

## SIM-12H HEATED TWO STAGE CHILLED MIRROR



The Model SIM-12H is a heated, 2-stage sensor with 65°C (117°F) of depression capability. It is designed for high dew point applications up to 85°C (185°F). For dew point measurements above ambient temperature, all components that come in contact with the sample gas must be heated to a temperature above the dew point, in order to prevent condensation and unreliable readings. The SIM-12H is used with the HSS-12 heated sampling system.

### Features:

- Primary, fundamental measurement of dew/frost point.
- Hermetically-sealed, wire-wound 4-wire PRT
- NIST traceability
- Interchangeable with other General Eastern sensors without recalibration
- Continuous, on-line measurement
- Infrared optics
- Measures dew points above ambient, up to +85°C (+185°F)
- Field-replaceable mirror
- 65°C (117°F) depression capability

### PERFORMANCE:

**Sensing Element:** 1/3 Class A DIN 43760 PRT, 100 ohm @ 0° C (32° F)

#### Dew/Frost Point Accuracy

**Standard:** ±0.2°C (±0.36°F)

**Optional:** ±0.15°C ±0.27°F)

**Sensitivity:** > 0.03°C (0.05°F)

**Repeatability:** ±0.05°C (±0.09°F)

**Hysteresis:** None

**Cooling Stages:** 2

**Depression @ 25°C, 1 atm, air:** 65°C (117°F)

**Typical Meas. Range 75°C (167°F), 1 atm, air):**

**Dew/Frost Point:** -10° to +75°C (+14° to +167° F)

**Relative Humidity:** equivalent to 1% to 100%

**Required Sample Flow:** 0.5 to 5.0 scfh (0.25 to 2.5 L/min)

### FUNCTIONAL:

#### Power:

**Sensor:** From electronics

**Heating Elements:** 115/230 VAC, 50-60 Hz, 75 watts max.

#### Operating Ranges:

**Ambient Temperature:** -15° to +50°C (+5° to +122°F)

**Control Temperature\*:** +20° to +85°C (+68° to +185°F)

\* - The maximum recommended control temperature is +50°C (+122°F) when used with Models M3 (analog mode) and M4, and +85°C (+185°F) when used with the Models M2 and M3 (digital mode)

**Pressure:** -3 to 50 psig (0.8 to 4.5 bar)

**Auxiliary Cooling:** Not available



#### **PHYSICAL:**

**Sensor Body Material:** Anodized Aluminum

**Sensor Wetter Material:** Aluminum, copper, plastic, mylar, rhodium or platinum mirror

**Inlet/Outlet Fittings:** 1/4" compression, 6 mm available

**Weight:** 3.2 kg (7 lb.)

**Shipping Weight:** 4.5 kg. (10 lb.)

#### **Model HSS-12 Heated Sampling System**

The Model HSS-12 heated sample conditioning system is designed for use with the SIM-12H heated sensor for use in applications where the dew point to be measured is higher than the ambient temperature. The individual SIM modules control the temperature of the components so that they are above the dew point, thereby eliminating condensation. The SIM Modules are not available individually, but as a complete heated sampling system, Model HSS-12. Using the HSS-12, dew points up to 85°C (185°F) can be measured with the

#### **Model SIM-HFT - Heated Filter Module**

The SIM-HFT filters the sample gas of particulate contaminants prior to entering the SIM-12H sensor. The incoming gas is first passed through a 90 micron pre-filter, and then a 15 micron final filter. All parts in contact with the gas sample are heated to a constant 105°C (221°F) to prevent condensation. The filter elements are easily removable for cleaning or replacement.

#### **Model SIM-HFM - Heated Filter Flowmeter**

The SIM-HFT controls the sample gas flow rate at the optimum for the SIM-12H sensor. A front panel mounted metering valve allows control over a range of 0 to 2 SCFH. All parts in contact with the gas sample are heated to a constant 105°C (221°F) to prevent condensation. The SIM-HFM is mounted downstream of the SIM-12H sensor.

#### **Model SIM-HFT - Heated Sample Line**

The SIM-HSL is self-regulated at a temperature high enough to ensure that no condensation will occur. It is available in standard 15 ft. (4.6 m) lengths for 115 VAC, and 35 ft. (10.7 m) lengths for 230 VAC. Several lengths may be connected in series.

#### **Model SIM-MPL - Mounting Plate**

The SIM-MPL accepts the SIM-12H, SIM-HFT, and SIM-HFM. The mounting plate provides a convenient method of wall mounting the entire heated sampling system. All mounting, plumbing, and wiring is done at the factory, providing a complete system ready for installation.

#### **ACCESSORIES:**

**HEX-1**, rhodium plated mirror (standard)

**HEX-2**, solid platinum mirror

**TW-1**, mirror torque wrench

**1123HK**, sensor cable (10 ft (3 m) standard, up to 300 ft (91 m) available)

**HSS-12**, heated sampling system

Models M2 and M3 (digital mode). Dew points up to 50°C (122°F) can be measured using the Models E4, M3 (analog mode) or M4.

The Model HSS-12 consists of the SIM-HFT, SIM-12H, SIM-HFM, SIM-MPL, and SIM-HSL. It is available in 115 VAC or 230 VAC versions. The 115 VAC unit is supplied with 15 ft. (4.6 m) of SIM-HSL heated sampling line; the 230 VAC is supplied with 35 ft. (10.7M).

**Ambient Temperature:** 0° to +50°C (+32° to +122°F)

**Control Temperature:** 105°C (221°)

**Material:** Sintered stainless steel

**Pressure:** 50 psig (4.5 bar) max.

**Voltage:** 115/230 VAC, 50-60 Hz

**Power:** 100 watts.

**Ambient Temperature:** 0° to +50°C (+32° to +122°F)

**Control Temperature:** 105°C (221°F)

**Material:** Glass, aluminum

**Pressure:** 50 psig (4.5 bar) max.

**Voltage:** 115/230 VAC, 50-60 Hz

**Power:** 75 watts.

**Ambient Temperature:** -15° to +60°C (+5° to +140°F)

**Control Temperature:** 125°C (257°F)

**Material:** Teflon

**Pressure:** 50 psig (4.5 bar) max.

**Voltage:** 115/230 VAC, 50-60 Hz

**Power:** 250 watts.