

Relative Humidity Sensor

083D

The Model 083D 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.

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
- 0-1V output for 0-100% RH
- Will operate from a 12 VDC battery

The Model 083D 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 than five seconds to 90% of the final value of relative humidity.



The Model 083D Relative Humidity Sensor is extremely well suited for meteorological, industrial, laboratory and other demanding applications.

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 resistant 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.

Specifications

Sensing Element:	Thin film capacitor
Range:	0 - 100% relative humidity
Temperature Range:	-20°C to +60°C
Response Time:	Less than 15 seconds at 20°C of final (with filter)
Accuracy:	0 - 10% ±3% 10 - 90% ±2% 90 - 100% ±3%
Temperature Coefficient:	0.04% RH/°C
Output:	0 - 1.00 VDC - Standard
Input Power:	4 mA at 12 VDC Battery
Dimensions:	.75 in (19 mm) diameter 7.5 in (190.5 mm) length
Weight:	2.5 oz (70.9 g)



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Ordering Information

083D - 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