

GE Sensing

Portable and Precise

- Primary standard: Integrated chilled mirror and platinum RTD constantly measure test conditions
- Precise: $\pm 0.2\%$ RH stability
- Accurate: $\pm 1\%$ RH from 10% to 70% RH and $\pm 1.5\%$ RH from 70% to 90% RH
- Versatile: 10% to 90% RH and 20°C to 30°C
- Self-contained operation: Equipped with desiccant and water reservoir
- Connects to temperature bath/circulator to standardize test conditions
- Connects to dry compressed air to extend desiccant life indefinitely
- Records and documents: 0 to 5 VDC, 4 to 20 mA analog outputs and RS-232 digital data stream
- Fast response: 10 minutes for 63% step change and 30 minutes to full stability
- Quality design: Stainless steel chamber
- Instant-on fittings for external dry air, circulation of temperature controlled water and reservoir drain
- Cost effective: Ability to calibrate several %RH instruments at once
- Ease of operation: Set to value you need by the front panel or via PROSTEP software for ramp and soak profiles
- Bright, easy to read control panel
- Equipped with transportation case

Humilab™

General Eastern Relative Humidity Generator and Calibration Chamber

Humilab is a General Eastern product. General Eastern has joined other GE high-technology sensing businesses under a new name—GE Industrial, Sensing.



GE Sensing

Document and Standardize

- Calibration labs
- HVAC and BAS transmitters
- Pharmaceutical instruments
- %RH data loggers
- %RH recorders
- Industrial humidity probes
- Test humidity sensors
- Metrological and radiosonde sensors

The Humilab employs the time-proportioned divided flow method to generate relative humidity values from 10% to 90% RH. Unlike other humidity chambers that use secondary %RH sensors, pressure transducers or wet/dry bulb temperature sensors, the Humilab has a built-in primary humidity reference standard. %RH is calculated from the fundamental chilled mirror dew point and platinum RTD temperature measurements. The chilled mirror sensor and RTD are in the same environment as the devices under test. The relative humidity is controlled, regulating a fraction of a constant flow of dry air through a saturator. The dry air is produced with an internal pump and desiccant cartridge. The air streams are temperature-conditioned and mixed to maintain the desired RH level in the test chamber.

Repeatable and Economical

The Humilab is a NIST-traceable relative humidity generator and calibration chamber that is continuously monitored and controlled by a chilled mirror hygrometer and precision RTD. The system is water jacketed for thermal stability and facilitates cost-effective calibrations of relative humidity sensors, probes, transmitters, recorders and data loggers.

Since the volumetric mixing ratio is a time-based control, the system is highly repeatable. The chamber is sufficiently sized for several test articles at once. The Humilab has an inlet for dry compressed air, which extends the life of the desiccant indefinitely. The water jacket may be connected to a temperature-controlled water bath/circulator to provide standardized test

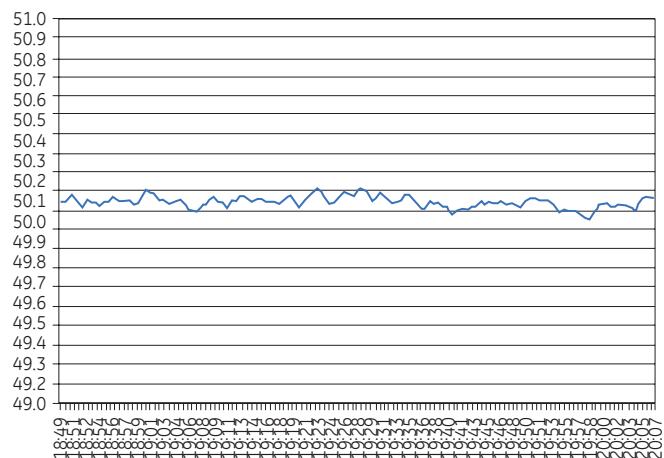
conditions. The test chamber has been thermally mapped to confirm temperature uniformity of better than 0.2°C. Humilab provides analog and digital outputs (RS232) to facilitate data logging and recording. The %RH set point can be selected from the front panel or ramp and soak profiles may be uploaded to the Humilab using Prostep software. Prostep also provides data logging via the RS232 data port. Test data may be saved to a PC as ASCII data, which can be imported into standard spreadsheet programs such as Excel.



Prostep software enables "ramp and soak" humidity and temperature profiles to be loaded into the Humilab. Prostep also features data logging. The chamber conditions are recorded as time-based ASCII data, which can be opened in spreadsheet programs such as Excel.

Primary NIST-Traceable Calibration

The system is supplied with a certificate of calibration and functional test data.



The graph above was produced with data from the Humilab. The calibration system provides stability of better than $\pm 0.2\%$ RH.

Humilab Specifications

%RH Range

10% to 90% RH at 77°F (25°C)

Temperature Range

60°F to 86°F (20°C to 30°C)

May be used with temperature controlled water bath/circulator. Humidity limited by surface temperature of internal walls and cover (dew point in chamber must be less than interior surface temperature to avoid condensation).

Response Time

10 minutes for 63% step change. 30 to 40 minutes to full stability.

Accuracy

±1% RH from 10% to 70% RH and 1.5% RH from 70% to 90% RH

±0.3°F (0.15°C) dew point and 0.3°F (0.15°C) dry bulb at 77°F (25°C)

Analog Output

Two-user scalable 4 to 20 mA/0 to 5 VDC signals for temperature, humidity and temperature

Power

115 or 230 VAC ±10%, 50/60 Hz. Single phase

Digital Interface

(2) RS232 ports. Reference and generator interface

Prostep Software

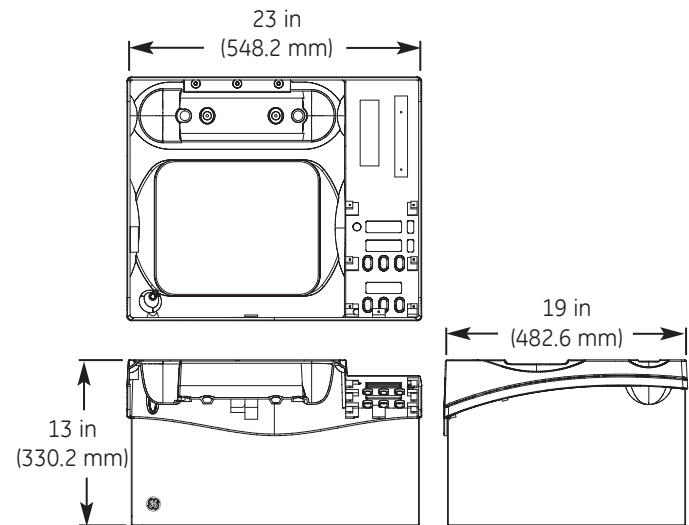
Windows® 95/98 and above required. Supplied on CD-ROM with operation manual (PDF), and HCON Humidity Conversion Software

Approvals

CE approved

Certifications

Supplied certificate of NIST traceability and functional test data



Display

(3) LEDs, 0.5 in (12.7 mm) high 7 segment. Displays of set point (%RH), actual %RH and temperature. 0.1% RH/°C/°F resolution

Workspace Dimensions

11 in x 9 in x 6.5 in (279.4 mm x 228.6 mm x 165.1 mm) approximately 644 in³ (10.6 liters)

Overall Dimensions

23 in long x 19 in wide x 13 in high (548.2 mm x 482.6 mm x 330.2 mm)

Chamber Material

Stainless steel with aluminum I/O block

Water Jacket

Stainless steel. Water capacity 2.2 gallons (8.3 liters)

Mechanical I/Os

Fill port. 1/4 in (6.35 mm) OD tubing instant-on fittings for water circulation (inlet and outlet), water drain (enables water to be gravity drained) and dry air inlet (compressed dry air to be regulated to <5 psi)

Weight

66 lbs (30 kg) dry weight

Humilab Specifications

Electrical I/Os

Power—IEC receptacle. Sub-DB-15 for analog outputs.
Sub-DB-9 for RS232

Water Capacity Indicator

Liquid sight glass-color indicator

Desiccant

Indicating type. Bright blue when dry. Pink when saturated. Chamber runs 24 hours at 50% RH and 77°F (25°C) on a new charge of desiccant. Dry compressed (-40°F/-40°C dew points or drier) extends desiccant life indefinitely

Ordering Information

HUMILAB-115

115 VAC, 50 to 60 Hz

HUMILAB-230

230 VAC, 50 to 60 Hz

CAL-3

Prepaid three year annual calibration service. 20% savings over standard recertification costs

Accessories

RTE

Temperature controlled refrigeration and heating bath circulator

DES-CAR

Spare desiccant cartridge

B-DES

Bulk desiccant, 5 lb (2.27 kg)

HLAB-CVR

Spare Lexan® cover (may be drilled to accommodate various probes)



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