

## L&C's Model HG-100 Relative Humidity Generator *Easy to Use – Precision Humidity Control*

The Model HG-100 RH Generator is a compact and portable bench-top instrument which easily and quickly interfaces with other laboratory systems to provide a specified constant flow of gas at a precision adjustable relative humidity.



**HG-100 Bench-Top Generator**  
with footprint 9" wide by 13" deep.

### Features/Specifications of the HG-100

- Integrates with laboratory instruments such as X-ray diffractometers, TGA, TMA, DMA and calorimeters and also with glove boxes, environmental chambers and more
- Easy to use via simple manual procedures or optionally controlled by computer
- Provides Dew Point Temperature range from minimum of 0.2°C to maximum of 40°C with option to 85°C via extended capability Model HG-100-HT
- Adjustable Dew Point Temperature of output gas stream results in %RH range from 2% to 95% (depending on temperature of target instrument) with accuracy of RH to  $\pm 2.0\%$
- Flow rates up to 1000 sccm are standard with optional ranges available up to 5 liters/min
- Compact design with 9" wide x 13" deep footprint
- Customizable options are available to meet a broad range of applications - see reverse side

### Instrument Details

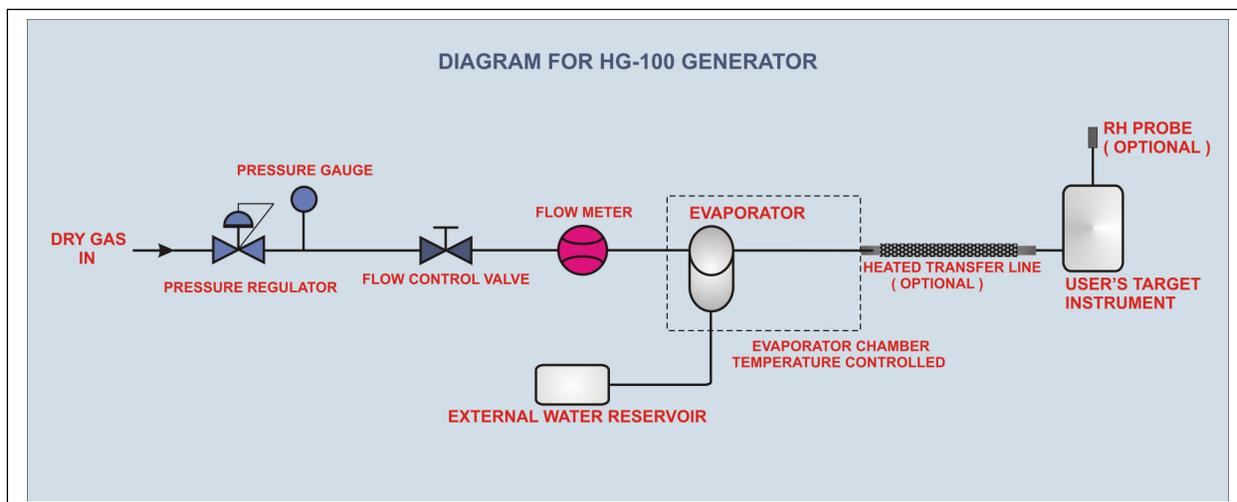
- The HG-100 is factory calibrated using a NIST traceable dew point analyzer
- Insulated enclosure within the HG-100 insures key evaporator components are held at desired constant temperature
- All connections are 1/4" (6 mm) Swagelock fittings
- External automatic water reservoir uses gravity-fed technique and has no moving parts
- HG-100 has a footprint of 9" wide x 13" deep with height of 9"
- Additional space is required for optional computer. Complete facilities/utilities requirements are provided with the instrument

### Details for Optional Computer/Software

- Model HG-100 can be operated manually or in an automatic mode via an optional L&C or customer-supplied computer
- With computer operation, L&C optionally provides complete software with capabilities for user defined protocols including step variants in dew point temperature of output gas stream...all compatible with Windows 7, 32 and 64-bit versions
- For computer-controlled operation, temperature control of the evaporator is achieved through an RS-232 port using the L&C optional Computer Interface
- Lab Windows USB software from National Instruments with on-line graphics

### HG-100 Generator

This unique instrument provides an air or nitrogen stream of desired relative humidity and is designed to easily integrate with other laboratory instruments. The Model HG-100 is a compact, portable, bench-top instrument, allowing for convenient set-up and effective operation via simple manual procedures or optionally controlled by computer. It can be flexibly used at various locations within the research laboratory to provide a preset air or nitrogen stream of desired %RH to a wide range of target systems. These include laboratory instruments such as X-ray diffractometers, TGA, TMA, DMA, atomic force microscopes, nano-materials testing equipment, calorimeters, micro-calorimeters and laboratory apparatus such as glove boxes and environmental chambers.



### Principles of Operation of the HG-100 Generator

A dry air or nitrogen supply is connected to a port on the rear panel of the HG-100. The input gas flows through a pressure regulator mounted on the front panel. An input pressure gauge, flow control valve and flow meter are also provided on the front panel.

The gas flow is manually adjusted before entering the temperature-controlled Evaporator, where the gas is saturated with water. The user-adjusted Evaporator temperature (settable from 0.2°C to 40°C with a high-temperature option to 85°C) determines the dew point temperature of the saturated gas stream. Evaporator temperature is maintained by an electronic cooling/heating system and is mounted within an insulated enclosure to insure steady, reliable performance.

This gas stream is then directed via a port on the HG-100's rear panel to the user's target device, where the precision adjusted, humidified gas stream is desired. As the gas stream equilibrates in temperature with the target apparatus, the desired %RH is achieved.

### Customizable Options for the HG-100

- Heated Transfer Lines to meet the researcher's requirements: **To avoid condensation, a heated transfer line is required for effective use of the HG-100 Generator.** L&C offers optional Heated Transfer Lines to provide adjustable temperature control of the gas stream from the HG-100 Generator to the target instrument. This system includes the transfer line itself, line heater, thermocouple and temperature controller.
- Probe Interface Kit: This option provides a remote sensor to interface the HG-100 to the target instrument. The sensor is located at the target system for monitoring purposes...recording the delivered %RH and temperature through HG-100 software. The Probe Interface Kit includes the remote probe with housing. Probe has range of 0 to 100% RH, a measurement accuracy of  $\pm 1.5\%$  RH and operating temperature range of  $-40^{\circ}\text{C}$  to  $100^{\circ}\text{C}$ .
- Computer Interface Hardware/Software: This option includes all needed circuit boards and software for the interfacing of the standard HG-100 Generator with an optional L&C-supplied or user-provided computer.