
LC800 Specifications

1. LC800 Built-in and Standard Items

1-1 LC800 Main Unit

1	Input Signal	
	1) Status Input :	2 channel
2	Output signal	
	1) EVENT Output :	2 channel
3	Dimensions :	470 mm (W)×488 mm (D)×875 mm (H) (excl projection)
4	Weight :	approx. 70kg (Upper section: approx. 30kg, Lower section: approx. 40kg)
5	Operating Temperature :	5 - 35 °C
6	Operating Humidity :	30 - 80 %
7	Power Source :	AC220 - 230 V ± 10 50/60 Hz
8	Power Consumption :	Max. 600 VA
9	Simple Operation Panel :	16 column × 2 line (LCD)
10	Communication	
	1) PC Communication :	USB
	2)LC800Upper/Lower Section Communication :	RS232C
	3) Option Pump PU712 Communication :	RS232C
11	Control Software :	EZChrom Elite 3.3.2 SP1 EZChrom Elite SI 3.3.2 SP1 Analyst 1.4.2+HotFixes Analyst 1.5 Analyst 1.5.1 Windows XP Professional SP3

Attention

When using Analyst it is not possible to control the ECD or Switching valve 2. Also, it is not possible to use the following options, Event output 2, UV-Vis detector dual wavelength mode, UV-Vis detector output format, UV-Vis detector scan mode, Reaction Heating unit, Sample pre-treatment and Pump isocratic mode.

1-2 Autosampler

1	Fill System :	Fixed and variable loop filling
2	Fill Volume	
	1) Full Loop Fill :	5, 20, 50 μ L
	2) Partial Loop, No-Waste Fill :	0.1 to 25 μ L
3	Injector :	Orifice ID 0.25 mm
4	Sample Loop :	5, 20, 50 μ L
5	Needle :	SUS316 needle
6	Metering Pump :	250 μ L/stroke
7	Time until sample filling starts :	< 30 s (under specified conditions)
8	Fill Mode	
	1) Full Loop Fill :	RSD < 0.3%(under certain conditions)
	2) Partial Loop Fill :	RSD < 0.3% (under certain conditions)
		1.5 mL vial sample holder \times 2 (standard)
		4 mL vial sample holder \times 2 (option)
9	Sample Holder *1:	96 Wellplate holder \times 2 (option)
		384 Wellplate holder \times 2 (option)
		96 deep Wellplate holder \times 2 (option)
		384 deep Wellplate holder \times 2 (option)
10	Sample Holder Identification :	Automatic (For the above 6 types)
		1.5 mL vial \times 360 (standard)
		4 mL vial \times 256 (option)
11	Sample Capacity :	96 Wellplate \times 6 (option)
		384 Wellplate \times 6 (option)
		96 deep Wellplate \times 6 (option)
		384 deep Wellplate \times 6 (option)
12	Sample Tray Temperature Control	
	1) Temperature Range :	4 to 40 $^{\circ}$ C(1 $^{\circ}$ C increments)
	2) Temperature Precision :	\pm 0.2 $^{\circ}$ C(with tray closed and RT -16degree) ²
	3) Temperature Distribution :	\pm 1.0 $^{\circ}$ C(with tray closed and RT -16degree) ^{*2}
		< 0.01 %
13	Carry-Over :	(standard washing: external + solution substitution) (Sample: caffeine, chlorohexane)
14	Washing Unit :	2 solvent; needle/injector washing (standard) 3 solvent; needle/injector washing (option)
15	Washing Solvent Tray :	Polypropylene 3 solvent tray (option) ^{*3}
16	Reaction Heating Unit (option) :	
	1) Capacity :	6 vial
	2) Temperature Range :	30 to 100 $^{\circ}$ C(1 $^{\circ}$ C increments)
	3) Temperature Accuracy :	\pm 1 $^{\circ}$ C
17	Waste Solvent Unit :	Vacuum pump built-in Level sensor (option)

*1: Use vials and wellplates recommended by GL Science.

*2: When not opening and closing.

1-3 Oven

- 1 Control Method : Forced air circulation constant temperature oven.
- 2 Set Temp Range : 4 to 60 °C(1 °C increments)
- 3 Temp Control Range : Room temperature -10 to 60 °C(within set temperature range)
- 4 Temp Precision : ± 0.1 °C(at set temperature to 40°C, temp control point vicinity)
- 5 Temp Accuracy : ± 0.5 °C(at RT to 20 °C, temp control point vicinity)
- 6 Dimensions : 390 (W) \times 160 (H) \times 95 (H)
- 7 Safety Measures : Solvent leak sensor, overheating prevention mechanism, door switch
- 8 Column Size : OD ϕ 6.3 to 8.0, Length (Max.) 250 mm
- 9 Devices : Automatic switching valve (6 port or 10 port) \times 2
dynamic mixer or static mixer
UV-Visible detector / (electrochemical detector or
Laser Induced Fluorescence detector) flowcell ^{*1}

*1: The Electrochemical detector and Laser Induced Fluorescence detector cannot be used simultaneously.

1-4 Static Mixer

- 1 Number of Solvents : 2
- 2 Maximum Working pressure : 80.0 MPa
- 3 Cartridge Volume : 50 μ L (standard),
150, 250 μ L (option)
- 4 Materials : SUS316, PEEK

1-5 UV-Visible Detector

1	Lamp :	Deuterium Lamp
2	Wavelength Range :	190 to 700 nm
3	Spectral Bandwidth :	8 nm
4	Wavelength Precision :	± 1 nm
5	Wavelength Reproducibility :	0.1 nm
6	Noise Level	
	1) Single Wavelength Mode :	$< \pm 0.6 \times 10^{-5}$ AU (Air in cell; Response 2 s, 254 nm, 1 μ L standard flowcell)
	2) Dual Wavelength Mode ^{*1} :	$< \pm 3 \times 10^{-5}$ AU (Air in cell; Response 2 s, 254/280 nm, 1 μ L standard flowcell)
7	Drift :	2×10^{-4} AU/h (Air in cell; Response 2 s, 254 nm, Room temp stable, 1 μ L standard flowcell)
8	Range :	0.01 - 4.00 AUFS
9	Response :	0.01, 0.05, 0.1, 0.2, 0.3, 0.5, 1.0, 2.0, 3.0, 5.0 sec
10	Polarity Change :	possible
11	Time Program :	Wavelength, autozero
12	Flowcell	
	Standard Flowcell :	Volume 1 μ L (path length 5 mm)
	Option Flowcell :	Volume 3.8 μ L (path length 10 mm)
13	Flowcell Max Pressure :	7 MPa
14	Liquid Contact Parts, Material :	SUS316, PTFE, Quartz
15	Other Items	
	1) Ratio Chromatogram :	Absorbance ratio at two measured wavelengths output
	2) Log Chromatogram :	Scale large and small peaks simultaneously output
	3) Max. Absorbance :	Output the greater of the two measured wavelength absorbances
	4) Absorbance difference :	Difference of two measured wavelength absorbances output

2 when using dual wavelength mode, both wavelengths must be set from either 190 to 370nm or 371 to 700nm.
^{*1}: The dual wavelength mode should only be used for peak widths of 10 seconds or greater.

1-6 Solvent Pump

- 1 Type: Double Plunger Pump
- 2 Pumping Modes
 - 1) Isocratic Continuous Pump
 - Flow rate Range : 0, 1 to 2000 μ L/min
 - Flow rate Accuracy: \pm 1% or less
(500 μ L/min, 30MPa, water, at 20 °C)
 - 2) 2 Solvent Gradient
 - Flow rate Range : 0, 50 to 2000 μ L/min
 - Composition : 0 to 100 % (1 % increments)
- 3 Maximum Operating Pressure : 80.0 MPa
- 4 Pressure Limits : Max. (0.0 to 80.0 MPa), Min. (0.0 to 80.0 MPa)
- 5 Purge Flow rate : 4000 μ L/min
- 6 Liquid Contact Parts, material: Super HDPE, [Kalrez]
Ruby, sapphire, SUS316 and PTFE,
- 7 Pressure Accuracy : < \pm 2% or \pm 0.5MPa whichever is greater
- 8 Section Filter : 20 μ m (SUS316)
- 9 Line Filter : 0.5 μ m
- 10 Plunger Washing Pump Solvent : Water
- 11 Other Items
 - 1) Plunger Stroke Volume : Approx. 6 μ L
 - 2) Check Valve Material : Ruby/sapphire

1-7 Mobile phase Degasser

- 1 Number of Channels : 2channels
- 2 Chamber Volume : approx. 0.4 mL / 1channel
- 3 Liquid Contact Parts, material : PEEK, PTFE

2 Option

2-1 Degasser for Washing Solvent

- | | | |
|---|----------------------------------|--|
| 1 | Number of Channels : | 3 channels (strong washing solvent, weak washing solvent, intermediate washing solvent) |
| 2 | Chamber Volume : | approx. 0.4 mL/ 1channel (weak washing solvent, intermediate washing solvent)
approx. 300 μ L/ channel (strong washing solvent) |
| 3 | Liquid Contact Parts, material : | PEEK, PTFE (weak washing solvent, intermediate washing solvent)
PEEK, PTFE, AF (strong washing solvent) |

2-2 LC800 Dynamic mixer

- | | | |
|---|----------------------------------|---|
| 1 | Number of Solvents : | 2 |
| 2 | Maximum Operating Pressure : | 80.0 MPa |
| 3 | Stirrer Bar : | ϕ 2×5 mm (cylindrical type) |
| 4 | Stirrer Speed : | 500 rpm |
| 5 | Internal Volume : | 120 μ L (cartridge volume 50 μ L)
220 μ L (cartridge volume 150 μ L)
320 μ L (cartridge volume 250 μ L) |
| 6 | Liquid Contact Parts, material : | SUS316, PEEK, PTFE |

2-3 Electrochemical Detector

1	Measurement System :	Amperometric (DC Mode) Pulse Amperometric (PAD Mode) Scan (SCAN Mode)
2	Flowcell	
	1) Working Electrode :	Diamond, Gold
	2) Reference Electrode :	Ag/AgCl
	3) Counter Electrode :	SUS316
3	Voltage Range :	±5 V (10 mV increments)
4	Autozero Functions :	Measurement Range x1.5
5	Measurement Range :	±10, ±100, ±1000nA/V, ±10, ±100, ±1000µA/V
6	Response :	0.1, 0.5, 1.0, 3.0 sec
7	Time Program :	Autozero, Applied Voltage
8	Input Frequency (PAD Mode only) :	4
9	Pulse Time (PAD Mode only) :	
	1) t1 :	50 – 2000 mSec (10 ms increments)
	2) t2 :	0 – 2000 mSec (10 ms increments)
	3) t3 :	0 – 2000 mSec (10 ms increments)
	4) t4 :	0 – 2000 mSec (10 ms increments)
	5) ts (Sampling Time) :	20 – 200 ms (10 ms increments)
10	Scan Speed (SCAN Mode only) :	1 0to 500 mV/s
11	Cycle (SCAN Mode only) :	Half, Full
12	Flowcell Max. Temp :	60 °C
13	Flowcell Max Pressure :	0.5 MPa

2-4 Option Solvent Pump PU712B

- 1 Type : Double plunger pump
- 2 Pumping System
 - 1) Isocratic Continuous Flow
 - Flow rate Range : 0.001 to 2.0 mL/min
 - Flow rate Accuracy : < $\pm 2\%$ or $\pm 0.5 \mu\text{l}/\text{min}$ whichever is greater (0.01 to 2.0 mL/min, 1.0 to 34.0 MPa, water, at 20 °C)
- 3 Maximum Working Pressure : 34.0 MPa
- 4 Pressure Limits : Max pressure (0.0 to 34.0 MPa),
Min pressure (0.0 to 34.0 MPa)
- 5 Purge Flow rate : 2 mL/min
- 6 Liquid Contact Parts (material) : Super HDPE, [Kalrez], Ruby, sapphire, SUS316 and PTFE
- 7 Pressure Accuracy : < $\pm 2\%$ or $\pm 0.5\text{MPa}$ whichever is greater
- 8 Suction Filter : 40 μm (SUS316)
- 9 Line Filter : 2 μm
- 10 Dimensions : 263 mm (W) \times 458 mm (D) \times 203 mm (H)
- 11 Weight : approx. 12 kg
- 12 Power Requirements : AC100 V \pm 10 50/60 Hz
- 13 Power Consumption : Max. 100 VA
- 14 Display : 20 character \times 4line, LCD
- 15 Communication : RS232C
- 16 Other information
 - 1) Plunger Stroke Volume : Approx. 9 μL
 - 2) Check Valve Material : Ruby / sapphire

2-5 General System Tubing kits

Components

- 1 UV detector flowcell assembly. (volume 3.8 μ L, path length 10mm)
- 2 LC800 Dynamic mixer 220 μ L
- 3 DMC675 stirrer base unit (With Mixer mounting plate)
- 4 Mixer cartridge volume 150 μ L
- 5 Mixer installation plate
- 6 SUS tubing (1/16 \times 0.18 100mm)
- 7 SUS tubing where mixer is connected with injector (1/16 \times 0.5 510mm coil)
- 8 Nuts and ferrules for making connections