

EQUIPMENT FOR ANALYTICAL, PREPARATIVE AND FLASH LIQUID CHROMATOGRAPHY

**HPLC SERIES 2000
includes:**

• Gradient Box
ECB2004

• Analytical Pump
ECP2010

• Column Oven
ECO2080

• PDA Detector
ECDA2800



ECOM
HPLC FROM PRAGUE

Check out brand
new Fraction
collector and
TOY detectors!



PREPARATIVE SYSTEMS

High effective HPLC preparative system containing UV-VIS photodiode array detector, preparative pump and gradient box. The system is variable and offers different configurations of components. **Detector** allows measuring absorbance on four wavelengths simultaneously in one cell just as measuring of whole spectrum (scan). **Preparative isocratic pump** with flow rates up to 50, 100 or 300 ml/min works together with gradient box as a **gradient pump**, achieving a precise four way low-pressure gradient. New fraction collector for 9, 21 and 40 ml tubes. Communication of all units is through RS232.

Preparative pump with flow-rate up to 50, 100 or 300 ml/min

Box ECB2005/2007 with gradient valve or ECB2006 container for solvent bottles

Flash 14 DAD detector in versions up to 400, 600 and 840 nm

Try
ECOMAC
software!

ECF2096 Fraction collector for 9, 21 and 40 ml tubes

System configuration examples

Equipment	ECS10	ECS11	ECS12
P/N	ASP1000X	ASP1100X	ASP1200X
	Gradient	Isocratic	Gradient
Detector	Flash 14 DAD 600	Flash 14 DAD 400	Flash 14 DAD 600
Pump	ECP2100	ECP2100	ECP2300
Box	ECB2007	ECB2006	ECB2005
Fraction collector	—	—	ECF2096

NOTE:

- For more information and technical specifications see pages 6 and 7.
- This system is controlled by ECOMAC or Clarity chromatography software.
 - Ask us for different configuration.

ANALYTICAL SYSTEMS

Modular HPLC system can be configured according to customer needs from components as follows: **PDA Detector** with wavelength range 200-800 nm with scanning possibility or **UV-VIS Detector** with continuously variable wavelength 190-800/600 nm and very low noise level offers high-speed sampling up to 100 Hz. **Autosampler** for 96 vials, **isocratic pump** with flow-rate up to 10ml/min and pressure limit 40 MPa works also as **gradient pump** together with gradient box which is equipped with four way gradient mixing valve and **degasser**. **Column oven** with heating/cooling can accommodate up to 3 columns. Communication is through RS232 or LAN.

Gradient box with degasser ECB2004 or just a container for solvent bottles ECB2006

Column oven ECO2080 with heating and cooling or ECO2099 with heating only

Analytical HPLC pump ECP2010 with flow-rate up to 10 ml/min and pressure up to 40 MPa

ECDA2800 PDA scanning detector or ECD2800 / ECD2600 UV-VIS detector with continuously variable wavelength

L3320 Autosampler with excellent accuracy and linearity

Units controlled by Clarity

System configuration examples

Equipment	ECS01	ECS02	ECS03	ECS04	ECS05
	ASA0100X	ASA0200X	ASA0300X	ASA0400X	ASA0500X
	Gradient	Gradient	Isocratic	Gradient	Gradient
Detector	ECD2800	ECD2600	ECD2600	ECD2800	ECDA2800
Pump	ECP2010	ECP2010	ECP2100	ECP2010	ECP2010
Column Oven	ECO2080	ECO2099	–	ECO2080	ECO2080
Box	ECB2004	ECB2004	ECB2006	ECB2004	ECB2004
Sampling	Manual	Manual	Manual	L3320	L3320

NOTE:

- For more information and technical specifications see pages 4 and 5.
- This system is controlled by Clarity Chromatography software.
- Ask us for different configuration.

ANALYTICAL UNITS OVERVIEW

Detectors

ECDA2800 UV-VIS PDA Detector



Analytical Diode Array Detector measures at eight wavelengths simultaneously or full scan with speed up to 100 Hz. 3D support in Clarity SW. Noise level $\pm 5 \times 10^{-6}$ AU. Four analog outputs. Two special mathematical channels are available. Wavelength range 200-800 nm. AD05 analytical cell included.

Wavelength range 200-800 nm. AD05 analytical cell included.

ECDA2800

P/N ANW0000X

ECD2800/ECD2600 UV-VIS Detector



UV-VIS detector with continuously variable wavelength in range of 190-800 (600) nm and noise level $\pm 3 \times 10^{-6}$ AU controlled by RS232, LAN or keypad. Automatic wavelength calibration using deuterium spectral lines.

AC05 analytical cell included.

ECD2800

P/N ADA0000X

ECD2600

P/N ADB0000X

ECD2800/2600 EX UV-VIS Detector



Modification of basic ECD2800/2600 unit suited for external cell connecting using optical cables with SMA 905 connectors. Noise level $\pm 1.5 \times 10^{-5}$ AU. Wide range of external cells available.

ECD2800 EX

P/N ADAEX00X

ECD2600 EX

P/N ADBEX00X

ECD2800/2600 CE UV-VIS Detector



Modification of basic ECD2800/2600 unit suited for capillary electrophoresis. Easily replaceable capillary in cell compartment. Noise level $\pm 1.5 \times 10^{-5}$ AU.

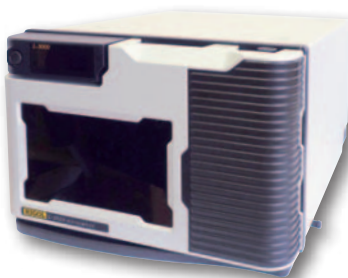
ECD2800 CE

P/N ADACE00X

ECD2600 CE

P/N ADBCE00X

L3320 Autosampler



Autosampler for 96 vials with excellent accuracy and linearity of sample injection. Inovated needle design significantly reduces sample residue contamination. Wide range of sample volumes, even μ l pick-up mode with zero sample loss.

L3320

P/N ARA03320

AC05/AD05 Analytical Cells



Standardly included cells with 5 mm optical path length are AC05 for ECD2800/2600 and AD05 for ECDA2800 PDA detectors. Cells with optical path length 2.4 and 10 mm are available on request.

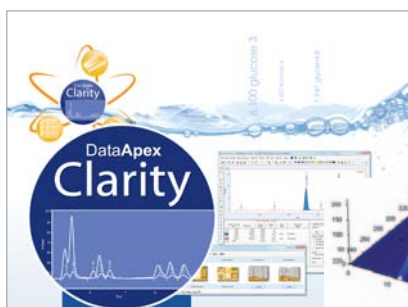
AC05

P/N ADA70000

AD05

P/N ANW70000

CLARITY Chromatography Station



Clarity is advanced Chromatography Data Station with optional software modules for **data acquisition**, **data processing** and **instrument control**. Its wide range of data acquisition interfaces (A/D converters, LAN, USB, RS232) allows **connection to any ECOM unit**.

Single Instrument SW is possible extend by SW Module for LC control, SW module for AS control, SW module for System Suitability Test, SW module for PDA Data processing, Single Instrument Add-on and Offline version for data processing.

All ECOM units drivers are included in Module LC Control. Drivers contain **full control** of instruments as well as **diagnostics tools** and are made by ECOM with DataApex supervision that guarantees the highest quality and full integration into the Clarity station.

ANALYTICAL UNITS OVERVIEW

Pumps

Name	P/N	F [ml/min.]	Max. press. [Mpa / PSI]	Piston diameter	Pumping system	Notes
Series 2000						
Analytical HPLC pump, isocratic / quaternary gradient with Gradient Box ECB2004						
ECP2010	ACA0000X	0.01 – 10.00	40 / 5800	1/8"	2x serial	power supply 100 – 240 V AC
Kappa series						
Isocratic, single piston, pulsating, 40 MPa up to 2 ml/min., column washing						
Kappa 10	PK00000X	0.01 – 10.00	40(20) / 5800	1/8"	1x pulsating	power supply 100 – 240 V AC
Kappa 10PP	PL00000X	0.01 – 10.00	40(20) / 5800	1/8"	1x pulsating	pressure sensor, power supply 100 – 240 V AC

ECP2010 Analytical HPLC Pump



Works as isocratic pump and together with Gradient Box ECB2004 also as gradient pump. Flow-rate range is 0.01–10 ml/min and pressure up to 40 MPa. Unit software includes new learning algorithm for pulsation suppression and many testing and diagnostic features.

ECP2010

P/N ACA0000X

KAPPA 10 Isocratic One Piston Pump



Single piston pump suited for column washing or other HPLC chromatography processes. Kappa 10PP includes pressure sensor.

Kappa 10

P/N PK00000X

Kappa 10PP

P/N PL00000X

ECB2004 Gradient Box with Degasser ECB2006 Solvent Box



Box is suited for handling liquids in ECOM gradient systems. It accommodates container for solvent bottles, built-in high-efficiency vacuum degasser and four way gradient valve. Up to four solvent lines may be degassed simultaneously.

Four way gradient valve is controlled through the pump ECP2010. Box can be also supplied as a simple container for solvent bottles – ECB2006.

ECB2004

P/N ABA0000X

ECB2006

P/N ABC0000X

ECO2080/ECO2099 Column Oven



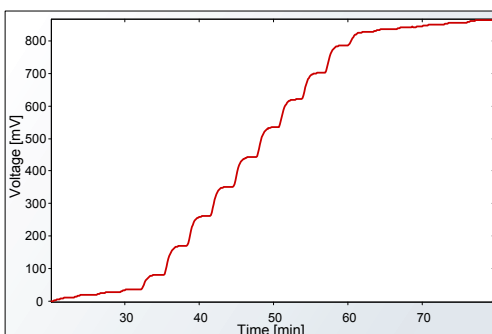
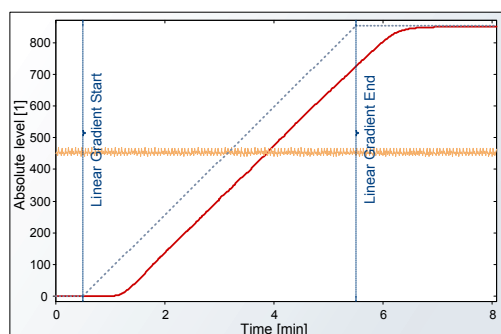
Peltier heating/cooling column oven (0-80°C) with a big compartment room can accommodate up to 3 columns with length up to 25 cm. Unit is controlled via keypad, RS232 or LAN Interface. Column oven can be also supplied with heating only, temperature range up to 99°C as ECO2099.

ECO2080

P/N AOA0000X

ECO2099

P/N AOB0000X



These graphs show linear and stepped gradient (10 % steps and at the beginning and end 1 %) performed on HPLC pump ECP2010 and gradient box ECB2004. This is used for measuring and testing performance criteria such as accuracy and reproducibility of solvent delivery system in production.

PREPARATIVE UNITS OVERVIEW

Flash Detectors

Name	P/N	R [nm]	Scan	Notes
Flash 10 DAD series	diode array detectors (PDA), with display and keypad, 4 variable wavelengths			
Flash 10 DAD 400	2053A00X	200 – 400	Info	standalone, 4x analog output, power supply 100 – 240 V
Flash 10 DAD 600	2053B00X	200 – 600	Info	standalone, 4x analog output, power supply 100 – 240 V
Flash 10 DAD 800	2053E00X	190 – 840	Info	standalone, 4x analog output, power supply 100 – 240 V
Flash 14 DAD series	diode array detectors (PDA), without display and keypad, Clarity 3D evaluation for 400 and 800 version, 4 variable wavelengths			
Flash 14 DAD 400	ANA0000X	200 – 400	Full	standalone, power supply 100 – 240 V
Flash 14 DAD 600	ANB0000X	200 – 600	Info	standalone, power supply 100 – 240 V
Flash 14 DAD 800	ANC0000X	190 – 840	Full	standalone, power supply 100 – 240 V
Flash 06/12 DAD series	diode array detectors (PDA), without display and keypad, Clarity 3D evaluation for 400 and 800 version, 4 variable wavelengths			
Flash 12 DAD 400	2046000X	200 – 400	Full	built-in, power supply 24 – 36 V DC
Flash 06 DAD 600	2050000X	200 – 600	Info	built-in, power supply 24 – 36 V DC
Flash 12 DAD 800	2052000X	190 – 840	Full	built-in, power supply 24 – 36 V DC

Flash DAD detectors are designed for preparative and flash applications, with four continuously variable wavelength in the range listed above for each instrument. Noise level of Flash detectors at 254 nm is $\pm 5 \times 10^{-5}$ AU with an empty cell. **Ask for version of Flash DAD detectors with SMA optical connectors for external flow cells.**



Flash 10 DAD



Flash 14 DAD

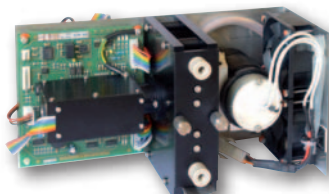


Flash 06/12 DAD

TOYDAD Detectors (A powered by 24-36)

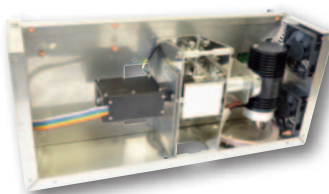
Version	Range nm	Features	Scan	TOYDAD-L smallest dimensions	TOYDAD in chassis	TOYDAD EX
400	200 -400	2xVariable	info	TOYL010X	TOY0100X	TOY01WEX
		4xVariable	info	TOYL020X	TOY0200X	TOY02WEX
		Scanning + 4xWL	full	TOYL030X	TOY0300X	TOY03WEX
600	200 -600	2xVariable	info	TOYL110X	TOY1100X	TOY11WEX
		4xVariable	info	TOYL120X	TOY1200X	TOY12WEX
		Scanning + 4xWL	full	TOYL130X	TOY1300X	TOY13WEX
800	200 -800	2xVariable	info	TOYL310X	TOY3100X	TOY31WEX
		4xVariable	info	TOYL320X	TOY3200X	TOY32WEX
		Scanning + 4xWL	full	TOYL330X	TOY3300X	TOY33WEX
FIX	200-600	1 x FIX	N/A	TOYL210X	TOY2100X	TOY21WEX
		2 x FIX	N/A	TOYL220X	TOY2200X	TOY22WEX

TOYDAD detectors are very small but powerful DAD units produced in many mechanical and optical versions. Each version is available with two or four variable wavelengths or as four variable wavelengths + continuously scanning.



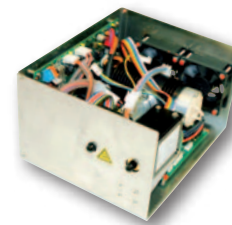
TOYDAD-L

smallest unit with cell and lamp accessible from front panel



TOYDAD

in the same chassis as Flash unit



TOYDAD EX

designed for external cell connected by optical cables

Flash DAD and TOYDAD detectors can be equipped with **many types of cells** with optical path length **0.1 – 2.4 mm** for flow rates up to **500 or 3 000 ml/min**. Also available cells with **pressure limit 30 MPa (4351 PSI)**. **Each cell type can be delivered in EX version for connection with optical cables**. External flow cells available with flow rate up to 15 L/min or even higher based upon customer request.

NOTE:

- 3D evaluation for Flash 12 DAD and all TOYDAD detectors is supported by Clarity SW.

PREPARATIVE UNITS OVERVIEW

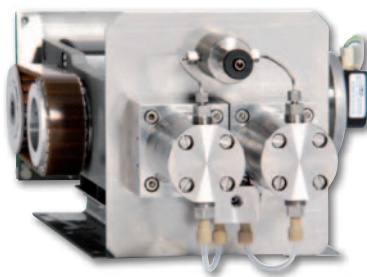
Pumps

Name	P/N	F [ml/min.]	Max. press. [MPa / PSI]	Piston diameter	Pumping system	Notes
Series 2000						
preparative HPLC pump, isocratic / gradient with Gradient Box ECB2007/2005						
ECP2050	ACC0000X	0.01 – 50	30 / 4351	3/8"	2x parallel	standalone, power supply 100 – 240 V AC
ECP2100	ACD0000X	0.1 – 100	30 / 4351	3/8"	2x parallel	standalone, power supply 100 – 240 V AC
ECP2300	ACE0000X	0.1 – 300	15 / 2176	3/8"	2x parallel	standalone, power supply 100 – 240 V AC
Theta series						
isocratic, built-in, without pressure sensor						
Theta 50	PT00000X	0.1 – 50	30 / 4351	3/8"	2x parallel	built-in, power supply 24 – 36 V DC
Theta 100	PTC0000X	1 – 100	15 / 2176	3/8"	2x parallel	built-in, power supply 24 – 36 V DC
Theta 300	PTD0000X	1 – 300	7.5 / 1015	3/8"	2x parallel	built-in, power supply 24 – 36 V DC
Iota series						
isocratic, built-in, with pressure sensor						
Iota 50	PYF0000X	0.1 – 50	30 / 4351	3/8"	2x parallel	built-in, power supply 24 – 36 V DC
Iota 100	PYE00000	1 – 100	15 / 2176	3/8"	2x parallel	built-in, power supply 24 – 36 V DC
Iota 300	PY00000X	1 – 300	7.5 / 1015	3/8"	2x parallel	built-in, power supply 24 – 36 V DC



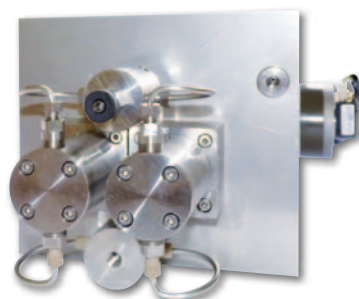
ECP2050, 2100, 2300

Preparative pumps with pulsation compensation. RS232 or LAN control.



Theta 50, 100, 300

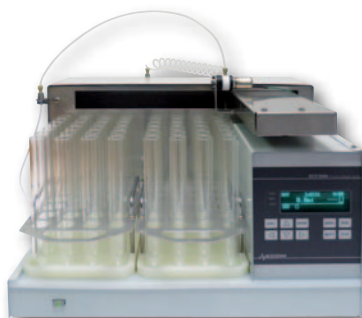
OEM preparative pumps controlled by RS232 without pressure sensor.



Iota 50, 100, 300

OEM preparative pumps controlled by RS232 with pressure sensor.

ECF2096 Fraction Collector



ECF2096

P/N AFA00000

Fractions collected according to chosen method which can be created manually by keyboard, just as using **ECOMAC** software. Analog input allows collecting based on detector signal. Racks for 9, 21 and 40 ml tubes, up to 96 pos.

ECB2007/2005 Gradient Box



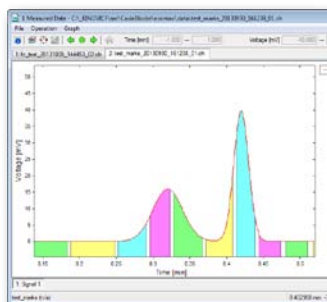
ECB2007

P/N ABD00000

ECB2005

P/N ABB00000

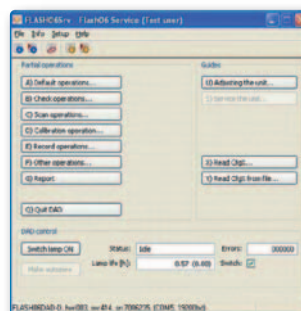
Suited for liquid handling in ECOM gradient preparative system. It accommodates container for solvent bottles and **four way gradient valve**. ECB2007 is controlled by pumps ECP2050/2100 and ECB2005 by ECP2300.



ECOMAC

P/N AF000000

Controls all ECOM units, collects data and stores them for next evaluation (in another SW). It is suited for preparative applications with many possibilities of fraction collecting and events programming.



Flash06Srv

Service SW allows comfortable testing and servicing of all **FLASH** and **TOY** detectors. Test report created by this SW contain detailed information for units diagnostic.

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