



Agilent Low Thermal Mass (LTM) Series II System for Gas Chromatography

Data Sheet

Overview

Agilent Low Thermal Mass (LTM) technology addresses the demand for greater productivity required for many gas chromatography applications. This technology uses an LTM column module combining a fused silica capillary column with heating and temperature-sensing components wound around it. The LTM Series II system is designed to work with the LTM column module components to heat and cool the column very efficiently for significantly shorter analytical cycle times as compared to conventional air bath GC oven techniques involving much higher thermal mass.

The Agilent LTM Series II system (except external power supply) is built into a replacement Agilent 7890A GC System oven door, which is mounted as an add-on to an Agilent 7890A GC. The Agilent LTM Series II system is neither available nor supported for operation with an Agilent 5890 GC, 6850 GC, 6890 GC or other GC's.

The Agilent LTM Series II system takes LTM technology to the next level via integrated control directly by the 7890A GC and Agilent GC and GC/MS data systems as well as improvements to ease LTM column installation. Support for constant flow mode and real-time display of temperatures and flows/pressures is now available via 7890A GC display and Agilent data systems.



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Temperature Control

- LTM column module heating: direct resistive heating using ceramic-insulated heating wire
- Temperature sensing: high-precision temperature sensor combined with capillary GC column
- Temperature accuracy: each column module is factory calibrated to heat within 0.1 °C of a reference; real-time error fluctuations between temperature setpoint and column module temperature are typically less than 1 °C over the entire temperature range at a programming rate of 120 °C/min
- Operating temperature: 4 °C above ambient to the maximum operating temperature of the GC capillary column; maximum programmable temperature is 400 °C
- Maximum LTM column length is 30 m
- Maximum temperature ramp rate: $\pm 1,800$ °C/min (achievable ramp rate is dependent on column dimensions and configuration)
- Negative temperature ramping: uses heating to achieve a controlled cooling rate that is slower than the convection cooling rate
- Simultaneous, synchronous operation of one to four modules; up to four column modules can be operated simultaneously with different temperature programs. The operation of multiple modules requires a matching number of fan brackets and transfer line modules.
- Asynchronous operation is not allowed
- Up to two external power supplies maximum allowed per LTM Series II system. The use of two power supplies will allow a maximum of two 5-inch modules to be run. To operate a 3rd or 4th module, they all must be of the 3-inch format and requires a 2nd power supply/PCB.
- Simultaneous operation of two or more methods may require a second external power supply. (Simultaneous use of two 30 m 5-inch LTM columns requires two power supplies)
- 7890A GC requires firmware revision A.01.12.1 or higher

7890A GC Configuration with LTM Series II System

The 7890A GC allows up to 10 communications channels for various GC and LTM Series II components. The following is an example 7890A GC configuration (dual SSL/dual FID with Aux EPC) and a LTM Series II system:

- Two (one for each inlet)
- Four (two for each detector (Note: DFPD requires 3 channels))
- One (one for each PCM or Aux EPC module)
- One (one LTM Series II electronics module, for one or two 5-in format LTM column modules)
- One (one for an optional second electronics LTM Series II Power PCB and power supply)

In this example, nine total GC communication channels are used.



Dimensions and Average Weight of LTM Series II Replacement Door

- Height 36.8 cm (14.5 in)
- Width 43.2 cm (17.0 in)
- Depth 25.4 cm (10.0 in); unit project 18.4 cm (7.2 in) forward from original door with modules installed
- Average weight 6.7 kg (14.7 lb)

Dimensions and Average Weight of LTM Series II External Power Supply

- Height 4.6 cm (1.8 in)
- Width 8.5 cm (3.3 in)
- Depth 21 cm (8.3 in); allow 5 cm (2 in) in front and behind for cable and line cord connections
- Average weight 1.1 kg (2.4 lb)

Environmental Conditions

- Ambient operating temperature: 15 to 35 °C
- Ambient operating humidity: 5 to 95%
- Storage extremes: -40 to 65 °C
- Line voltage requirements: 100V-240V, \pm 10%

Safety and Regulatory Certifications

Conforms to the following safety standards:

- Canadian Standards Association (CSA): C22.2 No. 1010.1 Second Edition
- International Electromechanical Commission (IEC): 61010-1
- EuroNorm (EN): 61010-1 Second Edition
- CSA/Nationally Recognized Test Laboratory (NRTL): US 61010-1 Second Edition
Conforms to the following regulations on electromagnetic compatibility (EMC) and radio frequency interference (RFI):
- IEC/EN 61326
- Declaration of Conformity available

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