

8. Error Codes

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

After a component is replaced or the inspection is completed, turn the breaker on/off several times 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 valve is highly likely.

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E010	HP Inlet Temperature Thermistor Wire Break	When -30degC or less is detected Refer to Thermistor diagnostic	CN4	White	- Resistance: (See Table-1 in p.g.12)
E011	HP Inlet Temperature Thermistor Short Circuit	When -30degC or less is detected Refer to Thermistor diagnostic			- Resistance: (See Table-1 in p.g.12)
E012	HP Outlet Temperature Thermistor Wire Break	When -30degC or less is detected Refer to Thermistor diagnostic			- Resistance: (See Table-1 in p.g.12)
E013	HP Outlet Temperature Thermistor Short Circuit	When -30degC or less is detected Refer to Thermistor diagnostic			- Resistance: (See Table-1 in p.g.12)
E014	HP Ambient Temperature Thermistor Wire Break	When -30degC or less is detected Refer to Thermistor diagnostic			- Resistance: (See Table-2 in p.g.12)
E015	HP Ambient Temperature Thermistor Short Circuit	When 100degC or more is detected Refer to Thermistor diagnostic			- Resistance: (See Table-2 in p.g.12)
E016	HP Defrost Temperature Thermistor Wire Break	When 150degC or more is detected Refer to Thermistor diagnostic			- Resistance: (See Table-4 in p.g.12)
E017	HP Defrost Temperature Thermistor Short Circuit	When 150degC or more is detected Refer to Thermistor diagnostic			- Resistance: (See Table-4 in p.g.12)
E018	HP Discharge Temperature Thermistor Wire Break	When 100degC or more is detected Refer to Thermistor diagnostic			- Resistance: (See Table-3 in p.g.12)
E019	HP Discharge Temperature Thermistor Short Circuit	When 100degC or more is detected Refer to Thermistor diagnostic			- Resistance: (See Table-3 in p.g.12)
E020	Tank Thermistor A Wire Break	When -30degC or less is detected Refer to Thermistor diagnostic	CN5	White	- Resistance: (See Table-5 in p.g.12)
E021	Tank Thermistor A Short Circuit	When -30degC or less is detected Refer to Thermistor diagnostic	CN5	White	- Resistance: (See Table-5 in p.g.12)

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E040	HP Water Outlet Over Temperature 1	<p>When 80degC or more is detected:</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check dust being stuck on HP connector filter - Bends or blockings on HP connection pipes - freeze on pipes - Water valve is closed - Stopper valve is closed - confirm tank is filled - Water circulation pump malfunction 			<ul style="list-style-type: none"> - Remove dust if any -Correct piping and remove bends and blockings - Melt the freeze if any and apply insulation - Open water valve - Open stopper valve - fill tank with water if it is not - If Water circulation pump do not start operating even after turning it on on the timer setting panel, it is a malfunction of the water circulation pump.
E041	HP Water Outlet Over Temperature 2	<p>Outlet water temperature error</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check dust being stuck on HP connector filter - Bends or blockings on HP connection pipes - freeze on pipes - Water valve is closed - Stopper valve is closed - confirm tank is filled - Water circulation pump malfunction 			<ul style="list-style-type: none"> - Remove dust if any -Correct piping and remove bends and blockings - Melt the freeze if any and apply insulation - Open water valve - Open stopper valve - fill tank with water if it is not - If Water circulation pump do not start operating even after turning it on on the timer setting panel, it is a malfunction of the water circulation pump.
E042	HP Outlet Temperature Thermistor Detection Error	<p>When 55degC or less is detected</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check if thermistor is fallen out 			<ul style="list-style-type: none"> - Put thermistor back into the pocket on pipe if it is out.
E043	HP Discharge Over Temperature 1	<p>When 130degC or more is detected</p> <p><Check Items></p> <ul style="list-style-type: none"> - Malfunction of discharge thermistor - Check if expansion valve connector is fallen out or not connected properly - Check resistance between 2 phases on expansion valve coil (see table) - Blockage in refrigerant pipes 	<p>CN4</p> <p>CN10</p>	<p>White</p> <p>White</p>	<ul style="list-style-type: none"> - Replace discharge thermistor - 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 - Heat pump unit replacement required

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E044	HP Discharge Temperature Thermistor Detection Error	<p>When 50degC or less is detected</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check if discharge thermistor is fallen out - Check if expansion valve connector is fallen out or not connected properly - Check resistance between 2 phases on expansion valve coil (see table) <p>- leakage on refrigerant pipes</p>	<p>CN4</p> <p>CN10</p>	<p>White</p> <p>White</p>	<ul style="list-style-type: none"> - Put thermistor back into the pocket on pipe if it is out. - 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 - Heat pump unit replacement required
E045	HP Defrost Thermistor Detection Error	<p>When detected temperature is that detected on ambient temperature thermistor +3degC</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check if discharge thermistor is fallen out from evaporator - Malfunction of defrost thermistor 	<p>CN4</p>	<p>White</p>	<ul style="list-style-type: none"> - Put thermistor back into the pocket on evaporator if it is out. - Replace defrost thermistor
E047	High Pressure Side Error	<p>When detected high pressure switch open</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check on HP connector filter - Bends or blockings on HP connection pipes - freeze on pipes - Water valve is closed - Stopper valve is closed - confirm tank is filled - Water circulation pump malfunction - Check if air exists in water - Check if HP inlet thermistor is fallen out - Check if HP outlet thermistor is fallen out - Check if discharge thermistor is fallen out - Check if expansion valve connector is fallen out or not connected properly - Check resistance between 2 phases on expansion valve coil (see table) 	<p>CN7</p>	<p>White</p>	<ul style="list-style-type: none"> - Remove dust if any -Correct piping and remove bends and blockings - Check temperature on pipe cover that is exposed to ambient temperature - Open water valve - Open stopper valve - fill tank with water if it is not - If Water circulation pump do not start operating even after turning it on on the timer setting panel, it is a malfunction of the water circulation pump. - If noise of air being released can be heard when water drain plug or PTR valve is loosened, remove air. - Put thermistor back to the right position if it is out - Put thermistor back to the right position if it is out - Put thermistor back to the right position if it is out - 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	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E048	High Ambient Temperature Defrost Drive Error	Defrost drive conducted while ambient temperature thermistor detected 20degC <Check Items> - Trouble in air absorption due to foreign object blocking air path through evaporator - Ambient temperature thermistor malfunction - defrost thermistor malfunction			- Remove foreign object from evaporator - Replace ambient temperature thermistor - Replace defrost temperature thermistor
E070	Fan Motor Locked	Continuous fan motor abnormal operation. <Check Items> - Fan blade rotated with foreign object stuck on it - Fan motor locked - Check if connector is fallen out or not connected properly - Fan motor malfunction	CN12	White	- Remove foreign object - Replace fan motor - Put it back on properly if it is not in right position - Replace fan motor
E071	Fan Motor Revolution Error	Continuous fan motor abnormal operation. <Check Items> -Fan blade do not rotate -Fan blade rotates in higher speed than usual - Fan motor malfunction	CN12	White	- Put it back on properly if it is not in right position - Replace fan motor - Replace fan motor
E073	Water Circulation Pump Locked	When less than 150rpm of water circulation pump rotation detected <Check Items> - Check if pump connector is fallen out or not connected properly - Water pump malfunction - Check for bends or blockings on HP connection pipes	CN13	Red	- Put it back on properly if it is not in right position - If rotation of water circulation pump do not reach expected number of rotation even after turning it on on the timer setting panel, it is a malfunction of the water circulation pump. - Correct piping and remove bends and blockings
E090	Clock IC Error	Error in clock IC writing or reading			- Try rebooting and if the same error occurs again, PC board replacement is necessary
E101	Communication Error (to inverter module)	Error detected on serial communication driver <Check Items> Error in compressor wiring - Check resistance between 2 phases on compressor compressor malfunction			- Correct compressor wiring - Normal: PC board replacement required - Abnormal: Heat pump unit replacement required - Heat pump unit replacement required

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E102	INV Compressor Start Error	<p>Compressor start error detected in compressor operation control</p> <p><Check Items></p> <p>Error in compressor wiring</p> <ul style="list-style-type: none"> - Error in connection on power supply terminal block - Power supply voltage error - PC Board malfunction - Compressor malfunction 			<ul style="list-style-type: none"> - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump - Heat pump unit replacement required
E110	INV Transient Over-Current Error on Hardware (converter)	<p>Over current error detected in compressor operation control</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Error in compressor wiring - Error in connection on power supply terminal block - Check dust being stuck on HP connector filter - Bends or blockings and freeze on HP connection pipes - Stopper valve is closed - Air exists in water pipe - Water circulation pump malfunction - Power cutoff occurred - Power supply voltage error - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Remove dust on filter -Correct piping and remove bends and blockings - Open stopper valve - Remove air - Conduct operation check on water circulation pump - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E111	INV Transient Over-Current Error on Hardware (inverter)	<p>Over current error detected in compressor operation control</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Error in compressor wiring - Error in connection on power supply terminal block - Check dust being stuck on HP connector filter - Bends or blockings and freeze on HP connection pipes - Stopper valve is closed - Air exists in water pipe - Water circulation pump malfunction - Power cutoff occurred - Power supply voltage error - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Remove dust on filter -Correct piping and remove bends and blockings - Open stopper valve - Remove air - Conduct operation check on water circulation pump - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump
E112	INV Transient Over-Current Error on Software (converter)	<p>Over current error detected in compressor operation control</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Error in compressor wiring - Error in connection on power supply terminal block - Check dust being stuck on HP connector filter - Bends or blockings and freeze on HP connection pipes - Stopper valve is closed - Air exists in water pipe - Water circulation pump malfunction - Power cutoff occurred - Power supply voltage error - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Remove dust on filter -Correct piping and remove bends and blockings - Open stopper valve - Remove air - Conduct operation check on water circulation pump - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E113	INV Transient Over-Current Error on Software (inverter)	<p>Over current error detected in compressor operation control</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Error in compressor wiring - Error in connection on power supply terminal block - Check dust being stuck on HP connector filter - Bends or blockings and freeze on HP connection pipes - Stopper valve is closed - Air exists in water pipe - Water circulation pump malfunction - Power cutoff occurred - Power supply voltage error - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Remove dust on filter -Correct piping and remove bends and blockings - Open stopper valve - Remove air - Conduct operation check on water circulation pump - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump
E114	INV Converter Current detection Circuit Error	<p>Error detected inside PC board</p> <p><Check Items></p> <ul style="list-style-type: none"> - PC Board malfunction 			<ul style="list-style-type: none"> - PCB replacement required if same error occurs again after re-run of heat pump
E115	INV Inverter Current Detection Circuit Error	<p>Error detected inside PC board</p> <p><Check Items></p> <ul style="list-style-type: none"> - PC Board malfunction 			<ul style="list-style-type: none"> - PCB replacement required if same error occurs again after re-run of heat pump
E120	INV Power Supply Over-Voltage Error	<p>Over voltage error detected in compressor operation control</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Error in compressor wiring - Error in connection on power supply terminal block - Check dust being stuck on HP connector filter - Bends or blockings and freeze on HP connection pipes - Stopper valve is closed - Air exists in water pipe - Water circulation pump malfunction - Power cutoff occurred - Power supply voltage error - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Remove dust on filter -Correct piping and remove bends and blockings - Open stopper valve - Remove air - Conduct operation check on water circulation pump - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E121	INV Power Supply Low-Voltage Error	<p>Power supply voltage drop detected in compressor operation control</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Error in compressor wiring - Error in connection on power supply terminal block - Power cutoff occurred - Power supply voltage error - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump
E122	INV Transient Voltage Drop Detection Error	<p>Power cutoff detected in compressor operation control</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Error in compressor wiring - Error in connection on power supply terminal block - Power cutoff occurred - Power supply voltage error - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump
E123	INV Transient Power Cutoff Detection Error 1	<p>Power cutoff detected in compressor operation control</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Error in compressor wiring - Error in connection on power supply terminal block - Power cutoff occurred - Power supply voltage error - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E124	INV Transient Power Cutoff Detection Error 2	Power cutoff detected in compressor operation control <Check Items> - Check for HP control PC board connector connection - Error in compressor wiring - Error in connection on power supply terminal block - Power cutoff occurred - Power supply voltage error - PC board malfunction			- Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm cable is connected correctly at terminal block - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump
E125	INV Control Circuit Board Power Supply Error	Error detected inside PC board <Check Items> - PC Board malfunction			- PCB replacement required if same error occurs again after re-run of heat pump
E130	INV Temperature Sensor Error	Wire break or short circuit detected on thermistor in HP control PC board <Check Items> - Thermistor wiring error - malfunction of thermistor on HP control PC board	CN1	White	- Confirm connector connections - PCB replacement required if same error occurs again after re-run of heat pump
E131	INV Heatsink Temperature Error	90degC or more detected by thermistor on HP control PC board <Check Items> - No fan blade rotation - No efficient air absorption amount - Fan motor malfunction			- Check fan motor rotation - Confirm connector connections - Check if any damage on propellar fan blade - Remove foreign object from evaporator if any - Replace fan motor

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E140	INV Motor Operation Detection Error	<p>Compressor rotation error was detected</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Trouble in air absorption due to foreign object blocking air path through evaporator - Check dust being stuck on HP connector filter - Bends or blockings and freeze on HP connection pipes - Stopper valve is closed - Air exists in water pipe - Water circulation pump malfunction - Compressor wiring error - Power cutoff occurred - Power supply voltage error - Error in connection on power supply terminal block - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - Remove foreign object from evaporator if any - Remove foreign object from filter if any -Correct piping and remove bends and blockings - Open stopper valve - Remove air - Conduct operation check on water circulation pump - confirm connection of wire terminals to compressor is in the right order - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - Confirm wire connection on terminal block. - PCB replacement required if same error occurs again after re-run of heat pump
E141	INV Overload Detection Error	<p>Overload Detected in compressor operation control</p> <p><Check Items></p> <ul style="list-style-type: none"> - Check for HP control PC board connector connection - Compressor wiring error - Error in connection on power supply terminal block - Check dust being stuck on HP connector filter - Bends or blockings and freeze on HP connection pipes - Check if stopper valve is open - Air exists in water pipe - Water circulation pump malfunction - Power cutoff occurred - Power supply voltage error - PC board malfunction 			<ul style="list-style-type: none"> - Confirm connector connections - confirm connection of wire terminals to compressor is in the right order - Confirm wire connection on terminal block. - Remove foreign object from filter if any -Correct piping and remove bends and blockings - Open stopper valve - Remove air - Conduct operation check on water circulation pump - Check Power supply cable wiring layout - Confirm power supply voltage (240+/-14V) - PCB replacement required if same error occurs again after re-run of heat pump

Error Code	Error Contents	Error Detection Condition & Diagnostic	Check Points		Judgment & Repair Methods
			Connector No. or Maintenance Monitor No.	Connector Colour	
E150	INV Serial Communication Error	Communication error detected in compressor operation control <Check Items> - Wiring layout is not following instruction - noise source is near harnesses - PC board malfunction			- Confirm connector connections - Stop operation of all the surrounding electrical products and reboot Heat Pump - PCB replacement required if same error occurs again after re-run of heat pump

Thermistor Diagnostic Flow

