

## Specifications

Solar radiation      Range: 0 to 1750 W/m<sup>2</sup>  
 Resolution: 1 W/m<sup>2</sup>  
 Accuracy: ± 5% of measurement typical

Precipitation      Range: 0 to 400 mm/h  
 Resolution: 0.017 mm  
 Accuracy: ± 5% of measurement from 0 to 50 mm/h

### VAPOR PRESSURE

Range      0 to 47 kPa

Resolution      0.01 kPa

Accuracy      Varies with temperature and humidity, ±0.2 kPa typical below 40 °C

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

### RELATIVE HUMIDITY

Range      0 to 100% RH (0.00-1.00)

Resolution      0.1% RH

Accuracy

Varies with temperature and humidity,  $\pm 3\%$  RH typical

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

TEMPERATURE (°C)

Air temperature      Range: -50 to 60 °C  
 Resolution: 0.1 °C  
 Accuracy:  $\pm 0.6$  °C

Humidity sensor temperature      Range: -40 to 50 °C  
 Resolution: 0.1 °C  
 Accuracy:  $\pm 1.0$  °C

Barometric pressure      Range: 50 to 110 kPa  
 Resolution: 0.01 kPa  
 Accuracy:  $\pm 0.1$  kPa from -10 to 50 °C,  $\pm 0.5$  kPa from -40 to 60 °C

Horizontal wind speed      Range: 0 to 30 m/s  
 Resolution: 0.01 m/s  
 Accuracy: the greater of 0.3 m/s or 3% of measurement

Wind gust      Range: 0 to 30 m/s  
 Resolution: 0.01 m/s  
 Accuracy: the greater of 0.3 m/s or 3% of measurement

Wind direction      Range: 0° to 359°  
 Resolution: 1°  
 Accuracy:  $\pm 5$ °

Tilt	Range: -90° to +90° Resolution: 0.1° Accuracy: ± 1°
Lightning strike count	Range: 0 to 65,535 strikes Resolution: 1 strike Accuracy: variable with distance, >25% detection at <10km typical
Lightning average distance	Range: 0 to 40 km Resolution: 3 km Accuracy: variable
<b>COMMUNICATION SPECIFICATIONS</b>	
Output	SDI-12 communication
<b>PHYSICAL CHARACTERISTICS</b>	
Dimensions	Diameter: 10 cm (3.94 in) Height: 34 cm (13.39 in), includes rain gauge filter
Operating temperature range	Minimum -50 °C Maximum: 60 °C  <b>NOTE: Barometric pressure and relative humidity sensors operate accurately at a minimum of -40 °C</b>
Cable length	5 m (standard) 75 m (maximum custom cable length for additional cost)  <b>NOTE: Contact Customer Support if a nonstandard cable length is needed.</b>
Connector types	3.5-mm stereo plug connector or stripped and tinned wires

---

## ELECTRICAL AND TIMING CHARACTERISTICS

---

Supply voltage (VCC to GND)      Minimum: 3.6 VDC continuous  
Maximum: 15.0 VDC continuous

**NOTE: The weather station must be continuously powered in order to work properly**

**NOTE: For the weather station to meet digital logic levels specified by SDI-12, it must be excited at 3.9 VDC or greater.**

---

Digital input voltage (logic high)      Minimum: 2.8 V  
Typical: 3.0 V  
Maximum: 5.5 V

---

Digital input voltage (logic low)      Minimum: -0.3 V  
Typical: 0.0 V  
Maximum: 0.8 V

---

Digital output voltage (logic high)      Typical 3.6 V

**NOTE: For the weather station to meet digital logic levels specified by SDI-12, it must be excited at 3.9 VDC or greater.**

---

Power line slew rate      Minimum: 1.0 V/ms

---

Current drain (during measurement)      Minimum: 0.2 mA  
Typical: 8.0 mA  
Maximum: 33.0 mA

---

Current drain (while asleep)      Minimum: 0.2 mA  
Typical 0.3 mA  
Maximum: 0.4 mA

---

Power up time (SDI ready)—aRx! commands      Typical: 10 s

---

Power up time (SDI ready)—other commands      Typical: 800 ms

---

---

Measurement duration

Typical: 110 ms  
Maximum: 3,000 ms

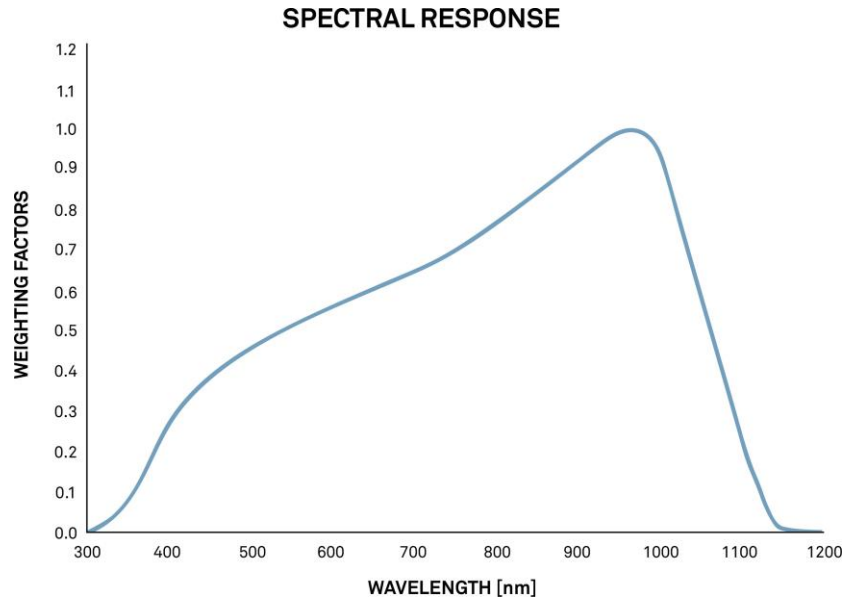
---

Compliance

Manufactured under ISO 9001:2015  
EM ISO/IEC 17050:2010 (CE Mark)

---

Pyranometer spectral response



Spectral response estimate of Apogee silicon-cell pyranometers. Spectral response was estimated by multiplying the spectral response of the photodiode, diffuser, and adhesive. Spectral response measurements of diffuser and adhesive were made with a spectrometer, and spectral response data for the photodiode were obtained from the manufacturer.

