

AMI-Sync

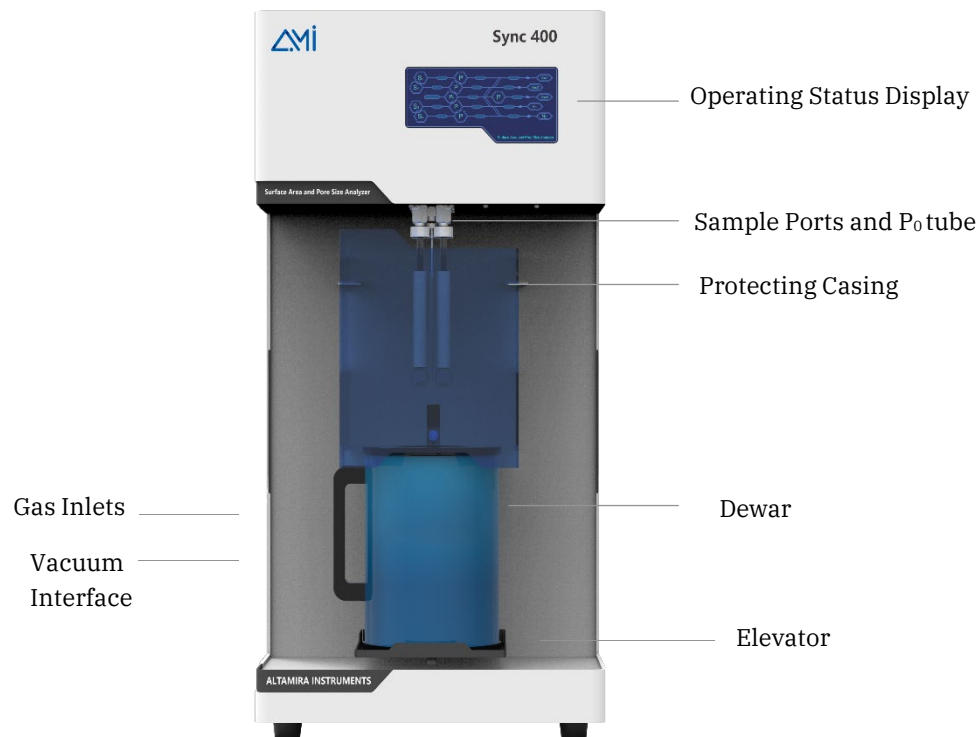
High-Throughput Surface Area and Porosity Analyzer

INTRODUCTION

"Accurate, Accessible, Advanced Gas Sorption"

The **AMI-Sync** Series is a fully automated, high-performance line of gas physisorption analyzers designed for rapid and accurate surface area and pore size characterization of porous and non-porous materials. Whether analyzing catalysts, zeolites, MOFs, or advanced battery materials, the **AMI-Sync** Series delivers robust vacuum-volumetric measurement systems backed by intuitive software and comprehensive support for both standard and advanced adsorption techniques.

Available in flexible 1-, 2-, or 4-station configurations, the **AMI-Sync** Series features a common P_0 measuring transducer and supports simultaneous saturation vapor pressure measurements. Each unit is built for high-throughput performance, with options for a dedicated pressure transducer per station to maximize speed, or a shared sensor setup for cost efficiency. A single large-volume dewar supports multiple stations simultaneously, offering an ideal solution for space-conscious laboratories with demanding workloads.



AMI-Sync 400 Series Instrument

KEY FEATURES

Customizable Configuration for Throughput Analysis Needs

The **AMI-Sync** series offers a scalable solution with up to four high-resolution measurement stations for precise pore size and surface area analysis. For increased throughput, additional instruments can be linked via LAN, expanding to 12 analysis ports with centralized and remote-control capabilities.

High Sensitivity & Reproducibility

The **AMI-Sync** Series delivers precise and reliable surface area and porosity data, with a BET detection limit as low as 0.1 m² absolute and 0.01 m²/g specific. It offers outstanding reproducibility—within 1% on standard reference materials like BAM P115—ensuring confidence in repeated analyses.

CryoTune™ (Optional Feature)

Unlock advanced temperature control with CryoTune™, an optional low-temperature cold bath system designed for precision adsorption studies. Fully integrated with Sync software, CryoTune™ allows users to effortlessly conduct adsorption isotherm measurements across a range of temperatures.

Optimized Manifold Contamination Control

A two-step filtration system protects the manifold from particulates reducing contamination risks and extending instrument life. Combined with stainless steel construction and high-cycle bellows valves, the system ensures clean, reliable operation even in high-throughput environments.

Extended Analysis Duration

AMI-Sync analyzers are equipped with large 3-liter Dewar flasks that allow over 90 hours of continuous analysis. The system supports live refilling during experiments, ensuring uninterrupted data collection during long runs and complex isotherm acquisitions.

Precision-Engineered Hardware

Built with stainless steel and vacuum-brazed manifolds, the system features ultra-durable bellows valves rated for over 5 million cycles. Temperature control maintains ± 0.05 °C stability, while 32-bit pressure sensors provide high-resolution, accurate data capture.

Compact & Lab-Ready

All models share a compact footprint of 51 × 53 × 93 cm, making them ideal for space-conscious labs. Despite their compact size, Sync analyzers are fully equipped for both research-grade and industrial applications, offering power, durability, and precision in one system.

SOFTWARE

Sync Series analyzers are driven by a multilingual, user-friendly software suite that supports:

- **Control of up to 8 instruments from a single PC**
- **Built-in method libraries** for fast setup and repeatability
- **Customizable analysis profiles** with real-time system feedback
- **Automated leak detection and guided maintenance routines**
- **Visual instrument status interface** for monitoring analysis in progress

Additional capabilities include void volume correction, supercritical P_0 handling, temperature control with CryoTune, and compatibility with up to 6 gases per station.

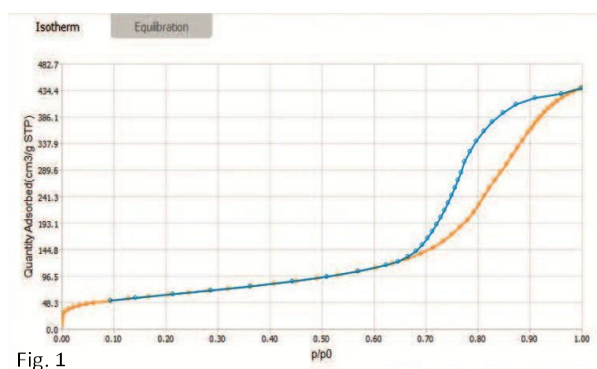


Fig. 1

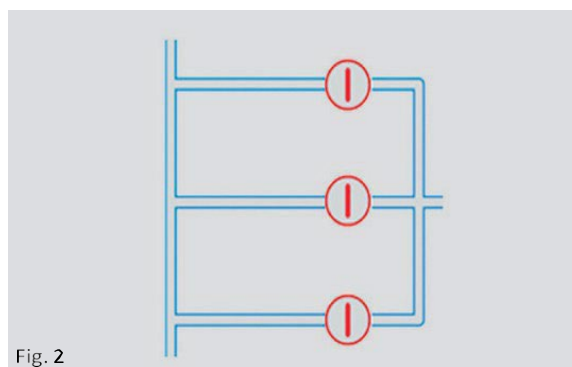


Fig. 2

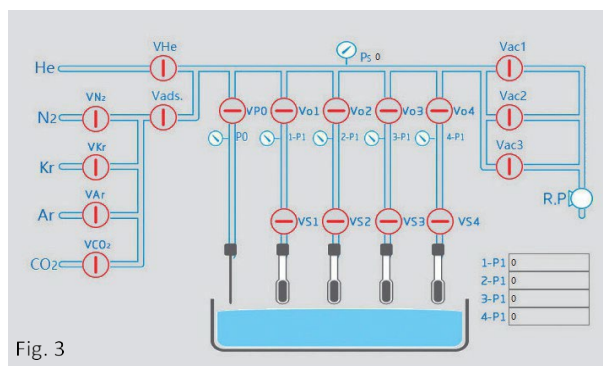


Fig. 3

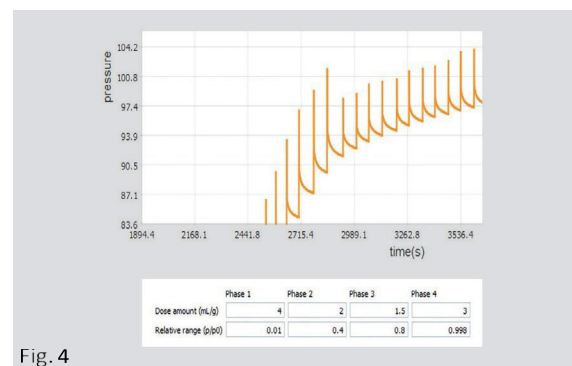


Fig. 4

Figure 1: Isotherm

Figure 2: 3-stage evacuation to prevent sample fluidization

Figure 3: Main software screen

Figure 4: Interactive software screen

Data Analysis Capabilities:

- ✓ Isothermal absorption and desorption curve
- ✓ BET specific surface area (single and multiple point)
- ✓ Langmuir surface area
- ✓ Statistical thickness surface area (STSA)
- ✓ HK pore size analysis
- ✓ SF pore size analysis
- ✓ NLDFT pore size distribution
- ✓ Total pore volume
- ✓ t-plot analysis

SPECIFICATIONS

Model	AMI-Sync				
Configurations	110	210	220	420	440
Analysis Ports	1	2	2	4	4
P ₀ Transducer	1	1	1	1	1
Analysis Pressure Transducer	1	1	2	2	4
Pressure Transducer	1000 torr				
Pressure Transducer Accuracy and Resolution	Accuracy: 0.05% F.S., Resolution: 0.0005% F.S				
Specific Surface Area	≥ 0.01 m ² /g, test repeatability: RSD ≤ ±1.0%				
Pore Size Range	.35*-500 nm, test repeatability: ≤ ±0.02 nm (*Achieved with CO ₂)				
Pore Volume	≥ 0.0001 cm ³ /g				
Pump	1 mechanical pump (ultimate vacuum 10 ⁻¹ Pa; minimal 7.5 x 10 ⁻⁴ torr)				
P/P ₀ Range	10 ⁻⁴ - 0.998				
Adsorbates	N ₂ , CO ₂ , Ar, H ₂ , O ₂ , CO, CH ₄ , etc.				
Dimensions	51 x 53 x 93 cm (16.1 x 20.8 x 36.6 inches) All same dimensional size				
Weight	45 kg 99 pounds (maximum depending on configuration)				
Power Requirements	100-240 VAC, 50/60 Hz, maximum power 300 W				