

Relative Humidity Sensor

083E

Features:

- All solid state construction
- Fast response of less than five seconds
- Low power consumption of 4 mA at 12 VDC
- Easily cleaned using distilled water
- 0-1 V output for 0-100% RH
- Will operate from a 12 VDC battery

The Model 083E sensor probe represents sensitivity, accuracy, linearity and stability not encountered with conventional relative humidity sensors. It is extremely well suited for meteorological, industrial, laboratory and other demanding applications.

The Model 083E RH sensor can also be supplied with a temperature sensor mounted in it and used with various radiation shields for reliable, accurate measurements.

Operation

The Model 083D Relative Humidity Sensor is based upon the capacitance change of a polymer thin film capacitor. A one-micron thick dielectric polymer layer absorbs water molecules through a thin metal electrode and causes capacitance change proportional to relative humidity. The thin polymer layer reacts very fast, and therefore, the response time is very short; less



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than five seconds to 90% of the final value of relative humidity.

The sensor responds to the full range from 0-100% relative humidity. Its response is essentially linear, with small hysteresis, and negligible temperature dependence.

Construction

The sensor is mounted in a small probe which contains all the electronics necessary to provide an output for indicating or recording humidity. Since the capacitance change of the sensor is sensitive only to the ambient humidity, temperature compensation is not required for most applications. The probe body is water tight and made from corrosion re-

sistant aluminum. Immersion in water does not affect the calibration of the sensor. The polymer material is resistant to most chemicals. The calibration of the sensor is not affected by liquid.



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Specifications:

Relative Humidity

RH Sensing Element: Thin film polymer capacitor
Range: 0 to 100% RH
Temperature Operation Range: -50 °C to +50 °C (-58 °F to 122 °F)
Response Time: 10 sec. with 2 m/s aspiration
Accuracy: ± 2.0% from 0 to 100% RH
Temperature Coefficient: Compensated internally
Output: 0 to 1 VDC Standard (0 to 5.0 VDC Optional)
AutoMet Auto ID: Yes (Model 593A Only)

Temperature

Temperature Sensor: Thermistor
Temperature Range: -50 °C to +50 °C (-58 °F to 122 °F)
Accuracy: ±0.10 °C (0.18 °F)
Output: Resistive
AutoMet Auto ID: No

General

Input Power: 10 to 18 VDC @ < 5 mA
Dimensions: Length: 8.5 in (21.59 cm)
Diameter: 0.75 in (1.91 cm)
Weight: 2.5 oz (70.9 g)

Ordering Information

083E - X - Y	- 0	Temperature Sensor not included
	- 1	-50°C to +50°C, 060A type (see 060A Data Sheet) Temperature Sensor included
	- 1	With connector for direct use with Model 071 Vane Radiation Shield
	- 35	With connector for direct use with Model 073B Radiation Shield or Model 075B Solar Powered Radiation Shield or Model 5980 Radiation Shield
	- 6	With 6" Signal Cable for direct use with Model 076B Motor Aspirated Radiation Shield or Model 077 Low Power DC Motor Aspirated Shield
