17R32)	High pressure switch	Check loose cable connections and contacts	If the same error code appears, high pressure switch should be replaced	-	Power OFF
U1	Compressor overheat protection relay operation (HPID13R32 & HPID17R32)	Compressor overheat protection relay	Check the resistance by tester	If the compressor overheat protection relay is blown, it should be replaced	Figure 11-10	Manual
		Gas leakage	Check the service valve and refrigerant circuit (pipe)	Correct refrigerant once, then recharge with prescribed mass	-	
Water not getting warm		Fuse CF2 0639U : 250V T3.15A 1039U : 250V T3.15A 1639U : 250V T5A	Check the electric continuity of Fuse CF1 by tester	If CF2 is blown,it should be replaced and check the resistance of 4way valve and the resistance of Defrost heater by tester	Figure 11-9	-
		4way valve	Check the resistance of 4way valve by tester	If 4way valve is blown,it should be replaced	Figure 11-7	
		Defrost heater	Check the resistance of Defrost heater by tester	If Defrost heater is blown,it should be replaced	Figure 11-8	
		Short cycle (insufficient air circulation)	Check the blockage of air inlet & outlet	Ensure the installation position to avoid blockage of air inlet & outlet	-	
		Sensor,Temp. Outgoing water and Return water	Check the resistance by tester	If any of these sensors is faulty, it should be replaced	Figure 11-15	
		Gas leakage	Check the service valve and refrigerant circuit (pipe)	After fixing the leakage point,collect the refrigerant once,then recharge with prescribed mass	-	
		Clogged water circuit	Check temperature difference of Outgoing/ Return water (see Monitor display function) Large difference means flow rate is too low	Remove the blockage,then restart operation	-	

11.5 Table of Controller PCB and Terminal PCB Alarms

Error code	Error		Method of check		Troubleshooting	Figure/ table	Error reset
L0	EEPROM error	PCB(Controller) and PCB(EEPROM)	-		PCB(Controller) and PCB(EEPROM) should be replaced	-	Power OFF
L1	DHW temperature sensor error	Sensor, temperature DHW tank	Check the resistance by tester		If the sensor is faulty, it should be replaced	Figure 11-14	Auto
L2	Outdoor temperature sensor error	Sensor, temperature outdoor	Check the resistance by tester		If the sensor is faulty, it should be replaced	Figure 11-16	
L3	Thermal store temperature sensor error	Sensor, temperature thermal store	Check the resistance by tester		If the sensor is faulty, it should be replaced	Figure 11-14	
L4	Mix water temperature sensor error	Sensor, temperature Mix water	Check the resistance by tester		If the sensor is faulty, it should be replaced	Figure 11-14	
L5	Humidity sensor error	Sensor, Humidity	Check the resistance by tester		If the sensor is faulty, it should be replaced	Figure 11-11	
740	Remote controller communication error	Incorrect remote controller wiring or DIP SW setting	Check loose cable connections and contacts Check DIP SW setting		After having corrected the wiring and DIP SW setting, restart operation	-	
		Loose interface connection cable or contacts	Rear side of remote controller				
		Remote controller	Other than described above		Remote controller should be replaced		
		Controller PCB	Other than described above		Controller PCB should be replaced		
E8	Remote controller communication error	Incorrect remote controller wiring Loose interface connection cable or contacts	Check loose cable connections and contacts		After having corrected the wiring, restart operation	-	
		Controller PCB	Other than described above		Controller PCB should be replaced		
F5	Main PCB communication error	Incorrect main PCB wiring Loose interface connection cable or contacts	Check loose cable connections and contacts		After having corrected the wiring, restart operation	-	
		Main PCB	Other than described above		Main PCB should be replaced		
		Controller PCB	Other than described above		Controller PCB should be replaced		
Terminal PCB cannot be operated Terminal PCB does not display anything		Lead wire of Terminal PCB	Check lead wires are connected to the connectors properly		Connect the connectors to both Terminal PCB and Controller PCB steadily	-	-
			Ensure that there is no disconnection for the lead wires		Lead wires should be replaced		
		Terminal PCB	Other than described above		Terminal PCB should be replaced		
		Controller PCB	Other than described above		Controller PCB should be replaced		