

**D Technical specifications**

Relevant system and component specifications are listed below.

**D.1 Operating data****System pump**

<i>Flow rate range</i>	0.1–50 ml/min in steps of 0.1 ml/min
<i>Pressure range</i>	0–1.0 MPa (10 bar, 145 psi)
<i>Pressure pulsation</i>	< ±20% (dP/P) of mean value
<i>pH stability range</i>	1–14 (spec. valid between pH 2–12)
<i>Viscosity</i>	
< 5 ml/min	Max. 10cP
> 5 ml/min	Max. 5 cP
<i>Flow rate reproducibility</i>	rsd < 2% or 0.2 ml whichever is greater (at 0.1–50 ml/min)
<i>Flow rate accuracy</i>	< ±4% or ±0.1 ml/min whichever is greater
<i>Gradient composition accuracy</i>	±3% at 0.1–50 ml/min
<i>reproducibility</i>	±1.0% at 0.1–50 ml/min
<i>Leakage</i>	< 1.0 µl/min (complete system)
<i>Pressure sensor</i>	
range	0–1.0 MPa
scale error	±5%

**UV measurement**

<i>Wavelengths</i>	
<i>Hg lamp, fixed</i>	254 and 280 nm
<i>by changing filter (optional)</i>	313, 365, 405, 436 and 546 nm
<i>Zn lamp (optional)</i>	214 nm
<i>Absorbance range</i>	0.01–5.0 AU
<i>Autozero range</i>	-0.2–2.0 AU
<i>Baseline adjust</i>	Adjustable 0–100% of full scale
<i>Linearity</i>	< 3% up to 2 AU at 254 nm < 5% up to 1 AU at 280 nm
<i>Static noise</i>	
short term	40x10 <sup>-6</sup> AU at 254 nm
long term	40x10 <sup>-6</sup> AU at 254 nm
<i>Static drift</i>	±100x10 <sup>-6</sup> AU/hour at 254 nm
<i>Flow sensitivity</i>	2x10 <sup>-4</sup> AU min/ml

**UV flow cell, 2 mm**

<i>Flow rate</i>	0–100 ml/min
<i>Max. pressure</i>	4.0 MPa
<i>Max. back-pressure</i>	0.05 MPa at 100 ml/min
<i>Liquid temperature range</i>	+4 to +60 °C
<i>Optical path length</i>	2 mm
<i>Cell volume</i>	2 µl (30 µl detector volume)

**UV flow cell, 5 mm (optional)**

Flow rate	0–20 ml/min
Max. pressure	4.0 MPa
Max. back-pressure	0.02 MPa at 20 ml/min
Optical path length	5 mm
Cell volume	6 µl (10 µl detector volume)

**Conductivity measurement**

Conductivity range	1 µS/cm to 999.9 mS/cm
Reproducibility	
short term	Max. ±1% or ±5 µS/cm whichever is greater
long term	Max. ±3% or ±15 µS/cm whichever is greater
Noise	Max. ±0.5% of full scale calibrated range
Response time	< 3 s (0–95% of step)
Temperature sensor	
accuracy	±2.0 °C
drift	±0.5 °C per 10 h
Flow rate sensitivity	±1% within 0–100 ml/min

**Conductivity flow cell**

Flow rate	0–100 ml/min
Max. pressure	5 MPa (50 bar, 725 psi)
Max. back-pressure	0.01 MPa at 100 ml/min

**Fraction collection**

Tube capacity	175 in tube rack 12 mm (optional) 95 in tube rack 18 mm 40 in tube rack 30 mm (optional)
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**pH measurement**

pH range	0 to 14 (spec. valid between 2 and 12)
Accuracy	
temperature compensated	±0.1 pH within +4 to +40 °C
not compensated	±0.2 pH within +15 to 25 °C, ±0.5 pH within +4 to +15 °C and +25 to +40 °C
Response time	< 10 s (0–95% of step)
Long term stability	Dev. max. 0.1 pH per 10 h at constant conditions (4–40 °C)
Flow rate sensitivity	Dev. max. 0.1 pH units

**pH cell**

Flow rate	0.1–100 ml/min
Max. pressure	0.5 MPa (5 bar, 72 psi)
Max. back-pressure	0.02 MPa at 100 ml/min

**D.2 Physical data**

<i>Control</i>	Via membrane keyboard and display (2x20 characters)
<i>Degree of protection housing</i>	IP 20
<i>flow cells</i>	IP 44
<i>Power requirement</i>	100–120/220–240 V ~, 50–60 Hz
<i>Power consumption</i>	Max. 90 VA
<i>Fuse specification</i>	T 1.6 AH/250 VAC, approved type (not replaceable by operator)
<i>Dimensions, H x W x D</i>	530 x 400 x 450 mm
<i>Weight</i>	13 kg
<i>Environment</i>	+4 to +40 °C, 10–95% relative humidity (non-condensing), 84–106 kPa (840–1060 mbar atmospheric pressure).
<i>EMC standards</i>	<p>This product meets the requirements of the EMC Directive 89/336/EEC through the harmonized standard EN 61326-1 (emission and immunity).</p> <p><b>Note:</b> The declaration of conformity is valid for the instrument if it is:</p> <ul style="list-style-type: none"> <li>• used in laboratory locations</li> <li>• used in the same state as it was delivered from Amersham Biosciences except for alterations described in the User Manual</li> <li>• connected to other CE labelled Amersham Biosciences modules or other products as recommended.</li> </ul>
<i>Safety standards</i>	This product meets the requirement of the Low Voltage Directive (LVD) 73/23/EEC through the harmonized standard EN 61010-1.

### D.3 ÄKTA<sup>prime</sup> component materials

The wetted materials of ÄKTA<sup>prime</sup> are listed below:

	FFKM	PEEK	PTFE	FEP	ETFE	ECTFE	PP	PE	Titanium alloy	Quartz	Glass	Gold	Kalrez, Simriz	Ceramic
System pump	X							X	X				X	X
<u>Monitor</u>	X	X	X						X	X				
Fraction collector			X			X								
<u>Mixer</u>	X	X	X											
Pressure sensor														
<u>Buffer valve/</u> <u>Injection valve</u>	X													
Gradient switch valve/ Flow diversion valve			X			X								
<u>Flow restrictor</u>			X	X	X							X		
Superloop		X			X						X			
<u>Tubing</u>		X			X									
Inlet filters							X							X
<u>Unions/Connectors</u>														X

FFKM = perfluororubber  
 PEEK = polyetheretherketone  
 PTFE = polytetrafluoroethylene  
 FEP = perfluoroethylenepropylene copolymer  
 ETFE = ethylenetetrafluoroethylene  
 ECTFE = ethylenechlorotrifluoroethylene  
 PE = polyethene  
 PP = polypropylene