TELAIRE®

EMD-4000B
Humidity Sensor

The EMD-4000B is a bulk resistance-type humidity sensor based on the impedance change of a thin-film polymer due to water vapor absorption. The polymer is deposited on Bismuth alloy terminals, which are set on a ceramic substrate. The sensor is excited by a low voltage alternating current and the impedance measured as a function of relative humidity.

The thin-film polymer consists of chemical functional groups that disassociate into ionic species as water vapor is absorbed. This results in increased electrical conductance through the sensor or a decrease in impedance. The impedance is an inverse exponential function of the surrounding humidity.

Features

- Excellent interchangeability
- Standard Accuracy 5%
- Economical
- Recovers from condensation
- Good resistance to chemical vapors
- Fast response
- Low hysteresis

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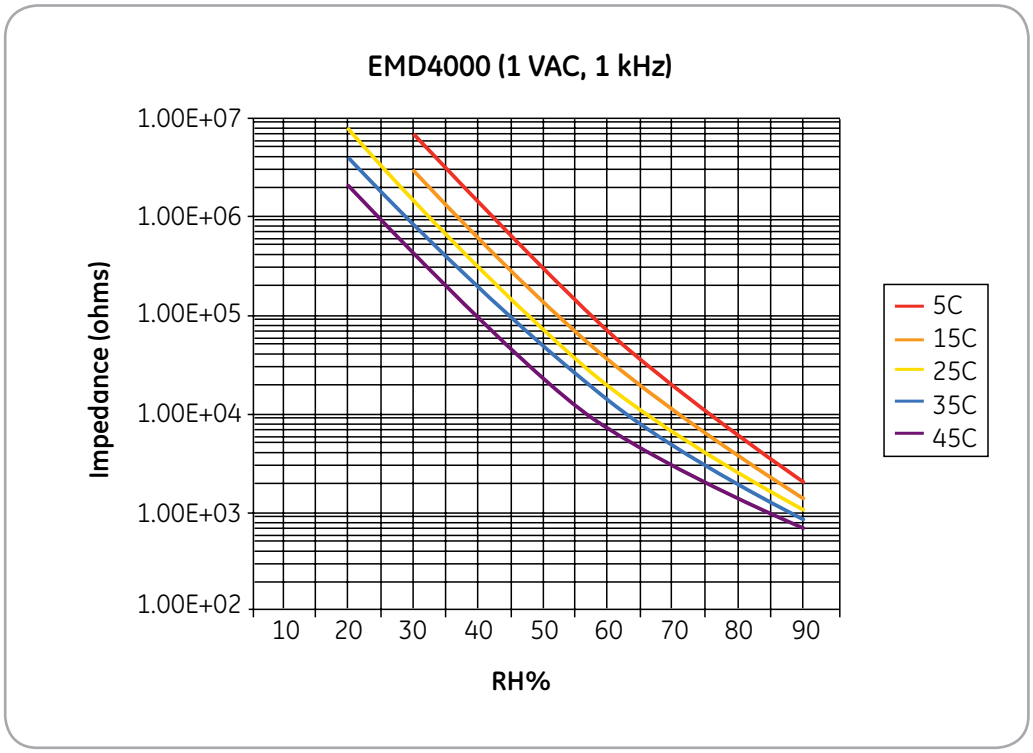
The EMD-4000B is capable of withstanding environments where organic vapors are present. It recovers from condensing environments and may be used at temperatures up to 185°F (85°C). The EMD-4000B is also capable of in situ measurement of soluble water in organic liquids such as transformer oil, gasoline, toluene, acetone, and other compounds of varying hydrogen bond strengths.

The EMD-4000B is highly repeatable and interchangeable. The sensor is manufactured in high yields to ±5% RH or better tolerances. This results in a sensor that can be used in many designs without the need for humidity calibration, where the measuring circuit can be calibrated with external reference resistors. The EMD-4000B exhibits a well defined standard response curve as a function of humidity and temperature and has low hysteresis and fast response.

The EMD-4000B is priced for Original Equipment Manufacturers (OEMs) with requirements to incorporate humidity sensors in HVAC controls, data loggers, appliances, automotive applications and consumer products.

Response Curves



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