



C1/M Portable Humidity Calibration Lab

The C1/M System is a NIST-traceable relative humidity calibration chamber which is continuously monitored by a chilled mirror hygrometer. The system utilizes the time proportioning divided flow technique for generating precise %RH values. Set points can be changed via the front panel from 10-95% RH. The system acquires fast stability facilitating calibration cost-effective calibration of humidity RH probes, transmitter and data loggers. The modular design also provides portability and enables the hygrometer to be used for validating humidity and temperature conditions in environmental chambers, process and storage areas.

The C1/M uses the divided flow method to generate relative humidity values from 10-95% RH. The relative humidity is controlled regulating a fraction of a constant flow dry air stream, which is produced by an on-board desiccant cartridge, through a saturator. The saturated air rejoins the remaining dry air and mixes to the desired RH level. Repeatable mixing of the dry air and saturated air is accomplished by time-proportioning control. The relative humidity is set via an increment/decrement switch and viewed on a bright red LED display with 0.1% resolution. The C1 includes a dry gas inlet that allows users with a dry gas source to extend desiccant life indefinitely. The humidity of the chamber is confirmed with an M series chilled mirror on a second display. The hygrometer also provides analog and digital outputs (RS-232).

The M series consists of the M2, M3, and M4-RH hygrometers coupled to a chilled mirror sensor. These instruments are fundamental primary dew point measurement transfer standards. The M Series hygrometer samples air from the C1 test chamber and measures dew point to $\pm 0.2^\circ\text{C}$ or better uncertainty. A 100Ω platinum RTD measures the C1 chamber temperature. From the primary dew point and temperature readings, the M series hygrometer calculates and displays percent relative humidity as well as provides analog and digital signals for RH and temperature.

The system is equipped with an SST sampling system which integrates the C1 and an M Series hygrometer. It includes all necessary sampling components (pump, flow restrictor orifice, chamber cover with tubing and fittings, mounting plate for C1), as well as the necessary null modem cable for connecting the C1 to the M Series hygrometer. The M series hygrometer sends a constant stream of data to the C1 via an RS232 interface. The C1 receives humidity data from the hygrometer and continuously adjusts the time-proportioning duty cycle to maintain the desired %RH set point. "RH vs. Time Test Profiles" may be downloaded to the C1 from a PC by using the optional ProStep™ software.

The C1-M system is calibrated to NIST traceable reference standards and is suitable for use as humidity transfer standard. GE General Eastern's manufacturing and quality system is certified to ISO-9001 standards. For more information on the theory and operation of GE General Eastern's Chilled Mirror Hygrometers and Humidity Calibrators, contact us to obtain application assistance.

NIST Traceable Humidity Reference Chamber in a Benchtop Configuration

Features

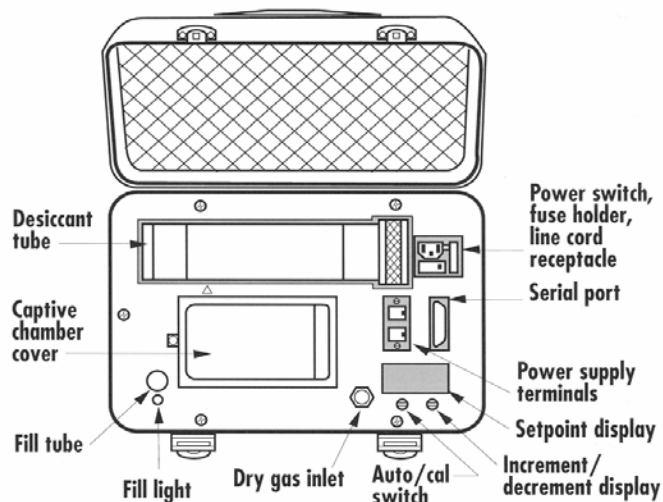
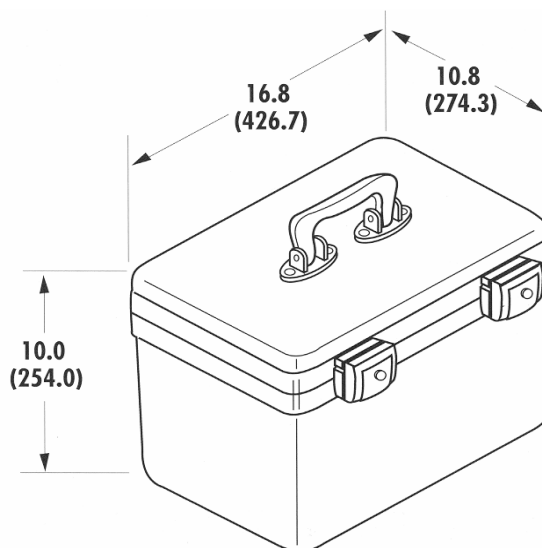
- Versatile, Fast & Accurate
- 5 Minute Response Time
- 20 Minutes to 0.2% RH Stability
- Range of 10-95% RH
- 1.2% or Better Accuracy
- 0.2% RH Repeatability
- RS-232C Serial Communications
- Self-Contained Saturator & Dehydrator
- 24 VDC Power Supply for Devices Under Test
- Dry Gas Inlet
- Optional Prostep Software Creates Customized Profiles



SPECIFICATIONS

Operating Range:	10 to 95% RH
Repeatability:	0.2% RH
Stability:	0.2% RH
Accuracy:	±1% of %RH Reading Plus ±0.2% RH
finite error	at 10-40°C (50-104°F)
Response Time:	5 minutes for 63% step change. 25 minutes to full stability typical.
Operating Temperature:	10-40°C (50-104°F),
Storage:	-40 to 50°C (-40 to 120°F); drained of water
Desiccant Life:	15-24 nominal operating hours on full charge of desiccant (dependent on ambient air humidity)
Compressed. Air:	Desiccant life can be extended indefinitely by using compressed air at -40°C dew point (or lower) regulated between 15-20 PSIG.
Dry Gas Inlet:	1/4" OD tube fitting
Power:	100/120/240 VAC, 50/60 Hz.*
Fuse:	2A Buss Fuse
Integral Power Supply:	24 VDC unregulated
Serial Port:	RS-232C. Null modem
Weight:	12 lbs (Drained of water)
Chamber Dimensions:	81 x 147 x 94 mm (3.2"x 5.8"x 3.7")
Overall Dimensions:	See drawing
SST Sampling System:	120/230 VAC, 50-60 Hz*, 1 to 2 SCFH volumetric flowrate
M Series Hygrometer Specifications:	See data sheets on M series hygrometers for specifications

* Power and frequency must be specified when ordering



Part Number	Description
C1/M System (Option 1)	C1/M Humidity Calibration System. Traceable to NIST. Controlled by chilled mirror hygrometer. System includes C1/M2+-RH/T-100E/D2-SR/1123HK/SST. M2-Plus-RH monitor has two displays.
C1/M System (Option 2)	C1/M Humidity Calibration System. Traceable to NIST. Controlled by chilled mirror hygrometer. System includes C1/M4-RH/100E/D2-SR/1123HK/SST. M4-RH monitor has one display. (Display may be set to toggle between %RH and Temperature)
PROSTEP	Software for programming ramp & soak profiles. Supplied on 3-1/2" floppy disk. For Windows 95/98/2000
C1-DES	Replacement desiccant for C1/M system. 5 lbs.



Measurement & Sensing Technologies
General Eastern Instruments

500 Research Dr
Wilmington, MA 01887 USA
Tel: 978 203 1900
Fax: 978 203 1920
Email: info@geinet.com
www.generaleastern.com