Nano Particle Size Analyzer - DLS Dynamic Light Scattering Particle Sizer - 0.3-10000 nm, ±0.1°C

Model **MSPSA-N802SWISS** | Brand **Master Science**







The Master Science Nano Particle Size Analyzer works on the dynamic light scattering (DLS) principle. A high-performance PMT detector and a high-speed digital correlator follow the fluctuations of light scattered at a fixed angle, the diffusion coefficient is derived from them, and particle diameter and size distribution are then calculated with the Stokes-Einstein equation.

KEY HIGHLIGHTS

- Sub-nanometre to micron range
- Resolves fast fluctuations
- High sensitivity
- Stable sample conditions
- Compact and robust optics

AT A GLANCE

0.3 to 10000 nm MEASURING RANGE	**0.1 to 100 mg/mL** CONCENTRATION RANGE
≤1% (CRM D50) ACCURACY	**5 to 90°C (±0.1°C)** TEMPERATURE CONTROL

Request a Quotation
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Overview

Covering 0.3 nm to 10000 nm, the Master Science Nano Particle Size Analyzer offers fast calculation, high resolution and good repeatability. It is widely used in company product laboratories, research facilities and universities.

> For micron-scale powders and suspensions, see the Master Science wet and dry laser particle size analyzer.

Key Benefits

Sub-nanometre to micron range
: the Master Science Nano Particle Size Analyzer covers 0.3 to 10000 nm.

Resolves fast fluctuations
: the digital correlator reaches 8 ns resolution.

High sensitivity
: PMT detector with a strong signal-to-noise ratio.

Stable sample conditions
: temperature held within ±0.1°C.

Compact and robust optics
: fibre-based PCS detection system.

Technical Specifications

GENERAL

General	Specifications of the Master Science Nano Particle Size Analyzer are set out below.
Brand	Master Science
Model Number	MSPSA-N802SWISS
SKU	MSPSA-N802SWISS
Instrument Type	Nano
Measuring Range	**0.3 to 10000 nm**
Concentration Range	**0.1 to 100 mg/mL**
Accuracy	**≤1% (CRM D50)**
Repeatability	≤1% (CRM D50)
Design Principle	Dynamic light scattering (DLS)
Laser	Semiconductor laser, 532 nm, P=30 mW
Laser Safety	Class 1
Sample Cuvette	1 to 4 mL (10 x 10 x 40 mm)
Temperature Control	5 to 90°C (±0.1°C)
Test Speed	≤5 min
Digital Correlator	Auto-correlation Channels: 256
Digital Correlator	Baseline Channels: 4
Digital Correlator	Physical Channels: 5000
Digital Correlator	Unit Delay Time: 100 ns to 10 ms
Connect to PC, LIMS	Yes
Test Report	Word, Excel, image and other formats
Storage Environment	15 to 30°C, humidity <75%
Power Supply	220 V, 50/60 Hz

OPTICAL PERFORMANCE

Detector	PMT, scattering angle 90°
External interference disturbs the optics	: fibre-based detection has strong anti-interference capability.

DIMENSIONS & WEIGHT

Product Dimensions (L x W x H)	480 x 270 x 170 mm
Net Weight	12 kg

COMMON PROBLEMS THIS ANALYZER SOLVES

Common Problems This Analyzer Solves	Nano-scale sizing is sensitive to conditions that this instrument keeps under control.
Temperature drift alters viscosity and results	: semiconductor control keeps the sample within ±0.1°C.
Weak scattering from very small particles	: a PMT detector picks up low light levels.
Signals change within nanoseconds	: the correlator resolves fluctuations down to 8 ns.

Applications

The Master Science Nano Particle Size Analyzer is used for nano-scale particle sizing in: Corporate product laboratories Research facilities Universities

Measurement Principle

- Dynamic light scattering with photon correlation spectroscopy (PCS)
- Particle size is determined from the speed of Brownian motion
- Photon fluctuations are detected in a specific direction and analysed for size

Performance

- Digital correlator with a resolution speed of 8 ns
- PMT detector for high sensitivity and signal-to-noise ratio
- Dynamic scattered light collection with real-time autocorrelation calculation
- Optical-fibre PCS detection system: compact, interference-resistant and reliable
- Semiconductor temperature control holds the sample within ±0.1°C, avoiding errors from viscosity changes

Software

- Analysis of average particle diameter, particle distribution, photon counting rate and more
- Analysis modes: NNSL, multi-peak, CONTIN
- Output of actual particle size distribution with user-set percentiles (D10 to D100)
- Volume-weighted mean D[4,3], surface-weighted mean D[3,2], D[2,1], D[1,0] and specific surface area

Optional Accessories

- Audit trail software