Vantage Pro2™
GroWeather®

6825
6825C

GroWeather wireless and cabled weather stations include an Integrated Sensor Suite (ISS) which houses and manages the external sensor array. The wireless ISS communicates via an FCC-certified, license-free, spread-spectrum frequency-hopping (FHSS) transmitter and receiver. User-selectable transmitter ID codes allow up to eight stations to coexist in the same geographic area. The frequency hopping spread spectrum technology provides greater communication strength over longer distances and areas of weaker reception. The cabled ISS communicates via cable.

The temperature and humidity sensors are shielded with both passive shielding and a solar-powered fan that draws outside air in over the sensors, providing a much more accurate temperature reading than that available using passive shielding alone.

The ISS also includes a Solar Radiation Sensor to provide accurate evapotranspiration calculations.

General

Operating Temperature	-40° to +150°F (-40° to +65°C)
Non-operating Temperature	-40° to +158°F (-40° to +70°C)
Wireless	
Current Draw (ISS SIM only)	0.14 mA (average), 30 mA (peak) at 4 to 6 VDC
Solar Power Panel	0.5 Watts (ISS SIM), plus 0.75 Watts (Fan-Aspirated)
Battery (ISS SIM)	CR-123 3-Volt Lithium cell /
Battery Life (3-Volt Lithium cell)	8 months without sunlight - greater than 2 years depending on solar charging
Cabled	
Current Draw (ISS SIM only)	5 mA (average) at 4 to 6 VDC
Fan Battery	2 - 1.2 Volt NiMH C-cells
Fan Battery Life	Up to 2 years
Fan Aspiration Rate	
Intake Flow Rate, full sun	190 feet/min. (0.9 m/s)
Intake Flow Rate, battery only	80 feet/min. (0.4 m/s)
Sensor Chamber Flow Rate, full sun	500 feet/min. (2.5 m/s)
Sensor Chamber Flow Rate, battery only	180 feet/min. (0.9 m/s)
Connectors, Sensor	Modular RJ-11
Cable Type	4-conductor, 26 AWG
Cable Length, Anemometer	40’ (12 m) (included) 240’ (73 m) (maximum recommended)

Note: Maximum displayable wind decreases as the length of cable increases. At 140’ (42 m) of cable, the maximum wind speed displayed is 135 mph (60 m/s); at 240’ (73 m), the maximum wind speed displayed is 100 mph (34 m/s).

Wind Speed Sensor	Solid state magnetic sensor
Wind Direction Sensor	Wind vane with potentiometer
Rain Collector Type	Tipping bucket, 0.01" per tip (0.2 mm with metric rain adapter), 33.2 in^2 (214 cm^2) collection area
Temperature Sensor Type	PN Junction Silicon Diode
Relative Humidity Sensor Type	Film capacitor element
Housing Material	UV-resistant ABS, ASA plastic (SPARS only)
ISS Dimensions	
(not including anemometer or bird spikes)	21.1" x 9.7" x 16.0" (536 mm x 246 mm x 406 mm)

DAVIS® **Davis Instruments** 3465 Diablo Ave., Hayward, CA 94545-2778 USA
(510) 732-9229 • FAX (510) 670-0589 • sales@davisnet.com • www.davisnet.com

DS6825 (Rev. A, 5/19/16)

Sensors

Relative Humidity (Outside)

Resolution	1%
Range	1 to 100% RH
Accuracy	±2%
Temperature Coefficient	0.03% per °F (0.05% per °C), reference 68°F (20°C)
Drift	±0.5% per year

Rainfall

Resolution	0.01" or 0.2 mm (user-selectable) (1 mm at totals ≥ 2000 mm)
Daily/Storm Rainfall Range	0 to 99.99" (0 to 999.8 mm)
Monthly/Yearly/Total Rainfall Range	0 to 199.99" (0 to 6553 mm)
Accuracy	For rain rates up to 4"/hr (100 mm/hr): ±4% of total or ± one tip of the bucket (0.01"/0.2mm), whichever is greater.
Update Interval	20 to 24 seconds

Rain Rate

Resolution and Units	0.01" or 0.1 mm (user-selectable) at typical rates (see Fig. 2 and 3)
Range	0, 0.04"/hr (1 mm/hr) to 96"/hr (0 to 2438 mm/hr)
Accuracy	±5% for rates less than 5" per hour (127 mm/hr)
Update Interval	20 to 24 seconds

Solar Radiation

Resolution and Units	1 W/m^2
Range	0 to 1800 W/m^2
Accuracy	±5% of full scale (Reference: Eppley PSP at 1000 W/m^2)
Drift	up to ±2% per year
Cosine Response	±3% for angle of incidence from 0° to 75°
Temperature Coefficient	-0.067% per °F (-0.12% per °C); reference temperature = 77°F (25 °C)
Update Interval	50 seconds to 1 minute (5 minutes when dark)

Temperature (Outside)

Resolution	0.1°F or 1°F or 0.1°C or 1°C nominal °C is converted from °F rounded to the nearest 1°C
Range	-40° to +150°F (-40° to +65°C)
Sensor Accuracy	±0.5°F (±0.3°C) See Fig. 1
Radiation Induced Error (Passive Shield)	+4°F (2°C) at solar noon (insolation = 1040 W/m^2, avg. wind speed ≤ 2 mph (1 m/s)) (reference: RM Young Model 43408 Fan-Aspirated Radiation Shield)
Radiation Induced Error (Fan-Aspirated Shield)	+0.6°F (0.3°C) at solar noon (insolation = 1040 W/m^2, avg. wind speed ≤ 2 mph (1 m/s)) (reference: RM Young Model 43408 Fan-Aspirated Radiation Shield)
Update Interval	10 to 12 seconds

Wind

Wind Direction

Range	0 - 360°
Display Resolution	16 points (22.5°) on compass rose, 1° in numeric display
Accuracy	±3°
Update Interval	2.5 to 3 seconds

Wind Speed

Resolution and Units	1 mph, 1 km/h, 0.4 m/s, or 1 knot (user-selectable). Measured in mph, other units are converted from mph and rounded to nearest 1 km/hr, 0.1 m/s, or 1 knot.
Range	1 to 200 mph, 1 to 173 knots, 0.5 to 89 m/s, 1 to 322 km/h
Update Interval	Instant Reading: 2.5 to 3 seconds, 10-minute Average: 1 minute
Accuracy	±2 mph (2 kts, 3 km/h, 1 m/s) or ±5%, whichever is greater
Maximum Cable Length	240' (73 m) (See note on page 1)

Wireless Communications (wireless versions only)

Transmit/Receive Frequency	
US Models	902 - 928 MHz FHSS,
EU Models	868.0 - 868.6 MHz FHSS
Japan Models	928.15 - 929.65 MHz FHSS
NZ Models	921 - 928 MHz FHSS
India Models	865.0 - 867.0 MHz FHSS
ID Codes Available	8
Output Power	
US Models	902 - 928 MHz FHSS: FCC-certified low power, less than 8 mW, no license required
EU Models	868.0 - 868.6 MHz FHSS. CE-certified, less than 8 mW, no license required.
Japan Models	928.15 - 929.65 MHz FHSS, less than 1 mW, no license required.
NZ Models	921- 928 MHz FHSS, less than 10mW, no license required.
India Models	865.0 - 867.0 MHz, less than 10mW, no license required.
Range: All models except Japan	
Line of Sight	up to 1000 feet (300 m)
Through Walls	200 to 400 feet (60 to 120 m)
Range: Japan models	
Line of Sight	up to 300 feet (100 m)
Through Walls	50 to 200 feet (15 to 60m)
Sensor Inputs	
RF Filtering	RC low-pass filter on each signal line

Sensor Charts

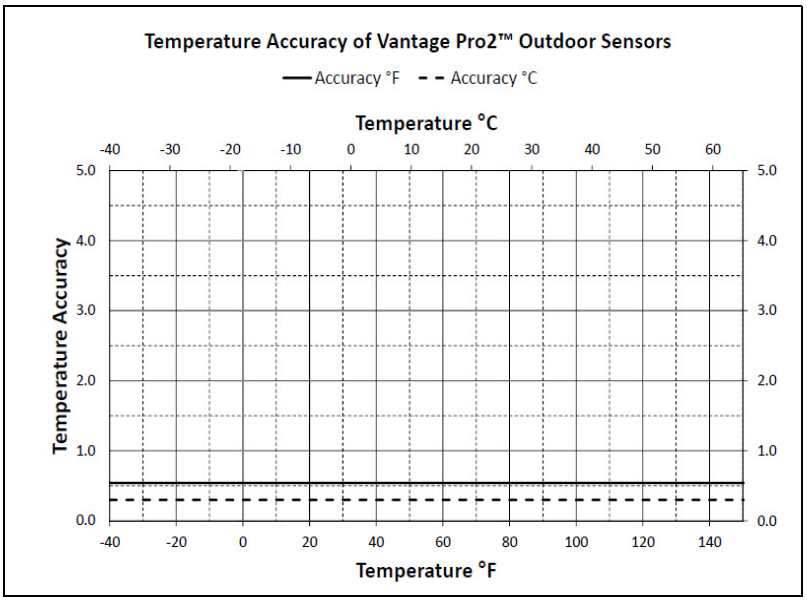

Figure 1: Temperature Accuracy of GroWeather Sensor

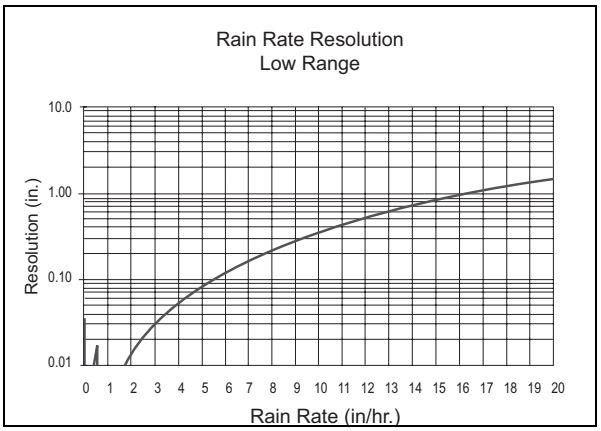

Figure 2. Low Range Rain Rate Resolution

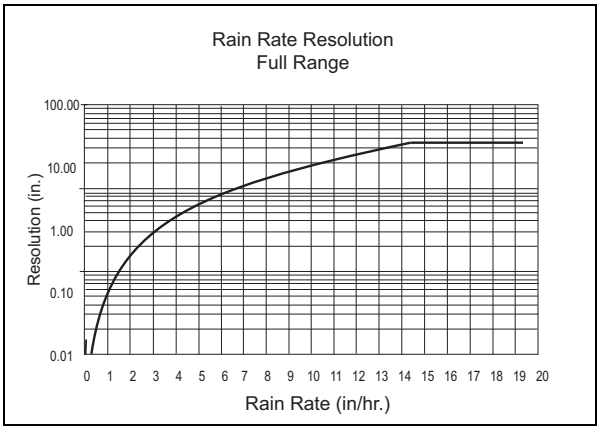

Figure 3. Full Range Rain Rate Resolution

Package Dimensions

Product #	Package Dimensions (Length x Width x Height)	Package Weight	UPC Codes
6825 6825OV	14.9" x 12.9" x 23.4" (L x W x H) (378 mm x 328 mm x 594 mm)	17 lbs 3 oz. (7.8 kg)	011698 01225 1 011698 01265 7
6825C 6825CX	14.9" x 12.9" x 23.4" (L x W x H) (378 mm x 328 mm x 594 mm)	18 lbs. 7 oz. (8.4 kg)	011698 01224 4 011698 01237 4