



MRX N1

High-Throughput Near-Infrared (HT-NIR) Analyzer

Speed for HPLC users.
QC automation.
Cost savings.



Product Configurations

Standard

HTS-NIR + Modeling S/W

Modeling Package

Standard + Model Development service + Preload model + Validation

Pro-AI (under development)

HTS-NIR + **AI modeler based on AutoML**

High-Throughput Near-Infrared (HT-NIR) Analyzer

- **High-throughput screening:** Accelerates the analysis of hundreds of samples with 96-well plate compatibility.
- **Non-destructive analysis:** Direct analysis without pretreatment — ideal for repeated measurements.
- **Fast and precise quantification:** Quick spectral acquisition and modeling enable real-time analysis. ($\geq 1\%$ concentration)
- **Low operating cost:** Designed without consumables, dramatically reducing costs vs. HPLC.
- **Flexible across industries:** Customizable for pharmaceutical, food, biotech, and other applications.



Benefits of Adopting HTS-NIR

Category	Reference(HPLC) + HT-NIR Integration	Reference(HPLC) Only
Daily Sample Throughput	18,000 samples	~ 20 samples
QC Response Time	2 seconds/sample	~ 30 minutes/Sample
Operating Cost (incl. consumable)	Over 80% reduction	100%
Analytical Efficiency	X900 improvement	Baseline
Abnormal Sample Strategy	NIR pre-screening → HPLC confirmation	Same method for all samples

Application Areas

- ✓ **Biotech:** Fermentation, amino acids, sugars
- ✓ **Food:** Moisture, protein, fat, blend QC
- ✓ **Pharma:** Tablet/capsule batch QC
- ✓ **Feed:** Protein, fiber, energy
- ✓ **Environment:** Organics in sludge/wastewater

Chosen by **CJ CheilJedang** – 3 × MRX N1 for high-speed NIR.

Technical Specifications

Optical System	Permanently aligned, Double retro-reflector designed FT-NIR
Detector	InGaAs PIN photodiode, 2TE cooled
Wavelength range	900-2,500 nm (Wavenumber: 11,100 – 4,000 cm^{-1})
Optical resolution (FWHM)	0.66 nm – 5 nm @ 8 cm^{-1}
SNR	100,000:1 @ 60s measurement
Analysis time (Spectrum)	Single well < 30 seconds / 96 wells < 2,880 seconds
A/D resolution	24-bit
Temperature (Humidity)	5-40°C (non-condensing)
Dimensions (W x D x H)	340 x 410 x 295 mm
Weight	12.1 kg
Operation	PC Software
Interface	Ethernet

K LAB Official Partner

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