

Hardware alarms

The list of potential hardware alarms has increased with the **firmware release of version 2.0**. The following table lists all GC alarms, as well as their possible causes and/or solutions.

Alarms that are available with the version 2.0 firmware are listed in **bold text**.

Note: Correct *all* alarms before re-calibrating the GC.

Alarm Name	Possible Causes/Solution
LTLOI Failure	No switch panel detected or connected. <u>Recommended actions:</u> <ol style="list-style-type: none"> 1. Power the GC down completely. 2. Check that the board is seated in the correct slot of the backplane board. 3. Power up the GC. 4. If message appears again, replace Switch Panel Board.
Maintenance Mode	A technician has put the GC into maintenance mode for servicing. To disable maintenance mode, unclick the <i>Maintenance Mode</i> checkbox in the System dialog.
Power Failure	The GC has experienced a re-start since alarms were last cleared, caused by power failure. The GC automatically starts in warm start mode. During warm start mode, the GC does the following: <ol style="list-style-type: none"> 1. Waits for the heaters to stabilize. 2. Purges the sample loop. 3. Actuates the valves for two cycles. After completing these actions, the GC switches to auto-sequence mode.
User Calculation Failure	One or more errors were detected while parsing a user-defined calculations. This usually happens when a user-defined calculation attempts to use a system variable that does not exist. <u>Recommended action:</u> Fix the calculation that is referring to the undefined system variable.

Alarm Name	Possible Causes/Solution
<p>FF Board Comm Failure</p>	<p>Foundation Fieldbus board not detected.</p> <p><u>Recommended actions:</u></p> <ol style="list-style-type: none"> 1. Power the GC down completely. 2. Check that the Foundation Fieldbus module cable is properly seated in the correct slot on the backplane board. 3. Check that the board is securely plugged into the Foundation Fieldbus module. 4. Check that the Foundation Fieldbus module is receiving power. 5. Power up the GC. 6. If the alarm appears again, replace the Foundation Fieldbus board.
<p>Low Battery Voltage</p>	<p>A low battery voltage has been detected on the CPU board. Replace the CPU board immediately to avoid losing GC configuration data.</p> <p><u>Recommended actions:</u></p> <ol style="list-style-type: none"> 1. Save the GC Configuration to a PC 2. Save any Chromatograms and/or Results to a PC 3. Power down the GC 4. Replace the CPU Board 5. Restore Configuration back to the GC.
<p>Preamp Board 1 Comm Failure</p>	<p>Preamp board not detected.</p> <p><u>Recommended actions:</u></p> <ol style="list-style-type: none"> 1. Power the GC down completely. 2. Check that the board is properly seated in the correct slot (SLOT 1) on the backplane. 3. Power up the GC. 4. If message appears again, replace the preamp board.
<p>Preamp Board 2 Comm Failure</p>	<p>Preamp board not detected.</p> <p><u>Recommended actions:</u></p> <ol style="list-style-type: none"> 1. Power the GC down completely. 2. Check that the board is properly seated in the correct slot (SLOT 3) on the backplane. 3. Power up the GC. 4. If message appears again, replace the preamp board.

Alarm Name	Possible Causes/Solution
Heater Solenoid Board 1 Comm Failure	Heater/Solenoid board not detected. <u>Recommended actions:</u> <ol style="list-style-type: none"> 1. Power the GC down completely. 2. Check that the board is properly seated in the correct slot (SLOT 2) on the backplane. 3. Power up the GC. 4. If message appears again, replace the heater/solenoid board.
Heater Solenoid Board 2 Comm Failure	Heater/Solenoid board not detected. <u>Recommended actions:</u> <ol style="list-style-type: none"> 1. Power the GC down completely. 2. Check that the board is properly seated in the correct slot (SLOT 4) on the backplane. 3. Power up the GC. 4. If message appears again, replace the heater/solenoid board.
BaseIO Board Comm Failure	Base I/O (Multifunction I/O) board not detected. <u>Recommended actions:</u> <ol style="list-style-type: none"> 1. Power the GC down completely. 2. Check that the board is properly seated in the correct slot (SLOT 5) on the backplane. 3. Power up the GC. 4. If message appears again, replace the base IO board.
Stream Skipped	One or more streams in the stream sequence cannot be analyzed because their "Usage" option is set to "Unused". <u>Recommended actions:</u> Use MON 20/20 to do one of the following: <ul style="list-style-type: none"> • Remove the unused stream(s) from the stream sequence. • Change the Usage option of the stream(s) in the Streams dialog to something other than "Unused".
GC Idle	

Alarm Name	Possible Causes/Solution
Warm Start Failed	<p>The GC failed to achieve desired operating condition after power up. Unable to regulate heater zone temperature(s).</p> <p><u>Recommended actions:</u></p> <ol style="list-style-type: none"> 1. Check heater settings in MON 20/20 or the LOI. 2. Check that the carrier gas cylinder pressure is 10 psi (or greater) above the mechanical regulator set point. 3. Confirm that carrier cylinder has flow to the GC. 4. Check for leaks in the carrier gas sample path. 5. Confirm that RTDs are not open. 6. If necessary, replace RTD(s), heater(s) and/or regulator(s).
Heater 1 Out Of Range Heater 2 Out Of Range Heater 3 Out Of Range Heater 4 Out Of Range Heater 5 Out Of Range Heater 6 Out Of Range Heater 7 Out Of Range Heater 8 Out Of Range	<p>The GC failed to regulate heater zone temperatures for the indicated heater to within preset limits.</p> <p><u>Recommended actions:</u></p> <ol style="list-style-type: none"> 1. Check temperatures within the GC, using MON 20/20 or the LOI. Be aware that the GC may generate this alarm during start up or if the setpoint has been changed. 2. Check wiring, looking for splits or loose connections at the termination board (for both the heaters and the RTDs). 3. If necessary, replace the defective heater and/or RTD.
Flame Out	<p>The FID flame will not light or has extinguished.</p> <p><u>Recommended actions:</u></p> <ol style="list-style-type: none"> 1. Use the front switch panel or the Local Operator Interface or MON 20/20 to ignite the FID. 2. If unable to sustain the flame, confirm that both fuel and air cylinders are connected and contain sufficient pressure. 3. Confirm that fuel and air set points are set to achieve factory-desired mixture. 4. Confirm that there is no blockage at the FID outlet - such as a cap or ice. 5. Check that the wiring connections are secure for the FID, both on the FID cap and at the termination board. 6. If necessary, replace the FID module.

Alarm Name	Possible Causes/Solution
Flame Over Temperature	<p>The FID flame temperature is above safe limits set at the factory and the FID flame has been extinguished, the fuel supply valve closed, and automatic analyses halted.</p> <p><u>Recommended actions:</u></p> <ol style="list-style-type: none"> 1. Confirm that both fuel and air cylinders are connected and contain sufficient volume. 2. Confirm that fuel and air set points are set to achieve desired mixture. 3. Use the front switch panel or the Local Operator Interface or MON 20/20 to ignite the FID.
Detector 1 Scaling Factor Failure	<p>The GC detected an excess scaling factor deviation for Detector #1.</p> <p><u>Recommended action:</u> Replace the preamp board located in SLOT 1 on the backplane.</p>
Detector 2 Scaling Factor Failure	<p>The GC detected an excess scaling factor deviation for Detector #2.</p> <p><u>Recommended action:</u> Replace the preamp board located in SLOT 1 on the backplane.</p>
Detector 3 Scaling Factor Failure	<p>The GC detected an excess scaling factor deviation for Detector #3.</p> <p><u>Recommended action:</u> Replace the preamp board located in SLOT 3 on the backplane.</p>
Detector 4 Scaling Factor Failure	<p>The GC detected an excess scaling factor deviation for Detector #4.</p> <p><u>Recommended action:</u> Replace the preamp board located in SLOT 3 on the backplane.</p>

Alarm Name	Possible Causes/Solution
<p>No sample flow 1 (Applies to the optional sample flow switch.)</p>	<p>There is no sample flow in the GC.</p> <p><u>Recommended actions:</u></p> <p>Check sample gas rotometer in the sample conditioning system for flow and do one of the following:</p> <ul style="list-style-type: none"> • If no gas flow or no rotometer is present, do the following: <ol style="list-style-type: none"> 1. Confirm that there is gas flow at the sample point location. 2. Check that the sample valves in the sample conditioning system are open. 3. Check that the bypass return vent path is free of obstruction. 4. Confirm that the sample line is connected from the sample point to the GC's sample conditioning system and is free of obstructions. 5. Close the valve at the sample tap, remove pressure from the line and check the filters at the probe or the sample conditioning system or both. If they are filled with liquids or particulates, replace the filtering elements. • If automatic stream selection valves are present, confirm that they are operating properly. • If a slight sample gas flow is present at the rotometer in the sample conditioning system, drain or replace all filters. • If flow is observed in the rotometer, replace the sample flow switch because it might have failed.
<p>No sample flow 2</p>	<p>Refer to "No sample flow 1".</p>

Alarm Name	Possible Causes/Solution
Loss of Purge (Applies to the 1500XA only)	There is a failure in the purge operation. <u>Recommended actions:</u> <ol style="list-style-type: none"> 1. Check that there is inert purge gas flowing into the electronic enclosure of the gas chromatograph. If not, replace the purge gas bottle or repair the source of purge gas. 2. Confirm that the door to the electronic enclosure is shut and that there is positive pressure (above setpoint) present in the enclosure. If there is no positive pressure, and purge gas is flowing into the enclosure, look for damage to the door gasket and/or bulkheads and sealing materials. Repair as needed. 3. Look for loose or disconnected terminations on the purge controller assembly. Note that the purge controller assembly is mounted on the exterior of the GC but its terminations can be accessed from the interior of the electronics enclosure. Repair as required. 4. Replace purge controller assembly.
Low Carrier Pressure 1	Input carrier pressure for detector 1 is below the preset limit. <u>Recommended action:</u> Check that the carrier cylinder pressure is 10 psi (or greater) above the mechanical regulator set point. If input carrier pressure is low, check the carrier cylinder pressure. Replace carrier gas cylinder if required.
Low Carrier Pressure 2	Input carrier pressure for detector 2 is below the preset limit. <u>Recommended action:</u> Check that the carrier cylinder pressure is 10 psi (or greater) above the mechanical regulator set point. If input carrier pressure is low, check the carrier cylinder pressure. Replace carrier gas cylinder if required.
Low Carrier Pressure 3	Input carrier pressure for detector 3 is below the preset limit. <u>Recommended action:</u> Check that the carrier cylinder pressure is 10 psi (or greater) above the mechanical regulator set point. If input carrier pressure is low, check the carrier cylinder pressure. Replace carrier gas cylinder if required.
Low Carrier Pressure 4	Input carrier pressure for detector 4 is below the preset limit. <u>Recommended action:</u> Check that the carrier cylinder pressure is 10 psi (or greater) above the mechanical regulator set point. If input carrier pressure is low, check the carrier cylinder pressure. Replace carrier gas cylinder if required.

Alarm Name	Possible Causes/Solution
Analog Input 1 High Signal Analog Input 2 High Signal Analog Input 3 High Signal Analog Input 4 High Signal Analog Input 5 High Signal Analog Input 6 High Signal Analog Input 7 High Signal Analog Input 8 High Signal Analog Input 9 High Signal Analog Input 10 High Signal	Measured value for the indicated analog input is greater than the user-defined full scale range.
Analog Input 1 Low Signal Analog Input 2 Low Signal Analog Input 3 Low Signal Analog Input 4 Low Signal Analog Input 5 Low Signal Analog Input 6 Low Signal Analog Input 7 Low Signal Analog Input 8 Low Signal Analog Input 9 Low Signal Analog Input 10 Low Signal	Measured value for the indicated analog input is lower than the user-defined full scale range.
Analog Output 1 High Signal Analog Output 2 High Signal Analog Output 3 High Signal Analog Output 4 High Signal Analog Output 5 High Signal Analog Output 6 High Signal Analog Output 7 High Signal Analog Output 8 High Signal Analog Output 9 High Signal Analog Output 10 High Signal Analog Output 11 High Signal Analog Output 12 High Signal Analog Output 13 High Signal Analog Output 14 High Signal	Measured value for the indicated analog output is greater than the user-defined full scale range.

Alarm Name	Possible Causes/Solution
Analog Output 1 Low Signal Analog Output 2 Low Signal Analog Output 3 Low Signal Analog Output 4 Low Signal Analog Output 5 Low Signal Analog Output 6 Low Signal Analog Output 7 Low Signal Analog Output 8 Low Signal Analog Output 9 Low Signal Analog Output 10 Low Signal Analog Output 11 Low Signal Analog Output 12 Low Signal Analog Output 13 Low Signal Analog Output 14 Low Signal	Measured value for the indicated analog output is lower than the user-defined zero range.
Stream 1 Validation Failure Stream 2 Validation Failure Stream 3 Validation Failure Stream 4 Validation Failure Stream 5 Validation Failure Stream 6 Validation Failure Stream 7 Validation Failure Stream 8 Validation Failure Stream 9 Validation Failure Stream 10 Validation Failure Stream 11 Validation Failure Stream 12 Validation Failure Stream 13 Validation Failure Stream 14 Validation Failure Stream 15 Validation Failure Stream 16 Validation Failure Stream 17 Validation Failure Stream 18 Validation Failure Stream 19 Validation Failure Stream 20 Validation Failure	The most recent validation sequence for the indicated stream failed. <u>Recommended actions:</u> <ol style="list-style-type: none"> 1. Check that the validation gas cylinder isolation valves are open. 2. Check that the validation gas regulators are set properly and that the cylinder is not empty. 3. If the cylinder is empty, replace with a full cylinder. 4. If the gas used for validation is the same as the gas that is used for calibration, ensure that the cylinder gas composition value listed on the cylinder's tag or on the certificate of analysis received from the supplier matches the value displayed in MON 20/20's Component Data table. 5. If there is a mismatch, edit the Component Data table to reflect the correct value. 6. Re-run the validation sequence. 7. If still unsuccessful contact Analyzer Technician.

Alarm Name	Possible Causes/Solution
<p>Stream 1 RF Deviation Stream 2 RF Deviation Stream 3 RF Deviation Stream 4 RF Deviation Stream 5 RF Deviation Stream 6 RF Deviation Stream 7 RF Deviation Stream 8 RF Deviation Stream 9 RF Deviation Stream 10 RF Deviation Stream 11 RF Deviation Stream 12 RF Deviation Stream 13 RF Deviation Stream 14 RF Deviation Stream 15 RF Deviation Stream 16 RF Deviation Stream 17 RF Deviation Stream 18 RF Deviation Stream 19 RF Deviation Stream 20 RF Deviation</p>	<p>The most recent calibration sequence failed.</p> <p><u>Recommended actions:</u></p> <ol style="list-style-type: none"> 1. Check that the calibration gas cylinder isolation valves are open. 2. Check that the calibration gas regulators are set properly and that the cylinder is not empty. If the cylinder is empty replace it with a full cylinder. 3. Verify that the calibration cylinder gas composition value listed on the cylinder tag or on the certificate of analysis received from supplier matches the calibration cylinder gas composition value displayed in MON 20/20's Component Data table. If there is a mismatch, edit the Component Data table to reflect the correct value. Re-run the calibration sequence. 4. If still unsuccessful contact Analyzer Technician, as adjustment of valve timing, valve maintenance and/or column repair may be required.