Agilent 7820A Gas Chromatograph System

Description

The Agilent 7820A gas chromatograph, inheriting Agilent's legendary expertise in GC and proven quality as industry leader, generates reliable results with minimized complexity for customers' routine analyses, run after run, day after day.

The simplified GC front panel keys and display provide sequence information, instrument conditions, and run status. Full electronic pneumatics control (EPC), available for all inlets and detectors, automates control of gas pressures/flows to predefined set points, and allows pressure and flow programming.

Electronic pneumatics regulation (EPR) is available for select inlets and detectors. EPR provides a digital measurement and display of gas pressure/flow and allows the user to manually adjust these gas pressures/flows, electronically, using the 7820A software keypad on the user's PC, avoiding use of mechanical regulators. This provides constant pressure operation for the Split/Splitless inlet, and constant flow operation for the Packed Column inlet and the detectors with EPR.

EPR. EPC and EPR are compensated for barometric pressure and ambient temperature changes, which results in more stable retention times and detector baselines.

Configurable with a range of optional automated sample injectors and samplers.

Features and Benefits

- Controlled by Laura.
- Detectors for a wide range of applications.

Safety and Regulatory Certifications

Safety Standards

Canadian Standards Association (CSA) C22.2 No. 61010

CSA/Nationally Recognized Test Laboratory (NTRL) UL61010

International Electrotechnical Commission (IEC) 61010

EuroNorm (EN) EN61010

Electromagnetic compatibility (EMC) and radio frequency interference (RFI) regulation conformity

CISPR 11/EN 55011 Group 1, Class A

IEC/EN 61326

Designed and manufactured under a quality system registered to ISO 9001. The Decleration of Conformity is available.

System Overall Performance*

*Using 7820A with EPC (splitless), ALS, and Agilent Data System for analysis of tridecane (2 ng to the column). Results may vary with other samples and conditions.

Retention time repeatability	< 0.06%
Peak area repeatability	< 2%

Power Requirements

100 V (+10%, -10%)

120 V (+10%, -10%)

200 V (+10%, -10%)

220 V (+10%, -10%)

230 V (+10%, -10%)

240 V (+10%, -10%)

Frequency 4.75 - 63 Hz

1,500 W (max) at 100 V, 2,250 W (max) at all other voltages.

Column Oven

Dimensions:	28.0 x 30.5 x 16.5 cm
Operating Temperature:	8°C above ambinet to 425°C
Temperature setpoint resolution:	1°C
Maximum temperature ramp rate:	75°C/min (see Table 1)
Maximum run time:	999.99 min
Temperature programming ramps:	5
Ambient rejection:	< 0.01°C per 1°C
Oven temperature ramp:	≤ 2%
Programming temperature repeatability:	≤ 1%

Heated Zones

- Five independent heated zones, not including oven (two inlets, two detectors, and one auxiliary).
- 350°C Maximum operating temperatures for auxiliary zone.
- Support up to two heated valves.
- Support for a 3rd valve, which is non-heated and timed evetns synchronized with the first valve.

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Table 1. Typical 7820A GC Oven Ramp Rates

Temperature (°C)	220 V Oven Rates (°C/min)
50 to 70	75
70 to115	45
115 to 175	40
175 to 300	30
300 to 425	20

For 100 V oven, the maximum temperature is 350°C with a mximum ramp rate of 30°C/min.

Electronic Pneumatics Control (EPC)

Available on all inlets and detectors.

Electronic Pneumatics Control (EPR)

Available on S/SL and Packed Column inlets and FID and TCD detectors. EPR allows the user to manually adjust pressure and either total or purged flow (for S/SL inlet) or flow only (for Packed Column inlet (PCI) and FID and TCD detectors) to a desired value using the 7820A software keypad on the user's PC. Makeup flow will not compensate for changes to column flow during oven temperature ramping.

Inlets

- Up to two inlets may be installed.
- EPC pressure setpoint and control precision to 0.01 psi or 0.069 kPa.
- Display resolution for EPR for pressure is 0.01 psi or 0.069 kPa.

Purge Packed (EPC)

- Electronic flow control.
- Septum purge.
- 400°C maximum operating temperature.
- Maximum flow < 100 mL/min.
- Adapters included for 1/4-inch and 1/8-inch packed columns.

Packed Column (EPR)

- Constant flow operation.
- 400°C maximum operating temperature.
- Maximum flow < 100 mL/min.
- Adapters included for 1/4-inch and 1/8-inch packed columns.

S/SL (EPC)

Electronic pressure/flow control

Septum purge

Maximum Operating Temperature:	400°C
Pressure setting range:	0 to 100 psi or 0 to 689.47 kPa
Maximum split ratio:	250:1
Flow setting range:	0 to 200 mL/min N_2 0 to 500 mL/min N_2 or He

S/SL (EPR)

Constant pressure operation

Septum purge

Maximum Operating Temperature:	400°C
Pressure adjustable range:	0 to 100 psi or 0 to 689.47 kPa
Maximum split ratio:	250:1
Flow adjustable range:	0 to 200 mL/min N_2 0 to 500 mL/min N_2 or He

Detectors

- Up to two detectors may be installed.
- Electronic pneumatic control (EPC) with electronic flow control available for detector gases for all detectors.
- Electronic pneumatic regulation (EPR) with constant flow operation available for detector gases for FID and TCD.

FID (Flame Ionization Detector)

Maximum Operating Temperature:	425°C
MDL:	< 3 pg carbon/s as tridecane
Linear Dynamic Range:	> 10^7 range with N_2 carrier and 0.29-mm id jet
Maximum Data Acquisition Rate:	100 Hz

TCD (Thermal Conductivity Detector)

Maximum Operating Temperature:	400°C
MDL:	< 800 propane/mL using He carrier (MDL may be affected by laboratory environment
Linear Dynamic Range:	10^5 (± 10%)

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Optional Automated Sample Injectors and Samplers

Supports one 7893A autoinjector with capacity for 16 sample vials
or
Supports one 7893A autoinjector and automatic sampler tray with capacity for 150 sample vials.

- Heater/mixer/bar code reader not supported.
- All 5975E/5977E Series MSD bundles (MSD with 7820A GC) supports the 150 sample vial sampler tray.
- Only 7820A GC's ordered after June 1, 2015 support the 150 sample vial sampler tray.

or
Supports one 7650A autoinjector with capacity for 50 sample vials
or
Supports one PAL3 Autosampler.

Data Communications

- One analogue output channel (1 mV, 1 V, and 10 V output available) as standard.
- Remote start/stop.
- LAN.

Dimensions and Weight

Height:	49 cm
Width:	56 cm
Depth:	51 cm
Average Weight:	50 kg

Environmental Conditions

Indoor Use

Ambient Operating Temperature:	10 to 30°C
Ambient Operating Humidity:	30 to 70%
Storage Extremes:	-40 to 70°C
Operating Altitude:	3,100 m

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Gas Selection

LabLogic recommends that carrier and detector gases be 99.9995% pure. Air needs to be zero grade or better. LabLogic also recommends using traps to remove hydrocarbons, water and oxygen. The following table lists gases for capillary columns.

	Carrier	Preferred Make-up	2nd Choice	Detector, anode purge, or reference
FID	Hydrogen Helium Nitrogen	Nitrogen Nitrogen Nitrogen	Heluim Helium Helium	Hydrogen and air for detector
TCD	Hydrogen Helium Nitrogen	Must be same as carrier and reference	Must be same as carrier and reference	Reference must be same as carrier and make-up

Ordering Information

GC for residual solvent analysis with autoinjector.

Installation and familiarisation training.

WINKGEN medical systems

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