

## 8. Error Codes and How to Deal with it

When an error has occurred, a red LED on the operation panel turns on and an error code is displayed on the LED display. The panel does not revert to the display sleep mode while the error code is shown.

### Error Code example



After a component is replaced or the inspection is completed, turn the breaker OFF for a period of 3 minutes before restarting to confirm the error does not re-occur.

Below is the list of the error codes. If the corrective action does not solve the error problem, a malfunction of the PCB is highly likely.

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E001	HP water outlet over temperature 1	<b>【Error Detection Condition】</b> When the hot water temperature thermistor detect 86 °C or more			
		<Check Items>			
		- Check dust being stuck on HP connector			- Remove dust if any
		- Bends or blockings on HP connection pipes			-Correct piping and remove bends and blockings
		- freeze on pipes			- Melt the freeze if any and apply insulation
		- Water valve is closed			- Open water valve
		- Stopper valve is closed			- Open stopper valve
			- fill tank with water if it is not		
		- Water circulation pump malfunction			- if Water circulation pump do not start operating even after turning it on, on the operation panel, it is a malfunction of the Water circulation pump.

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E002	HP water outlet over temperature 2	<b>【Error Detection Condition】</b> Outlet water temperature error			
		<Check Items>			
		- Check dust being stuck on HP connector			- Remove dust if any
		- Bends or blockings on HP connection pipes			-Correct piping and remove bends and blockings
		- freeze on pipes			- Melt the freeze if any and apply insulation
		- Water valve is closed			- Open water valve
		- Stopper valve is closed			- Open stopper valve
E003	HP outlet temperature thermistor detection error	<b>【Error Detection Condition】</b> When the hot water temperature thermistor didn't detect 30 °C or more during 30 minutes after the compressor operation start			
		<Check Items>			
E004	HP discharge over temperature 1	<b>【Error Detection Condition】</b> When the discharge temperature thermistor detect 130 °C or more			
		<Check Items>			
		- malfunction of discharge temperature thermistor	CN500	White	- Replace discharge temperature thermistor
		- Check if expansion valve connector is fallen out or not connected properly	CN504	White	- Put it back on properly if it is not in right position
		- Check resistance between 2 phases on expansion valve coil (see table)			- Abnormal: Valve coil replacement required (together with PC board) - Normal: Heat pump unit replacement required
	- Blockage in refrigerant pipes			- Heat pump unit replacement required	

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E005	HP discharge over temperature 2	<b>【Error Detection Condition】</b> Discharge temperature error			
		<Check Items>			
		- malfunction of discharge temperature thermistor	CN500	White	- Replace discharge temperature thermistor
		- Check if expansion valve connector is fallen out or not connected properly	CN504	White	- Put it back on properly if it is not in right position
		- Check resistance between 2 phases on expansion valve coil (see table)			- Abnormal: Valve coil replacement required (together with PC board) - Normal: Heat pump unit replacement required
	- Blockage in refrigerant pipes			- Heat pump unit replacement required	
E006	HP discharge temperature Thermistor detection error	<b>【Error Detection Condition】</b> When the discharge temperature thermistor didn't detect 45 °C or more during 30 minutes after the compressor operation start			
		<Check Items>			
		- Check if the discharge temperature thermistor is fallen out	CN500	White	- Put the discharge temperature thermistor back into the pocket on pipe if it is out.
		- Check if expansion valve connector is fallen out or not connected properly	CN504	White	- Put it back on properly if it is not in right position
		- Check resistance between 2 phases on expansion valve coil (see table)			- Abnormal: Valve coil replacement required (together with PC board) - Normal: Heat pump unit replacement required
	- leakage on refrigerant pipes			- Heat pump unit replacement required	

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods	
			Connector No. or Maintenance Monitor No.	Connector Colour		
E007	High pressure side error	<b>【Error Detection Condition】</b> When high pressure switch open is detected				
		<Check Items>				
		- Check on HP connector				- Remove dust if any
		- Bends or blockings on HP connection pipes				-Correct piping and remove bends and blockings
		- freeze on pipes				- Check temperature on pipe cover that is exposed to ambient temperature
		- Water valve is closed				- Open water valve
		- Stopper valve is closed				- Open stopper valve
		- confirm tank is filled				- fill tank with water if it is not
		- Water circulation pump malfunction	CN201	Red		- If Water circulation pump do not start operating even after turning it on on the operation panel, it is a malfunction of the Water circulation pump.
		- Check if air exists in water				- If noise of air being released can be heard when water drain plug or PTR valve is loosened, remove air.
		- Check if the inlet water temperature thermistor is fallen out	CN500	White		- Put the inlet water temperature thermistor back to the right position if it is out
		- Check if the outlet water temperature thermistor is fallen out	CN500	White		- Put the outlet temperature thermistor back to the right position if it is out
		- Check if the discharge temperature thermistor is fallen out	CN500	White		- Put the discharge temperature thermistor back to the right position if it is out
- Check if expansion valve connector is fallen out or not connected properly	CN504	White		- Put it back on properly if it is not in right position		
- Check resistance between 2 phases on expansion valve coil (see table)				- Abnormal: Valve coil replacement required (together with PC board) - Normal: Heat pump unit replacement required		
E008	High ambient temperature defrost drive error	<b>【Error Detection Condition】</b> Defrost drive conducted while ambient temperature thermistor detected 20°C or more				
		<Check Items>				
		- Trouble in air absorption due to foreign object blocking air path through evaporator				- Remove foreign object from evaporator
		- Ambient temperature thermistor malfunction	CN500	White		- Replace ambient temperature thermistor
- defrost temperature thermistor malfunction	CN500	White		- Replace defrost temperature thermistor		

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E009	HP defrost thermistor detection error	【Error Detection Condition】 When the defrost temperature thermistor didn't detect ambient temperature thermistor+3°C or less during 30 minutes after the compressor operation start			
		<Check Items>			
		- Check if the defrost temperature thermistor is fallen out from evaporator	CN500	White	- Put the defrost temperature thermistor back into the pocket on evaporator if it is out.
		- malfunction of the defrost temperature thermistor	CN500	White	- Replace the defrost temperature thermistor
E011	HP inlet temperature thermistor wire break	【Error Detection Condition】 When the inlet water temperature thermistor detect -30°C or less			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-1 in p.g.17)
E012	HP outlet temperature thermistor wire break	【Error Detection Condition】 When the outlet water temperature thermistor detect -30°C or less			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-1 in p.g.17)
E013	HP discharge temperature thermistor wire break	【Error Detection Condition】 When the discharge temperature thermistor detect -31°C or less			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-3 in p.g.17)
E014	HP defrost temperature thermistor wire break	【Error Detection Condition】 When the defrost temperature thermistor detect -50°C or less			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-4 in p.g.17)
E015	HP ambient temperature thermistor wire break	【Error Detection Condition】 When the Ambient temperature thermistor detect -50°C or less			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-2 in p.g.17)
E016	Tank thermistor wire break	【Error Detection Condition】 When the Tank thermistor detect -30°C or less			
		<Check Items>			
		Refer to Thermistor diagnostic	CN506	White	Check to see if it is broken.

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E021	HP inlet temperature thermistor wire short circuit	【Error Detection Condition】 When the inlet water temperature thermistor detect 100°C or more			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-1 in p.g.17)
E022	HP outlet temperature thermistor wire short circuit	【Error Detection Condition】 When the outlet water temperature thermistor detect 150°C or more			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-1 in p.g.17)
E023	HP discharge temperature thermistor wire short circuit	【Error Detection Condition】 When the discharge temperature thermistor detect 150°C or more			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-3 in p.g.17)
E024	HP defrost temperature thermistor wire short circuit	【Error Detection Condition】 When the defrost temperature thermistor detect 100°C or more			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-4 in p.g.17)
E025	HP ambient temperature thermistor wire short circuit	【Error Detection Condition】 When the Ambient temperature thermistor detect 100°C or more			
		<Check Items>			
		Refer to Thermistor diagnostic	CN500	White	-Confirm the resistance: (See Table-2 in p.g.17)
E026	Tank thermistor short circuit	【Error Detection Condition】 When the Tank thermistor detect 120°C or more			
		<Check Items>			
		Refer to Thermistor diagnostic	CN506	White	Check to see if it is shorted.
E031	Fan motor locked	【Error Detection Condition】 Continuous fan motor abnormal operation.			
		<Check Items>			
		- Fan blade rotated with foreign object stuck on it			- Remove foreign object
		- Fan motor locked			- Replace fan motor
		- Check if connector is fallen out or not connected properly	CN200	White	- Put it back on properly if it is not in right position
	- Fan motor malfunction	CN200	White	- Replace fan motor	

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E032	Fan motor revolution error	<b>【Error Detection Condition】</b> Continuous fan motor abnormal operation.			
		<Check Items>			
		-Fan blade do not rotate			- Put it back on properly if it is not in right position
		-Fan blade rotates in higher speed than usual	CN200	White	- Replace fan motor
		- Fan motor malfunction	CN200	White	- Replace fan motor
E034	Water circulation pump locked	<b>【Error Detection Condition】</b> When less than 150rpm of water circulation pump rotation is detected for 20 seconds continuity			
		<Check Items>			
		- Check if pump connector is fallen out or not connected properly	CN201	Red	- Put it back on properly if it is not in right position
		- Water pump malfunction	CN201	Red	- If rotation of water circulation pump do not reach expected number of rotation even after turning it on on the operation panel, it is a malfunction of the water circulation pump.
		- Check for bends or blockings on HP connection pipes			- Correct piping and remove bends and blockings
E041	INV compressor start error	<b>【Error Detection Condition】</b> Compressor start error detected in compressor operation control			
		<Check Items>			
		Error in compressor wiring			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm cable is connected correctly at terminal block
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
		- PC Board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump
		- Compressor malfunction			- Heat pump unit replacement required

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E042	INV communication error	<b>【Error Detection Condition 】</b> Communication error detected in compressor operation control			
		<Check Items>			
		- Wiring layout is not following instruction			- Confirm connector connections
		- noise source is near harnesses			- Stop operation of all the surrounding electrical products and reboot Heat Pump
		- PC board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump
E50	INV transient over-current error on hardware (converter)	<b>【Error Detection Condition 】</b> Over current error detected in compressor operation control			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Error in compressor wiring			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm cable is connected correctly at terminal block
		- Check dust being stuck on HP connector			- Remove dust
		- Bends or blockings and freeze on HP connection pipes			-Correct piping and remove bends and blockings
		- Stopper valve is closed			- Open stopper valve
		- Air exists in water pipe			- Remove air
		- Water circulation pump malfunction			- Conduct operation check on water circulation pump
		- Power cutoff occurred			- Check Power supply cable wiring layout
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
		- PC board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods	
			Connector No. or Maintenance Monitor No.	Connector Colour		
E051	INV transient over-current error on hardware (inverter)	<b>【Error Detection Condition】</b> Over current error detected in compressor operation control				
		<Check Items>				
		- Check for HP control PC board connector connection				- Confirm connector connections
		- Error in compressor wiring				- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block				- Confirm cable is connected correctly at terminal block
		- Check dust being stuck on HP connector				- Remove dust
		- Bends or blockings and freeze on HP connection pipes				-Correct piping and remove bends and blockings
		- Stopper valve is closed				- Open stopper valve
		- Air exists in water pipe				- Remove air
		- Water circulation pump malfunction				- Conduct operation check on water circulation pump
		- Power cutoff occurred				- Check Power supply cable wiring layout
- Power supply voltage error				- Confirm power supply voltage (187~254 V (include tolerance))		
- PC board malfunction				- PCB replacement required if same error occurs again after re-run of heat pump		

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E052	INV transient over-current error on software (inverter)	<b>【Error Detection Condition】</b> Over current error detected in compressor operation control			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Error in compressor wiring			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm cable is connected correctly at terminal block
		- Check dust being stuck on HP connector			- Remove dust
		- Bends or blockings and freeze on HP connection pipes			-Correct piping and remove bends and blockings
		- Stopper valve is closed			- Open stopper valve
		- Air exists in water pipe			- Remove air
		- Water circulation pump malfunction			- Conduct operation check on water circulation pump
		- Power cutoff occurred			- Check Power supply cable wiring layout
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
- PC board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump		

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods	
			Connector No. or Maintenance Monitor No.	Connector Colour		
E053	INV transient over-current error on software (converter)	<b>【Error Detection Condition】</b> Over current error detected in compressor operation control				
		<Check Items>				
		- Check for HP control PC board connector connection				- Confirm connector connections
		- Error in compressor wiring				- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block				- Confirm cable is connected correctly at terminal block
		- Check dust being stuck on HP connector				- Remove dust
		- Bends or blockings and freeze on HP connection pipes				-Correct piping and remove bends and blockings
		- Stopper valve is closed				- Open stopper valve
		- Air exists in water pipe				- Remove air
		- Water circulation pump malfunction				- Conduct operation check on water circulation pump
		- Power cutoff occurred				- Check Power supply cable wiring layout
		- Power supply voltage error				- Confirm power supply voltage (187~254 V (include tolerance))
		- PC board malfunction				- PCB replacement required if same error occurs again after re-run of heat pump
E054	INV temperature sensor error	<b>【Error Detection Condition】</b> Wire break or short circuit detected on thermistor in HP control PC board				
		<Check Items>				
		- Thermistor wiring error	CN500	White		- Confirm connector connections
		- malfunction of thermistor on HP control PC board				- PCB replacement required if same error occurs again after re-run of heat pump

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E055	INV heatsink temperature error	<b>【Error Detection Condition】</b> 90degC or more detected by thermistor on HP control PC board			
		<Check Items>			
		- No fan blade rotation			- Check fan motor rotation
					- Confirm connector connections
		- No efficient air absorption amount			- Check if any damage on propellar fan blade
			- Remove foreign object from evaporator if any		
		- Fan motor malfunction			- Replace fan motor
E056	INV overload detection error	<b>【Error Detection Condition】</b> Overload Detected in compressor operation control			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Compressor wiring error			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm wire connection on terminal block.
		- Check dust being stuck on HP connector			- Remove foreign object if any
		- Bends or blockings and freeze on HP connection pipes			-Correct piping and remove bends and blockings
		- Check if stopper valve is open			- Open stopper valve
		- Air exists in water pipe			- Remove air
		- Water circulation pump malfunction			- Conduct operation check on water circulation pump
		- Power cutoff occurred			- Check Power supply cable wiring layout
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
- PC board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump		

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E057	INV power supply low-voltage error	<b>【Error Detection Condition】</b> Power supply voltage drop detected in compressor operation control			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Error in compressor wiring			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm cable is connected correctly at terminal block
		- Power cutoff occurred			- Check Power supply cable wiring layout
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
		- PC board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump
E058	INV Power Supply Over-Voltage Error	<b>【Error Detection Condition】</b> Over voltage error detected in compressor operation control			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Error in compressor wiring			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm cable is connected correctly at terminal block
		- Check dust being stuck on HP connector			- Remove dust
		- Bends or blockings and freeze on HP connection pipes			-Correct piping and remove bends and blockings
		- Stopper valve is closed			- Open stopper valve
		- Air exists in water pipe			- Remove air
		- Water circulation pump malfunction			- Conduct operation check on water circulation pump
		- Power cutoff occurred			- Check Power supply cable wiring layout
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
- PC board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump		

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E059	INV serial communication error	<b>【Error Detection Condition】</b> Error detected on serial communication driver			
		<Check Items>			
		Error in compressor wiring			- Correct compressor wiring
		- Check resistance between 2 phases on compressor			- Normal: PC board replacement required - Abnormal: Heat pump unit replacement required
	compressor malfunction			- Heat pump unit replacement required	
E060	INV Inverter Current Detection Circuit Error	<b>【Error Detection Condition】</b> Error detected inside PC board			
		<Check Items>			
		- PC Board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump
E061	INV transient power cutoff detection error 1	<b>【Error Detection Condition】</b> Power cutoff detected in compressor operation control			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Error in compressor wiring			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm cable is connected correctly at terminal block
		- Power cutoff occurred			- Check Power supply cable wiring layout
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
	- PC board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump	

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E062	INV transient power cutoff detection error 2	<b>【Error Detection Condition】</b> Power cutoff detected in compressor operation control			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Error in compressor wiring			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm cable is connected correctly at terminal block
		- Power cutoff occurred			- Check Power supply cable wiring layout
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
				- PCB replacement required if same error occurs again after re-run of heat pump	
E063	INV control circuit board power supply error	<b>【Error Detection Condition】</b> Error detected inside PC board			
		<Check Items>			
		- PC Board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump
E064	INV transient voltage drop detection error	<b>【Error Detection Condition】</b> Power cutoff detected in compressor operation control			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Error in compressor wiring			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm cable is connected correctly at terminal block
		- Power cutoff occurred			- Check Power supply cable wiring layout
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
				- PCB replacement required if same error occurs again after re-run of heat pump	

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E065	INV motor operation detection error	<b>【Error Detection Condition】</b> Compressor rotation error was detected			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Trouble in air absorption due to foreign object blocking air path through evaporator			- Remove foreign object from evaporator if any
		- Check dust being stuck on HP connector			- Remove foreign object if any
		- Bends or blockings and freeze on HP connection pipes			-Correct piping and remove bends and blockings
		- Stopper valve is closed			- Open stopper valve
		- Air exists in water pipe			- Remove air
		- Water circulation pump malfunction			- Conduct operation check on water circulation pump
		- Compressor wiring error			- confirm connection of wire terminals to compressor is in the right order
		- Power cutoff occurred			- Check Power supply cable wiring layout
		- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))
		- Error in connection on power supply terminal block			- Confirm wire connection on terminal block.
- PC board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump		
E066	INV Converter Current detection Circuit Error	<b>【Error Detection Condition】</b> Error detected inside PC board			
		<Check Items>			
		- PC Board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods	
			Connector No. or Maintenance Monitor No.	Connector Colour		
E080	Outlet water temperature rise error	<b>【Error Detection Condition】</b> Continuous water pump abnormal operation.				
		<Check Items>				
		- Check on HP connector				- Remove dust if any
		- Bends or blockings on HP connection pipes				-Correct piping and remove bends and blockings
		- freeze on pipes				- Check temperature on pipe cover that is exposed to ambient temperature
		- Water valve is closed				- Open water valve
		- Stopper valve is closed				- Open stopper valve
		- confirm tank is filled				- fill tank with water if it is not
		- Water circulation pump malfunction				- If Water circulation pump do not start operating even after turning it on on the operation panel, it is a malfunction of the water circulation pump.
		- Check if air exists in water				- If noise of air being released can be heard when water drain plug or PTR valve is loosened, remove air.
		- Check if the inlet water temperature thermistor is fallen out				- Put the inlet water temperature thermistor back to the right position if it is out
		- Check if the outlet water temperature thermistor is fallen out				- Put the outlet temperature thermistor back to the right position if it is out
		- Check if the discharge temperature thermistor is fallen out	CN500		White	- Put the discharge temperature thermistor back to the right position if it is out
		- Check if expansion valve connector is fallen out or not connected properly	CN504		White	- Put it back on properly if it is not in right position
				- Abnormal: Valve coil replacement required (together with PC board)		
				- Normal: Heat pump unit replacement required		

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E081	Compressor overload protection	<b>【Error Detection Condition】</b> Current error detected in compressor operation control			
		<Check Items>			
		- Check for HP control PC board connector connection			- Confirm connector connections
		- Error in compressor wiring			- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block			- Confirm cable is connected correctly at terminal block
		- Check dust being stuck on HP connector			- Remove dust
		- Bends or blockings and freeze on HP connection pipes			-Correct piping and remove bends and blockings
		- Stopper valve is closed			- Open stopper valve
		- Air exists in water pipe			- Remove air
		- Water circulation pump malfunction			- Conduct operation check on water circulation pump
		- Power cutoff occurred			- Check Power supply cable wiring layout
- Power supply voltage error			- Confirm power supply voltage (187~254 V (include tolerance))		
- PC board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump		

Error Code	Error Contents	Diagnostic	Check Points		Judgment & Repair Methods	
			Connector No. or Maintenance Monitor No.	Connector Colour		
E082	Compressor low-current protection	<b>【Error Detection Condition】</b>				
		Current error detected in compressor operation control				
		<Check Items>				
		- Check for HP control PC board connector connection				- Confirm connector connections
		- Error in compressor wiring				- confirm connection of wire terminals to compressor is in the right order
		- Error in connection on power supply terminal block				- Confirm cable is connected correctly at terminal block
		- Check dust being stuck on HP connector				- Remove dust
		- Bends or blockings and freeze on HP connection pipes				-Correct piping and remove bends and blockings
		- Stopper valve is closed				- Open stopper valve
		- Air exists in water pipe				- Remove air
		- Water circulation pump malfunction				- Conduct operation check on water circulation pump
		- Power cutoff occurred				- Check Power supply cable wiring layout
- Power supply voltage error				- Confirm power supply voltage (187~254 V (include tolerance))		
- PC board malfunction				- PCB replacement required if same error occurs again after re-run of heat pump		