SCINCO PMx 8100

Modular Multi-Station Surface Area & Pore Analysis System

The PMx 8100 is a next-generation gas sorption analyzer platform engineered for laboratories demanding flexible configuration, high throughput, and precision micropore resolution. Each unit supports up to four independently operated analysis stations, giving users the freedom to design the system around their specific applications.
The system is ideal for research centers, QC labs, and advanced materials teams who require reliable, scalable, and high-resolution data for gas adsorption and pore characterization.

The PMx 8100 empowers users to:

- *Configure mesopore, micropore, or mixed-mode stations in a single unit*
- *Run simultaneous, independent analyses without cross-interference*
- *Scale up or specialize based on research demands*
- *Customize precision sensor packages to match experimental needs*
- *Expand modularly to a total of up to 3 connected units (12 stations) for maximum throughput and flexibility*

Key measurement capabilities include BET, Langmuir, BJH, DFT, HK, SF, MP, DR, T-Plot, isotherms, and heat of adsorption.
Surface area can be measured down to 0.01 m²/g (mesopore) and 0.0005 m²/g (micropore), with repeatability ≤1.0% RSD. Pore sizes from 0.35 to 500 nm are resolved with repeatability as fine as 0.02 nm (high-res micropore).

Figure 1. Instrument Structural Layout of PMx 8100
(Left 1 Unit, Right 3 Unit w/ Cold trap)

FEATURES

• ***Multi-Station Architecture***
Run up to four fully independent analysis stations per unit—each with dedicated dosing, pressure control, and data acquisition. Scale up to 12 stations by connecting three PMx 8100 units. Ideal for high-throughput labs and multi-user environments.

• ***Micropore & Mesopore Flexibility***
Configure any combination of micropore or mesopore analysis stations based on your application needs. High-resolution pressure sensors—down to 0.1 Torr—enable accurate characterization of ultrafine pores, while broader pressure ranges allow robust mesopore and macropore analysis.

• ***Harsh Chemistry Option***
Equipped with a passivation coating and seals upgraded to FFKM for aggressive or corrosive chemistries.

• ***Smart Safety & Status System***
The PMx 8100 is built for safe, intuitive operation. Each work unit includes multi-color LED indicators for quick visualization of instrument status:
- *White – Standby*
- *Orange – Heating*
- *Green – Test in Progress*
- *Red – Alarm Condition*

Real-time monitoring of pressure and temperature ensures that any anomaly automatically triggers an alarm, switches the unit to red warning status, and halts the experiment for safety. A retractable front safety shield protects users from cryogenic splashes during operation.

• ***Smart Degassing with Pressure Feedback***
The PMx 8100 system continuously monitors vacuum pressure during degassing and compares it to user-defined stabilization thresholds. This intelligent feedback mechanism automatically detects when activation is complete, improving reproducibility and avoiding over- or under-treatment of samples.

• ***Advanced Gas Dosing***
Each analysis station features dedicated dosing and evacuation control for independent test execution. The system supports both pressure-based and volume-based dosing, with user-selectable options for quantitative or constant-pressure dosing. Smart sequencing ensures efficient dosing across multiple stations while avoiding gas cross-talk so that each station can run a different test (i.e. BET, isotherm), but with the same adsorbate.

• ***Integrated Degassing Furnace***
Every PMx 8100 unit includes one built-in, high-temperature degassing furnace with programmable ramp/soak control and real-time pressure feedback—no external systems required. For high-volume workflows, pair with an external Prep Series degasser for bulk pre-treatment, using the built-in unit for final polishing prior to analysis.
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Figure 2. Integrated Degassing Furnace of PMX 8100

*The **PMx 8100** system is powered by the intuitive PHYSISOFT software platform, designed to streamline multi-station control and deliver high-quality sorption results across a single unit or a full 12-station network.*

- ***Flexible Multi-Station Workflow***

Configure, launch, and monitor multiple experiments independently from a unified interface, with real-time status indicators for full test visibility.

- ***Intelligent Sample Preparation***

Built-in pressure monitoring during degassing ensures consistent activation, with automatic detection of stabilization based on user-defined thresholds.

- ***Comprehensive Data Modeling***

Supports BET, Langmuir, BJH, t-Plot, HK, DFT, NLDFT, and other models for accurate surface area and pore size analysis of micro- and mesoporous materials.

- ***Visualization & Reporting Tools***

Overlay isotherms, track kinetics, and generate Excel or PDF reports with curves, metadata, and calculation results for easy comparison and documentation.

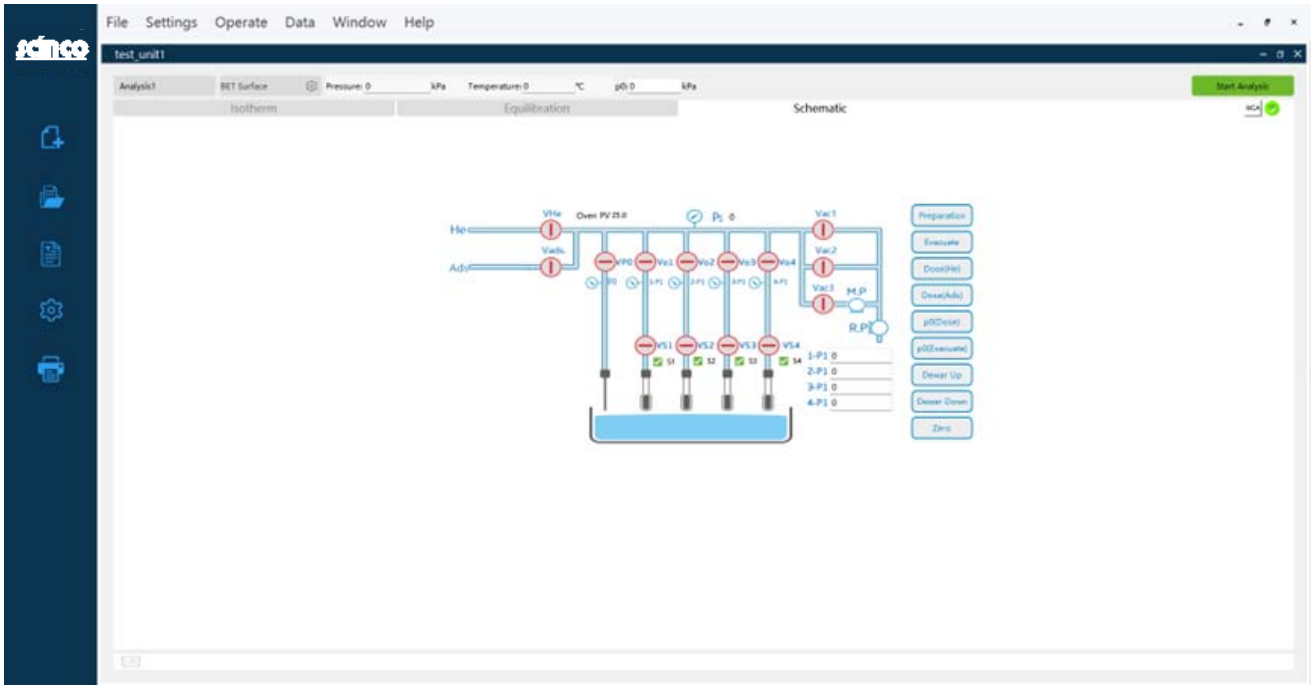

Figure 2. SCINCO PMx 8100 Main Dashboard

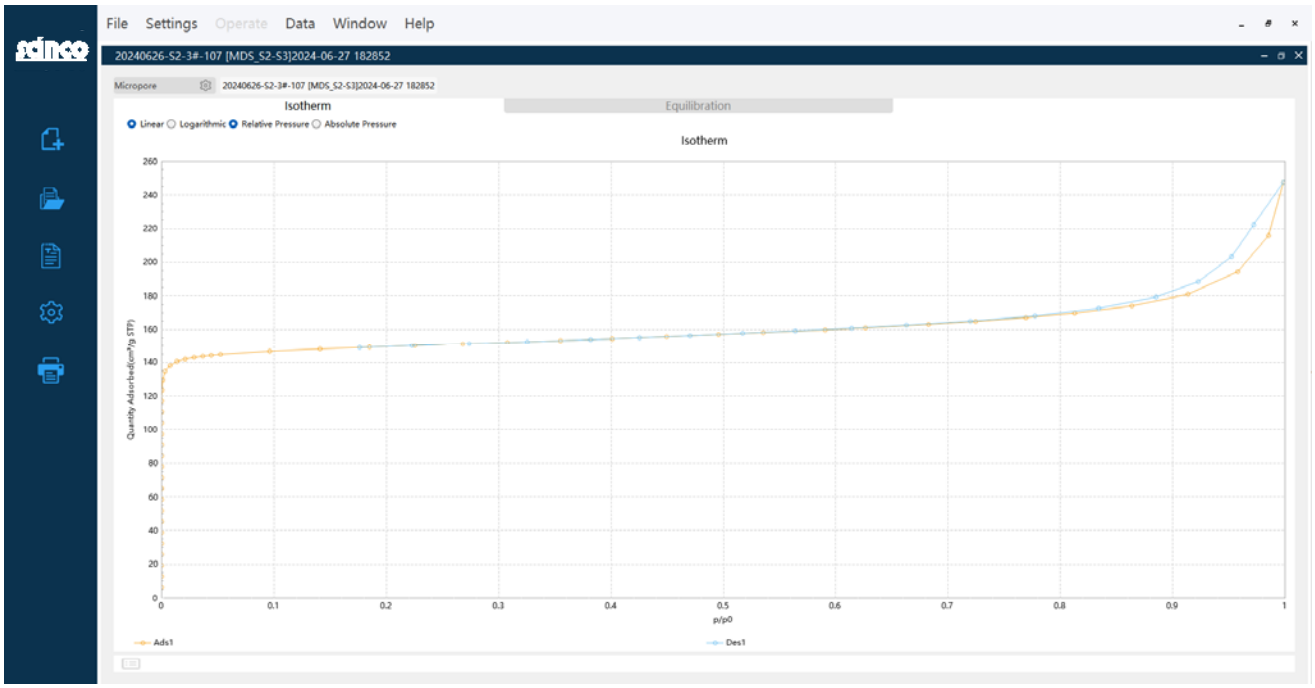

Figure 3: Nitrogen adsorption–desorption isotherm of a BAM-certified zeolite

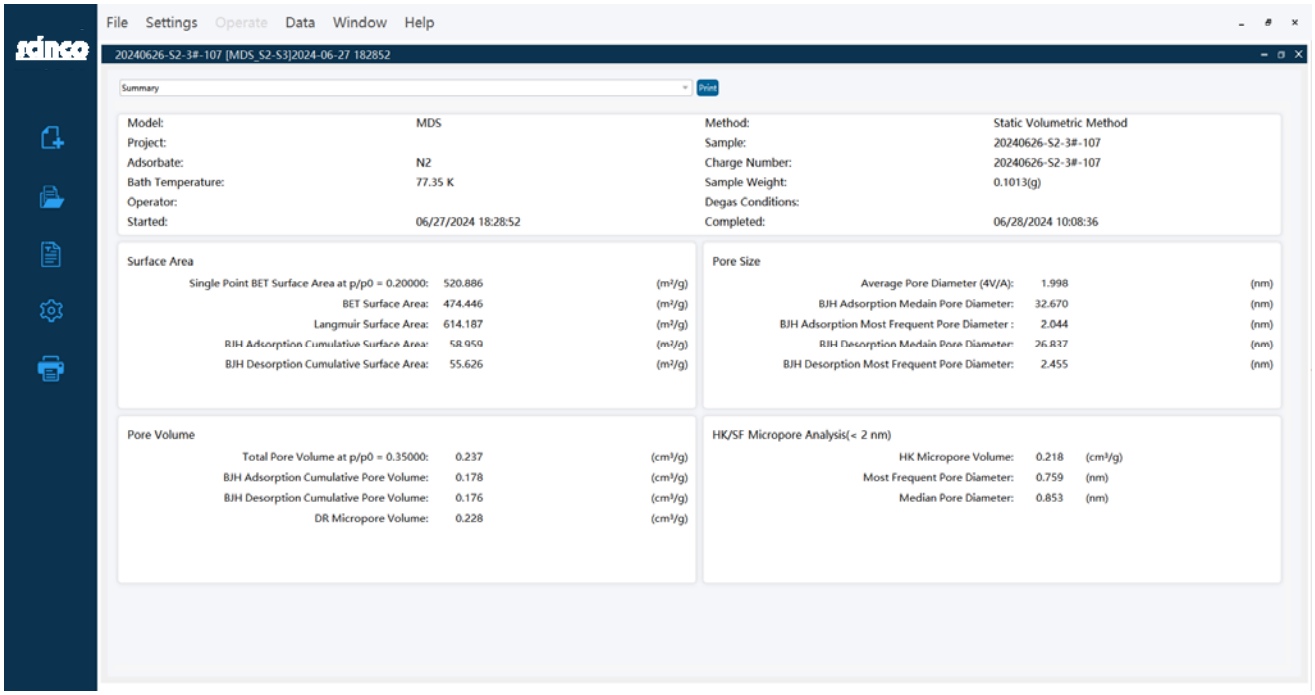

Figure 4: Summary Data Reduction Screen of a BAM-certified Zeolite

STATION OPTIONS

- *Each PMx 8100 unit includes one dedicated degas furnace and offers flexible station-level sensor configurations. Total sensors listed include Ps, P_o, and degas pressure monitoring sensors.*

Configuration	*Analysis Transducers*	*Total Transducers*
4x Mesopore	*1000 Torr on each station*	*6*
1x Micropore	*1000, 10, 1 Torr*	*5*
1x Micropore (High Res)	*1000, 10, 0.1 Torr*	*5*
2x Micropore	*1000, 10, 1 Torr on each*	*8*
2x Micropore (High Res)	*1000, 10, 0.1 Torr on each*	*8*
3x Micropore	*1000, 10, 1 Torr on each*	*11*
3x Micropore (High Res)	*1000, 10, 0.1 Torr on each*	*11*
4x Micropore	*1000, 10, 1 Torr on each*	*14*
4x Micropore (High Res)	*1000, 10, 0.1 Torr on each*	*14*
1x Mesopore + 3x Micropore	*Meso : 1000* *Micro : 1000, 10, 0.1 Torr*	*12*
2x Mesopore + 2x Micropore	*Meso : 1000* *Micro : 1000, 10, 0.1 Torr*	*10*
3x Mesopore + 1x Micropore	*Meso : 1000* *Micro : 1000, 10, 0.1 Torr*	*8*

PMx 8100 Meso vs. Micro

Category	Mesopore	Micropore
Surface Area Range	≥ 0.01 m^2/g (RSD ≤ 1.0%)	≥ 0.0005 m^2/g (RSD ≤ 1.0%) with Krypton
Pore Size Range	0.35–500 nm (using CO2 for micropores)	0.35–500 nm
Cold Trap	Repeatability ≤ 0.2 nm	Repeatability ≤ 0.02 nm
Analysis Pressure Sensors	Option	Included

SPECIFICATIONS

Specific Model	*Specification*
Model Options	*1, 2, or 3 analysis units (up to 12 ports total)*
Analysis Ports per Unit	*Up to 4*
Measurement Capabilities	*BET (single and multi-point), Langmuir, BJH, STSA, t-plot, DFT, NLDFT, HK, SF, MP, DR, DA, t-Plot, Isotherms, Heat of Adsorption, Total Pore Volume, Adsorption Kinetics*
Pore Volume Resolution	*≥ 0.0001 cm^3/g*
Pressure Range (P/P_o)	*10^{-4} to 0.998 (meso); 10^{-8} to 0.998 (High Res micropore)*
P_o Transducers	*1 per unit, 1000 Torr, 0.25% FS*
Degassing Ports	*In-situ - 4 / 8 / 12 (based on configuration)*
Degassing Temp (Max)	*400°C ±1°C (active cooling included)*
Degassing Ramp Control	*Yes – programmable ramp and soak*
Degas Pressure Monitoring	*Yes – user-defined thresholds*
Vacuum System	*Mechanical: Ultimate vacuum $10^{-}1$ Pa; minimal 7.5 x 10-4 torr; Optional Turbo: 10^{-8} Pa; minimal 7.5 × 10^{-11} torr*
Temperature Control	*Air bath + valve box; Max 45°C ±0.1°C*
Gas Compatibility	*N_2, CO_2, Ar, Kr, H_2, O_2, CO, CH_4 (standard: non-corrosive gases) Optional: Harsh Chemistry model with passivation coating and FFKM seals*
Vapor Sorption Option	*Available*
Dewar Capacity	*3L*
BET Throughput	*4 samples / 5-point BET < ~28 min fully optimized*
Dosing & Equilibrium Control	*Supports user-defined pressure tables and quick-start templates. Gas is introduced stepwise to target relative pressures, with adsorption equilibrium determined by pressure stability over a fixed time window.*
Cold Space Calibration	*Automatic*
Station Independence	*Four workstations per unit; independent test types with same adsorbate. Synchronized start/finish with alternating gas dosing. Independent dosing, vacuum, and control per station.*
Software	*PHYSISOFT software with analysis models, leak detection, and vacuum diagnostics*
Data Export	*Excel, TXT, RAW, PDF; full reprocessing supported*
Gas Inlet Ports	*2 per unit (Helium and Adsorption Gas); expandable to 18*
Power Requirements	*220 VAC, 16 A*
Dimensions (L × W × H)	*27.6 × 27.6 × 41.3 in (70 × 70 × 105 cm)*
Weight	*110 Kg*

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