

## VP4 RH, Temp & Pressure Sensor



Relative Humidity, Barometric Pressure, Air Temperature, and Vapor Pressure with or without a passive radiation shield.

Use the rugged VP-4 sensor with soil moisture probes in microclimate and evapotranspiration studies.

Integrate into most standard data loggers with the easy-to-use SDI-12 communication protocol.

### **Compact**

This 5 cm x 2 cm sensor is able to fit into the smallest of spaces.

### **Weatherproof**

Thanks to its unique Teflon screen, the relative humidity sensor can survive a deluge. Naturally, it won't be transmitting accurately while waterlogged; but as soon as it has dried out, it's back in the game.



### **Fast Response**

The Teflon screen protects the sensor from liquid water and dust without limiting diffusion of water vapor. The protected sensor is still able to quickly respond to changes in humidity.

### **Integrated Temperature for Accuracy**

Accurate relative humidity readings require accurate air temperature readings taken at the same place and time. This sensor takes both measurements simultaneously for the best possible accuracy.



### **Radiation Shield Included**

The included radiation shield is designed to improve air temperature readings by minimizing radiation and maximizing airflow over the surface of the sensor. Specially designed to preserve the correlation between actual air temperature and sensor air temperature while keeping the shield size small.

## Specifications

### RELATIVE HUMIDITY

RANGE	0 to 100% RH
ACCURACY	Sensor measurement accuracy is variable across a range of temperatures. Refer to the chart in Figure 1 to determine the accuracy specification for the VP-4 sensor.
EQUILIBRATION TIME (?, 63%):	< 40 s (response time in 1 m/s air stream)
HYSTERESIS	< 1% RH typical
LONG TERM DRIFT	< 0.5% RH/year typical

### TEMPERATURE

RANGE	-40°C to 80°C
RESOLUTION	0.1°C
ACCURACY	Sensor measurement accuracy is variable across a range of temperatures. Refer to the chart in Figure 2 to determine the accuracy specification for the VP-4 sensor
EQUILIBRATION TIME (?, 63%):	< 400 s (response time in 1 m/s air stream)
LONG TERM DRIFT	< 0.04°C / year typical

### VAPOUR PRESSURE

RANGE	0 to 47 kPa
RESOLUTION	0.01 kPa
ACCURACY	Sensor measurement accuracy is variable across a range of temperatures and RH. Refer to the chart in Figure 3 to determine the accuracy specification for the VP-4 sensor.

### BAROMETRIC PRESSURE

RANGE	49 to 109 kPa
RESOLUTION	0.01 kPa
ACCURACY	0.4 kPa

### GENERAL

DIMENSIONS	1.96 cm (dia) x 5.4 cm (h)
POWER REQUIREMENTS	3.6 to 15 VDC, 0.03 mA quiescent, 4 mA during 300 ms measurement
RESP. (MEASUREMENT) TIME	300 ms
OUTPUT	SDI-12
OPERATING TEMPERATURE	-40°C to 80°C
CONNECTOR TYPES	3.5 mm (stereo) plug or stripped and tinned lead wires (pigtail)
CABLE LENGTH	5 m standard; custom cable length available upon request

### Humidity Accuracy [%RH]

	100%	±5%	±5%	±5%	±5%	±5%	±5%	±5%	±6%	±10%
	95%	±5%	±5%	±4%	±4%	±4%	±4%	±4%	±5%	±8%
	90%	±5%	±4%	±2%	±2%	±3%	±3%	±4%	±5%	±8%
	85%	±5%	±4%	±2%	±2%	±3%	±3%	±4%	±5%	±8%
	80%	±4%	±4%	±2%	±2%	±3%	±3%	±3%	±4%	±6%
	75%	±4%	±4%	±2%	±2%	±3%	±3%	±3%	±4%	±6%
	70%	±4%	±4%	±2%	±2%	±3%	±3%	±3%	±4%	±6%
	65%	±4%	±4%	±2%	±2%	±3%	±3%	±3%	±4%	±6%
	60%	±4%	±3%	±2%	±2%	±2%	±2%	±2%	±3%	±5%
	55%	±4%	±2%	±2%	±2%	±2%	±2%	±2%	±3%	±5%
	50%	±4%	±2%	±2%	±2%	±2%	±2%	±2%	±3%	±5%
	45%	±4%	±2%	±2%	±2%	±2%	±2%	±2%	±3%	±4%
	40%	±4%	±2%	±2%	±2%	±2%	±2%	±2%	±3%	±4%
	35%	±4%	±3%	±2%	±2%	±2%	±2%	±2%	±3%	±4%
	30%	±4%	±3%	±2%	±2%	±2%	±2%	±2%	±3%	±4%
	25%	±4%	±3%	±2%	±2%	±2%	±2%	±2%	±3%	±4%
	20%	±4%	±4%	±2%	±2%	±3%	±3%	±3%	±3%	±4%
	15%	±5%	±4%	±2%	±2%	±3%	±3%	±4%	±4%	±5%
	10%	±8%	±5%	±3%	±3%	±4%	±4%	±4%	±5%	±8%
	5%	±8%	±8%	±5%	±5%	±5%	±5%	±5%	±6%	±10%
	0%	±12%	±12%	±5%	±5%	±6%	±6%	±6%	±10%	±12%
		0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C	80°C

Temperature [ °C ]

### Vapor Pressure Accuracy [kPa]

	100%	± 0.05	± 0.09	± 0.16	± 0.29	± 0.49	± 0.81	± 1.30	± 2.62	± 6.32
	95%	± 0.05	± 0.09	± 0.14	± 0.24	± 0.41	± 0.68	± 1.08	± 2.26	± 5.27
	90%	± 0.05	± 0.07	± 0.09	± 0.15	± 0.33	± 0.54	± 1.06	± 2.23	± 5.20
	85%	± 0.05	± 0.07	± 0.08	± 0.15	± 0.33	± 0.53	± 1.05	± 2.19	± 5.13
	80%	± 0.04	± 0.07	± 0.08	± 0.15	± 0.32	± 0.53	± 0.83	± 1.84	± 4.07
	75%	± 0.04	± 0.07	± 0.08	± 0.14	± 0.31	± 0.52	± 0.82	± 1.80	± 4.00
	70%	± 0.04	± 0.07	± 0.08	± 0.14	± 0.31	± 0.51	± 0.81	± 1.77	± 3.93
	65%	± 0.04	± 0.07	± 0.08	± 0.13	± 0.30	± 0.50	± 0.79	± 1.73	± 3.86
	60%	± 0.04	± 0.05	± 0.07	± 0.13	± 0.22	± 0.36	± 0.57	± 1.38	± 3.30
	55%	± 0.04	± 0.04	± 0.07	± 0.13	± 0.22	± 0.35	± 0.56	± 1.34	± 3.23
	50%	± 0.03	± 0.04	± 0.07	± 0.12	± 0.21	± 0.34	± 0.55	± 1.31	± 3.16
	45%	± 0.03	± 0.04	± 0.07	± 0.12	± 0.20	± 0.33	± 0.53	± 1.27	± 2.60
	40%	± 0.03	± 0.03	± 0.07	± 0.12	± 0.20	± 0.33	± 0.52	± 1.24	± 2.53
	35%	± 0.03	± 0.05	± 0.06	± 0.11	± 0.19	± 0.32	± 0.50	± 1.20	± 2.46
	30%	± 0.03	± 0.05	± 0.06	± 0.11	± 0.19	± 0.31	± 0.49	± 1.17	± 2.39
	25%	± 0.03	± 0.04	± 0.06	± 0.10	± 0.18	± 0.30	± 0.48	± 1.14	± 2.32
	20%	± 0.03	± 0.06	± 0.06	± 0.10	± 0.25	± 0.41	± 0.67	± 1.10	± 2.25
	15%	± 0.03	± 0.05	± 0.05	± 0.10	± 0.24	± 0.40	± 0.85	± 1.39	± 2.67
	10%	± 0.05	± 0.07	± 0.08	± 0.14	± 0.31	± 0.52	± 0.84	± 1.67	± 4.08
	5%	± 0.05	± 0.10	± 0.12	± 0.22	± 0.38	± 0.64	± 1.03	± 1.96	± 5.00
	0%	± 0.08	± 0.15	± 0.12	± 0.22	± 0.45	± 0.75	± 1.22	± 3.21	± 5.92
		0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C	80°C

Temperature [ °C ]

