

## Applications

- Gas and liquid fueled power turbines
- Environmental test chambers
- Pharmaceutical validation chambers
- Precision HVAC monitoring and control
- Outdoor air for building enthalpy control and cooling tower efficiency calculations
- Engine test cells and emissions testing
- Heat exchanger and refrigerant coil calorimetry
- Weather telemetry

## Precision Duct Mounted Humidity Transmitter with Integrated Chilled Mirror Sensor

- Utilizes the time proven single stage 1111H chilled mirror sensor
- Sensor fully recovers from condensation
- Direct primary dew point measurement. National Institute of Standards and Technology (NIST) traceable.
- Provides linear 4 to 20 mA signal
- RS232 Interface
- Equipped with patented PACER self-cleaning and optical balancing system
- Sensor wetted components are inert. Optional platinum mirror for more aggressive environments.
- High accuracy:  $\pm 0.36^{\circ}\text{F}$  ( $\pm 0.2^{\circ}\text{C}$ ) dew/frost point
- No long-term drift
- Equipped with membrane filter
- Mirror is easily accessible for manual cleaning

# E4-1111H-GE

## General Eastern Chilled Mirror Dew Point Transmitter

E4-1111H-GE is a General Eastern product. General Eastern has joined other GE high-technology sensing businesses under a new name—GE Industrial, Sensing.



## GE Sensing

The model E4-1111H-GE dew point transmitter was derived from time proven chilled mirror technology, which is widely used for precision humidity measurement in metrology and standards labs worldwide.

This configuration was developed to measure and control water vapor injection into the intake of gas and liquid fueled power turbines, however the design is applicable to many applications where accurate and repeatable humidity measurement is required. This technology was chosen because power turbines require the precise metering of water vapor injection into the combustion chamber to reduce pollutant emissions. Water vapor is also added to the intake of the turbine to increase the mass flow which in turn increases electrical power output. The Model E4-1111H-GE is a laboratory grade chilled mirror hygrometer, designed to meet the requirements of industrial applications.

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The transmitter is suitable for operation in a wide range of environmental conditions, including outdoor air. The sensor fully recovers from condensation and exhibits negligible long-term drift. The electronic components used are of the highest industrial quality. Each unit is calibrated to NIST traceable reference standards and the E4-1111H-GE is suitable for use as a dew point transfer standard. For more information on the theory and operation of General Eastern's Chilled Mirror Hygrometers, contact us to obtain a catalog and application assistance.

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# E4-111H-GE Specifications

## Electrical

### Sensing Element

1/3 Class A DIN 43760 PRT, 100  $\Omega$  @ 32°F (0°C)

### Dew/Frost Point

$\pm 0.36^\circ\text{F}$  ( $\pm 0.2^\circ\text{C}$ )

### Accuracy Sensitivity

$> 0.09^\circ\text{F}$  (0.05°C)

### Repeatability

$\pm 0.09^\circ\text{F}$  ( $\pm 0.05^\circ\text{C}$ )

### Hysteresis

None

### Cooling Stages

1

### Depression @77°F (25°C) and 1 Atmosphere in Air

81°F (45°C)

### Maximum Cooling Rate

2.7°F (1.5°C)/sec (typical, above 32°F (0°C))

### Dew/Frost Point Range

-49°F to 167°F (-45°C to 75°C) limited by dew point depression at ambient temperature.

### Relative Humidity Range

Equivalent to 6% to 100% at 77°F (25°C) dry bulb

### Response Time

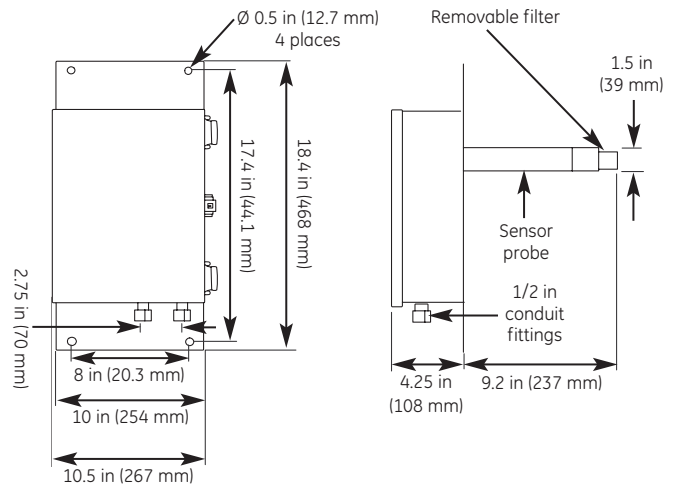
2.7°F (1.5°C) Td/sec above 32°F (0°C)

### Operating Temperature

- Probe: -40°F to 176°F (-40°C to 80°C)
- Electronics: -29°F to 176°F (-20°C to 80°C)

### Sensor Body Material

Epoxy-coated aluminum. Equipped with field replaceable PTFE membrane filter



E4-111H-GE dimensions

### Sensor Wetted Material Power

Aluminum, mylar, fluoropolymer™ and rhodium mirror

### Power

100, 115 VAC or 230 VAC ( $\pm 10\%$ ), 50 HZ to 60 HZ, 50 watts max. (Specify voltage when ordering).

### Analog Output

- 4 to 20 mADC, 500  $\Omega$  maximum
- 0 to 5 VDC, 5 mA maximum

### Digital Interface

RS232 for programming and diagnostic purposes. 1200 baud, eight data bits, one stop bit, no parity.

### PACER Cycle

Factory preset for 12 Hours. PACER runs on power up

### Alarms

Service Alarm: TTL compatible. Indicates when mirror needs manual cleaning.

### Weight

8 lb (3.62 kg) net, 12 lb (5.44 kg) shipping

### EMI Compliance

Complies to CE EMI Directive

### Electronics Enclosure

Type 4/12 water and dust resistant. Wall mount.

### Electrical I/O

Screw terminal block. Enclosure equipped with 12.7mm 1/2 in conduit openings.

# E4-1111H-GE Specifications

## Fuse Protection

Line voltage and neutral fuses. 1A Slo-Blo, 3AG

## Options

- HEX-1 rhodium mirror (replacement mirror)
- HEX-2 platinum mirror (recommend for more aggressive gases)
- 1111H-GE spare probe
- PTFE-GE spare PTFE filter
- MSK-2 mirror cleaning kit



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