

# Quarternary Gradient Pump

## Quartärnere Gradienten Pumpe 2100 Optionen für alle flüssigchromatographischen Anwendungsbereiche

The HPLC Pump SFD 2100 is a compact quaternary gradient pump with outstanding features



Die quaternäre Gradientenpumpe 2100 mit Optionen für alle flüssigchromatographischen Anwendungsbereiche kann mit drei unterschiedlichen Pumpenköpfen von 0,02- 40ml/min ausgestattet werden. Das Niederdruckgradienten Profil ist in 0,1 % Schritten für Lösemittel A,B,C und D programmierbar. Weiterhin ist ein integrierbarer Online-Entgaser als Einbaupoption erhältlich.

Die Gradientenpumpe ist mit Diagnostikfunktionen, mit einem Speicher des Druckprofils von Gradientenläufen und einer Anzeige über Unregelmäßigkeiten während automatischer, unbeaufsichtigter Arbeiten ausgestattet.

Die Pumpenköpfe (mikro, analytisch und präparativ) können in Edelstahl, bzw. Peek- Ausführung bestellt werden.

**menu programmable through large graphical display**

**basic system: quaternary gradient pompe with three exchangeable pump heads**

- 0,01 - 2,00 ml / min. with the micro pump head
- 0,05 - 10,0 ml / min. with the analytical pump head
- 0,20 - 40,0 ml / min. with the preparative pump head
- Material for the pump head: standard stainless steel, optional PEEK, Titan or PVDF

**Quaternary gradient operation**

- gradient programmable in 0,1 % steps for each eluent A, B, C and D
- graphical display of the gradient curves
- integrated dynamic mixer with variable mixer speed
- mixing sequence programmable

**Upgradable with integrated four channel vacuum degasser**

**Upgradable with 8 free programmable relay switching functions for auxiliary instruments**

**Diagnostic features**

- Storage of the pressure profile for a gradient run and display of unregularities during unattended automatic operations e.g. pressure increase or pressure drop during one run.

**Upgradable with Communication Software**

Best.-Nr.: / Cat.-No.:	Artikelbeschreibung / Description
SFD 2100	Quartärnere Gradienten Pumpe mit analytischem Pumpenkopf aus Edelstahl oder PEEK Flußbereich: 0,05 - 10ml/min / Quaternary Gradient Pump SFD 2100
SFD 2100M	Quartärnere Gradienten Pumpe mit micro Pumpenkopf aus Edelstahl oder PEEK Flußbereich: 0,01 - 2ml/min / Quaternary Gradient Pump SFD 2100 (micro)
SFD 2100P	Quartärnere Gradienten Pumpe mit präparativem Pumpenkopf aus Edelstahl oder PEEK Flußbereich: 0,2 - 40ml/min / Quaternary Gradient Pump SFD 2100 (preparativ)
SFD 2100-02	Integrierter Vakuum Entgaser für Gradienten Pumpe (4 Lösemittel) / Vacuum Degasser Option (4 Solvents)

Basic Version	
Flow rate	- 0,01 - 2,00 ml / min. with the micro pump head - 0,05 - 10,0 ml / min. with the analytical pump head - 0,20 - 40,0 ml / min. with the preparative pump head
Pulsation	less than 1%
Pressure	selectable on the display in MPa or psi range up to 40 MPa equally to 6000 psi
Display	CFL backlight LCD display with 240x128 dots
Compressibility	programmable from 0,7 - 1,00 for compressibility correction
Operation mode	constant flow or constant pressure: - programmable run time from 0 - 999.9 minutes - programmable flow after run time for continuously flushing of the system with reduced flow rate - programmable flow ramp at start: 1 - 999 sec. - programmable flow ramp at stop: 1 - 999 sec. - programmable pressure control (min. pressure, max. pressure, purge pressure)
Gradient	Quaternary low pressure mixing
Programmable steps	0,1 %
Mixing cycle	programmable 1 - 9 seconds
Eluent mixing	combination of dynamic and static mixer with variable mixing speed
Operation	manual with constant mixing rate automatic with time programming
Program storage	up to 20 gradient programs can be stored
Program sequence	changing of existing programs in any sequence
Gradient profile display	graphic display of gradient profile selectable for Eluent A,B, C and D
Diagnostic	storage of the pressure profile for one gradient program and display of unregularities during unattended operation: - short term pressure drop, short term pressure increase, unnormal constant pressure increase
Relay switching Options	free programmable of 8 relay settings, programmable in switching on-off or pulsed operation with programmable pulse duration
Vacuum Degasser Option	
Degassing Method	Built in 4 - channel vacuum degasser with an applied vacuum, dissolved gases are continuously removed through a semipermeable membrane
Flow Rate	max. 10ml/min. for each degassing channel
Efficiency	0,5ppm oxygen at 0,5 ml/min.
Parts which come in kontakt with the solvent	PTFE and PEEK or PTFE and PVDF
Volumen per each channel	8 ml
Communication Option	Schambeck SFD GmbH internal pump RS 232C interface
Power supply	220/110 V 50/60 Hz
Dimensions	310 x 210 x 450 mm