

850 Faults

Fault 200—Pneumatics shutdown: faulty pneumatics board

Status message: Pneu board FPGA

The pneumatics control board is unable to control the instrument's pneumatics.

- The pneumatics control board is not functioning properly and will need to be replaced.

Fault 201—Pneumatics shutdown: faulty pneumatics board

Status message: Pneumatics board

The pneumatics control board is not functioning properly for a non-specific reason.

- The pneumatics control board will need to be replaced.

Fault 202—Hydrogen safety shutdown

Status message: Hydrogen shutdown

An inlet configured for hydrogen gas did not reach the pressure setpoint within 2 minutes. Because hydrogen presents an explosion hazard, the following occurred: The GC oven fan and heaters are turned off.

- The oven flaps are fully opened.
- Both pressure and flow controls are turned off and the control parameters are flashing when viewed.
- The small zone heaters for inlets and detectors are turned off and the control parameters are flashing when viewed.
- The warning beep continues until the [Clear] key on the keypad is depressed.
- The oven cannot be turned on unless the instrument is power failed. Turn the GC power off and on again to restore operation.

The sequence would continue until the fault is fixed. To find the fault, check for the following possible causes:

- Check the gas supply pressure. Increase the pressure at the initial supply if it is too low to reach the setpoint.
- Check for a leak somewhere in the system. Leak test the gas supply tubing, the inlet, and the inlet column fittings. Leak test procedures are found with each inlet section.
- The column may be broken. Use the leak detector to check the column for leaks and replace the broken column or break off the cracked portion.
- An inlet proportional control valve may be stuck open or closed because of contamination or other fault. Contact your Agilent Technologies service representative.

Fault 203—Signal DSP faulty

Status message: Signal DSP faulty

The detector's signal processing electronics are not functioning correctly. This indicates a malfunction with the 6890 GC main PC board. The signal path will not function.

- Turn the instrument on and then off at least one time. If the error still occurs, the mainboard must be replaced.

Fault 204—Signal DSP ROM broken

Status message: Sig DSP ROM broken

The detector's signal processing electronics are not functioning correctly. This indicates a malfunction with the 6890 GC main PC board. The signal path will not function.

- Turn the instrument on and then off at least one time. If the error still occurs, the mainboard must be replaced.

Fault 205—Signal DSP RAM broken

Status message: Sig DSP RAM broken

The detector's signal processing electronics are not functioning correctly. This indicates a malfunction with the 6890 GC main PC board. The signal path will not function.

- Turn the instrument on and then off at least one time. If the error still occurs, the mainboard must be replaced.

Fault 206—Signal DSP registers

Status message: Sig DSP registers

The detector's signal processing electronics are not functioning correctly. This indicates a malfunction with the 6890 GC main PC board. The signal path will not function.

- Turn the instrument on and then off at least one time. If the error still occurs, the mainboard must be replaced.

Fault 207—Sig DSP data corrupt

Status message: Sig DSP data corrupt

The detector's signal processing electronics are not functioning correctly. This indicates a malfunction with the 6890 GC main PC board.

- Turn the instrument on and then off at least one time. If the error still occurs, the mainboard must be replaced.

Fault 208—Signal path test failed

Fault 209—Signal path test failed

Status message: 0-1 mV out # 1 or 0-1 mV out # 2

- This error indicates that the signal that the 6890 GC is sending to a strip-chart recording device in position 1 or 2 is not within the acceptable range. The 6890 GC will not be ready.
- Turn the instrument on and then off at least one time. If the error still occurs, the mainboard must be replaced.

Fault 210—Signal path test failed

Fault 211—Signal path test failed

Status message: Analog out # 1 or Analog out # 2

This error indicates that the signal that the 6890 GC is sending to an integrator in position 1 or 2 is not within the acceptable range. The 6890 GC will not be ready

- Turn the instrument on and then off at least one time. If the error still occurs, the mainboard must be replaced.

Fault 212—Front detector electrometer out of specification

Fault 213—Back detector electrometer out of specification

Status message: F det electrometer or B det electrometer

The FID, NPD, TCD, and ECD all have an electrometer. The electrometer, which is inside the detector, measures and amplifies the signal from the detector, which it then converts to a digital form. Two things could cause the detector electrometer to be out of specification:

- The communication cable between the FID, NPD, or ECD detector board and the detector is not connected properly.
- The electrometer is broken, or the detector board is bad.

If the electrometer is out of specification, the detector will never reach a ready state.

- Check that the cable that connects the detector to the board is connected properly.
- If the boards are connected properly but the electrometer is still out of specification, the electrometer or detector board is broken.

Fault 214—Front detector flame out

Fault 215—Back detector flame out

Status message: Front det flame out or Back det flame out

This message appears when the FID is not able to ignite or if the flame goes out during a run. During the ignition process or the run, the detector will try to ignite the flame twice; if both attempts fail, the hydrogen, air, and ignitor will shut off, and the error message will appear. The detector will be in a not ready state.

Check the following:

- Make sure the hydrogen and air are turned on and that the flow rates are high enough for the flame to ignite.
- Use an electronic leak detector to search for and correct leaks around the detector column fitting.
- Check that you are using the correct jet for your column.
- Change the Lit Offset to 0.5 (the default value).

Fault 216—Front TCD filament open

Fault 217—Back TCD filament open

Status message: F TCD filament open or B TCD filament open

The TCD filament bridge voltage indicates that the filament resistance is too high. The resistance may be too high because the filament is broken or worn thin from use, or the wires from the TCD are not connected on the detector

board, or the Δ PRT is shorted. (Units made before April 1997 may not use a Δ PRT.)

The detector will not be ready until the condition is corrected.

- Check that the wires from the detector are connected on the detector board.
- Check that the Δ PRT is properly installed and not damaged. Replace if damaged.
- The TCD's cell must be replaced.

Fault 218—F TCD filament shorted

Fault 219—B TCD filament shorted

Status message: F TCD filament short or B TCD filament short

The TCD filament bridge voltage indicates that the resistance of the filament is too low, which indicates a potentially shorted filament. This condition could be caused by a worn or sagging filament, or if the wires from the TCD are not connected properly to the detector board or are touching each other, or if the wires from the Δ PRT are not properly connected to the detector board. (Units made before April 1997 may not use a Δ PRT.)

The detector will not be ready until the condition is corrected.

- Check that the filament and Δ PRT wires from the cell are connected on the detector board properly.
- The TCD's cell must be replaced.

Fault 220—Heater over current. Thermal shutdown

Status message: Heater overcurrent

This message appears when there is a short in the heater of a heated zone, or when a heated zone's electronics are defective. This error does *not* indicate a problem with the oven.

Power to the small zones is disabled. To clear the error message, turn off all the heated zones and turn the GC off and then on again.

Fault 220—Heater over current. Thermal shutdown

- ❑ The fault could be caused by a malfunction in the heater sensor or the heater electronics.
- ❑ See *Fault 221—Thermal shutdown (status message)*.

Fault 221—Thermal shutdown (status message)

This fault has no popup display message, only a status message.

This fault causes the GC to shut down entirely. A thermal fault is detected if the oven or another heated zone is not within its allowable temperature range (lower than minimum temperature or greater than maximum temperature by 25°C). Several things could cause this error:

- A problem with the electrical supply to the instrument
- A malfunction of the zone control electronics
- A shorted temperature sensor
- A shorted heater

No power will reach the oven and other heated zones. The 6890 GC will be not ready.

Any of the following components can experience a thermal shutdown: the oven, the inlets, the detectors, and the aux zones. In addition, problems with electronics on the main PC board can cause a thermal shutdown.

- If you see any thermal shutdown message, first turn the GC off and on. If the error was caused by a power supply problem, the error will disappear and the instrument will become ready. If the error reappears, the main board, or one or more of the heater/sensor assemblies, must be replaced.

Fault 222—Oven thermal shutdown

Status message: Oven temp too hot

The oven temperature reading indicates the oven is above its maximum allowable temperature by at least 25°C. This indicates a defective oven heater drive or a defective oven sensor.

No power will reach the oven and other heated zones. The 6890 GC will be not ready.

- To determine if the oven sensor is broken, its resistance must be tested. The resistance will be 100 ohms if the sensor is working correctly; a much larger value indicates a faulty sensor.

- ❑ If the oven sensor is operating correctly and the error persists, the main board must be replaced.
- ❑ See *Fault 221—Thermal shutdown (status message)*.

Fault 223—Oven thermal shutdown

Status message: Oven temp too cool

The oven temperature reading indicates the oven is less than its minimum allowable temperature. This indicates a stuck open cryo valve or a shorted oven sensor.

Power to the small zones is disabled. To clear the error message, turn off all the heated zones and turn the GC off and then on again.

- ❑ See *Fault 221—Thermal shutdown (status message)*.

Fault 224—Oven thermal shutdown

Status message: Oven temp sensor

The oven temperature reading reports the oven's temperature is lower than expected, which indicates a shorted oven sensor. Power will be turned off for all the heated zones.

- ❑ The sensor must be replaced.
- ❑ See *Fault 221—Thermal shutdown (status message)*.

Fault 225—Front detector thermal shutdown

Status message: F det temp too hot

The front detector's temperature is higher than the maximum allowable temperature (detector type maximum temperature plus an additional 25°C). This indicates a defective heater drive on the mainboard or a defective sensor.

Power is disabled to all the heated zones. This fault can only be cleared by turning off all the heated zones and turning the instrument off and on again.

- ❑ The problem could be caused by a defective sensor or defective heater driver on the mainboard.
- ❑ See *Fault 221—Thermal shutdown (status message)*.

Fault 226—Front detector thermal shutdown

Status message: F det temp sensor

The front detector temperature reading reports the detector's temperature is lower than expected, which indicates a shorted sensor. Power will be turned off for the detector.

- The sensor must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 227—Back detector thermal shutdown

Status message: B det temp too hot

The back detector's temperature is higher than the maximum allowable temperature (detector type maximum temperature plus an additional 25°C). This indicates a defective heater drive on the mainboard or a defective sensor.

Power is disabled to the small zones and the oven. This fault can only be cleared by turning off all the heated zones and turning the instrument off and on again.

- The problem could be caused by a defective sensor or defective heater driver on the mainboard.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 228—Back detector thermal shutdown

Status message: B det temp sensor

The back detector temperature reading reports the detector's temperature is lower than expected, which indicates a shorted sensor. Power will be turned off for detector.

- The sensor must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 229—Front inlet thermal shutdown

Status message: F inl temp too hot

Fault 230—Front inlet thermal shutdown

The front inlet's temperature is higher than the maximum allowable temperature (detector type maximum temperature plus an additional 25°C). This indicates a defective heater drive on the mainboard or a defective sensor.

Power is disabled to the small zones and the oven. This fault can only be cleared by turning off all the heated zones and turning the instrument off and on again.

- ❑ The problem could be caused by a defective sensor or defective heater driver on the mainboard.
- ❑ See *Fault 221—Thermal shutdown (status message)*.

Fault 230—Front inlet thermal shutdown

Status message: F inl temp sensor

The front inlet temperature reading reports the inlet's temperature is lower than expected, which indicates a shorted sensor. Power will be turned off for inlet.

- ❑ The sensor must be replaced.
- ❑ See *Fault 221—Thermal shutdown (status message)*.

Fault 231—Back inlet thermal shutdown

Status message: B inl temp too hot

The back inlet's temperature is higher than the maximum allowable temperature (detector type maximum temperature plus an additional 25°C). This indicates a defective heater drive on the mainboard or a defective sensor.

Power is disabled to the small zones and the oven. This fault can only be cleared by turning off all the heated zones and turning the instrument off and on again.

- ❑ The problem could be caused by a defective sensor or defective heater driver on the mainboard.
- ❑ See *Fault 221—Thermal shutdown (status message)*.

Fault 232—Back inlet thermal shutdown

Status message: B inl temp sensor

The back inlet temperature reading reports the inlet's temperature is lower than expected, which indicates a shorted sensor. Power will be turned off for inlet.

- The sensor must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 233—Aux 1 thermal shutdown

Status message: Aux 1 temp too hot

The aux zone's temperature is higher than the maximum allowable temperature (detector type maximum temperature plus an additional 25°C). This indicates a defective heater drive on the mainboard or a defective sensor.

Power is disabled to the small zones and the oven. This fault can only be cleared by turning off all the heated zones and turning the instrument off and on again.

- The problem could be caused by a defective sensor or defective heater driver on the mainboard.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 234—Aux zone 1 thermal shutdown

Status message: Aux 1 temp sensor

Aux zone 1's temperature reading reports that its temperature is lower than expected, which indicates a shorted sensor. Power will be turned off for the zone.

- The sensor must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 235—Aux 2 thermal shutdown

Status message: Aux 2 temp too hot

The aux zone's temperature is higher than the maximum allowable temperature (detector type maximum temperature plus an additional 25°C). This indicates a defective heater drive on the mainboard or a defective sensor.

Power is disabled to the small zones and the oven. This fault can only be cleared by turning off all the heated zones and turning the instrument off and on again.

- The problem could be caused by a defective sensor or defective heater driver on the mainboard.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 236—Aux 2 thermal shutdown

Status message: Aux 2 temp sensor

Aux zone 2's temperature reading reports that its temperature is lower than expected, which indicates a shorted sensor. Power will be turned off for the zone.

- The sensor must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 237—No line interrupt. Thermal shutdown.

Status message: No line interrupt

The electronics on the main board are not functioning correctly. Power will be shut off to the oven and other heated zones. The 6890 GC will not be ready.

- The main board must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 238—Faulty line interrupt. Thermal shutdown.

Status message: Line interrupt

The electronics on the main board are not functioning correctly or there is an excessive amount of noise in the power supply to the instrument. Power will be shut off to the oven and other heated zones. The 6890 GC will not be ready.

- Turn the 6890 GC off and then on again. If the problem was caused by noise in the power supply, the instrument will operate normally again. If the error persists, the main board must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 239—Mux ADC thermal shutdown

Status message: No mux ADC response

The multiplexor, which processes the 6890 GC electronic signals, is not functioning. Most likely, the multiplexor's circuitry is defective. Power will be shut off to the oven and other heated zones. The 6890 GC will not be ready.

- The main board must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 240—Mux ADC thermal shutdown

Status message: Mux ADC offset value

The multiplexor, which processes the 6890 GC electronic signals, is not functioning. Most likely, the multiplexor's circuitry is defective. Power will be shut off to the oven and other heated zones. The 6890 GC will not be ready.

- The main board must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 241—Line sense reading thermal shutdown

Status message: Invalid line sense

Fault 242—Pneu aux module invalid constants

The line sense circuitry on the mainboard is not measuring the line power correctly. Since it is indicating the power supply is not within acceptable limits, the power to the heated zones is disabled. Turn the zones off to clear the error.

- Most likely, the main board must be replaced.
- See *Fault 221—Thermal shutdown (status message)*.

Fault 242—Pneu aux module invalid constants**Fault 243—Pneu aux module invalid constants****Fault 244—Pneu aux module invalid constants**

Status message: Aux 3 faulty fact cal or Aux 4 faulty fact cal or Aux 5 faulty fact cal

Two conditions could cause this error:

- The module installed in the aux position is not an aux module.
- The aux module is not working correctly; for example, the EEPROM could be an unsupported version.

Module will not be usable.

- Remove the module from the aux position and install the correct module.

Fault 245—Front det module: obsolete EEPROM**Fault 246—Back det module: obsolete EEPROM**

Status message: F det module rev or B det module rev

The front or back detector's EEPROM is not recognized by the 6890 GC. The module is unusable.

- The version of the module is not compatible with the version of the 6890 GC.

Fault 247—Front inlet module: obsolete EEPROM**Fault 248—Back inlet module: obsolete EEPROM**

Status message: F inlet module rev or B inlet module rev

The front or back inlet's EEPROM is not recognized by the 6890 GC. The module is unusable.

- The version of the module is not compatible with the version of the 6890 GC.

Fault 249—Pres aux module: obsolete EEPROM

Status message: Aux module rev

The aux pressure's EEPROM is not recognized by the 6890 GC. The module is unusable.

- The version of the module is not compatible with the version of the 6890 GC.

Fault 250—Front det: non-det module**Fault 251—Back det: non-det module**

Status message: F det wrong module or B det wrong module

The module installed in an inlet slot is unusable. Two things could cause this condition:

- The module is installed in the wrong position. For example, a detector module might be installed in the inlet position.
 - If the correct module is installed, it may be malfunctioning or its EEPROM may be unrecognized by the 6890 GC.
- Make sure that the correct type of module is installed.

Fault 252—Front inlet: non-inlet module**Fault 253—Back inlet: non-inlet module**

Status message: F inlet wrong module or B inlet wrong module

The module installed in a detector slot is unusable. Two things could cause this condition:

- The module is installed in the wrong position. For example, an inlet module might be installed in the detector position.
 - If the correct module is installed, it may be malfunctioning or its EEPROM may be unrecognized by the 6890 GC.
- Make sure that the correct type of module is installed.

Fault 254—Non-aux module in pneu aux position

Status message: Aux wrong module

The module installed in aux slot is unusable. Two things could cause this condition:

- The module is installed in the wrong position. For example, an inlet module might be installed in the aux position.
 - If the correct module is installed, it may be malfunctioning or its EEPROM may be unrecognized by the 6890 GC.
- Make sure that the correct type of module is installed.

Fault 255—Front detector: invalid det module**Fault 256—Back detector: invalid det module**

Status message: F det invalid type or B det invalid type

The front or back detector module is not supported by the firmware installed in the 6890 GC.

Fault 257—Front inlet: invalid inlet module**Fault 258—Back inlet: invalid inlet module**

Status message: F inlet invalid type or B inlet invalid type

The front or back inlet module is not supported by the firmware installed in the 6890 GC.

Fault 259—Front detector: det board not the same as module**Fault 260—Back detector: det board not the same as module**

Status message: F det type mismatch or B det type mismatch

The detector module does not match the installed detector electronics board.

- The position of the detector pneumatics module and detectors were changed, but the detector board was not. Change the detector boards.

Fault 261—Host communications: MIO board defective

Status message: MIO board defective

The connection between the MIO PC board and the mainboard could be faulty or the MIO board is defective. Communication between the 6890 GC and the host will halt.

- Reseat the MIO card.
- If reseating did not correct the problem, the MIO PC board is defective.

Fault 262—Host communications: RS232 defective

Status message: RS232 defective

The communications between the RS232 chip and the mainboard are faulty. Most likely, the mainboard is faulty. Communication between the GC and the other device will halt.

Fault 263—Host communications: GPIB (or HPIB)defective

Status message: GPIB (or HP-IB) defective

The communications between the GPIB (or HP-IB) chip and the mainboard are faulty. Most likely, the mainboard is faulty. Communication between the GC and the other device will halt.

Fault 264—Sampler communications: RS232 defective

Status message: Sampler RS232 defect

The communications between the RS232 chip and the mainboard are faulty. Most likely, the mainboard is faulty. Communication between the GC and the other device will halt.

Fault 265—Front inlet: invalid pids**Fault 266—Back inlet: invalid pids**

Status message: F inlet invalid pid or B inlet invalid pid

pid is an abbreviation for the constants used in the algorithm that controls temperature. This fault means that the module calibration is no longer valid.

Fault 267—Front detector: invalid pids**Fault 268—Back detector: invalid pids**

Status message: F detector invalid pid or B detector invalid pid

pid is an abbreviation for the constants used in the algorithm that controls temperature. This fault means that the module calibration is no longer valid.

Fault 269—Pneu aux module: invalid pids

Status message: Pneu aux invalid pid

pid is an abbreviation for the constants used in the algorithm that controls temperature. This fault means that the module calibration is no longer valid.

Fault 270—Front inlet: invalid module checksum**Fault 271—Back inlet: invalid module checksum**

Status message: F inlet bad cksum or B inlet bad cksum

The inlet module's calibration is no longer valid.

Fault 272—Front detector: invalid module checksum**Fault 273—Back detector: invalid module checksum**

Status message: F det bad cksum or B det bad cksum

The detector module's calibration is no longer valid.

Fault 274—Pneu aux module: invalid module checksum

Status message: Pneu aux bad cksum

The aux pneumatics module's calibration is no longer valid.

Fault 275—Front inlet: invalid constants from factory**Fault 276—Back inlet: invalid constants from factory**

Status message: F inlet bad fact cal or B inlet bad fact cal

The inlet module's calibration is invalid.

Fault 277—Front detector: invalid constants from factory**Fault 278—Back detector: invalid constants from factory**

Status message: F det bad fact cal or B det bad fact cal

The detector module's calibration is invalid.

Fault 279—Pneumatics aux: invalid constants from factory

Status message: P aux bad fact cal

The aux pneumatics module's calibration is invalid.

Fault 280—F inlet read/write failure. Module is unusable.**Fault 281—B inlet read/write failure. Module is unusable.**

Status message: F inlet i/o failure or B inlet i/o failure

The EPC module is malfunctioning. Replace the module.

Fault 282—F det read/write failure. Module is unusable.**Fault 283—B det read/write failure. Module is unusable.**

Status message: F det i/o failure or B det i/o failure

The EPC module is malfunctioning. Replace the module.

Fault 284—Pneu aux read/write failure. Module is unusable.

Status message: Pneu aux i/o failure

The EPC module is malfunctioning. Replace the module.

Fault 285—Front detector offset adjustment failed**Fault 286—Back detector offset adjustment failed**

Status message: F det adjust failure or B det adjust failure

An ECD or NPD detector has failed to successfully achieve the target offset setpoint within the adjustment range. The instrument will not be ready until "Adjust Offset" is turned Off or On.

Fault 287—F OIM not installed**Fault 288—B OIM not installed**

The OIM module is required by the method but is not present.

