**HTS PAL**

**ULTIMATE FLEXIBILITY IN AUTOMATED LC AND LC/MS SAMPLE INJECTIONS**

**Productivity**
The HTS PAL delivers highly precise and accurate injections and random access to individual samples. The HTS PAL provides task-oriented programming along with options and accessories for additional sample handling routines. The autosampler employs a unique XYZ mechanism for fast sampling and/or rapid vial-to-vial transfers. Fast injection cycles coupled with a large sample capacity make the HTS PAL ideal for high throughput screening, QA/QC applications, or LC/MS Flow Injection Analysis.

**Syringe Only Technology**
The HTS PAL combines the manual sample injection procedure with the precision and throughput of a robotic liquid handling system. Samples are aspirated with a conventional liquid syringe and are transferred directly into the sample loop. Before and after each injection, the syringe and syringe needle are rinsed in a dedicated Fast Wash Station containing two user-selectable cleaning solvents. This unique design virtually eliminates sample carryover and adsorption problems.

**Software Control**
The HTS PAL is controlled by Varian MS Workstation software. GLP comes standard with MS Workstation software and includes optional tools to facilitate 21 CFR Part 11 compliance.
HTS PAL Specifications

- XYZ robot with syringe only concept
- Positioning precision: ±0.1 mm
- Injection mode: automatic recognition of syringe type

Syringe Size:
100 µL standard
(Optional syringe sizes 10, 25, 250, 1000, 2500, 5000 µL)

Injection Volume Range:
0.1 µL – 5000 µL

Injection Speed:
0.01 µL/sec – 250 µL/sec.

LC Injector:
1 electrically actuated fast switching 6-port valve
(Optional multi-valve configurations available)

Sample Capacity:
Up to:
- 600 1 mL micro vials
- 648 2 mL standard vials
- 96 10 mL or 20 mL vials
- 12 deepwell plates (96 or 384)
- 24 standard microplates (96 or 384 wells)

Dimensions:
25.5 in./64.8 cm (h) x 32.6 in./82.8 cm (w) x 15.2 in./38.5 cm (d)

Weight:
10 kg (without accessories)

Needle, Syringe and Valve Cleaning:
Fast Wash Station for 2 different solvents

Instrument Control:
- Local User Interface
- Control panel: four function keys with graphical LCD display
- Unique scroll knob for "Teach Functions"

Remote control:
- Varian MS Workstation Software
- Cycle Composer Windows 98/NT4/2000/XP®-based PC software

Electrical Control:
- Two RS 232C ports
- Three TTL input/three TTL output
- Two Opto Coupler Input/two relay output

HTS PAL Options:
- Thermostatted Trayholders (4 °C – 70 °C)
- Thermostatted Microplate Stacks (4 °C – 40 °C)
- Barcode Reader

Ordering Information

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PALHTS0VAR</td>
<td>HTS PAL without TraySet or Stack Prep and Load System for High Throughput Screening</td>
</tr>
<tr>
<td>PALTray1ml</td>
<td>Sample tray for 200 vials 0.7/1 mL</td>
</tr>
<tr>
<td>PALTray2ml</td>
<td>Sample tray for 98 vials 2 mL or 78 vials 0.7/1 mL</td>
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<tr>
<td>PALTray10ml</td>
<td>Sample tray for 32 vials 10/20 mL or 21 vials 2 mL</td>
</tr>
<tr>
<td>PALTrayMT2ml</td>
<td>Sample tray for PAL Stack6DW, PAL StkCooler or PAL MT4Holder for 54x2 mL vials (6 Trays may be used in 1 PAL Stack6DW, Stack Cooler or 4 Trays may be used in 1 PAL MT4Holder)</td>
</tr>
<tr>
<td>PALTrayMT2ml6</td>
<td>Set of 6 pcs. PAL TrayMT 2 mL sample trays</td>
</tr>
<tr>
<td>PALStack12MT</td>
<td>MT PAL System stack for 12 Microtiter plates</td>
</tr>
<tr>
<td>PALStack6DW</td>
<td>PAL System stack for 6 Deepwell plates or 6 PAL TrayMT 2 mL</td>
</tr>
<tr>
<td>PALMTHolder</td>
<td>Trayholder for 2 Microtiter/Deepwell plates or 2 PAL TrayMT 2 mL</td>
</tr>
<tr>
<td>PALMT4Holder</td>
<td>Trayholder for 4 Microtiter/Deepwell plates or 4 PAL TrayMT 2 mL</td>
</tr>
<tr>
<td>PALTraySet1ml</td>
<td>Sample tray for 200 vials 0.7/1 mL, including Trayholder 76 mm</td>
</tr>
<tr>
<td>PALTraySet2ml</td>
<td>Sample tray for 98 vials 2 mL or 78 vials 0.7/1 mL, including Trayholder</td>
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</tbody>
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