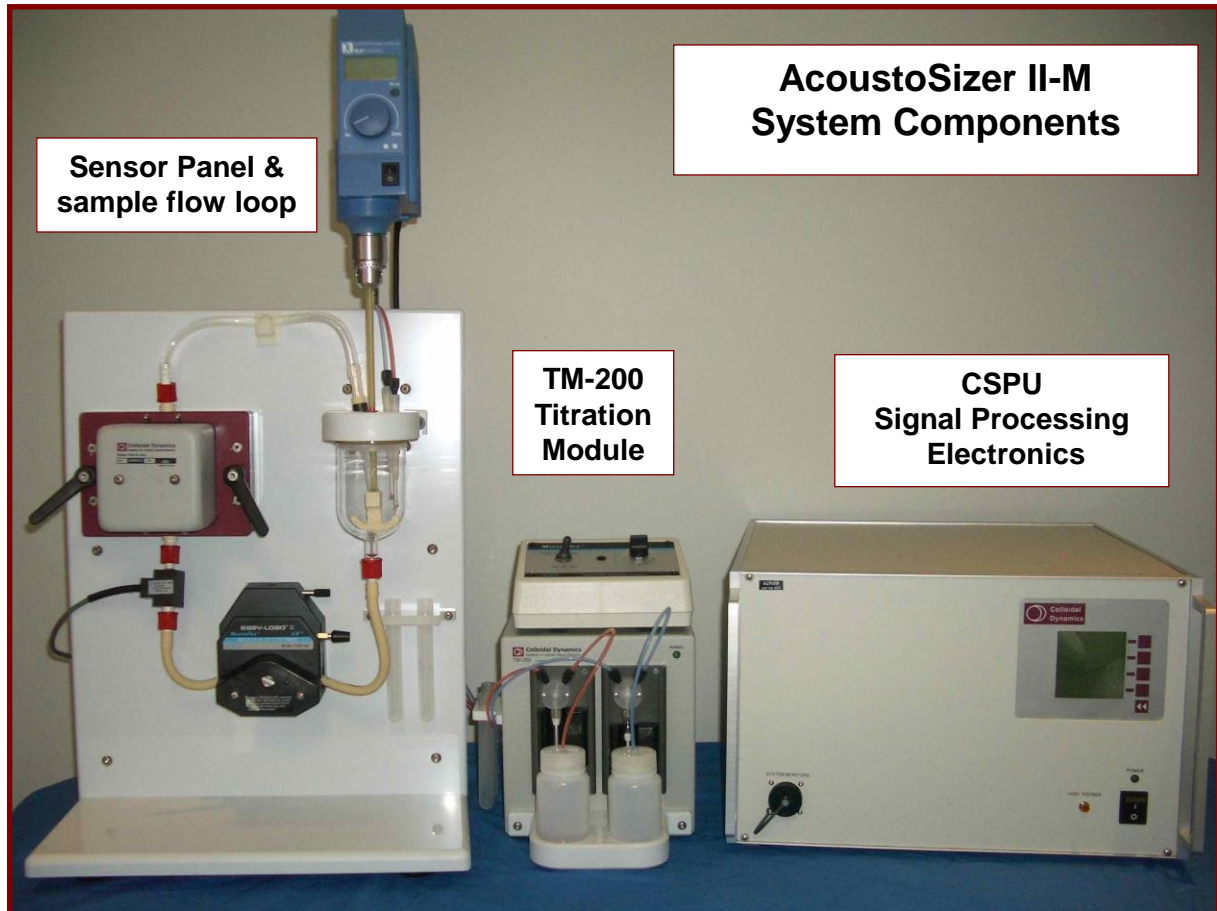**Colloidal Dynamics**
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AcoustoSizer II-M Particle Size and Zeta Potential Analysis System

Colloidal Dynamics' AcoustoSizer II-M system for measurement of particle size distributions and zeta potential in concentrated aqueous and non-aqueous suspensions.

Sensor Panel & sample flow loop

AcoustoSizer II-M System Components

TM-200 Titration Module

CSPU Signal Processing Electronics

Key System Features :

* Modular system design consisting of separate, rack mountable signal processing electronics cabinet, polypropylene sensor support and sample loop module and optional dual syringe pump module. Modular design facilitates location of sensor and sample loop module in a fume hood for processing of flammable or hazardous samples.
* Jacketed, stirred glass sample reservoir with high torque mixer. Requires a minimum sample volume of 100 ml when used with high torque mixer. Sample volume can be reduced to 60 ml without stirrer.
* Flow through parallel plate electroacoustic sensor for laboratory and on-line measurement capabilities.
* Minimum sample volume of 30 ml can be achieved using our small sample volume tubing kit option. Maximum slurry viscosity is 500 cP for the small sample volume tubing kit.
* All data files are created as Microsoft Excel Workbooks
* Includes sensors for measurement of temperature, pH and conductivity
* Particle size measurements can be made by both Electroacoustic Dynamic Mobility Spectrum technique and Acoustic Attenuation Spectrum technique

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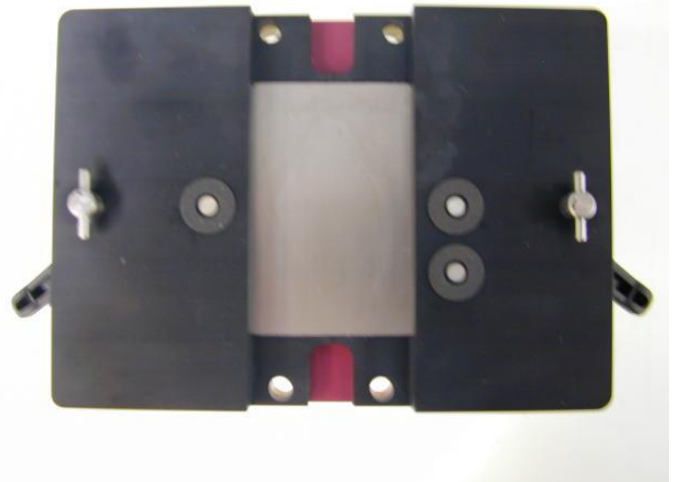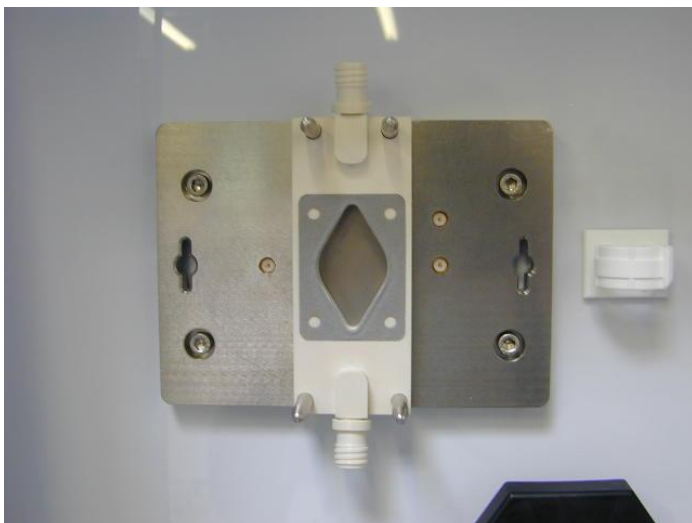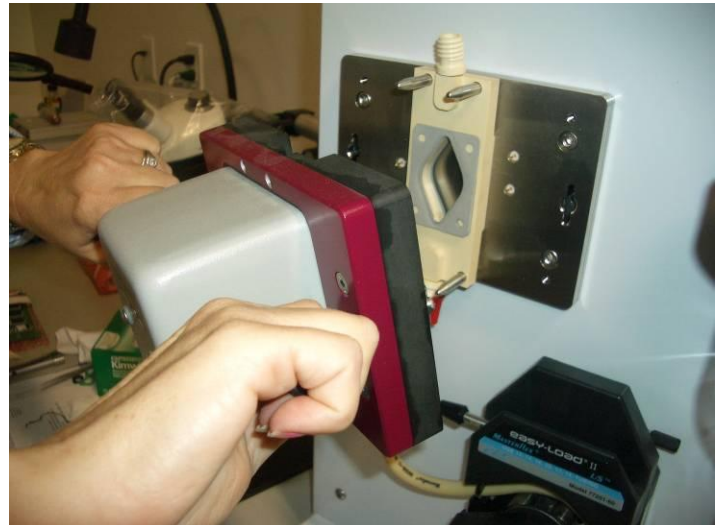leaders in colloid measurement

Particle Size Measurement Specification:

* Particle concentration measuring range: 1 to 40 volume %
* Particle size range: 0.015 microns to 100 microns combining Electroacoustic and Attenuation Spectroscopy Techniques
* pH range: 1 to 13 in aqueous media
* Maximum suspension viscosity: 5000 cP using standard peristaltic pump – varies by application
* Maximum pure solvent micro-viscosity: up to 500 cP – varies by application
* Temperature control of sample: 10 ºC to 50 ºC (requires external temperature bath circulator for regulation of sample reservoir jacket temperature).
* Complete particle size measurement capability for non-aqueous solvents
* Particle size output parameters: Unimodal and bimodal particle size distributions including special analysis feature for nano particle sizes below 80 nm.

Zeta Potential Measurement Specification:

* Particle concentration measuring range: 1 to 40 volume %
* No lower limit in particle size for zeta potential measurements.
* Zeta potential measurement capability for both aqueous and non-aqueous solvents.
* Zeta potential analysis includes double layer distortion and ka corrections in aqueous systems.
* pH range: 1 to 13 in aqueous media
* Maximum suspension viscosity: 5000 cP using standard peristaltic pump – varies by application
* Maximum pure solvent micro-viscosity: up to 150 cP – varies by application
* Temperature control of sample: 10̄C to 50 ̇C (requires external temperature bath circulator for regulation of sample reservoir jacket temperature).
* Conductivity range for zeta potential: 0 to 5 S/m.
* Zeta potential analysis features automatic correction for background electrolyte signals and provides the most accurate iso-electric point determination of any zeta potential analyzer
* Output parameters: dynamic mobility magnitude and phase angle versus frequency, zeta potential, suspension conductivity, suspension temperature and suspension pH

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AcoustoSizer II sensor pictures illustrating convenient quick release design of the flow through electroacoustic sensor. This design makes cleaning the sensor very easy and allows all wetted surfaces of the sensors to be easily cleaned.

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AcoustoSizer II-M System Component Description

Item	Model	DESCRIPTION
1	**CSPU**	AcoustoSizer II-M signal processing electronics module. Supplied in standard 19 inch rack mount chassis format for convenient location in controlled environment cabinet if required.
2	**AZR2M Sensor Panel**	AcoustoSizer II-M sensor support and sample loop panel module. Features chemically resistant polypropylene design that can be easily customized by the user to add other instrumentation into the sample loop. Includes flow-through Electroacoustic sensor, jacketed 100 ml glass sample reservoir and peristaltic pump.
3	**AZR2M Mixer Kit**	High torque IKA Works Model Control Visc overhead mixer and mounting hardware for stirring high viscosity samples or particles that settle rapidly
4	**TM-200**	**AcoustoSizer II-M dual syringe pump titration module** Dual syringe pump module for fully automated potentiometric and volumetric titrations. Volume resolution of syringe pumps is 10 microliters.
6	**AcoustoSizer Software**	**AcoustoSizer II software description and computer requirements:** AcoustoSizer II Microsoft Windows based software. Software provides control of the instrument, data acquisition, and analysis algorithms for measurement of zeta potential and particle size in concentrated aqueous and non-aqueous suspensions. The system software uses Microsoft Excel for data report generation. Software modules include both aqueous and non-aqueous analysis, time series data logging, potentiometric titration (aqueous samples), and volumetric titration. Titration software modules require optional dual syringe pump titration hardware (see item 5 below) **Following are minimum computer requirements for the AcoustoSizer II:** 500 MHz Pentium III or better processor, one free RS232 or USB port, at least 512 Mb RAM, Microsoft Windows 2000, or XP operating system, CD ROM drive, High resolution graphics adapter and color monitor capable of at least 1024 X 768 resolution and 16 bit color, 50 Mb hard disk space available and Microsoft Excel 2000 later edition must be installed on computer.