

## Quaternary low pressure gradient Pump **PU-2089**



The JASCO Model PU-2089 is a compact HPLC Quaternary low pressure gradient pump designed to meet the numerous requirements for a wide range of research and routine gradient applications. The pulse-free and stable SSQD (Slow suction, Quick delivery) pumping system is ideal to assure the most reliable solvent flow. Built-in low pressure proportioning valve and degasser enable the highest flexibility in solvent choices of up to four solvents and excellent gradient solvent delivery without having to reconfigure the system. The PU-2089 can easily be interfaced with the JASCO HPLC system using the new HSS-2000 HPLC system software. The HSS-2000 package offers full automation of the JASCO HPLC system including the PU-2089 and other components.

- **Compact-sized HPLC pump**

The size of the pump is a mere 15 cm wide and 22.5 cm high. The PU-2089 and other components can be stacked to comprise a system requiring minimal bench space in the crowded modern laboratory.

- **Excellent pump performance**

The SSQD (Slow suction, Quick delivery) pumping method ensures the most reliable, accurate and stable solvent delivery possible. A guaranteed flow rate precision within 0.1% assures good reproducibility of retention time. Pulse-free flow assures maximum detector sensitivity.

- **Top performance low pressure mixing**

Built-in proportioning valve and degasser for low-pressure mixing of up to four solvents provide consistently smooth solvent flow and highest flexibility in solvent choices without having to reconfigure the system.

- **Extreme durability**

Utilizing ceramic plungers and an automatic plunger cleaning system assures a long, maintenance free pump life. Diaphragms located behind the plunger seals and a pair of check valves act as pumps for cleaning the plunger surface, thus avoiding the precipitation of salts from buffer solutions during intermittent operation.

- **Full programmability**

Stand alone front panel programming of 10 files with up to 64 steps/file is provided eliminating the need for external computers or system controllers. Built-in program allows either high pressure gradient operation or low pressure gradient operation without need of a system controller. Of course full PC control is available if desired.

**JASCO**<sup>®</sup>

## SPECIFICATIONS

Type of pump:	SSQD method (Slow Suction-Quick Delivery)
Delivery mode:	Constant flow/constant pressure, selectable
<b>Constant flow mode</b>	
Flow rate range:	1 µl/min to 10.0 ml/min
Flow rate setting:	1 µl/min to 10.0 ml/min with 1 µl steps by Ten key operations
Flow rate precision:	Less than 0.1% (Relative Standard Deviation) from 0.2 ~ 5.0 ml/min at 20 °C ambient
Flow rate accuracy:	±1% of setting or ±2 µl/min whichever is greater at 0.05 ~ 5.0 ml/min, 35 MPa
Max. pressure:	50 MPa (less than 5 ml/min) 35 MPa (more than 5 ml/min)
<b>Constant pressure mode</b>	
Pressure range:	3 ~ 50 MPa (less than 5 ml/min) 3 ~ 35 MPa (more than 5 ml/min)
Pressure accuracy:	±10% of setting or ±1MPa whichever is greater
Pressure setting:	Adjustable in 0.1 MPa increments by Ten key operation
<b>Degasser part</b>	
Number of lines:	4
Maximum flowrate:	10ml/min (with water)
Maximum usable flowrate:	3ml/min
Solvent hold-up volume:	Approx. 10ml each line
<b>Low pressure mixing part</b>	
Precision of solvent composition:	±0.2% (in the composition range of 10 ~ 90%)
Precision of linear gradient:	±1% (in the composition range of 10 ~ 90%)
Flowrate range:	0.3 ~ 3ml/min
<b>Others</b>	
Display:	Flow rate, pressure, etc are indicated on LCD.
Time programming:	64 steps, upto 10 files (maximum 999.9 min in 0.1 min increment)
Events output:	3 provided, time programmable
Automatic pump on/off timer:	Provided, 0 ~ 99.9 hours (0.1 hours step)
Self-diagnostics:	Internal memory check, pressure sensor check, DC power supply check
Plunger cleaning:	Provided as standard, automatic
Dimension:	150 (W) x 470 (D) x 225 (H) mm
Weight:	Approx. 10 kg
Power Input voltage:	AC100 ~ 240 V ±10% 50/60 Hz
Power consumption:	185 VA

## OPTIONAL ACCESSORIES

6778-H401A	Maintenance tool kit including SST tubings, compression screws, ferrules, PTFE tube, marker and recorder cables
6778-H402A	Tubing kit, including wrenches, screwdrivers, plunger seal preforming tool
6844-J003A	Model LV-2080-03 6-solvent switching valve
6842-J003A	Model HV-2080-01 2-column Switching Selector Valve
6688-H563A	LC-Net AG cable
6688-H564A	LC-Net CG cable

## ORDERING INFORMATION

6823-J003A	Model PU-2089	Quaternary HPLC Pump
6818-J002A	Model PU-2080	HPLC Pump
6820-J002A	Model PU-2085	Semi-micro HPLC Pump
6821-J002A	Model PU-2086	Semi-preparative HPLC Pump
6822-J002A	Model PU-2087	Preparative HPLC Pump
6823-J004A	Model PU-2089	Bio-inert Quaternary HPLC Pump
6819-J002A	Model PU-2080i	Bio-inert HPLC Pump
6824-J002A	Model UV-2070	UV/VIS Detector
6825-J002A	Model UV-2075	UV/VIS Detector
6826-J002A	Model UV-2077	Multi-wavelength UV/VIS Detector
6832-J002A	Model MD-2015	Diode Array Detector
6831-J002A	Model MD-2010	Diode Array Detector
6829-J003A	Model FP-2020	Fluorescence Detector
6833-J002A	Model RI-2031	Refractive Index detector
6838-J002A	Model CD-2095	Circular Dichroism Detector
6837-J002A	Model OR-2090	Chiral Detector
6836-J002A	Model CL-2027	Chemiluminescence Detector
6828-J008A	Model AS-2059	Autosampler
6827-J005A	Model AS-2055	Autosampler
6827-J006A	Model AS-2057	Autosampler
6834-J002A	Model CO-2060	Column Oven
6835-J002A	Model CO-2065	Column Oven

## STANDARD ACCESSORIES

Inlet tube assy., 3.0 mm O.D.	4 pcs.
Tube, PTFE, 2mm O.D. x 1.4 mm I.D. x 1 m	1 pc.
Tube, silicon rubber	1 set
Cable, LPG	1 pc.
Spare fuse, T2.0A and T3.15A	4 pcs.(each)
AC power cable	1 pc.



● Specifications are subject to change without notice.



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