

Liquid Chromatography

LC 300 Liquid Chromatography System

The PerkinElmer LC 300 liquid chromatography systems offer the superior analytical performance needed to tackle even the toughest analytical applications. Designed for enhanced ease-of-use and operational simplicity, the LC 300 features a high-visibility color display, integrated column oven, choice of high-end HPLC (10K psi) or UHPLC (18K psi) system, and a suite of five available detectors that allow you to customize the system to meet your needs. Whatever the application, the PerkinElmer LC 300 system's performance and enhanced user experience will ensure your lab's success, whether that need be for pharmaceutical, food, consumer products or specialty chemicals.



LC 300 Pump Platform

| KEY DESIGN COMPONENTS | |
|-----------------------|---|
| Technology | <ul style="list-style-type: none"> • High pressure dual series piston pump with individually driven pistons • Patent pending pump head design • Automated self-priming with integrated prime pump and auto purge valve • Fully automatic and continuous compressibility compensation • Dedicated piston seal wash pump • Integrated solvent degassing |
| Solvent Selection | <ul style="list-style-type: none"> • 4 solvents available with binary solvent delivery |
| Safety Features | <ul style="list-style-type: none"> • Adjustable over and under pressure limits • Solvent leak detection with automatic pump shut down |

| OPERATING SPECIFICATIONS | |
|--------------------------------|--|
| Pressure Range | HPLC Pump: 0 - 10,000 psi / 0 - 690 bar UHPLC Pump: 0 - 18,000 psi / 0 - 1240 bar |
| Pressure Ripple | < 1 % of system pressure or < 5 bar (72 psi), whichever is greater |
| Solvent | 4 solvent input, fully automated binary solvent delivery |
| Flow Range | HPLC Pump: 1 - 3,000 µL/min UHPLC Pump: 1 - 2,000 µL/min |
| Flow Resolution | 1.0 µL/min increments |
| Flow Precision | ≤ 0.075 % RSD or 0.005 minutes SD, whichever is greater* |
| Flow Accuracy | ± 1 % or ± 10 µL/min, whichever is greater* |
| Gradient Range | 0 - 100 % |
| Gradient Composition Accuracy | ± 0.5 % absolute from 5 - 95 %* |
| Gradient Composition Precision | ≤ 0.15 % RSD or 0.01 minute SD, whichever is greater* |
| Gradient Delay Volume | 50 µL (w/ 35 µL UHPLC mixer) 115 µL (w/ 100 µL HPLC mixer) |
| Gradient Profiles | Linear, concave (4) and convex (4) |

*Condition: Water in a flow range of 0.200 - 2.000 mL/min

| POWER REQUIREMENTS | |
|----------------------|-------------|
| Voltage Requirements | 100 - 230 V |
| Line Frequency | 50 - 60 Hz |
| Power Consumption | 450 VA |

| PHYSICAL AND ENVIRONMENTAL | |
|----------------------------|--|
| pH Range | All wetted materials are suitable for pH range 1.0 - 10.0 |
| Dimensions | 56 cm L x 34.5 cm W x 16.8 cm H / 22 in L x 13.5 in W x 6.6 in H |
| Weight | 21 kg / 46 lb |
| Operating Humidity | 20 - 80% non-condensing |
| Operating Temperature | 10 - 40 °C |

LC 300 Autosampler Platform

| KEY DESIGN COMPONENTS | |
|-----------------------|--|
| Technology | <ul style="list-style-type: none"> • System status display • Built-in oven with integrated preheater • Patented ILD™ injection valve¹ • Automated dilution and derivatization capabilities • Support for multiple sample vial and tray formats |
| Safety Feature | <ul style="list-style-type: none"> • Door interlock sensor |

| OPERATING SPECIFICATIONS | |
|-------------------------------|--|
| Max Operating Pressure | HPLC Autosampler: 0 - 10,000 psi / 0 - 690 bar UHPLC Autosampler: 0 - 18,000 psi / 0 - 1240 bar |
| Injection Modes | Full-loop, partial loop-fill, µL pickup |
| Injection Volume | Programmable from 0 - 9999 µL in 1 microliter increments |
| Injection Precision | Full-loop injection ≤ 0.3 % RSD; Partial loop-fill ≤ 0.5 % RSD; µL pickup ≤ 1.0 % RSD |
| Injection Cycle Time | < 20 seconds typical in partial loop mode |
| Carryover | ≤ 0.005% |
| Optional Sample Cooling | 4 - 40 °C (with Peltier) |
| Integrated Column Compartment | Temperature range: Ambient +5 - 60 °C; Accuracy: ± 1 °C Max column length: 150 mm |

| POWER REQUIREMENTS | |
|----------------------|--------------|
| Voltage Requirements | 100 to 240 V |
| Line Frequency | 50 - 60 Hz |
| Power Consumption | 320 VA |

| PHYSICAL AND ENVIRONMENTAL | |
|----------------------------|---|
| Dimensions | 56 cm L x 34.5 cm W x 34.6 cm H / 22 in L x 13.5 in W x 13.6 in H |
| Weight | 19 kg / 42 lb (without cooling); 21 kg / 46.3 lb (with cooling) |
| Humidity | 20 - 80 % non-condensing |
| Operating Temperature | 10 - 40 °C |

| LIQUID HANDLING | | | | |
|--|--|---------|---------------|-------------|
| | Needle | Syringe | Buffer Tubing | Sample Loop |
| UHPLC (18K) Standard Configuration | 15 µL | 250 µL | 500 µL | 20 µL |
| HPLC (10K) Standard Configuration | 15 µL | 500 µL | 1000 µL | 100 µL |
| Wetted Parts | SS316, PTFE, TEFLON, VESPEL, DLC, glass | | | |
| Syringe Volume | 100, 250, 500 and 1000 µL | | | |
| Tray Types/Microtiter Plates Supported | <ul style="list-style-type: none"> • 100-vial tray: 2-mL vials (standard) • 85-vial tray: 80 2-mL vials plus 5 6-mL vials • 80-vial dilution tray: 80 2-mL vials plus 60-mL dilution tank • 205-vial tray: 200 0.2-mL micro vials plus 5 2-mL vials • 25-vial tray: 25 6-mL vials • 2 x 96-well microtiter plate, high (deep) • 2 x 96-well microtiter plate, low (shallow) • 2 x 384-well microtiter plate All trays compatible with cooling, heating, and missing vial/plate detection | | | |

1. U.S. Patent No. 8,322,197 B2, European Patent No. 2196801

LC 300 Peltier Column Oven

| KEY DESIGN COMPONENTS | |
|-----------------------|---|
| Technology | <ul style="list-style-type: none">• Integrated solvent preheater• Optional column selection valve allows automated column switching of up to 6 columns• Peltier heating/cooling• Accommodates longer columns (up to 30 cm) |
| Safety Features | <ul style="list-style-type: none">• Temperature and vapor safety sensors with alarm and shutoff |

| OPERATING SPECIFICATIONS | |
|--------------------------|--|
| Temperature Range | 5 - 90 °C, with 1 °C increments 5 - 75 °C, with 1 °C increments if optional Column Selection Valve is installed |
| Temperature Accuracy | Better than 0.1 °C |
| Temperature Stability | Better than 0.1 °C |
| Temperature Rate | Heat @ 10 °C/min from 40 to 60 °C Cool @ 2 °C/min from 60 to 40 °C |

| POWER REQUIREMENTS | |
|----------------------|-------------|
| Voltage Requirements | 100 - 240 V |
| Line Frequency | 50 - 60 Hz |
| Power Consumption | 454 VA |

| PHYSICAL AND ENVIRONMENTAL | |
|----------------------------|--|
| Dimensions | 56 cm L x 16.8 cm W x 58.4 cm H / 22 in L x 6.6 in W x 23 in H |
| Weight | 16 kg / 35 lb |
| Humidity | 20 - 80 % non-condensing |
| Operating Temperature | 10 - 40 °C |

LC 300 Photodiode Array Detector

| KEY DESIGN COMPONENTS | |
|-----------------------|--|
| Technology | <ul style="list-style-type: none">• Patented Flow Cell technology²• Self-aligning Flow Cell and lamp• Integrated solvent tray |
| Safety Features | <ul style="list-style-type: none">• Temperature sensors• Leak sensor |

| OPERATING SPECIFICATIONS | |
|--------------------------|--|
| Wavelength Range | 190 - 790 nm |
| Wavelength Accuracy | ± 0.5 nm |
| Optical Resolution | 4 nm |
| Photodiodes | 1024 |
| Digital Resolution | 0.6 nm |
| Linearity Range | <3 % at 2 AU |
| Baseline Noise | <8 µAU |
| Drift | <0.5 mAU/hr |
| Data Acquisition | 0.5 - 200 pts/sec (Hz) |
| Leak Detection | Heated thermistor sensor in glass envelope, located in flow cell drip tray |

| OPTICAL COMPONENTS | |
|-----------------------|-----------------------|
| Light Source Warranty | Deuterium lamp |
| Flow Cell Design | Liquid core waveguide |

| POWER REQUIREMENTS | |
|----------------------|-------------|
| Voltage Requirements | 100 - 240 V |
| Line Frequency | 50 - 60 Hz |
| Power Consumption | 140 VA |

| PHYSICAL AND ENVIRONMENTAL | |
|----------------------------|--|
| Dimensions | 56 cm L x 34.5 cm W x 24.1 cm H / 22 in L x 13.5 in W x 9.5 in H |
| Weight | 19 kg / 42 lb |
| Operating Humidity | 20 - 80 % non-condensing |
| Operating Temperature | 10 - 35 °C |

| FLOW CELLS | |
|------------------|---------------------------------------|
| Path Length | 10 mm or 50 mm (optional) |
| Cell Volume | 1 or 5 µL (optional) |
| Pressure Limit | 1500 psi |
| Wetted Materials | Fused silica, PEEK, PTFE AF, Titanium |

LC 300 Multi-Wavelength Detector

| KEY DESIGN COMPONENTS | |
|-----------------------|--|
| Technology | <ul style="list-style-type: none">• Patented Flow Cell technology²• Self-aligning Flow Cell and lamp• Integrated solvent tray |
| Safety Features | <ul style="list-style-type: none">• Temperature sensors• Leak sensor |

| OPERATING SPECIFICATIONS | |
|--------------------------|--|
| Number of Channels | Up to 8 |
| Wavelength Range | 190 - 790 nm |
| Wavelength Accuracy | ± 0.5 nm |
| Optical Resolution | 4 nm |
| Photodiodes | 1024 |
| Digital Resolution | 0.6 nm |
| Linearity Range | <3% at 2 AU |
| Baseline Noise | <8 µAU |
| Drift | <0.5 mAU/hr |
| Data Acquisition | 0.5 - 200 pts/sec (Hz) |
| Leak Detection | Heated thermistor sensor in glass envelope, located in flow cell drip tray |

| OPTICAL COMPONENTS | |
|-----------------------|-----------------------|
| Light Source Warranty | Deuterium lamp |
| Flow Cell Design | Liquid core waveguide |

| POWER REQUIREMENTS | |
|----------------------|-------------|
| Voltage Requirements | 100 - 240 V |
| Line Frequency | 50 - 60 Hz |
| Power Consumption | 140 VA |

| PHYSICAL AND ENVIRONMENTAL | |
|----------------------------|--|
| Dimensions | 56 cm L x 34.5 cm W x 24.1 cm H / 22 in L x 13.5 in W x 9.5 in H |
| Weight | 19 kg / 42 lb |
| Operating Humidity | 20 - 80 % non-condensing |
| Operating Temperature | 10 - 35 °C |

| FLOW CELLS | |
|------------------|---------------------------------------|
| Path Length | 10 mm or 50 mm (optional) |
| Cell Volume | 1 or 5 µL (optional) |
| Pressure Limit | 1500 psi |
| Wetted Materials | Fused silica, PEEK, PTFE AF, Titanium |

LC 300 UV/Vis Detector

KEY DESIGN COMPONENTS

| | |
|-----------------|--|
| Technology | <ul style="list-style-type: none">• Self-aligning Flow Cell and lamp• Integrated solvent tray |
| Safety Features | <ul style="list-style-type: none">• Leak sensor |

OPERATING SPECIFICATIONS

| | |
|-----------------------|--|
| Wavelength Range | 190 - 700 nm |
| Wavelength Accuracy | ±1 nm |
| Wavelength Precision | ±1 nm |
| Bandwidth | 5 nm |
| Linearity | ≥ 2.5 AU (with 5% deviation) |
| Data Acquisition Rate | 100 pt/sec (Hz) |
| Sensitivity Range | 0.0005 to 3.000 AUFS in 0.0001 increments from 0.0005 to 0.1, and 0.01 increments above 0.1 AUFS |
| Noise | <7.5 x 10 ⁻⁶ AU, 210 - 280 nm, 2 sec response time, std test cell |
| Drift | <1 x 10 ⁻⁴ AU/hr, after warmup |
| Leak Detection | Heated thermistor sensor in glass envelope, located in flow cell drip tray |

OPTICAL COMPONENTS

| | |
|---------------|---|
| Optics | Dual beam |
| Light Sources | Deuterium (190 - 360 nm) or Tungsten (360 - 700 nm), pre-focused, no adjustment required on replacement |

POWER REQUIREMENTS

| | |
|----------------------|-------------|
| Voltage Requirements | 100 - 240 V |
| Line Frequency | 50 - 60 Hz |
| Power Consumption | 130 VA |

PHYSICAL AND ENVIRONMENTAL

| | |
|-----------------------|--|
| Dimensions | 56 cm L x 34.5 cm W x 24.1 cm H / 22 in L x 13.5 in W x 9.5 in H |
| Weight | 19 kg / 42 lb |
| Operating Humidity | 20 - 80 % non-condensing |
| Operating Temperature | 10 - 30 °C |

FLOW CELLS

| | |
|------------------|---------------------|
| Path Length | 6 mm |
| Cell Volume | 2.4 µL |
| Pressure Limit | 500 psi / 34 bar |
| Wetted Materials | Kel-F, PEEK, quartz |

LC 300 Refractive Index Detector

| KEY DESIGN COMPONENTS | |
|-----------------------|---|
| Technology | <ul style="list-style-type: none">• Long-life LED light source• Optical system mounted within a precisely temperature-controlled housing |
| Safety Features | <ul style="list-style-type: none">• Temperature sensors• Leak sensor |

| OPERATING SPECIFICATIONS | |
|---------------------------|--|
| Refractive Index Range | 1.00 to 1.75 |
| Measurement Range | <ul style="list-style-type: none">• High 50×10^{-6} RIU/1V• Standard 500×10^{-6} RIU/1V• Low 5000×10^{-6} RIU/1V |
| Linearity | <ul style="list-style-type: none">• High 5×10^{-5}• Standard 5×10^{-4} RIU• Low 5×10^{-3} RIU |
| Noise | $\leq 0.20 \times 10^{-8}$ RIU |
| Drift | ≤ 200 uV/h (0.1 uRIU/h) |
| Temperature Setting Range | 0 to 45 °C (1 °C increments) via PID control heater |
| Control Range | Ambient + 10 °C to Ambient + 25 °C |

| OPTICAL COMPONENTS | |
|--------------------|----------------------------|
| Measurement System | Deflection type |
| Light Source Type | Light Emitting Diode (LED) |

| POWER REQUIREMENTS | |
|----------------------|-------------|
| Voltage Requirements | 100 - 240 V |
| Line Frequency | 50 - 60 Hz |
| Power Consumption | 80 VA |

| PHYSICAL AND ENVIRONMENTAL | |
|----------------------------|--|
| Dimensions | 56 cm L x 34.5 cm W x 16.8 cm H / 22 in L x 13.5 in W x 6.6 in H |
| Weight | 30 kg / 66 lb |
| Operating Humidity | 35 - 85 % non-condensing |
| Operating Temperature | 10 - 30 °C |

| FLOW CELLS | |
|------------------|---|
| Cell Volume | 10 μ L |
| Pressure Limit | 14 psi / 1 bar |
| Wetted Materials | Quartz glass, fluorine-containing resin, and SUS316 |

LC 300 Fluorescence Detector

| KEY DESIGN COMPONENTS | |
|-----------------------|--|
| Technology | <ul style="list-style-type: none">• Axially irradiated flow cell• Dynamically temperature-controlled cell body design• Integrated mercury lamp |
| Safety Features | <ul style="list-style-type: none">• Temperature sensors• Leak sensor• Lamp door safety interlock |

| OPERATING SPECIFICATIONS | |
|----------------------------|---|
| Settable Wavelength Range | 200 to 900 nm (for EX and EM wavelengths) |
| Measuring Wavelength Range | 220 to 700 nm (for EX and EM wavelengths) |
| Slit Width Emission | 20 nm or 40 nm (selectable) |
| Wavelength Accuracy | ± 2 nm |
| Wavelength Repeatability | ± 0.2 nm |
| Sensitivity (S/N) | 1400:1 RMS Water Raman Baseline Method |

| OPTICAL COMPONENTS | |
|--------------------|--|
| Monochromator | Holographic concave diffraction gratings (EX and EM) |
| Light Source | 150 W Xenon lamp |
| Detectors | Excitation: Photodiode Emission: Photomultiplier tube |

| POWER REQUIREMENTS | |
|----------------------|-------------|
| Voltage Requirements | 100 - 240 V |
| Line Frequency | 50 - 60 Hz |
| Power Consumption | 230 VA |

| PHYSICAL AND ENVIRONMENTAL | |
|----------------------------|---|
| Dimensions | 56 cm L x 34.5 cm W x 29.5 cm H / 22 in L x 13.5 in W x 11.6 in H |
| Weight | 31kg / 69 lb |
| Operating Humidity | 35 - 85 % non-condensing |
| Operating Temperature | 10 - 30 °C |

| FLOW CELLS | |
|------------------|---|
| Flow Cell Volume | 12.7 µL Standard 4 µL optional cell available |
| Maximum Pressure | 580 psi / 40 bar |
| Wetted Materials | Synthetic quartz, fluoropolymer, and stainless steel (SUS316) |

Consolidated Specifications

| MODULE | HEIGHT | WIDTH | DEPTH | WEIGHT | POWER SPECIFICATIONS | POWER CONSUMPTION | BTU PER HOUR | TEMPERATURE RANGE | HUMIDITY RANGE |
|--------------------------------|--|--------------------|----------------|----------------|-----------------------------|-------------------|-----------------|-------------------|-------------------------|
| LC 300 Waste Management Module | 6 cm 2.4 in | 34.5 cm 13.5 in | 56 cm 22 in | 5 kg 11 lb | 100 to 240 V 50 or 60 Hz | 1000 VA Total | 4 Total Modules | 20 °C - 60 °C | 20 - 80% non-condensing |
| | Maximum stackable weight on top of module 82 kg / 180.8 lb | | | | | | | | |
| LC 300 10K/18K Pump | 16.8 cm 6.6 in | 34.5 cm 13.5 in | 56 cm 22 in | 21 kg 46 lb | 100 - 230 V 50 - 60 Hz | 450 VA | 1535 BTU | 10 °C - 40 °C | 20 - 80% non-condensing |
| LC 300 Autosampler | 34.6 cm 13.6 in | 34.5 cm 13.5 in | 56 cm 22 in | 21 kg 46 lb | 100 - 240 V 50 - 60 Hz | 320 VA | 1092 BTU | 10 °C - 30 °C | 20 - 80% non-condensing |
| LC 300 MWD/PDA | 24.1 cm 9.5 in | 34.5 cm 13.5 in | 56 cm 22 in | 19 kg 42 lb | 100 - 240 V 50 - 60 Hz | 140 VA | 478 BTU | 10 °C - 35 °C | 20 - 80% non-condensing |
| LC 300 UV/Vis Detector | 24.1 cm 9.5 in | 34.5 cm 13.5 in | 56 cm 22 in | 19 kg 42 lb | 100 - 240 V 50 - 60 Hz | 130 VA | 444 BTU | 10 °C - 30 °C | 20 - 80% non-condensing |
| LC 300 FL Detector | 29.5 cm 11.6 in | 34.5 cm 13.5 in | 56 cm 22 in | 31 kg 69 lb | 100 - 240 V 50 - 60 Hz | 230 VA | 785 BTU | 10 °C - 30 °C | 35 - 85% non-condensing |
| LC 300 RI Detector | 16.8 cm 6.6 in | 34.5 cm 13.5 in | 56 cm 22 in | 30 kg 66 lb | 100 - 240 V 50 - 60 Hz | 80 VA | 273 BTU | 10 °C - 30 °C | 35 - 85% non-condensing |
| LC 300 Column Oven | 58.4 cm 23 in | 16.8 cm 6.6 in | 56 cm 22 in | 16 kg 35 lb | 100 - 240 V 50 - 60 Hz | 454 VA | 1549 BTU | 10 °C - 40 °C | 20 - 80% non-condensing |
| Stand Alone Solvent Organizer | 25.4 cm/ 10 in to top of 1 L bottle | 34.5 cm 13.5 in | 56 cm 22 in | 5 kg 11 lb | N/A | N/A | N/A | N/A | N/A |

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