

PN1150 Quaternary Pump

Eluent Delivery System for FFF and SEC



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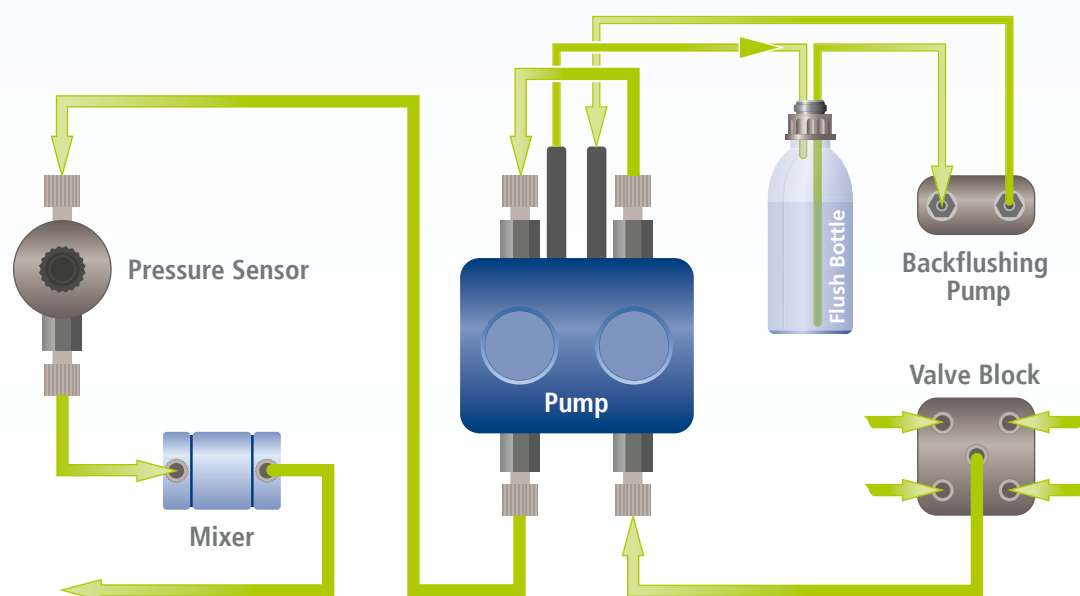
Features

The PN1150 Quaternary Pump (Low Pressure Gradient pump) is a bio-inert solvent delivery system for SEC and FFF. It allows online preparation of aqueous and organic solvents and solvent mixtures with high precision and reproducibility.

The module is intended to be used in the following areas:

- Biochemistry analysis
- Chemical analysis
- Food analysis
- Pharmaceutical analysis
- Environmental analysis

Liquids are conveyed either with constant flow or with constant pressure. In FFF and SEC systems only "Constant Flow" mode is used. All functions of the pump are controlled via the NovaFFF control software.



The PN1150 Quaternary Pump is a 1/0.5 stroke double piston pump with a low pressure gradient mixing valve block which is able to generate a gradient mix of solvents from up to four different fluid reservoirs. It works with short piston stroke technology and only two check valves. This results in the low pulsation of a dual piston pump combined with the reliability of a single piston pump. The compensation piston works with a half of the stroke length of the delivery piston.

The nearly pulsation-free solvent delivery of the PN1150 results from the high stroke frequency/ low stroke volume and the use of a compensation piston. While the delivery piston discharges the solvent volume, the compensation piston, located on the pressure side, collects half of the volume. During the return movement of the delivery piston, the collected volume is discharged from the compensation piston. The microprocessor-controlled speed regulation results in a highly stable speed of the drive motor. In contrast to standard regulators, the microprocessor is able to compensate continuously the compressibility of the eluents through a computerized program. This results in a very constant volume delivery throughout the entire delivery range.

Ordering Information

S-PUM-1150-005 PN1150 Quat FFF Pump Ceramics (analytical)

Specifications

- Environmental Conditions:
20 – 80 % relative humidity
(non-condensing) at an operating
temperature range of 4 – 40 °C
- Flow Rate:
0.001 mL/min – 10.0 mL/min in
0.001 mL/min increments
- Flow Rate Accuracy:
± 1 % (measured at 5 – 80 % of
flow range, using ethanol)
- Flow Reproducibility:
< 0.1 % RSD (based on retention
time at constant temperature)
- Pulsation:
Less than 2 % (typically < 1.3 %)
- Delivery Pressure Range:
0 – 40 MPa (400 bar, 5800 psi)
- Gradient Formation:
Low-pressure quaternary mixing
- Gradient Range:
0 – 100 %
minimum increments of 1 %
- Gradient Accuracy:
± 0.3 % (measured at 1 mL/min,
15 MPa, ethanol / caffeine tracer)
± 2 % (in a gradient range of
1 – 99 %, measured at 5 – 50 %
of the flow range with water /
caffeine tracer)
- Gradient Precision:
Typically < 0.1 % RSD
(measured at 1 mL/min, based
on retention time at constant
room temperature)
- Chemical Compatibility:
Aqueous and organic solvents;
dilute acids and alkaline solutions;
no strong oxidizing acids
- Wetted Materials:
PEEK, ETFE, aluminium oxide
(Al₂O₃) ceramic, sapphire, PFA
- Safety:
Overpressure and pressure drop
protection
- Communication:
Ethernet RJ45 LAN interface
- Power Requirements:
100 – 240 VAC @ 50 – 60 Hz,
max. 100 W
- Dimensions (DxWxH):
450 x 270 x 160 mm
- Weight:
9 kg

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