



Agilent Technologies

Innovating the HP Way

5890 TCD Troubleshooting Guidelines

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The information contained herein is intended for use by informed individuals who can and must determine its fitness for their purpose.

5890 TCD Troubleshooting

When trouble shooting the TCD, as in any detector. You should begin with half-splitting the detector from the column and the inlet. This will ensure that you are looking in the correct place for the problem.

The first things to look/listen for:

1. Is there an audible ticking sound coming from the switching valve?
2. Check flows -- setting column flow rate depends on the column installed and inlet used
Capillary--- Reference flow should be approximately 3 times that of the column +make-up
Packed --- Reference flow should be approximately 1.5 times that of the column flow.
3. Measure the resistance of the filament it should be 10 ohms (cold) and 11-13 ohms (hot).

Low Sensitivity: Possible causes

- A. High/Low Gain Switch in the wrong position
- B. Carrier Gas: (If the gas cylinder has recently been Changed) try a new tank
If a new method is being developed it could be carrier gas selection. Choose a More conductive gas.
- C. Filament resistance: measure the resistance of the filament it should be 10 ohms (cold) and 11-13 ohms (hot). Even though the filament reads correct resistance, it could be oxidized.
This could be caused by a leak in the system.
- D. Flows- Either too high or too low
- E. Contamination: Causing the detector signal to be elevated. This can be corrected by thermal bake out of detector.
- F. Filaments are oxidized: The only thing that can be done is replacing the detector assy.

Large Noise Spikes: Possible causes

- A. Switching valve connections: O-rings can dry out and leak.
- B. Manifold Block Needle Valves: excess grease
- C. Leaks: From column fittings, make-up gas adapter, gas line fittings
- D. Data System: cable connections
- E. Switching valve: valve is defective

Other causes that have been found.

- F. In some cases Walkie-Talkie radios have been found to cause spikes
- G. Power problems: poorly grounded power receptacles or power panels

Large Noisy Baseline: Possible causes

- A. Filament Delta prt sensor: this sensor if defective will cause the electronics To not function properly.
- B. Electronic Detector Board: faulty
- C. He/N2 Switch: is in the wrong position
- D. Filament leads have a poor connection to detector electronics board
- E. Contaminated gases

Low offset: Possible causes

- A. Also see Symptoms of Low Sensitivity
- B. Filament Continuity
- C. Switching Valve malfunction
- D. Gas flows are incorrect
- F. Leak on the detector column connections

Large Offset: Possible causes

- A. Column Bleed
- B. Contamination
- C. Switching Valve malfunction
- D. Gas flows are incorrect

Negative Signal: Possible causes

- A. Polarity switched
- B. Measure flows, Is Reference >Carrier
- C. Wrong gas
- D. Switching valve connections: O-rings can dry out and leak

No signal: Possible causes

- A. Check signal assignment
- B. Check Flows, No reference flow
- C. Switching valve connections: O-rings can dry out and leak
- D. Filament leads have a poor connection to detector electronics board
- E. Detector electronics are not turned on
- F. Signal Zero value is set too high
- G. Connections to the data recorder
- H. Defective electronics board

NOTE.

There could be other causes to any of the above symptoms. If you verify all of these first the next thing that you should do is contact Agilent Technologies Service.(1-800-227-9770)