

## Model PSA-300LC Pressure Swing Adsorption R&D Testing Instrument

The **NEW** Model PSA-300LC from L&C is a uniquely designed, “low capacity” testing instrument for gas separation studies to evaluate small sample volumes of adsorbate material...with testing protocols for both dual-bed and single-bed R&D applications.

The PSA-300LC is fully automated and provides innovative hardware and software for handling the most complex PSA studies with ease of operation, flexibility and safety. This instrument is customizable to meet your specific requirements, comes with expert installation and training support and carries a one-year warranty.

This PSA instrument offers L&C’s unique hardware configuration and proprietary software which simplify all levels of gas separation materials evaluations. Fully automated testing protocols are provided, enabling the researcher to effectively and efficiently explore the complex “experimental matrix” of PSA studies...and for VSA work when used with optional vacuum pump.

System design and materials of construction permit the evaluation of all types of gases and adsorbate materials for chemical, petrochemical, gas purification and energy-related applications in academic, industrial and government R&D laboratory settings.

### Features of the Model PSA-300LC...

- Dual-bed configuration available in two models with bed dimensions of 1/4" diameter x 4" high and 1/2" diameter x 10" high. Based on application, adsorbate bed volume can range as low as 2cc for the 1/4" system and up to 20cc for the 1/2" system
- Unique design features allow for use of the PSA-300LC in single-bed testing mode
- Gas flow rates up to 100cc/min for the 1/4" system and up to 1000cc/min for the 1/2" system, depending on application
- Pressure range up to 20 bars and, with optional vacuum pump, the PSA-300LC provides controlled vacuum testing down to .1 Torr and general vacuum functions for desorbing of materials
- Experimental temperature ranges from 10°C to 40°C using Cooling Module and 40°C to 350°C using Heating Module for experimental range and fully automated drying cycles
- Precision temperature and pressure/vacuum control provided by system’s software
- Complete computer system provides all needed proprietary L&C software for broad range of PSA/VSA gas separation protocols
- Optional custom monitoring systems include gas chromatograph, mass spectrometer, etc

### Designed for all current PSA small sample volume, gas separation studies...

- Materials evaluations for activated carbons, zeolites, metal organic frameworks (MOFs), molecular sieve materials and more... especially effective for mixed-bed testing applications and the study of adsorbate poisoning
- Because of its hardware design and computer software capabilities, the PSA-300LC is an excellent research tool for studying adsorbate material reactions to critical time-cycling
- The Model PSA-300LC is completely automated for use in industrial, academic and government research facilities... delivering the highest levels of flexibility and ease of operation, while meeting the highest standards for pressure safety



### The Model PSA-300LC Instrument

- The PSA-300LC is a fully automated test instrument providing dual-bed PSA configuration (also useable in single-bed mode) with complete temperature, pressure/vacuum and flow measurement/control. Bed vessels, cooling and heating modules, manifolds, control valves, piping plus all controls are packaged within a single bench-top cabinet. Vacuum system is optional.
- Desk top computer is provided as standard.
- Other custom gas preparation components are available. Optional detection instruments, such as gas chromatograph, are also available.
- Up to 3 days of installation/training support are provided at no extra charge.

### Dual Beds

- High-pressure bed vessels for the two PSA-300LC models are designed for handling small sample sizes and have dimensions 1/4" diameter by 4" long and 1/2" diameter by 10" long. Vessels are designed for service at 20 bars and 350°C.
- Gas manifolds connect to beds via 1/4" VCO fittings. All tubing connections are VCO or Swagelock compression fittings.
- Material of construction is 316 s.s. throughout. Bed vessels are designed for easy changing of bed materials.

### Pressure/Vacuum

- Two absolute pressure transducers are provided with range of 20 bars and 0.04%FS accuracy.
- Bed pressure is controlled by system's computer via a PID controller-driven back-pressure regulator. Appropriate software and hardware-based pressure safety alarms and relief valves are included.
- For VSA work down to .1 Torrs, optional vacuum system consists of a 2cfm rotary vane pump with Pirani gauge and digital display.

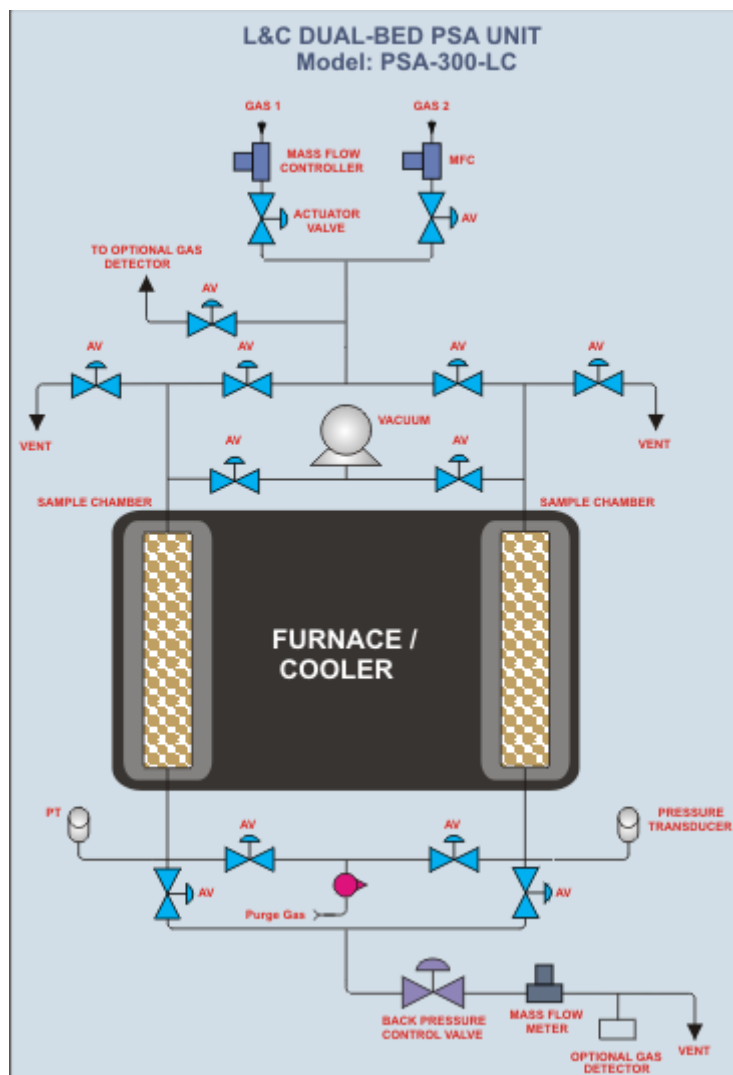
### Temperature

- Beds are heated/cooled by separate, interchangeable modules for experimental temperatures of 10°C to 40°C and 40°C to 350°C, respectively.
- Bed temperature is controlled by system's computer via PID controllers. Appropriate software and hardware-based over-temp safety alarms are included.
- Bed temperature is measured by a single Type K thermocouple in the 1/4" system and three thermocouples along bed center for the 1/2" system.

### Software

The Model PSA-300LC is fully computerized using National Instruments Lab View software. 16-bit USB data acquisition boards are provided for data acquisition and control. Primary software features are:

- Flexibility in defining pressurization, purge and blow-down cycles.
- Control of temperature, pressure/vacuum and feed/purge flows within the adsorption beds.
- Data collection in Excel format at time intervals selected by user.
- On-line graphics for all experimental parameters with ability to change test parameters "on the fly".



For additional technical information, please email [sales@landcscience.com](mailto:sales@landcscience.com) or visit [www.landcscience.com](http://www.landcscience.com)

**L&C Science and Technology, Inc. 2205 W 80<sup>th</sup>. Street, Bay#1 Hialeah, FL 33016 USA**  
Telephone: 305-200-3531 Fax: 305-200-3798