Ecotec Plus Fault Codes

ECOTEC Domestic Range Fault Codes

Code - Parameter - Possible causes - Solutions

F0 Interruption: Flow sensor NTC plug not plugged in or has come loose, multiple plug on the PCB not plugged in correctly, interruption in cable harness, NTC defective

Check NTC connected properly and check NTC resistance and harness continuity.

F00 - Interruption: Flow sensor NTC plug not plugged in or has come loose, multiple plug on the PCB not plugged in correctly, interruption in cable harness, NTC defective

Check NTC connected properly and check NTC resistance and harness continuity.

F1 - Interruption: Return sensor NTC plug not plugged in or has come loose, multiple plug on the PCB not plugged in correctly, interruption in cable harness, NTC defective

Check NTC connected properly and check NTC resistance and harness continuity.

F01 - Interruption: Return sensor

NTC plug not plugged in or has come loose, multiple plug on the PCB not plugged in correctly, interruption in cable harness, NTC defective

Check NTC connected properly and check NTC resistance and harness continuity.

F2 - Interruption: DHW outlet sensor

Only in conjunction with F.91 - NTC defective, NTC cable defective, defective plug connection on NTC, defective plug connection on the actoSTOR electronics

Check NTC connected properly and check NTC resistance and harness continuity.

F02 - Interruption: DHW outlet sensor

Only in conjunction with F.91 - NTC defective, NTC cable defective, defective plug connection on NTC, defective plug connection on the actoSTOR electronics

Check NTC connected properly and check NTC resistance and harness continuity.

F3 - Interruption: Cylinder sensor

Only in conjunction with F.91 - NTC defective, NTC cable defective, defective plug connection on NTC, defective plug connection on the actoSTOR electronics

Check NTC connected properly and check NTC resistance and harness continuity.

F03 - Interruption: Cylinder sensor

Only in conjunction with F.91 - NTC defective, NTC cable defective, defective plug connection on NTC, defective plug connection on the actoSTOR electronics.

Check NTC connected properly and check NTC resistance and harness continuity.

F10 - Short circuit: Flow sensos

NTC defective, short circuit in cable harness, cable/casing

Check NTC connected properly and check NTC resistance and harness continuity.

F11 - Short circuit:

Return sensor NTC defective, short circuit in cable harness, cable/casing

Check NTC connected properly and check NTC resistance and harness continuity.

F12 - Short circuit: DHW outlet sensor

Only in conjunction with F.91 NTC defective, short circuit in cable harness, cable/casing

Check NTC connected properly and check NTC resistance and harness continuity.

F13 - Short circuit: Cylinder sensor

Combination product: Warm start sensor cylinder sensor short circuit

Combination product with actoSTOR: Short circuit cylinder sensor (NTC) only in combination with F.91 NTC defective, short circuit in cable harness, cable/casing" Check NTC connected properly and check NTC resistance and harness continuity.

F20 - Safety switch-off: Temperature limiter.

Incorrect earth connection between cable harness and product, flow or return NTC defective (loose connection), black discharge via ignition cable, ignition plug or ignition electrode.

Make sure pump spinning ok (check with screwdriver if pump spinning strongly). Check NTC connected, resistance and harness continuity. Try purging the system in case of airlock ('P'Codes - activate P00 to run deaeration program). Otherwise blockage in system.

F22 - Safety switch-off: Low water pressure

No or insufficient water in the product, water pressure sensor defective, cable to pump or water pressure sensor loose/not connected/defective.

Combi/system: Check water pressure. Make sure pressure sensor not blocked, and check voltages to the pressure sensor (see voltage sheet).

Check NTC resistance amd harness continuity. If everything ok then board issue.

Open Vent: Check resistance on flow and return thermistors. Check (external) pump spinning all ok. Otherwise blockage in boiler or on system.

F23 - Safety switch-off: Temp spread too large - Pump blocked, insufficient pump output, air in product, flow and return NTC connected the wrong way round.

Make sure pump spinning ok (check with screwdriver if pump spinning strongly). Check NTC connected, resistance and harness continuity. Try purging the system in case of airlock ('P'Codes - activate P00 to run deaeration program). Otherwise blockage in boiler or system. Check flow filter by draining boiler and taking filter out to see if it's blocked. Check rubber hoses on flow and return to heat exchanger (if hard to touch then possibly blocked).

Combi: If only doing it on HW then potential blocked heat exchanger.

F24 - Safety switch-off: Temp increase too fast

Pump blocked, insufficient pump output, air in product, system pressure too low, non-return valve blocked/incorrectly installed.

Make sure pump spinning ok (check with screwdriver if pump spinning strongly). Check NTC connected, resistance and harness continuity. Try purging the system in case of airlock (run P00 program) otherwise blockage in system or boiler.

Check flow filter by draining boiler and taking filter out to see if it's blocked.

Check rubber hoses on flow and return to heat exchanger (if hard to touch then blocked). Combi: If only doing it on HW then potential blocked heat exchanger

F25 - Safety switch-off: interuption to thermal link stat (top of main heat exchanger). Break in cable harness

Check thermal link for continuity

Check harness for continuity

Check flue run not blocked.

Make sure combustion is all ok.

MK1 Check NTCs and Harness

F26 Fault: Fuel valve not working

Gas valve stepper motor not connected

Multiple plug on the PCB not plugged in correctly

Interruption in cable harness

Gas valve stepper motor defective

Electronics defective

Make sure plugs to gas valve all connected correctly.

Check resistance on stepper motor and gas valve - see voltage sheet. If all readings are ok, then PCB issue

F27 - Safety switch-off: Flame simulation Moisture on the electronics, electronics (flame monitor) defective, gas solenoid valve leaking.

Check electrode condition and earth lead to electrode. If going straight to F27 (no fan or pump) then link out thermal fuse as this can cause it.

If Electrode and Thermal fuse OK Then Check if the gas valve is passing by doing local tightness test, if not then PCB issue

F28 - Start-up failure: Ignition unsuccessful

Gas meter defective or gas pressure monitor has triggered, air in gas, gas flow pressure too low, condensate duct blocked, incorrect gas restrictor, incorrect spare part gas valve, value in D.052 does not correspond to the printed value on the current gas valve, fault on the gas valve, multiple plug on PCB incorrectly plugged in, break in cable harness, ignition system (ignition transformer, ignition cable, ignition plug, ignition electrode) defective, ionisation current interrupted (cable, electrode), incorrect earthing of product, electronics defective.

If not lighting, see if gas valve opening (manometers on inlet and see if drops - should drop on ignition). Make sure boiler is sparking and the flue is clear. If it's igniting and then going on F28, does it rectify or does it carry on sparking? If it carries on sparking, continuity down the electrode and check your earth wire. If it doesn't carry on sparking, strip service (clean burner out, clear flue run, check inlet standing and working pressures). Check ignition electrodes. If bent could cause error alongside F54

F29 - Start-up failure: Ignition unsuccessful

Gas supply temporarily stopped, flue gas recirculation, condensate duct blocked, defective earthing of product, ignition transformer has spark failure

Check inlet standing and working pressures, combustion readings, electrode and lead condition, or strip service. Check condense trap is not blocked.

F32 Fault: Fan Plug on fan not correctly plugged in, multiple plug on PCB not correctly plugged in, break in cable harness, fan blocked, Hall sensor defective, electronics defective, 24V DC between red and blue on fan. 6-15V DC between grey and blue on fan. If both are fine then fan is faulty, if not then check continuity down the harness, if continuity is fine then board issue

F33 - Fan frost protection function active.

Air pressure switch fault

Pressure monitor has not switched or has switched at a fan speed value that is too high (insufficient air supply)

Pressure monitor plug not correctly plugged in, pressure monitor defective, line removed from between the pressure monitor and silencer, air/flue pipe blocked and silencer not installed properly

F35 - Fault: Air/flue gas duct

Check the entire air/flue pipe for Permitted design

Restriction or blockage in the air/flue pipe caused by obstructions or damage

The air/flue pipe must be installed in accordance with the recognised rules If the supply of combustion air (air pipe) or discharge of flue gas (flue gas pipe) occurs with no problems. Clear any faults in the product and start it up, If F.35 occurs again after start-up and the air/flue pipe is present and correct, the function for checking the air/flue pipe can be deactivated via D.145.

If the function is deactivated via D.145, any faults can be cleared in the product and it can be started up

Note - D.145 can be used to permanently activate or deactivate the function -- After the function is deactivated, the product no longer automatically checks whether there are restrictions for the air/flue pipe.

Check flue run for restrictions, check flue seals, check airways of heat exchanger and clean burner. Make sure fan is running as it should be (check fan speeds on D.33 and D.34).

F42 - Coding resistance fault (possible in combination with F.70)

Check DSN is set correctly

Check coding resistor on board is correct (the correct one for gas type

Check the coding resistors-

ONE - The one on the PCB is for the Gas type (Yellow Nat Gas 806 Ohms -- Grey LPG 1180 Ohms)

TWO - connector next to the Expansion vessel - unplugging the coding resistor then re-plugging the resistor back in can solve the issue (D93 holds Coding resistor info)

F49 Fault: eBUS Short circuit on eBUS

eBUS overload or two power supplies with different polarities on the eBUS.

Check wiring into eBUS, polarity, and make sure only Vaillant controls go into it. Otherwise PCB issue

F52 - Contact fault mass flow sensor/Venturi. The mass flow sensor/Venturi is not connected electrically

The plug is not plugged in correctly

The plug is not plugged in

The plug is defective

The slot is defective (loose connection)

Mass flow sensor/Venturi defective

Check voltages to mass flow sensor (see voltage sheet).

If voltages are fine, mass flow sensor faulty, if voltages not ok then PCB issue.

F53 - Combustion regulation fault.

The combustion regulation has detected a fault Gas flow pressure too low

LPG coding resistance used when operating with natural gas

If the fault occurs again after being cleared: Gas valve defective

Mass flow sensor/Venturi defective, wet or blocked - if the fault occurs again after being cleared - Do not wet the sensor, do not use any lubricants on the O-ring on the Venturi.

Check coding resistor is the correct one for gas type.

Complete gas family check in installer menu. Check standing and working pressures, and combustion readings.

F54 - Fault in the gas supply (in combination with F.28/F.29)

There is insufficient gas supply to operate the unit –

Gas isolator cock(s) closed

Gas flow pressure is too low

Gas valve defective

Complete gas family check in installer menu.

Check standing and working pressures, and combustion readings. Make sure filter on inlet of gas valve isn't blocked and check flue run.

F55 - Fault: CO sensor

Check the cable harness

All-gas sensor defective - replace the all-gas sensor

Electronics defective - replace the PCB

F56 - CO limit exceeded "Safety switch-off:

CO limit exceeded - A component in the combustion regulation is defective.

Contact fault at the gas valve (plug not plugged in correctly or not plugged in, plug defective, slot is defective (loose connection)

If the fault occurs again after being cleared: The gas valve is defective

Check standing and working pressure, combustion readings and check filter on the inlet of gas valve is not blocked. Check resistance on gas valve (see voltage sheet). Check harness continuity.

F57 Fault: Measuring program.

Active comfort protection mode has detected a regulation fault

Ignition electrode highly corroded

Check standing and working pressure, combustion readings and check filter on the inlet of gas valve is not blocked.

Do gas family check on installer level.

F61 Fault: Fuel valve actuation

The gas valve cannot be actuated (opened).

Cable harness supply line to the gas valve is defective (short to earth, short circuit)

Gas valve defective

PCB defective

Check resistance across gas valve (refer to voltage sheet 40 - 50 ohms) and check harness continuity, if both are fine then PCB issue. NOTE on MK1 systems the thermal fuse with a high resistance can also give you the common F61/F62/F27 faults.

F62 Fault: Fuel valve switch-off delay.

Delayed shutdown of gas valve detected - ignition and monitoring electrode indicates delayed extinguishing of the flame signal.

1 - Gas valve defective

2 - PCB defective

Check if the gas valve is passing by doing local tightness test. If not then PCB issue.

NOTE - on MK1 systems the thermal fuse with a high resistance can also give you the common F61/F62/F27 faults

F63 Fault: EEPROM - Electronics defective

Check polarity on incoming mains otherwise PCB fault.

F64 Fault: Electronics/sensor

Flow or return NTC short circuited, electronics defective.

Check resistance on thermistors and continuity down the wiring harness, if both fine then PCB issue.

F65 Fault: Electronics temperature. Electronics overheating due to external influences, electronics defective.

Check polarity on incoming mains otherwise PCB fault

F67 Fault: Electronics/flame Implausible flame signal, electronics defective.

Check electrode condition and earth lead has no damage with good continuity.

Strip service and check condition of electrode and lead. Check condense trap not blocked.

F70 Fault: Invalid Device Specific Number

If Display board and main PCB replaced at same time and DSN not hax not been reset. incorrect or missing output range coding resistance.

Check DSN is set correctly - check the coding resistors:

ONE - on board is for the Gas type (Yellow Nat Gas 806 Ohms -- Grey LPG 1180 Ohms)

TWO - coding resistor to the side of the expansion vessel - unplugging the coding resistor then re-plugging the resistor back in can solve the issue (D93 holds Coding resistor info)

F71 Fault: Flow NTC

Flow temperature sensor signalling constant value.

Flow temperature sensor incorrectly positioned at supply pipe.

Flow temperature sensor defective

Check flow thermistor resistance and harness continuity.

F72 Fault: Flow/return sensor/s

Flow/return NTC temperature difference too great → Delta-T to high.

Flow and/or return temperature sensor defective.

Check flow & return thermistors resistance and harness continuity.

F73 Fault: Water pressure sensor out of range (too low)

Interruption/short circuit of water pressure sensor, interruption/short circuit in supply line to water pressure sensor or water pressure sensor defective.

Check continuity down wiring harness to pressure sensor.

Check voltages to pressure sensor.

Check for any signs of moisture around the plug on the pressure sensor.

F74 Fault: Water pressure sensor out of range (too high)

The line to the water pressure sensor has a short circuit to 5 V/24 V or internal fault in the water pressure sensor.

Check continuity down wiring harness to pressure sensor. Check voltages to pressure sensor & check for any signs of moisture around the plug on the pressure sensor

F75 Fault: Pump/ water shortage, water pressure sensor and/or pump defective, air in the heating installation, insufficient water in the system.

Check pump is spinning ok, if not check voltage to pump from PCB.

Make sure pressure sensor is not blocked.

If appliance has rubber connection hoses on flow and return, check they are not blocked. Otherwise blockage in boiler somewhere.

F76 - The safety cut-out in the primary heat exchanger is defective (thermal link).

Safety cut-out feedback does not match the gas valve feedback.

Disconnect wires from thermal fuse and link out. If fires up thermal fuse faulty if not check continuity down the wiring harness, otherwise PCB fault.

F77 Fault: No response from condensate pump.

Condensate pump defective.

Check to see if you have got an external condense pump, if yes, check to make sure it's working all ok. If no external condense pump then PCB

F78 interrupt.: DHW outlet sensor on ext controller UK link box is connected but the hot water NTC is not bridged.

Accessorry compatible issue - check that controls and wiring centre are compatible with that boiler

F80 Fault: actoSTOR (shift load pump) inlet sensor only in conjunction with F.91 - boiler faulting and showing F80 / F91

NTC defective, NTC cable defective, defective plug connection on NTC, defective plug connection on the actoSTOR electronics Sensor plug has short to earth to the casing, short circuit in cable harness, sensor defective

F81 Fault: cylinder charging pump only in conjunction with F91: boiler faulting & showing a F81 / F91 fault

F.91 - Cylinder or storage tank (937/938) is not fully charged after specified time.

Air in the actoSTOR pump (shift load pump) or is defective. Inspect pump cable harness, check the impeller sensor and/or limiter in the product.

Check cylinder charging sensor and cylinder sensor

Diverter valve defective

Secondary heat exchanger blocked

Pump faulty

F82 Fault: Ext current anode.

1 - External current anode not connected: X43 edge connector with bridge missing from the PCB

2 - External current anode connected: Power supply to the external current anode was interrupted. Cable between PCB and external current anode defective – External current anode defective

F83 Fault: NTC temp gradient.

When the burner starts, the temperature change registered at the flow and/or return temperature sensor is non-existent or too small. Insufficient water in product. Flow or return temperature sensor not in correct position at pipe (check & ensure good contact). Check thermistors resistance is reading ok and clipped on pipe properly. Check leads. Check pump spinning ok. If rubber tube on flow pipe, check its not blocked (if it's hard to the touch then potentially it's blocked)

F84 Fault: NTC temp differential is implausible or Flow and return temperature sensors returning implausible values.

1- Flow and return temperature sensors have been inverted.

2 - Flow and return temperature sensors have not been correctly installed.

Check that flow and return thermistors are clipped onto the correct pipes & have a good contact onto pipes. Check the resistance across them & check continuity down the wiring harness.

F85 Fault: NTCs fitted incorrectly. The flow and/or return temperature sensors have been installed on the same pipe/incorrect pipe Check that flow and return thermistors are clipped onto the correct pipes. Check the resistance across them. Check continuity down the wiring harness

F86 Fault: Underfloor heating contact Underfloor heating contact open, sensor disconnected or defective

F87 Fault: Electrodes not connected or they are connected incorrectly, short circuit in the cable harness

F88 Fault: Gas valve not connected or it is connected incorrectly, short circuit in the cable harness

F89 Fault: Pump not connected or it is connected incorrectly, incorrect pump connected, short circuit in the cable harness

F90 Fault: Communication - Check the cable harness from the product to the actoSTOR module (EBus). If the product is to be operated without an actoSTOR module, set D.092 = 0

F91 Sensor/actuator fault on actoSTOR module

F92 Coding resistance fault The coding resistance on the PCB does not match the entered gas group: Check the resistance, repeat the gas family check and enter the correct gas group. Check the coding resistor on the board is the right one for the gas type. Do gas family check.

F93 - Poor combustion quality "Combustion regulation has detected poor combustion quality – Incorrect gas restrictor has been installed for the gas family (another gas family is present) – Recirculation – Mass flow sensor/Venturi defective (wet, blocked): Do not wet the sensor, do not use any lubricants on the Oring on the Venturi.

LED actoSTOR module -

ActoSTOR electronics status

LED on: Communication OK

LED flashing: Communication not OK

LED off: No power supply - Communication fault between display and PCB in the electronics box