



# 3P sync series

With the 3P sync series, 3P Instruments now offers new measuring instruments with up to four measuring stations and a separate  $p_0$  measuring cell for simultaneous measurement of the saturation vapor pressure. The stations and measuring cells are temperature-controlled by one Dewar. Thus, the 3P sync enables the highest sample throughput with the smallest possible space requirement and minimum liquid nitrogen consumption. Depending on the sample volume, it can be equipped individually as a 1-, 2-, 3- or 4-station instrument. In addition, the number of pressure transducers can be configured at the measuring station. If the instrument is to be equipped with the fastest possible measuring configuration, a separate pressure sensor can be integrated in each of the four measuring stations. If the measuring speed is not relevant (e.g., for measurements overnight), the measuring instrument can be equipped with only one pressure sensor for up to four measuring stations. Depending on the price/performance ratio, less than six pressure sensors can be integrated, resulting in seven different 3P sync model configurations.

### Applicable methods and determinable parameters

- Isothermal adsorption and desorption curve
- BET specific surface area (single point, multi-point)
- Langmuir surface area
- External surface area (STSA)
- BJH pore size analysis
- t-plot analysis
- DR, DA, MP method
- HK pore size analysis
- SF pore size analysis
- NLDFT pore size distribution
- Pore size mode, average pore size, total pore volume
- Calculation of heat of adsorption, etc.

## Benefits and Features

- The 3P sync series is available with up to four **measurement station(s)** for high resolution sorption measurement(s).
- **Three step evacuation routine** for safe sample handling including very fine particles and highly porous materials (Figure 1).
- Each measurement station has **its own pressure transducer** (optional) and each includes its own 1000 Torr  $p_0$  transducer (Figure 2).
- Presentation of **real-time kinetic data (pressure versus time)** to check and visualize equilibrium conditions (Figure 3).
- **Two step filter system** to protect the system against sample contamination.
- Change of dose amounts and equilibration settings **on-the-fly**, a restart of the analysis is not necessary (Figure 4).

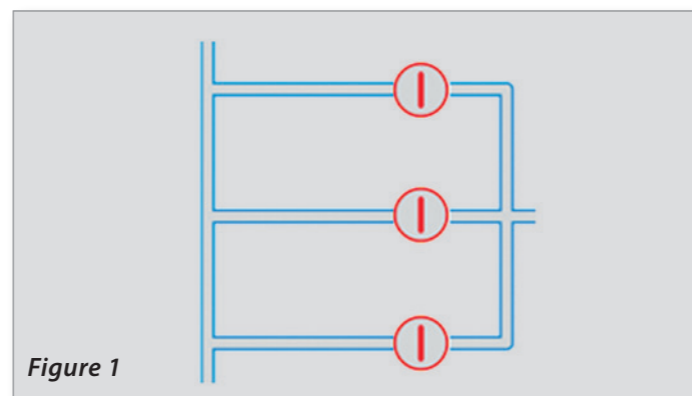


Figure 1

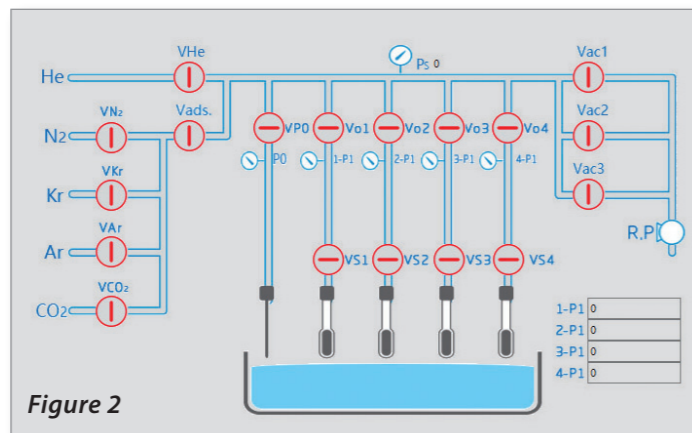


Figure 2

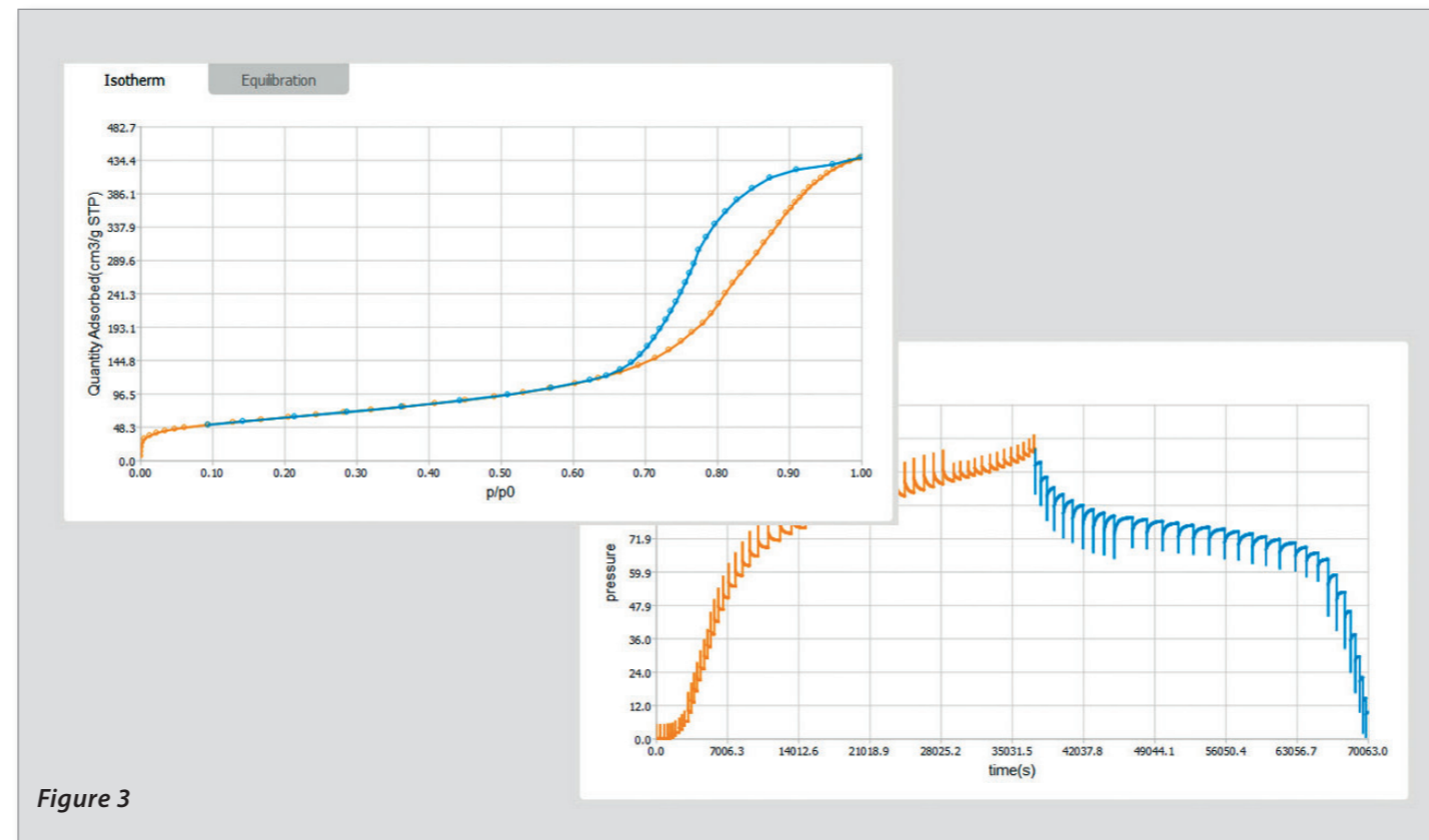


Figure 3

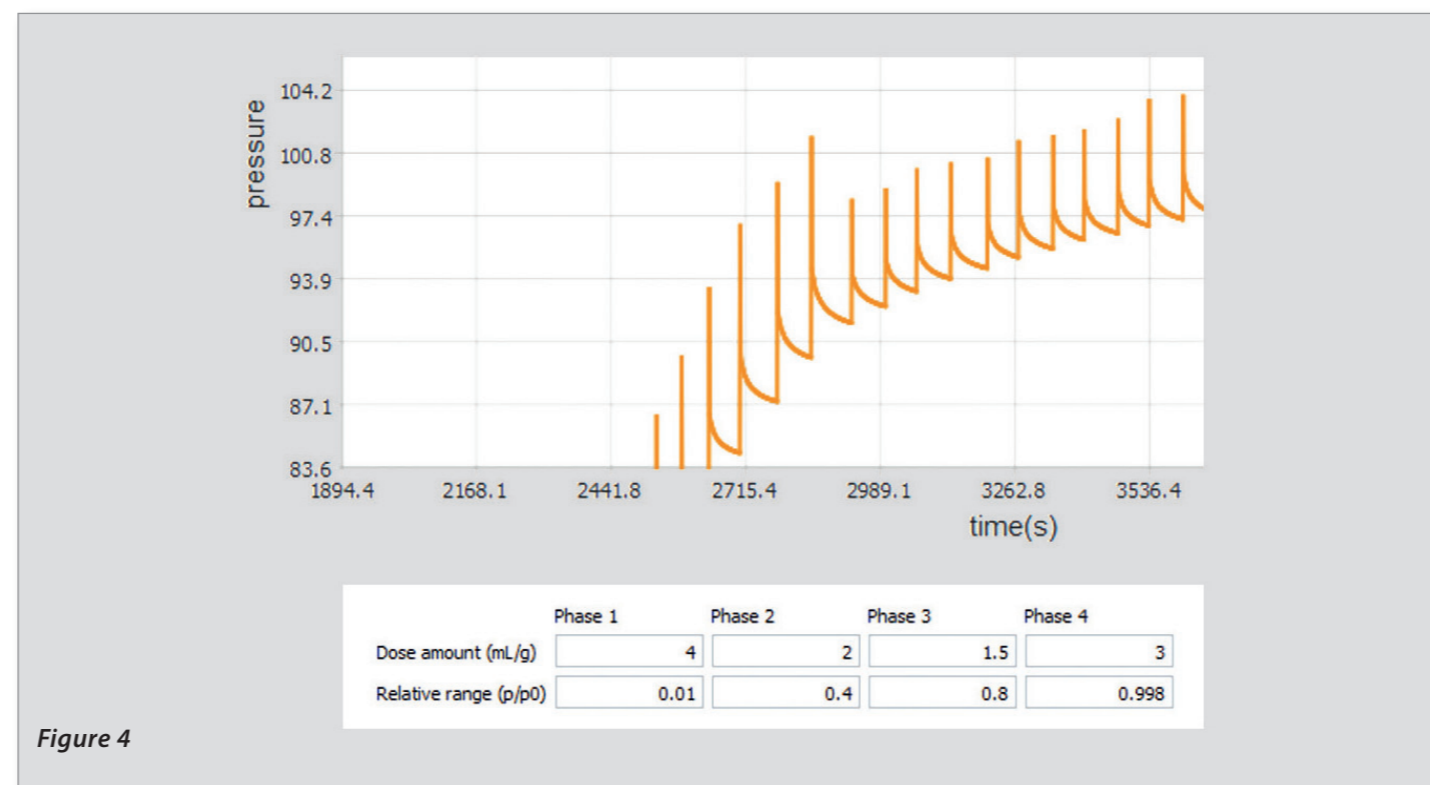


Figure 4

## Specifications

Model	440	420	330	310	220	210	110
Test Principle	Gas adsorption by static volumetric method						
Adsorbates	N <sub>2</sub> , Ar, Kr, H <sub>2</sub> , O <sub>2</sub> , CO <sub>2</sub> , CO, NH <sub>3</sub> , CH <sub>4</sub> , etc.						
Analysis ports	4	4	3	3	2	2	1
Analysis pressure transducers	5	3	4	2	3	2	2
$p_0$ Transducer	1	1	1	1	1	1	1
Surface Area Range	0.0005 m <sup>2</sup> /g to unknown upper limit; Standard sample repeat accuracy ≤ ± 1.0 %						
Pore Size Range	0.35 nm – 500 nm						
Minimum Pore Volume	0.0001 cm <sup>3</sup> /g						
Pressure Sensor Accuracy	± 0.15 % (Full Scale)						
Range of Relative Pressure $p/p_0$	10 <sup>-4</sup> – 0.998						
Vacuum System	Mechanical vacuum pump (ultimate vacuum 6.7*10 <sup>-2</sup> Pa)						
Dimensions	L 500 x W 500 x H 800 mm						
Weight	ca. 60 kg						
Temperature Requirements of Environment	15 – 40 °C						
Humidity Requirements of Environment	10 % – 90 %						
Power Requirements	AC 220 V ± 20 V, 50/60 Hz, maximum power 300 W, current 5 A						