

GE
Sensing & Inspection Technologies

MG101

Panometrics Hygrometer Calibration System

The MG101 hygrometer calibration system is used to generate precise, repeatable levels of water vapor in a carrier gas stream. This primary dew/frost point generation system achieves an accuracy of $\pm 1.8^{\circ}\text{F}$ ($\pm 1^{\circ}\text{C}$) within a continuously adjustable range.

The MG101 employs the elementary principle of gas dilution. Dry gas is piped into the system, where it is divided into two streams. One stream is saturated with water vapor at a known temperature, while the other stream remains dry (see flow schematic on next page). The two streams are then mixed. The saturated stream is diluted with varying amounts of the dry gas to produce the desired gas/water vapor mixture.

The MG101 employs either single stage or two stage dilution to generate gas with a dew/frost point range of -103°F (-75°C) to 18°F (10°C) at 20°C ambient temperature. The MG101 may be used to verify a wide variety of instruments, including GE Sensing aluminum oxide moisture probes. When used with a chilled mirror reference, the system provides an economical calibration system.



Features

- Generates precise, repeatable levels of water vapor in a carrier gas
- Generation range is -103°F to 50°F (-75°C to 10°C) frost/dew point (at typical ambient temperatures)
- Accurate field calibration/verification of moisture sensors
- No power required to operate
- Requires dry nitrogen source gas

Applications

Portable field calibration system for verifying moisture and humidity sensors



MG101 Specifications

Generated Dew/Frost Point Temperature Range

-103°F to 50°F (-75°C up to 10°C) below ambient temperature (equivalent to 1.2 ppmv to 12,120 ppmv in gases at one atm at 68°F (20°C) ambient temperature)

Accuracy

±1.8°F (±1°C) dew/frost point temperature

Inlet Gas Supply

Nitrogen preferred, supply gas must be 45°F (25°C) drier than driest dew/frost point temperature to be generated

Maximum Flow Rate

19.5 SCFH (9.2 Liters/minute)

Inert Gas Supply Pressure

55 psig to 60 psig (4 bar to 5 bar)

Outlet Pressure

Ambient to 10 psig (1 bar), adjustable

Power Requirements

None

Dimensions (w x h x d)

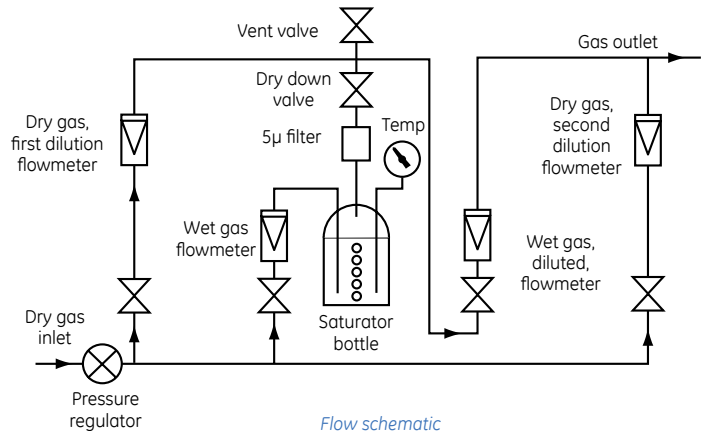
12 in x 18 in x 6 in
(304.8 mm x 457.2 mm x 152.4 mm)

Weight (Dry)

25 lb (11.3 kg)

Inlet and Outlet Connections

1/4 in Swagelok® tube fitting



MG101 with Moisture Image® Series 1 analyzer to demonstrate moisture sensor calibration



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