

Supplementary material

The mini-CIMS instrument utilizes a Stanford Research Systems Residual Gas Analyzer without the factory installed electron ionization source. The SRS RGA (all models) tests for Emission Current in the embedded startup firmware and will not operate if the level is not detected within an acceptable range. This test is intended to prevent filament burnout due to excessive source pressure.

In order to allow the instrument to operate without a filament, we supplied a voltage simulating the presence of a normally-operating filament. This was done by soldering a 1 K ohm resistor to pin 1 on JP102 and the +24V side of R102, on the component side of the mass spectrometer Top Board.

This operation should be done with static protections in place and by experienced technical personnel. SRS will not accept this as normal use for warranty purposes. With this modification in place, the SRS unit has no protection against excessive operating pressure that may damage the electron multiplier.

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