

4551A Water Autosampler

Purge-and-Trap Water Autosampler



- Automated VOC analysis of up to 51 water samples
- Uses minimal benchspace by docking directly underneath the Eclipse 4660 Sample Concentrator
- Transfers water samples with light particulates (<100 μm) without system clogging
- Optional Standards Addition Module automates addition of internal or surrogate standards
- Maximum sequence flexibility with programmable multiple rinses and blanks
- Proven sampling system for maximum uptime and low support costs (no XYZ arm maintenance)
- Peristaltic pump and sample loop eliminate slow syringe drives and produce the fastest VOC autosampler available

Principal Applications

- Drinking water
- Wastewater
- Pharmaceutical
- USEPA 5030, 502.1, 502.2, 503.1
- USEPA 524.2, 601, 603, 624
- USEPA 8010, 8015, 8020, 8021, 8030
- USEPA 8260
- VPH and GRO/DRO
- THM
- BTEX
- Geosmin and 2-MIB

Product Description

The 4551A Autosampler is designed to be used with an Eclipse 4660 Purge-and-Trap Sample Concentrator for analysis of VOCs in clean or lightly particulated water samples. The 4551A transfers water samples from standard 40-mL volatile organic analysis (VOA) vials to the sparge vessel of the Eclipse 4660 sample concentrator for purging. A removable spiral autosampler tray holds 51 sample vials for fully automated unattended operation. An optional dual-reservoir Standards Addition Module (SAM) automatically adds internal and/or surrogate standards to user-specified samples for quality control.

Operating Principle

The sampling sequence of the 4551A autosampler is programmed using the touchscreen display of the Eclipse 4660. Samples are sequentially moved into position below a sleeved sampling needle. A motorized mechanism lowers the needle to pierce the septum of the sample vial. The vial then is pressurized with an inert gas, and sample is transferred to a calibrated sample loop (5-mL standard volume or optional 10- or 25-mL volumes). The inert gas then transfers the sample aliquot to the sparge vessel of the Eclipse 4660 for analysis. When the sample desorption step is complete within the Eclipse 4660, the sample automatically drains, and the 4551A performs a user-programmed number of rinses of the sample pathway and sparge vessel. A clean water source provides water to rinse the sample pathway and to run as blanks at programmed intervals in a sample sequence.

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General Specifications

Dimensions	
4551A	46 cm H x 40 cm W x 42.6 cm D (16.71" H x 15.5" W x 16.75" D)
4551A and Eclipse	81 cm H x 40 cm W x 42.6 cm D (23.5" H x 15.5" W x 16.75" D)
Depth with Cover	53 cm
Footprint	1677 cm ² (260 in ²)
Weight	
4551A	16.3 kg (36 lb)
4551A and Eclipse	30.8 kg (68 lb)
Sample Loop	
5 mL	Glass loop (standard)
Valve	Six-port electrically actuated, 12 V _{DC} , Valco® Cheminert®
Sample Transfer Pathway	
Sampling Needle	7", two-hole, stainless steel
PEEK® Tubing	1/16" O.D. x .040" I.D. x 17"
Nickel Tubing	1/16" O.D. x 0.040" I.D. x 26"
Certifications	
CE	
EMC: Directive 89/336/EEC:1989 EN50082-1:1992 CISPR 11:1990/EN55011 (1991) Group 1 Class A IEC 801-2/EN61000-4-2 IEC 801-3/EN61000-4-3 IEC 801-4/EN61000-4-4	
Warranty	
12 Months	Parts and labor

Performance Specifications

Sample Transfer	
Accuracy	Better than ±0.3%
Programmable Parameters	
<ul style="list-style-type: none"> • Sample start and end position • Sample priority • Number of sample replicates (1–3) • Internal and/or surrogate standard addition from two independent reservoirs • Washes (rinses) per sample • Blank runs between samples • Loop fill and transfer time • Needle depth (85–100%) 	

Requirements

Power Requirements	
Voltage	100–230 V _{AC} ±10% (autoselecting)
Frequency	50/60 Hz
Gas Requirements	
Purity	99.999% (UHP) He or N ₂
Pressure	50–125 psi
Water Supply	
Clean water free of VOCs for rinsing the sample pathway and running blanks	

Options

Sample Loop	
10 mL	Glass loop
25 mL	Glass loop
Standards Addition Module (SAM)	
Mounting	Snaps quickly and easily onto the 4551A chassis
Injections	Automated ISTD (internal standard) or surrogate injections at definable intervals. Sweeps surrogate or ISTD into the sparge vessel by the sample.
Excess Standard	Automatically drains excess standard to a waste bottle
Consumption	Low volume of standard (20–40 µL/use)
Vial Cooling	
Maintains sample tray at 4 °C as mandated in most USEPA VOC methods	
pHDetect™ Option	
Automatically measures and electronically logs a pH measurement for every water sample immediately after the purge step.	



Standards Addition Module (SAM)