GE
Sensing

Applications

Portable field calibration system for verifying moisture and humidity sensors

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

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 ±1.8°F (±1°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 a gas with a known water concentration in the dew/frost point range of -103°F (–75°C) up to 18°F (10°C) below ambient temperature. When generating frost points in the dry region, the water concentration of the carrier gas must be insignificant compared to the final required mixture (one percent or less).

The MG101 may be used to recalibrate or verify calibration of Panametrics aluminum oxide hygrometer probes. In addition, it may be used to generate an accurate, reproducible water concentration in a gas for any purpose.

MG101

Panametrics Hygrometer Calibration System

MG101 is a Panametrics product. Panametrics has joined other GE high-technology sensing businesses under a new name–GE Industrial, Sensing.

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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

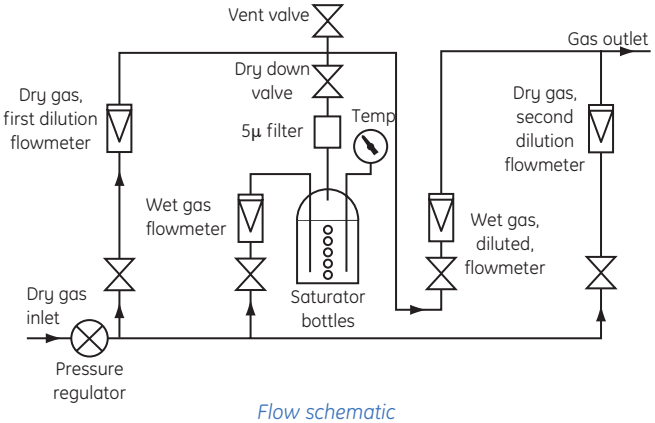
Maximum Flow Rate
0.42 SCFH (0.2 L/min)

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)



Flow schematic

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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