iSeries Outdoor Unit - Troubleshooting

ER	DL5	DL4	DL3	DL2	DL1	ISSUE	POSSIBLE CAUSES	SOLUTION
1	☼	☼	☼	X	X	Communication error between the outdoor unit and all the indoor units.	Bad communication bus connection between outdoor and indoor units.	Check that connections between C1 and C2 on every terminal block is correct (C1 terminals connected together, C2 terminals connected together).
							Normal cable used instead of shielded cable.	Be sure to use a shielded communication cable for every connection.
							Wrong communication address.	Be sure to have set the correct address on every indoor unit. Follow unit specific installation instructions.
							Bad earth connections.	Check that earth cables are properly connected to every terminal. Check that the shield of the communication cable is properly connected to every terminal. Chech that all internal earth cable are properly connected
							Communication fuses blown.	Check the communication fuse on outdoor unit. Check the communication fuse on indoor units (only certain models).
							Outdoor or indoors units not powered on.	Check that all the pcbs are powered with at least one LED on.
							Outdoor or indoors unit pcb out of order.	Check that all the pcbs are powered with at least one LED on. Be sure that power supply has not been connected to the communication terminals. Check that there are no burnt signes on the pcbs, in particular close to communication cables.
							Compressor damaged.	Check that there is no continuity between the phases of the compressor and the earth (dielectric strength).
							Fan motors or Electronic Expansion Valves (EEV) out of order.	Power off the units. Try to disconnect fan motors and EEV's connectors from the pcbs. Power on the units. If communication is recovered, try to search for the broken device with connectin one device per time. BE CAREFUL! Never connect or disconnect a device when the pcbs are still powered on, or pcbs will get damaged.

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2	X	☼	☼	☼	X	Error on the indoor units.	Error on every indoor unit of the system.	Follow specific indoor unit troubleshooting.
3	X	X	☼	☼	☼	PFC (Power Factor Controller) protection: automatic protection against power supply disturbances and instabilities.	Power supply surge or over voltage.	Check the quality of the power supply.
							Power supply voltage dip or interruption.	
							Power supply fast transient or burst.	
							Bad earth connection.	Check that all the earth cables are correctly connected, expecially the outdoor pcb's earth cable and the compressor's earth.
							Bad connection between outdoor and the heatsink.	Check that the outdoor pcb is properly connected to the heatsink and that the screws on the pcb are properly mounted with the right torque. Check that there is enough thermal paste between the pcb and the heatsink.
							EEV damaged.	Check the EEV functioning. A malfunctioning on the expansione valves may cause liquid flood back on the compressor.
							Outdoor pcb damaged.	Only if the error is recurrent, change the outdoor pcb.
							Outdoor pcb damaged, MCE microcontroller not programmed or MCE microcontroller firmware is corrupted.	If the error is permanent, change the outdoor pcb.
4	☼	☼	X	X	X	Automatic protection against overheating on the power electronics (fan motor module). Only for outdoor units equipped with BLDC fan motors.	Bad connection between the fan motor's module and the heatsink, or missing fan module's heatsink.	Check that the fan motor module is properly connected to the heatsink and that the screws on the module are properly mounted with the right torque. Check that there is enaough thermal paste between the fan module and the heatsink.
							The openings on the side of the outdoor unit are obstructed.	Remove the obstruction.
							Incorrect fan operation.	Check that fan works properly.

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5	X			X	X	Automatic protection against fan motor overcurrent. Only for outdoor units equipped with BLDC fan motors	Fan Motor disconnected.	Check the fan motor connector.
							Fan motor blocked / obstructed.	Remove the obstruction.
							Fan motor damaged.	Check if the fan motor starts. If it does not start correctly, change the fan motor.
							Outdoor pcb damaged.	Only if the error is recurrent, change the outdoor pcb.
6	X	X			X	Automatic protection against overheating on the power electronics (compressor module).	Bad connection between the outdoor pcb and the heatsink.	Check that the outdoor pcb is properly connected to the heatsink and that the screws on the pcb are properly mounted with the right torque. Check that there is enaough thermal paste between the pcb and the heatsink.
							The openings on the side of the outdoor unit are obstructed.	Remove the obstruction.
							Incorrect fan operation.	Check that fan works properly.
7	X	X	X			Automatic protection against compressor overcurrent.	Power supply surge or under voltage.	Check the quality of the power supply.
							Air inside the refrigerant circuit.	Be sure to have correctly pulled the vacuum of the system. In case, pull the vacuum again and recharge the outdoor unit with the correct amount of refrigerant.
							Damaged compressor.	Check windings of the compressor.
							Bad earth connection.	Check that all the earth cables are correctly connected.
							Fan damaged.	Check that fan motors of indoors and outdoor units work properly.
							Lack of refrigerant in the refrigerant circuit.	Check the refrigerant amount in the unit, find and repair a possible leakage and recharge the unit with the correct refrigerant amount.
8		X	X	X	X	OCT (Outdoor Coil Temperature) sensor fault.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
9	X		X	X	X	OAT (Outdoor Air Temperature) sensor fault.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.

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10	X	X		X	X	CDT (Compressor Discharge Temperature) sensor fault.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
11	X	X	X		X	WTT A (Wide Tube Temperature port A) sensor fault. Only for multisplit outdoor units with 2 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).
12	X	X		X		NTT A (Narrow Tube Temperature port A) sensor fault. Only for multisplit outdoor units with 2 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).
13	X		X		X	WTT B (Wide Tube Temperature port B) sensor fault. Only for multisplit outdoor units with 2 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).
14		X		X	X	NTT B (Narrow Tube Temperature port B) sensor fault. Only for multisplit outdoor units with 2 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).

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15	X		X			WTT C (Wide Tube Temperature port C) sensor fault. Only for multisplit outdoor units with 3 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).
16		X	X			NTT C (Narrow Tube Temperature port C) sensor fault. Only for multisplit outdoor units with 3 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).
17	X			X		WTT D (Wide Tube Temperature port D) sensor fault. Only for multisplit outdoor units with 4 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).
18			X	X		NTT D (Narrow Tube Temperature port D) sensor fault. Only for multisplit outdoor units with 4 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).
19		X				Compressor Top Shell sensor fault. Only for outdoor units equipped with this sensor.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.

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20				X		Low pressure fault. Only for outdoor units equipped with low pressure switch.	Unit is low of refrigerant.	Find and repair any leakage and refill the unit with the correct amount of refrigerant.
							Pressure switch out of order or disconnected (check wiring diagram). Damaged expansion valves or damaged expansion valve's pcb.	Reconnect or replace the pressure switch. Check the EEVs. Check the expansion valve pcb (only for multisplit models).
21	X					WTT E (Wide Tube Temperature port E) sensor fault. Only for multisplit outdoor units with 5 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).
22			X			NTT E (Narrow Tube Temperature port E) sensor fault. Only for multisplit outdoor units with 5 or more refrigerant ports.	Sensor out of order or disconnected (check wiring diagram).	Reconnect or replace the sensor.
							Damaged expansion valves or damaged expansion valve's pcb.	Check the EEVs. Check the expansion valve pcb (only for multisplit models).
100		X		X		Wrong indoor units combination.	The combination of the indoor units connected to the outdoor unit is not allowed.	Check the catalog for the allowed combinations. Choose a correct indoor unit combination.
101					X	Test mode error (factory only).	Error during the end of line test.	Internal use.

Other issues

Issue	Possible Causes	Solutions
Unit doesn't run.	Indoor units are switched off or there is no capacity demand.	Switch on or change setpoint on at least one indoor unit.
	Outdoor unit software is not updated.	Update the outdoor unit software to the latest version.
	MCE microcontroller not programmed, corrupted or out of order.	Check that the pins of the connectors on the pcb are not bended and don't create short circuit. Verify that, with the old Frimware Updater program, OUTDOOR IR has not been programmed by mistake. Replace the pcb if the microcontroller doesn't restart.
	Protections are active.	One or more protection levels are still active. Check the temperatures of the sensors. Wait for the protections to reset.
	Outdoor pcb is defective and doesn't show any alarm.	Try to upload the latest software to the unit. If needed, change the outdoor pcb.
	Compressor is defective.	Replace the compressor.
Unit runs but doesn't produce enough cooling or heating capacity.	Compressor is defective.	Replace the compressor.
	Lack of refrigerant.	Verify that the amount of refrigerant is correct. Find and repair any leakage and recharge the unit with the correct amount of refrigerant.
	Expansion valve or EEV driver pcb is defective.	Verify that the expansion valves are good and are not clogged by materials like loctite, etc… used during the installation. Verify that the EEV driverpcb is good. Replace defective parts.
	Outdoor pcb is defective.	Replace the outdoor pcb. Verify also that the EEV driver pcb is good and in case replace it.
	Outdoor unit is undersized.	Verify the thermal load calculations of the system.
PCB switch on and off continuosly. All led lights are on for some second, then switch off, then switch on again…	Fan motor is defective.	Disconnect the fan motor and verify if the problem is fixed. If so, replace the defective fan motor.
	Expansion valve or EEV driver pcb is defective.	Disconnect the EEV or EEV driver pcb and verify if the problem is fixed. If fixed, replace the defective EEV or EEV driver pcb.

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LEGENDA

O=DL6 (RED ON): HIGH VOLTAGE PRESENT (NORMAL OPERATION)

X = LED OFF O **= LED ON**  **= LED BLINKING**

Unit working properly:

X	O	O	X	X	IF AT LEAST ONE INDOOR UNIT IS ON
X	X	O	X	X	IF ALL INDOOR UNITS ARE OFF
DL5	**DL4**	**DL3**	**DL2**	**DL1**	**DESCRIPTION**