



Precision Humidity Generation

- Precise generation of humidity controlled gas flow
- High accuracy two-pressure / two-temperature principle
- Flow rates up to 100 liters per minute
- Controls %RH, Dew Point, or other humidity parameters
- Simultaneous measurement of up to 3 external temperature probes
- Measurement of pressure and temperature at point of gas use
- PC software for system control and data acquisition
- Optional touch panel for control and status indication

Typical Applications:

- High volume production calibration systems
- Humidity control in semiconductor manufacturing and lithography processes
- Add humidity control to existing temperature chambers



Precision Humidity Generation

The G2 produces highly accurate humidity values based on RH Systems' unique hybrid combination of the NIST proven "two-pressure" and "two-temperature" humidity generation techniques. It delivers a humidified gas stream, accurately controlled to a variety of user selectable humidity parameters such as %RH, dew point, frost point, ppm, or vapor pressure. By accurately measuring the temperature and pressure at the point where the humidified gas is utilized, the G2 automatically adjusts for changes in dynamic conditions such as heat load or ambient pressure variation.

High Flow Capability

With flow rate capacity up to 100 standard liters per minute, the G2 ensures your external volume or test chamber rapidly achieves a stable, homogeneous humidity condition based on your defined RH or dew point setting.

Multiple External Temperatures

Three separate external temperature connections allow for determination of %RH at three completely independent temperatures. By splitting the high-flow gas stream and feeding into three separate chambers, with each chamber controlled at a different temperature, three unique %RH values will be produced. The G2 computes the resulting %RH at each of these three chambers based on the three external temperature measurements.

Alternatively, install up to three temperature probes in one chamber to measure uniformity of temperature and its result on %RH.

Embedded System for Control and Communication

All operations of the G2 are automated by its real-time embedded control system. Its setpoints are commanded and data is retrieved via robust serial communications. There are three fully capable, yet fully independent RS-232 serial ports, allowing for a variety of communication options. For example, up to three PCs could be connected to three temperature chambers and to a single G2 which feeds humidified gas to them all. The three PCs communicate independently with the G2 to retrieve their specific temperature and humidity data.

Simple Application Integration

The G1 is supplied in a 19" rack mountable format for integration within commercially available rack systems. A 19" rack enclosures is available as an option. All electrical, fluid, and pneumatic connections are made at the back panel of the instrument. All fluid and pneumatic connections are via industry standard Swagelok fittings.

wo-Pressure wo-Temperature Hybrid Humidity Generation Technique

Utilizing the uniquely combined benefits of the two-pressure and two-temperature techniques, humidity is generated by fully saturating gas at a known temperature and pressure, then reducing the pressure to a lower value (typically ambient) and cooling or warming to an alternate temperature.

Humidity produced by this hybrid technique is determined from measurements of the temperatures and pressures alone, and does not rely on measurement of the water vapor content of the gas.

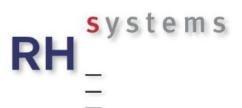
With RH Systems' hybrid humidity generation technique, the G2 is a true humidity reference instrument suitable for high accuracy calibration, product conditioning, and test applications.





Connection panel side of instrument showing:

- A. AC power receptacle and power switch
- B. Inlet pressure regulator and indicator
- C. External pressure sampling port, 1/8" Swagelok
- D. Compressed air supply input, 1/4" Swagelok
- E. Humidity controlled air output, ½" Swagelok
- F. External temperature sensor connections (3)
- G. RS-232 serial communication ports (3)
- H. Distilled water inlet, ¼" Swagelok



Specifications:	G2 Humidity Generator	
Generator Ranges Frost/dew point* Relative humidity Flow rate Saturation Pressure	-2520 °C 1095 %RH 5100 l/min Ambient12 bar (Ambient.	175 psia)
Measurement Ranges External temperature sensor External pressure sensor	-50100 °C 7001,200 mbar (10.217.4 psia)	
Performance Dew point stability RH Stability Pressure Stability Saturator temperature stability Flow control Response time	≤ ±0.02 °C ≤ ±0.1 %RH ≤ ±1 mbar (0.015 psia) ≤ ±0.01 °C ≤ ±0.5% of full scale 1090 %RH < 5 min	
Standard Features External temperature sensor(s) Pressure sensor Saturator water level Gas Connection, inlet Gas connection, outlet Control and data acquisition Size Digital I/O	Up to 3 simultaneous sensors, 100 ohm PRT Internal with 1/8" Swagelok connection Automatic level control, 1/4" Swagelok water inlet ¼" Swagelok, internally pressure regulated ½" Swagelok, internally flow regulated Optional touch screen controller and/or PC software 6U, 19" rack mountable module 3, simultaneous, independent RS-232 connections	
Additional Information Power requirements Input pressure Operation temperature* Storage temperature Humidity	208-240 VAC, 50-60 Hz, 1500 W Max. 16 bar, oil free -1040 °C (must be higher than generated dew point) -2050 °C Max. 98 %RH, non-condensing	
Weight and Dimensions Height Width Depth Weight	6U 19" Module 267 mm (10.5") 483 mm (19") 559 mm (22") 53 kg (117 lbs)	With enclosure 318 mm (12.5") 533 mm (21") 616 mm (24.25") 70 kg (154 lbs)

G2 V2014.04.01 We reserve the right to change design or specifications without notice



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^{*}Highest generated dew point is limited by ambient room temperature