

# GE Sensing

## Features

- Attractive and rugged packaging
- 2%, 3%, or 5% RH accuracy
- 1% accuracy available
- Easy to install
- Easy to field calibrate
- User-selectable outputs
- Ten-point factory calibration
- Proven, reliable sensor technology
- Versatile temperature measurement
- Temperature-compensated
- Economical
- Two year warranty

## Applications

- HVAC/building controls
- Energy Management Systems (EMS)
- Enthalpy control
- Indoor Air Quality (IAQ)
- Clean rooms
- Museums/archives
- Hospitals/labs
- Refrigeration control
- Pharmaceutical
- Swimming pools
- Animal rooms

# Microline™

## General Eastern Relative Humidity/Temperature Transmitters

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



# GE Sensing

## Attractive and Rugged Packaging

All the models in our Microline Series of relative humidity and temperature transmitters look great in your building, especially our space mount model with its low profile, contemporary styling.

But the real beauty of Microline transmitters lies in their superior versatility, reliability, and performance.

You may choose space, duct, or outside air models with thermistor, RTD, or signal-conditioned temperature outputs. All models get a 10-point factory calibration against a National Institute of Standards and Technology (NIST) traceable standard, the highest quality calibration standard available. Competitors use one- or three-point calibrations.

Pre-wired base and plug-in electronics in the cover make installation quick and easy. Field-selectable outputs give you greater convenience and versatility and reduce your investment in transmitter inventory.

## 2%, 3%, or 5% Accuracy

Accuracy choices are 2%, 3%, or 5% at 20% to 95% RH, with 1% accuracy also available. Typical drift is less than 1% per year and all models can be field calibrated to eliminate expensive downtime. Each Microline model comes with GE's proven bulk polymer RH sensor for maximum reliability and a two year warranty.

For price and performance, you won't find anything better than the Microline RH transmitter series.

## Easy to Install

Space and duct mount models have a pre-wired base; sensor and transmitter electronics are housed in the cover.

Wiring is connected to the terminal block in the base and the cover can be snapped into place at a later time. This feature is especially attractive when a transmitter will be incorporated into new construction because it lets the user mount and wire the unit without the sensor and electronics, avoiding possible damage from rough handling or contamination from paint and dust.



## Easy to Field Calibrate

With the Easycal Plus, you don't have to incur the expense and inconvenience of sending your Microline transmitters back to the factory.

The battery-powered Easycal Plus handheld calibrator/portable RH indicator makes it easy to perform quick, on-site, one-point offset adjustment of your transmitter without interrupting operation. No tools or disassembly are required—just plug the Easycal Plus into the phone jack connector. The Easycal Plus displays values for both the transmitter and the environment, eliminating the need for additional reference devices. You can check the transmitter's operation and, if necessary, perform a one-point offset adjustment in about 60 seconds. It is a very efficient way to save maintenance time and money while maintaining your transmitter's accuracy.



# GE Sensing

## User-Selectable Outputs

The sensor output signal is field-selectable from 0 to 5 V or 0 to 10 V to 4 to 20 mA current in the RH-only version. The temperature output transmitter is available in voltage or current outputs. You save money because you reduce your sensor inventory and investment.

## Ten-Point Factory Calibration

GE automatically tests and calibrates each Microline transmitter at ten different points against a NIST-traceable standard. Compare this with competitive models that are calibrated at three-points or less. Calibration data are available on 2% accuracy RH units. This ten-point calibration ensures that you get maximum accuracy from your transmitter—right out of the box and into the future.

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## Proven, Reliable Sensor Technology

Each Microline features a bulk polymer resistive sensor. This sensor has been field-proven in hundreds of applications for more than a decade. As a result, you can expect long-term stability with minimal drift. The sensor will not be affected by surface contamination in dirty environments, because it is a bulk resistive device.

## Versatile Temperature Measurement

The Microline offers you a variety of temperature measurement options. Choose from a thermistor or RTD direct measurement or an RTD with signal conditioned voltage or current output. In addition, you can choose from a variety of standard temperature measurement ranges or specify a custom range to meet your specific application requirement.

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# Microline Specifications

## Humidity Transmitters

### Sensing Element

Resistance change of bulk polymer

### Accuracy at 77°F (25°C)

±2%, 3% or 5% RH at 20% to 95% RH, includes hysteresis, linearity and repeatability

### Operating Range

RH Sensor

0% to 99% RH (non-condensing)

-40°F to 170°F (-40°C to 76°C)

Electronics

0% to 95% RH (non-condensing)

-20°F to 140°F (-29°C to 60°C)

### Long Term Stability

<1% drift per year, typical

### Temperature Effect

<0.06% per °F (0.11% per °C)

### Sensitivity

0.1% RH

### Repeatability

0.5% RH

### Linearity

1.0 VAC

### Hysteresis

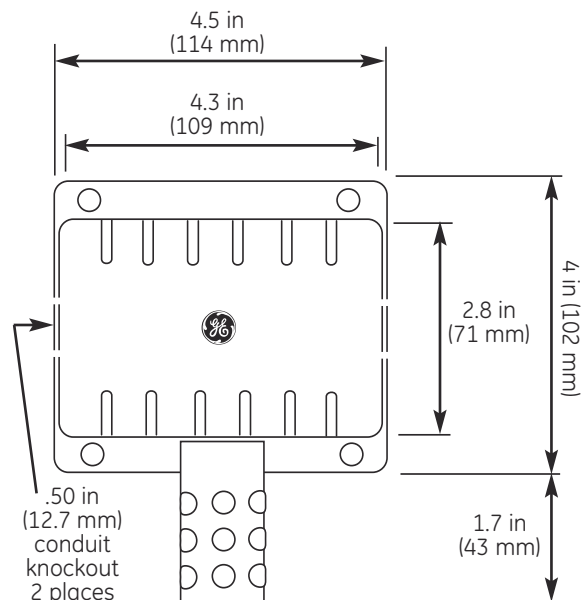
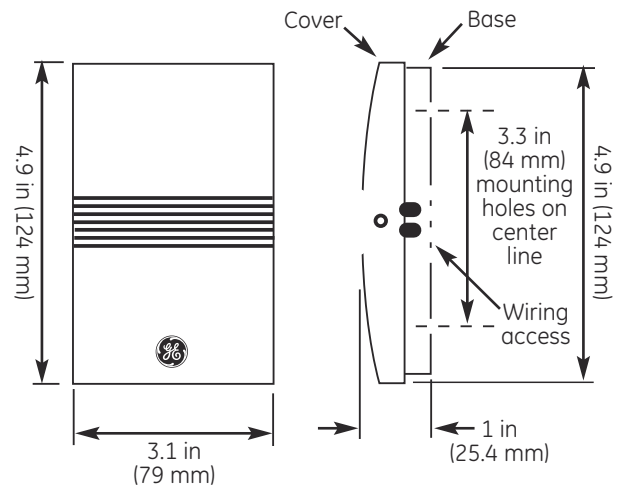
<1% RH

### Signal Outputs

4 to 20 mA, 0 V to 5 V, 0 V to 10 V, (0% to 100% RH linear)

### Supply Voltage

12 to 36 VDC



### Maximum Load (Current Output Only)

$\Omega = (\text{supply} - 10 \text{ VDC}) / 0.2 \text{ amps}$

### Storage Temperature

-85°F to 158°F (-65°C to 70°C)

## EasyCal Plus RH Calibrator/Indicator

### Sensing Element

Resistance change of bulk polymer

### Single Point Calibration Range

20% to 90% RH

# Microline Specifications

## Single Point Calibration Accuracy

±2% RH

## Reference Probe Accuracy

±2% RH (20% to 95% RH)

## Operating Range

RH Sensor

0% to 99% RH (non-condensing)  
-40°F to 170°F (-40°C to 76°C)

Electronics

0% to 95% RH (non-condensing)  
-20°F to 140°F (-29°C to 60°C)

## Long Term Stability

<1% drift per year, typical

## Temperature Effect

<0.06% per °F (0.11% per °C)

## Probe Dimensions

Diameter: 0.5 in (12.7 mm)  
Length: 3 in (76 mm)

## Power Supply

9 VDC alkaline battery, continuous use for 40 hours,  
auto power-off

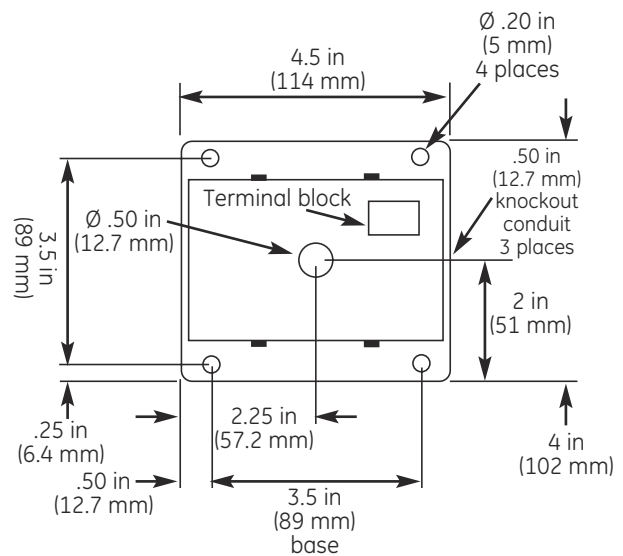
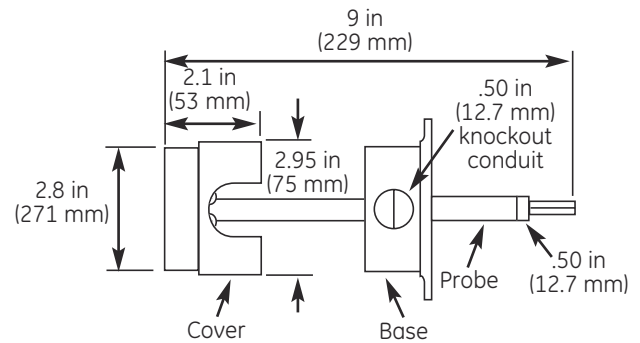
## Storage Temperature

-85°F to 158°F (-65°C to 70°C)

## Temperature—Thermistor (T1) Direct Connection

### Sensing Element

10K thermistor at 77°F (25°C)



## Accuracy at 77°F (25°C)

±2.0°F (±1.2°C)

## Signal Output

Direct connection

## Temperature—RTD (T2) Direct Connection

### Sensing Element

1000 Ω thin film platinum RTD (.00385 alpha)

## Accuracy at 77°F (25°C)

±0.5°F (±0.3°C)

## Signal Output

Direct connection

# Microline Specifications

## Temperature—RTD (T3) Signal Conditioning

### Sensing Element

1000  $\Omega$  thin film platinum RTD (.00385 alpha) with signal conditioning

### Accuracy at 77°F (25°C)

$\pm 0.5^\circ\text{F}$  ( $\pm 0.3^\circ\text{C}$ )

### Long Term Stability

$< 0.2^\circ\text{F}$  per year

### Temperature Effect

$< 0.01\%$  per  $^\circ\text{F}$  ( $0.02\%$  per  $^\circ\text{C}$ )

### Sensitivity

0.1%

### Repeatability

Better than 0.1%

### Linearity

$< 0.1\%$

### Sensor Interchangeability

$\pm 0.5^\circ\text{F}$  ( $\pm 0.3^\circ\text{C}$ )

### Signal Outputs

4 to 20 mA, 0 V to 5 V, 0 V to 10 V

See ordering information for temperature ranges.

### Supply Voltage

12 to 36 VDC

### Maximum Load (Current Output Only)

$\Omega = (\text{supply} - 10 \text{ VDC}) / 0.2 \text{ amps}$

## Ordering Information

### Model

MRH RH only\*  
MRHT1 RH and 10 K  $\Omega$  thermistor  
MRHT2 RH and 1000  $\Omega$  RTD  
MRHT3 RH and 1000  $\Omega$  RTD with signal conditioning

### Part Number

A40103046 3-point NIST traceable calibration certificate  
A40196651 Membrane filter (duct, outside air)  
A40175739 Sintered bronze filter (duct, outside air)

### EasyCal Plus

#### Accuracy

2 2%  
3 3%  
5 5%

#### Outputs (T1, T2 and T3 only)

I 4 to 20 mA  
V 0 V to 5 V or 0 V to 10 V

#### Mounting

S Space  
D Duct  
OA Outside Air

#### Temperature Ranges (T3 only)

1 -20°F to 140°F (-28°C to 60°C)  
2 0°F to 150°F (-17°C to 65°C)  
3 0°F to 100°F (-17°C to 38°C)  
4 32°F to 132°F (0°C to 55°C)  
5 50°F to 130°F (10°C to 54°C)  
6 -40°F to 140°F (-40°C to 60°C)  
7 Custom Range  
8 32°F to 122°F (0°C to 560°C)

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### Battery Powered Handheld Calibrator and Portable RH Indicator

- \*RH only version is field-selectable between current and voltage output.
- All voltage transmitters are shipped in 0 V to 10 V output. Jumper used to switch to 0 V to 5 V output.
- 1% RH accuracy available. Consult factory.

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