Agilent 7650A ALS

Specification

7650A ALS

7650A ALS on 7820A GC

The 7650A offers the latest in robust, dependable sampling technology to keep your lab operating with maximum productivity. The 7650A ALS holds fifty 2-mL vials and is compatible with 7820 and 7890 GCs. This injector is an ideal solution for labs with intermediate sampling needs. It also has a capacity of four 4-mL solvent vials and four 4-mL waste vials – for longer unattended analysis.

The Agilent 7650A sampling technology includes 100-millisecond injection which eliminates a major source of needle discrimination and sample decomposition. Programmable injection means plunger speed can be precisely regulated, enabling optimization for large volume injections or challenging applications. Syringes as small as 1 µL and as large as 500 µL can be used to provide the greatest flexibility for your lab's needs.

Overview

The Agilent 7650 ALS is a state-of-the-art sample handling injection system that provides the highest levels of precision and reliability for gas chromatographic sampling.

The 7650A ALS consists of:

- Injection tower with 50 vial capacity turret
- Optional Large Volume Syringe Carriage

Hardware Compatibility

Agilent 7890 gas chromatograph

Agilent 7820 gas chromatograph (requires ALS interface card)

Not interchangeable with 7693A tray

One 7650A operable on a compatible GC at a time, in front or back inlet

When used on an Agilent 7890 GC, the 7650A ALS may be operated on the front injection port with a 16 vial 7693A injector operated on the back.

Agilent Technologies

Specifications

Chromatographic performance[1]

- Sample Discrimination ≦ 10%[2]
- Area reproducibility better than 0.3% RSD[3]
- Injection linearity less than 5% RSD[4]
- Carryover less than 1 part in 100,000[5]

Injection features

- Standard and on-column injection modes
- Fully programmable dispense rate, draw rate, and injection rate
- Fast injections are performed in less than 100 ms
- Support of 250 and 500-µL syringes with optional Large Volume Syringe Carriage
- User-definable sandwich injection mode (two and three layer sandwich injection mode)
- Sensors to detect the presence of the Large Volume Syringe Carriage
- A sensor detects the injection port location
- Illuminated syringe for easy viewing
- User-changeable syringe carriage
- Self-aligning injector
- Available solvent-saving mode extends solvent capacity up to eight fold

Sample Injection

The 7650A injector provides a wide range of injection capabilities to provide maximum flexibility:

Injection parameter control Parameter range

- Variable sampling depth –2 to +30 mm above default
- Pre- and post-injection syringe 0–15 rinses for each of solvent A and B
- Sample prewashes 0–15 prewashes
- Viscosity delay 0–7 seconds
- Pre-injection sample pumps 0–15 pumps
- Minimum sample injection 10 nL (with 1 µL syringe)
- Maximum sample injection 50 µL (with 100 µL syringe in standard tower), 250 µL (with 500 µL syringe and Large Volume Syringe Carriage)
- Injection plunger speed fast/slow/variable
- Multiple injection mode 1–99 injections of specified volume (COC, PTV, MMI, PP, S/SL) on 7890; (PP, S/SL) on 7820
- Injection delay time 0–1 minute (within multiple injection mode)
- Pre-injection dwell time 0–1 minute
- Post-injection dwell time 0–1 minute
- Solvent saver set at 10, 20, 30, 40, and 80% of syringe volume
- Injection range 1 to 50% of syringe volume in increments of 1%
- Syringe size 1, 2, 5, 10, 25, 50, and 100 µL maximum volume with standard syringe carriage
- 250 and 500 µL maximum volume with optional Large Volume Syringe Carriage

Sample Management

Vial handling

- System supports standard 2 mL vials and micro vial inserts
- 50 sample maximum capacity

Solvent

- 4 mL solvent vials
- 4 × 4 mL (usable solvent capacity of 4 mL per row, 8 mL total)

Syringe support

- Up to 100 µL syringe with standard syringe carriage
- 250/500 µL syringe with optional Large Volume Syringe Carriage
- Supports compatible liquid and gastight syringes

Sample sequencing

- Advanced sequencing with random access using Agilent software
- Simple sequencing using the Agilent 7890 Series GC keyboard
- Simple sequencing using the Agilent 7820 virtual keyboard
- Next sample overlap using the Agilent 7890 GC
- Next sample overlap using the Agilent 7820 GC
- Capability to run priority samples using software control or GC keyboard (virtual keyboard on 7820)

Physical Specifications

Nominal weights and dimensions

Weight

Agilent 7650A injector – 4.5 kg

Height

7650A Injector – 51.5 cm

Above bench surface of top of a 7650A injector as mounted on a 7890: 94 cm

Above bench surface of top of a 7650A injector as mounted on a 7820: 95 cm

Width (rear mounted)

7650A Injector – 21.7 cm

Extension of the 7650A injector past left side of a 7890: 83 mm

Extension of the 7650A injector past left side of a 7820: 85 mm

Depth (front mounted)

7650A Injector – 23.5 cm

Extension of the 7650A injector past front of a 7890: 51 mm

Extension of the 7650A injector past front of a 7820: 79 mm

Technical and environmental

- Indoor use only
- Altitude up to 4,300 m
- Ambient operating temperature 15 to 35 °C
- Ambient operating humidity 5 to 95% (non-condensing)
- Pollution degree 2, Installation Cat II

Safety and support

- The injector will not operate if it is not properly mounted on a GC, if the turret is not installed, or if the door is open
- Error indicators
- Flash memory allows product firmware enhancements to be uploaded through a PC
- Onsite repair is available for the 7650A injector
- In the event of any instrument failures, the Agilent industry-leading *Express Exchange** service can minimize downtime by shipping replacement sampler modules within hours
- Contact sales representative to verify compatibility with software
- Not available in all countries

1 Specifications generated on an Agilent 7890 GC

2 From cool on-column analysis of C10–C42; meets or exceeds ASTM 2887

3 Chromatographic conditions for C10–C16
1 µL injection (5 µL syringe)
10 injections
1 sample wash; 6 sample pumps

Inlet	Split 100:1 (He); 250 °C; 3 mL/min (constant flow)
Column	HP-5MS – 30 m × 320 µm, 0.250 µm df
Oven	180 °C isothermal
Detector	FID

4 Chromatographic conditions for C14–C16
10 µL syringe
10 injections for each volume; injection volumes from 10 to 50%
2 sample washes; 6 sample pumps
3 solvent A and B washes post-injection

Inlet	Split 25:1 (He); 250 °C; 3.2 mL/min (constant flow)
Column	HP-5MS – 30 m × 320 µm, 0.500 µm df
Oven	100 °C (1 min); 30 °C/min to 250 °C
Detector	FID

5 Determined by residual analyte area measured in subsequent solvent blank (four solvent A and four solvent B post-washes)

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