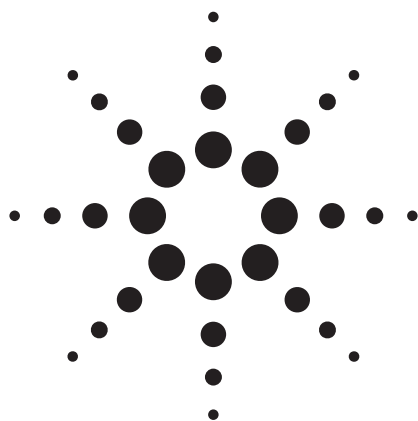


# Agilent 6850 Series II Network GC System Specifications



## Description

The single-channel Agilent 6850 Series II Network GC system has similar state-of-the-art performance as the Agilent 6890N GC, but is only half as wide. The six-button, two-line local interface provides run control and status information. The GC is network-ready with a built-in LAN communications interface. The GC is also automatic liquid sampler (ALS)-ready with built-in controller for the G2880 autosampler or the Agilent 7683/7693 autoinjector.

## Environmental Conditions

- Ambient operating temperature: 15 °C to 35 °C
- Ambient operating humidity: 5% to 95%
- Storage extremes: -40 °C to 70 °C
- Heat dissipation: 3,000 Btu/h, 0.88 kW typical (at 100–120 V)

## Power Requirement

### Standard Oven

- Approximately 1,440 VA (max) at 100–120 V, 2,000 VA at 230 V

- 100 V (+10%, -10%), 15 amps, 47–63 Hz
- 120 V (+10%, -10%), 12 amps, 47–63 Hz
- 230 V (+10%, -10%), 9 amps, 47–63 Hz

### Fast Oven

- 120 V (+10%, -10%), 20 amps, 47–63 Hz
- 200/208 V (+10%, -10%), 12 amps, 47–63 Hz
- 230 V (+10%, -10%), 11 amps, 47–63 Hz

## Certifications

- Conforms to the following safety standards:
  - Canadian Standards Association (CSA): C22.2 No. 1010
  - CSA/Nationally Recognized Test Laboratory (NRTL): UL 3101
  - International Electrotechnical Commission (IEC): 61010-1
  - EuroNorm (EN): 61010-1
- Conforms to the following regulations on Electromagnetic Compatibility (EMC) and Radio Frequency Interference (RFI):

- CISPR 11/EN 55011: Group 1 Class B

- IEC/EN 61326-1:2005 Electrical equipment for measurement, control, and laboratory use - EMC requirements

- IEC68-2-27 Mechanical Shock Test Standard

- Canada ISEC/NMB-001
- AS/NZC CISPR 11

- Designed and manufactured under a quality system registered to ISO 9001
- Declaration of Conformity available

## Column Oven

- Dimensions: 202 × 200 × 105 mm (HWD)
- Oven power is turned off automatically when the lid is opened
- Column basket diameter: 130 mm
- Standard: 5 °C above ambient to 350 °C. With CO<sub>2</sub> cryo: -20 °C to 350 °C.
- Temperature setpoint resolution: 1 °C
- Column bleed compensation
- Maximum run time: 999.99 min



- Temperature programming: six ramps with seven plateaus
- Ambient rejection: <0.01 °C per 1 °C ambient change
- Automatic H<sub>2</sub> carrier safety turn-off when inlet gas pressure drops
- Typical cool-down rate: 350 °C to 50 °C: 5.2 min
- Cryogenic gas consumption is typically half that of dual-channel ovens

**Table 1. Typical Oven Ramp Rates**  
(at nominal line voltage)

| Temperature range in °C | Standard oven rates (°C/min) | Fast oven rates (°C/min) |
|-------------------------|------------------------------|--------------------------|
| 50 to 75                | 120                          | 240                      |
| 75 to 115               | 95                           | 190                      |
| 115 to 175              | 65                           | 130                      |
| 175 to 300              | 45                           | 90                       |
| 300 to 350              | 35                           | 70                       |

## Inlets

### Inlets Available:

- Split/Splitless capillary inlet (S/SL)
- Purged packed injection port (PPIP)
- Temperature-programmable vaporizer (PTV)
- Temperature-programmable cool-on-column (PCOC)
- Electronic pneumatics control (EPC)
- When capillary column dimensions are entered, the actual flow and pressure are shown as calibrated digital readouts
- Carrier gas selection provided for: He, H<sub>2</sub>, N<sub>2</sub> and Ar-CH<sub>4</sub>
- Pressure setting range: 0 to 100 psi
- Constant pressure, constant flow modes
- Three ramps for pressure or flow
- Optional Merlin Microseal septum guarantees at least 2,000 injections
- Septum purge set automatically

### Split/Splitless Capillary Inlet

- Maximum temperature: 375 °C
- Pressure range: 0–100 psi (0–150 psi optional)
- Accepts columns from 50-µm id to 530-µm id
- Pressure pulse mode
- Gas saver mode
- Total flow ranges through the inlet: He, 20 to 1,000; H<sub>2</sub>, 26 to 1,000; N<sub>2</sub>, 20 to 200 mL/min
- Split ratio may be adjusted electronically without affecting column flow or head pressure

### Purged-Packed Injection Port

- Maximum temperature: 375 °C
- Accepts 530-µm capillary columns or 1/8-inch metal-packed columns up to 20 feet in length
- Total flow setting range: 0–100 mL/min

### PTV

- Maximum temperature: 375 °C
- Three temperature program ramps
- Temperature ramp rates 0.1 to 720 °C/min
- Pressure setting range: 0–100 psi
- Total flow setting range: 0 to 200 mL/min N<sub>2</sub>, 0 to 1,000 mL/Min H<sub>2</sub> or He
- Available with LCO<sub>2</sub> cryogenic cooling only
- Lower temperature limit without CO<sub>2</sub>: ambient plus 10 °C
- Lower temperature with LCO<sub>2</sub> cryogenic cooling: –30 °C (10 °C less than oven)
- Available with Gerstel septumless head or Merlin MicroSeal septum head

### PCOC

- Maximum temperature: 375 °C
- Three temperature program ramps or oven track mode

- Maximum temperature ramp rate: 350 °C/min
- Pressure setting range: 0–100 psi
- Total flow setting range: 0 to 100 mL/min
- Available with LCO<sub>2</sub> cryogenic cooling only
- Lower temperature limit without LCO<sub>2</sub> cryogenic cooling: Oven temperature plus 3 °C with oven track on, –20 °C with oven track off
- Lower temperature with LCO<sub>2</sub> cryogenic cooling: –17 °C with oven track on, –20 °C with oven track off

## Detectors

Detectors include EPC.

### Flame Ionization Detector (FID)

- Maximum temperature: 375 °C
- Automatic ignition
- Flame-out detection and reignition
- Minimum detectable: <5 pg carbon/s as propane using N<sub>2</sub> carrier and a 0.29-mm id jet
- Linear dynamic range: 10<sup>7</sup> (±10%)
- Full range auto scaling
- Data acquisition rate: up to 200 Hz
- Flows: air, 0 to 800; hydrogen, 0 to 100; make-up (He or N<sub>2</sub>), 0 to 100 mL/min

### Thermal Conductivity Detector (TCD)

- Maximum temperature: 375 °C
- Minimum detectable: <400 pg propane/mL helium carrier (MDL can be affected by laboratory environment.)
- Linear dynamic range: 10<sup>5</sup> (± 5%)
- Flows: reference gas, 0 to 100; make-up (He, H<sub>2</sub>, N<sub>2</sub>), 1 to 12 mL/min

## FPD

- Available in single wavelength only
- 250 °C maximum operating temperature
- MDL: <20 pg S/s, <0.9 pg P/s with dodecanethiol/tributylphosphate mixture
- Selectivity: 10<sup>5</sup> gS/gC, 10<sup>6</sup> gP/gC
- Dynamic range: >10<sup>3</sup> S, 10<sup>4</sup> P with dodecanethiol/tributylphosphate mixture

## Micro-ECD

- Equipped with hidden anode and high velocity flows for contamination resistance
- 400 °C maximum operating temperature
- Makeup gas types: argon/5% methane or nitrogen
- Radioactive source: <15 mCi<sup>63</sup> Ni
- MDL: <0.008 pg/s lindane
- Dynamic range: >5 × 10<sup>5</sup> with lindane
- Data acquisition rate: up to 50 Hz



## Local User Interface

- Six-button interface with two-line display:
  - Status is on the top line; lists and messages are on the bottom line.
  - ▼ ▲ buttons scroll through a list.
  - LOAD button loads a method.
  - PREP RUN button prepares the unit for manual injection.
- START/STOP buttons control the sequence or method.
- Keyboard can be locked.

## General

- Clock-time programming (24 h)
- Up to five methods stored, built-in SERVICE method
- One sequence
- Run deviation log
- Contact closure (48 VAC/VDC 250 mA) with BCD input to control external multiposition valve (up to 16 positions).
- Internal valve control; 24 VDC, 200 mA
- Built-in power/control for the Agilent 7683 autoinjector

## Data Communications

- RS-232-C: maximum Baud rate is 57,600
- Analog outputs (1 mV, 1 V, 10 V)
- Remote start/stop
- LAN interface

## EPC

### Standard

- Pressure setpoint increments: 0.01 psi
- Temperature and pressure sensors compensate for ambient variation and altitude
- All EPC setpoints are included in the method

### Auxiliary (Aux) EPC

- Maximum number of modules: one
- Maximum number of channels: three
- Pressure increments: 0.01 psi
- Maximum pressure: 100 psig
- Maximum pressure ramp rate (when configured as Inlet): 150 psi/min

## Valving (optional)

One 6-port gas sampling valve or one 4-port liquid sampling valve can be mounted in a heated compartment. The valve can be connected to the column either directly or via the inlet. Valves may be run-time programmed. Actuating a sampling valve will START a run.

Both the traditional actuator/rotary valves as well as piston/diaphragm valves are available. The rotary valves are suitable for most applications. The air-actuated diaphragm valves have a much longer life and are easier to maintain; however, they are not suitable for ammonia, primary and secondary amines, hydrazines, strong oxidizers, and alkaline solutions (pH >10).

The recommended operating temperature and pressure ranges for the miniature VICI® diaphragm design are: 50 to 150 °C and 20–300 psi. The valves are actuated pneumatically and require 40 to 50 psi air pressure.

The recommended operating temperature range for the rotary 6-port gas sampling valve is 50 to 200 °C and the maximum sample pressure is 400 psi.

The operating temperature range for the rotary 4-port liquid sampling valves is 70 °C to 175 °C. At 5000 psi, the maximum temperature is 75 °C while at 1000 psi the maximum temperature is 175 °C.

The gas sampling valve, rotary or diaphragm, is supplied with a 0.25-cc loop. Other loops (0.5, 1, and 2 cc) are available separately.

Liquid sample valves have a built-in sample loop (0.5 or 1.0-µL size).

## Maintenance and Support

- Service method sets temperatures and flows for routine maintenance (such as septum or liner changing)
- Operating and service information on CD-ROM. Includes multimedia maintenance procedures
- Diagnostics built into the (optional) handheld controller for use by the operator:
  - Inlet (leak) test
  - Inlet vent trap (restriction) test
  - FID jet (restriction) test
- Additional diagnostic tests built in for hardware fault detection

## Dimensions and Weight

- Height: 490 mm to FID cover top, and 505 mm to top of valve box
- Width: 283 mm, or 333 mm if the cryogenic option is installed
- Depth: 568 mm
- Weight: 29 kg (maximum)

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