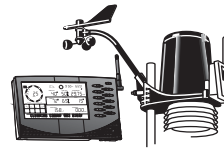


# Wireless Vantage Pro2™ & Vantage Pro2™ Plus Stations

(Including Fan-Aspirated Models)



**6152    6162**  
**6153    6163**

## Vantage Pro2™

The Vantage Pro2™ (# 6152, 6153) and Vantage Pro2™ Plus (# 6162, 6163) Wireless Weather Stations include two components: the Integrated Sensor Suite (ISS) which houses and manages the external sensor array, and the console which provides the user interface, data display, A/D conversion in the ISS, and calculations. The ISS and Vantage Pro2 console communicate via an FCC-certified, license-free frequency hopping 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 Wireless Vantage Pro2™ Plus weather station includes two additional sensors that are optional on the Vantage Pro2: the UV Sensor and the Solar Radiation Sensor. The console may be powered by batteries or by the included AC-power adapter. The wireless ISS is solar powered with a battery backup. Use WeatherLink™ for Vantage Pro and Vantage Pro2 to let your weather station interface with a computer, to log weather data, and to upload weather information to the internet.

The 6152 and 6162 rely on passive shielding to reduce solar-radiation induced temperature errors in the outside temperature sensor readings. The Fan-aspirated 6153 and 6163 combine passive shielding with a solar-powered fan that draws outside air in over the temperature and humidity sensors, providing a much more accurate temperature reading than that available using passive shielding alone.

## Integrated Sensor Suite (ISS)

Operating Temperature . . . . .	-40° to +150°F (-40° to +65°C)
Storage Temperature . . . . .	-50° to +158°F (-45° to +70°C)
Current Draw (ISS SIM only) . . . . .	0.14 mA (average), 30 mA (peak) at 4 to 6 VDC
Solar Power Panel (ISS SIM / Fan-Aspirated) . . . . .	0.5 Watts / 0.75 Watts
Battery (ISS SIM / Fan-Aspirated) . . . . .	CR-123 3-Volt Lithium cell / 2 - 1.2 Volt NiCad C-cells
Battery Life (3-Volt Lithium cell) . . . . .	8 months without sunlight - greater than 2 years depending on solar charging
Battery Life (NiCad C-cells) . . . . .	1 year
Fan Aspiration Rate (Fan-Aspirated Only) . . . . .	190 feet/min. (0.9 m/s) (full sun), 80 feet/min. (0.4 m/s) (battery only) (intake flow rate) 500 feet/min. (2.5 m/s) (full sun), 280 feet/min. (1.4 m/s) (battery only) (sensor chamber flow rate)
Connectors, Sensor . . . . .	Modular RJ-11
Cable Type . . . . .	4-conductor, 26 AWG
Cable Length, Anemometer . . . . .	40' (12 m) (included), 240' (73 m) (maximum recommended)
Wind Speed Sensor . . . . .	Large wind cups with magnetic switch
Wind Direction Sensor . . . . .	Wind vane with potentiometer
Rain Collector Type . . . . .	Tip bucket, 0.01" per tip (0.2 mm with metric rain adapter), 33.2 in <sup>2</sup> (214 cm <sup>2</sup> ) collection area
Temperature Sensor Type . . . . .	Thermistor
Relative Humidity Sensor Type . . . . .	Film capacitor element
Housing Material . . . . .	UV-resistant PVC plastic
ISS Dimensions:	

Product #	(Length x Width x Height)	Weight
6152	11.00" x 9.38" x 14.00" (279 mm x 238 mm x 355 mm)	5.7 lbs. (2.6 kg)
6162		6.1 lbs. (2.6 kg)
6153	11.00" x 9.38" x 21.00" (279 mm x 238 mm x 533 mm)	8.6 lbs. (3.9 kg)
6163		9 lbs. (4.1 kg)

## Console

---

Console Operating Temperature . . . . .	+14° to +140°F (-10° to +60°C)
Display Temperature . . . . .	+32° to +140°F (0° to +60°C)
Storage Temperature . . . . .	-5° to +158°F (-20° to +70°C)
Current Draw . . . . .	0.90 mA average, 20 mA peak, (plus 120 mA for display lamps, plus 0.125 mA for each optional wireless transmitter received by the console) at 4 to 6 VDC
AC Power Adapter . . . . .	5 VDC, 900 mA, regulated
Batteries . . . . .	3 C-cells
Battery Life . . . . .	up to 9 months
Connectors . . . . .	Modular RJ-11
Housing Material . . . . .	UV-resistant PVC plastic
Console Display Type . . . . .	LCD Transflective
Dimensions (console: length x width x height; Display: length x height)	
Console with antenna . . . . .	10.375" x 1.5" x 6.13" (264 mm x 38 mm x 156 mm)
Console with antenna extended up . . . . .	10.375" x 1.5" x 9.8" (264 mm x 38 mm x 248 mm)
Display . . . . .	5.94" x 3.375" (151 mm x 86 mm)
Weight (with batteries) . . . . .	1.88 lbs. (.85 kg)

## Data Displayed on Console

---

The data display categories represent all weather variables that the console displays and are listed in alphabetical order. General describes the general ways in which data is displayed and archived for all data display categories and is listed first as a point of reference. See the individual data display categories for specific display information.

### General

Daily Data . . . . .	Includes the earliest time of occurrence of highs and lows; period begins/ends at 12:00 am
Monthly Data . . . . .	Period begins/ends at 12:00 am on the first of the month
Yearly Data . . . . .	Period begins/ends at 12:00 am on the first of January unless otherwise noted
Current Display Data . . . . .	Current display data describes the current reading for each weather variable. In most cases, the variable lists the most recently updated reading or calculation. Some current variable displays can be adjusted so there is an offset for the reading.
Current Graph Data . . . . .	Current graph data appears in the right most column in the console graph and represents the latest value within the last period on the graph; totals can be set or reset. Display intervals vary. Examples include: Instant, 15-min., and Hourly Reading; Daily, Monthly, High and Low
Historical Graph Data . . . . .	Includes the past 24 values listed unless otherwise noted; all can be cleared and all totals reset. Display intervals vary. Examples include: 15-min., and Hourly Reading; Daily, Monthly, High and Low
Graph Time Interval Length . . . . .	1 min., 10 min., 15 min., 1 hour, 1 day, 1 month, 1 year (user-selectable, availability depends upon variable selected)
Graph Time Span . . . . .	24 Intervals + current interval (see graph intervals to determine time span)
Graph Variable Span (Vertical Scale) . . . . .	Automatic (varies depending upon data range); Maximum and Minimum value in range appear in ticker
Alarm Indication . . . . .	Alarms sound for only 2 minutes (time alarm is always 1 minute) if operating on battery power. Alarm message is displayed in ticker as long as threshold is met or exceeded. Alarms can be silenced (but not cleared) by pressing the DONE key.
Update Interval . . . . .	Varies with sensor - see individual sensor specifications

## Barometric Pressure

Resolution and Units . . . . .	Measured in 0.01" Hg. Other units are converted from Hg and rounded to nearest 0.1 mm, 0.1 hPa, 0.1mb.
Corrected Range . . . . .	26.00" to 32.00" Hg, 660.0 to 810.0 mm Hg, 880.0 to 1080.0 hPa/mb
Uncorrected Range . . . . .	16.00" to 33.50" Hg, 406.0 to 850.0 mm Hg, 542.0 to 1130.0 hPa/mb
Elevation Range . . . . .	-1500' to +15,300' (-460 m to 4670 m). The console screen limits display of lower elevation to -999' when using feet as elevation unit.
Uncorrected Reading Accuracy . . . . .	±0.03" Hg (±0.8 mm Hg, ±1.0 hPa/mb) (at room temperature)
Sea-Level Reduction Equation Used . . . . .	United States Method employed prior to use of current "R Factor" method
Equation Source . . . . .	Smithsonian Meteorological Tables
Equation Accuracy . . . . .	±0.01" Hg (±0.3 mm Hg, ±0.3 hPa/mb)
Elevation Accuracy Required. . . . .	±10' (3m) to meet equation accuracy specification
Overall Accuracy . . . . .	±0.04" Hg (±1.0 mm Hg, ±1.4 hPa/mb)
Trend (change in 3 hours) . . . . .	Change 0.06" (2 hPa/mb, 1.5 mm Hg) = Rapidly Change 0.02" (0.7hPa/mb, 0.5 mm Hg)= Slowly
Trend Indication . . . . .	5 position arrow: Rising (rapidly or slowly), Steady, or Falling (rapidly or slowly)
Update Interval . . . . .	15 minutes or when console BAR key is pressed twice
Current Display Data . . . . .	Instant
Current Graph Data . . . . .	Instant, 15-min., and Hourly Reading; Daily, Monthly, High and Low
Historical Graph Data . . . . .	15-min. and Hourly Reading; Daily, Monthly Highs and Lows
Alarms . . . . .	High Threshold from Current Trend for Storm Clearing (Rising Trend) Low Threshold from Current Trend for Storm Warning (Falling Trend)
Range for Rising and Falling Trend Alarms . . . . .	0.01 to 0.25" Hg (0.1 to 6.4 mm Hg, 0.1 to 8.5 hPa/mb)

## Clock

Resolution . . . . .	1 minute
Units . . . . .	Time: 12 or 24 hour format (user-selectable)
Date . . . . .	US or International format (user-selectable)
Accuracy . . . . .	±8 seconds/month
Adjustments	
Time: . . . . .	Automatic Daylight Savings Time (for users in North America, Europe and Australia that observe it in AUTO mode, MANUAL setting available for all other areas)
Date: . . . . .	Automatic Leap Year
Alarms . . . . .	Once per day at set time when active

## Dewpoint (calculated)

Resolution and Units . . . . .	Measured in 1°F. Celsius is converted from Fahrenheit and rounded to the nearest 1°C.
Range . . . . .	-105° to +130°F (-76° to +54°C)
Accuracy . . . . .	±3°F (±1.5°C) (typical)
Update Interval . . . . .	10 to 12 seconds
Source . . . . .	World Meteorological Organization (WMO)
Equation Used . . . . .	WMO Equation with respect to saturation of moist air over water
Variables Used . . . . .	Instant Outside Temperature and Instant Outside Relative Humidity
Current Display Data . . . . .	Instant Calculation
Current Graph Data . . . . .	Instant Calculation; Daily, Monthly High and Low
Historical Graph Data . . . . .	Hourly Calculations; Daily, Monthly Highs and Lows
Alarms . . . . .	High and Low Threshold from Instant Calculation

**Vantage Pro2™****Evapotranspiration (calculated, requires Solar Radiation Sensor)**

Resolution and Units . . . . .	Measured in 0.01". Converted to mm and rounded to nearest 0.2 mm
Range . . . . .	Daily to 99.99" (999.9 mm); Monthly & Yearly to 199.99" (1999.9 mm)
Accuracy . . . . .	Greater of 0.01" (0.25 mm) or $\pm 5\%$ , Reference: side-by-side comparison against a CIMIS ET weather station
Update Interval . . . . .	1 hour
Calculation and Source . . . . .	Penman-Monteith Equation as implemented by CIMIS (California Irrigation Management Information System) including Net Radiation calculation
Current Display Data . . . . .	Latest Hourly Total Calculation
Current Graph Data . . . . .	Latest Hourly Total Calculation, Daily, Monthly, Yearly Total
Historical Graph Data . . . . .	Hourly, Daily, Monthly, Yearly Totals
Alarm . . . . .	High Threshold from Latest Daily Total Calculation

**Forecast**

Variables Used . . . . .	Barometric Reading & Trend, Wind Speed & Direction, Rainfall, Temperature, Humidity, Latitude & Longitude, Time of Year
Update Interval . . . . .	1 hour
Display Format . . . . .	Icons on top center of display; detailed message in ticker at bottom
Variables Predicted . . . . .	Sky Condition, Precipitation, Temperature Changes, Wind Direction and Speed

**Heat Index (calculated)**

Resolution and Units . . . . .	1°F or 1°C. Celsius is converted from Fahrenheit and rounded to the nearest 1°C
Range . . . . .	-40° to +135°F (-40° to +57°C)
Accuracy . . . . .	$\pm 3^\circ\text{F}$ ( $\pm 1.5^\circ\text{C}$ ) (typical)
Update Interval . . . . .	10 seconds
Source . . . . .	United States National Weather Service (NWS)/NOAA
Formulation Used . . . . .	Steadman (1979) modified by US NWS/NOAA and Davis Instruments to increase range of use
Variables Used . . . . .	Instant Outside Temperature and Instant Outside Relative Humidity
Current Display Data . . . . .	Instant Calculation
Current Graph Data . . . . .	Instant Calculation; Daily, Monthly High
Historical Graph Data . . . . .	Hourly Calculations; Daily, Monthly Highs
Alarm . . . . .	High Threshold from Instant Calculation

**Humidity**

## Inside Relative Humidity (sensor located in console)

Resolution and Units . . . . .	1%
Range . . . . .	0 to 100% RH
Accuracy . . . . .	$\pm 5\%$
Update Interval . . . . .	1 minute
Current Display Data . . . . .	Instant (user-adjustable offset available)
Current Graph Data . . . . .	Instant, Hourly Reading; Daily, Monthly High and Low
Historical Graph Data . . . . .	Hourly Readings; Daily, Monthly Highs and Lows
Alarms . . . . .	High and Low Threshold from Instant Reading

## Outside Relative Humidity (sensor located in ISS)

Resolution and Units . . . . .	1%
Range . . . . .	0 to 100% RH
Accuracy . . . . .	$\pm 3\%$ (0 to 90% RH), $\pm 4\%$ (90 to 100% RH)
Temperature Coefficient . . . . .	0.03% per °F (0.05% per °C), reference 68°F (20°C)
Drift . . . . .	$\pm 0.5\%$ per year
Update Interval . . . . .	50 seconds to 1 minute
Current Display Data . . . . .	Instant (user-adjustable offset available)
Current Graph Data . . . . .	Instant and Hourly Reading; Daily, Monthly High and Low
Historical Graph Data . . . . .	Hourly Readings; Daily, Monthly Highs and Lows
Alarms . . . . .	High and Low Threshold from Instant Reading

## Extra Outside Relative Humidity (sensor located inside Temperature/Humidity Station)

Resolution and Units	1%
Range	0 to 100% RH
Accuracy	±3% (0 to 90% RH), ±4% (90 to 100% RH)
Temperature Coefficient	0.03% per °F (0.05% per °C), reference 68°F (20°C)
Drift	±0.5% per year
Update Interval	50 seconds to 1 minute
Current Display Data	Instant (user-adjustable offset available)
Alarms	High and Low Threshold from Instant Reading

**Leaf Wetness (requires Leaf Wetness Sensor)**

Resolution	1
Range	0 to 15
Dry/Wet Threshold	User-selectable
Accuracy	±0.5
Update Interval	15 to 18 seconds
Current Graph Data	Instant Reading; Daily High and Low; Monthly High
Historical Graph Data	Hourly Readings; Daily Highs and Lows; Monthly Highs
Alarms	High and Low Thresholds from Instant Reading

**Moon Phase**

Console Resolution	1/8 (12.5%) of a lunar cycle, 1/4 (25%) of lighted face on console
WeatherLink Resolution	0.09% of a lunar cycle, 0.18% of lighted face maximum (depends on screen resolution)
Range	New Moon, Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon, Waning Gibbous, Last Quarter, Waning Present
Accuracy	±38 minutes

**Rainfall**

Resolution and Units	0.01" or 0.2 mm with optional metric adapter (included) (Console rounds 1 mm if rain totals are 2000 mm or higher)
Daily/Storm Rainfall Range	0 to 99.99" (0 to 9999 mm)
Monthly/Yearly/Total Rainfall Range	0 to 199.99" (0 to 19999 mm)
Rain Rate	0 to 199.99" (0 to 19999 mm)
Accuracy	For rain rates up to 2"/hr (50 mm/hr): ±4% of total or +0.01" (0.25 mm) (0.01" = one tip of the bucket), whichever is greater For rain rates from 2"/hr (50 mm/hr) to 4"/hr (100 mm/hr): ±5% of total or +0.01" (0.25 mm) (0.01" = one tip of the bucket), whichever is greater
Update Interval	10 to 12 seconds
Storm Determination Method	0.02" (0.5 mm) begins a storm event, 24 hours without further accumulation ends a storm event
Current Display Data	Totals for Past 15-min
Current Graph Data	Totals for Past 15-min, Past 24-hour, Daily, Monthly, Yearly (start date user-selectable) and Storm (with begin date); Umbrella is displayed when 15 minute total exceeds zero
Historical Graph Data	Totals for 15-min, Daily, Monthly, Yearly (start date user-selectable) and Storm (with begin and end dates)
Alarms	High Threshold called "Flash Flood" (15-min. Total, default is 0.50", 12.7 mm), 24-hour Total, Storm Total
Range for Rain Alarms	0 to 99.99" (0 to 999.7 mm)

**Rain Rate**

Resolution and Units	0.01" or 0.2 mm (with optional metric adapter (included)) at typical rates (see Fig. 2 and 3)
Range	0, 0.04"/hr (1 mm/hr) to 100"/hr (0 to 1999.9 mm/hr)
Accuracy	±5% or ±0.04"/hr (1 mm/hr) (up to 10"/hr. (250 mm/hr.)), whichever is greater
Update Interval	10 to 12 seconds

**Vantage Pro2™**

Calculation Method . . . . .	Measures time between successive tips of rain collector. Elapsed time greater than 15 minutes or only one tip of the rain collector constitutes a rain rate of zero.
Current Display Data . . . . .	Instant
Current Graph Data . . . . .	Instant and 1-min. Reading; Hourly, Daily, Monthly and Yearly High
Historical Graph Data . . . . .	1-min Reading; Hourly, Daily, Monthly and Yearly Highs
Alarm . . . . .	High Threshold from Instant Reading

**Soil Moisture (requires Soil Moisture Sensor)**

Resolution . . . . .	1 cb
Range . . . . .	0 to 200 cb
Update Interval . . . . .	62.5 to 75 seconds
Current Graph Data . . . . .	Instant; Daily and Monthly High and Low
Historical Graph Data . . . . .	Hourly Readings; Daily and Monthly Highs and Lows
Alarms . . . . .	High and Low Thresholds from Instant Reading

**Solar Radiation (requires Solar Radiation Sensor)**

Resolution and Units . . . . .	1 W/m <sup>2</sup>
Range . . . . .	0 to 1800 W/m <sup>2</sup>
Accuracy . . . . .	±5% of full scale (Reference: Eppley PSP at 1000 W/m <sup>2</sup> )
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)
Current Graph Data . . . . .	Instant Reading and Hourly Average; Daily, Monthly High
Historical Graph Data . . . . .	Hourly Average, Daily, Monthly Highs
Alarm . . . . .	High Threshold from Instant Reading

**Sunrise and Sunset**

Resolution . . . . .	1 minute
Accuracy . . . . .	±1 minute
Reference . . . . .	United States Naval Observatory

**Temperature****Inside Temperature (sensor located in console)**

Resolution and Units . . . . .	Current Data: 0.1°F or 1°F or 0.1°C or 1°C.°(nominal). Celsius is converted from Fahrenheit and rounded to the nearest 0.1° or 1°C. Historical Graph Data and Alarms: 1°F or 1°C. Celsius is converted from Fahrenheit and rounded to the nearest 1°C.
Range . . . . .	+32° to +140°F (0° to +60°C)
Sensor Accuracy . . . . .	±1°F (±0.5°C) typical
Update Interval . . . . .	1 minute
Current Display Data . . . . .	Instant (user-adjustable offset available)
Current Graph Data . . . . .	Instant; Daily and Monthly High and Low
Historical Graph Data . . . . .	Hourly Readings; Daily and Monthly Highs and Lows
Alarms . . . . .	High and Low Thresholds from Instant Reading

**Outside Temperature (sensor located in ISS)**

Resolution and Units . . . . .	Current Data: 0.1°F or 1°F or 0.1°C or 1°C.°(nominal). Celsius is converted from Fahrenheit and rounded to the nearest 0.1° or 1°C. Historical Graph Data and Alarms: 1°F or 1°C. Celsius is converted from Fahrenheit and rounded to the nearest 1°C
Range . . . . .	-40° to +150°F (-40° to +65°C)
Sensor Accuracy . . . . .	±1°F (±0.5°C) typical (see Fig. 1)
Radiation Induced Error . . . . .	+4°F (2°C) at solar noon (insolation = 1040 W/m <sup>2</sup> , avg. wind speed ≤ 2 mph (1 m/s)) (reference: RM Young Model 43408 Fan-Aspirated Radiation Shield)
Update Interval . . . . .	10 seconds
Current Display Data . . . . .	Instant (user-adjustable offset available)

Current Graph Data . . . . .	Instant Reading (user adjustable); Daily, Monthly, Yearly High and Low
Historical Graph Data . . . . .	Hourly Readings; Daily and Monthly Highs and Lows
Alarms . . . . .	High and Low Thresholds from Instant Reading
<b>Extra Temperature Sensors or Probes</b>	
Resolution and Units . . . . .	1°F or 1°C. Historical Graph Data and Alarms: 1°F or 1°C. Celsius is converted from Fahrenheit and rounded to the nearest 1°C
Range . . . . .	-40° to +150°F (-40° to +65°C)
Sensor Accuracy . . . . .	±1°F (±0.5°C) typical (see Fig. 1)
Update Interval . . . . .	10 to 12 seconds (40 to 48 seconds for Leaf Wetness/Temperature and Soil Moisture/Temperature Stations)
Current Display Data . . . . .	Instant (user-adjustable offset available)
Alarms . . . . .	High and Low Thresholds from Instant Reading

### Temperature Humidity Sun Wind Index (requires Solar Radiation Sensor)

Resolution and Units . . . . .	1°F or 1°C. Celsius is converted from Fahrenheit and rounded to the nearest 1°C
Range . . . . .	-90° to +135°F (-68° to +64°C)
Accuracy . . . . .	±4°F (±2°C) (typical)
Update Interval . . . . .	10 to 12 seconds
Sources and Formulation Used . . . . .	United States National Weather Service (NWS)/NOAA Steadman (1979) modified by US NWS/NOAA and Davis Instruments to increase range of use
Variables Used . . . . .	Instant Outside Temperature, Instant Outside Relative Humidity, 10-minute Average Wind Speed, 10-minute Average Solar Radiation
Formulation Description . . . . .	Uses Heat Index as base temperature. Affects of wind and solar radiation are either added or subtracted from this base to give an overall effective temperature
Current Graph Data . . . . .	Instant and Hourly Calculation; Daily, Monthly High
Historical Graph Data . . . . .	Hourly Calculation; Daily, Monthly Highs
Alarm . . . . .	High Threshold from Instant Reading

### Ultra Violet (UV) Radiation Dose (requires UV Sensor)

Resolution and Units . . . . .	0.1 MEDs to 19.9 MEDs; 1 MED above 19.9 MEDs
Range . . . . .	0 to 199 MEDs
Accuracy . . . . .	±5% of daily total
Drift . . . . .	up to ±2% per year
Update Interval . . . . .	50 seconds to 1 minute (5 minutes when dark)
Current Graph Data . . . . .	Latest Daily Total (user resettable at any time from Current Screen)
Historical Graph Data . . . . .	Hourly, Daily Totals (user reset from Current Screen does not affect these values)
Alarm . . . . .	High Threshold from Daily Total
Alarm Range . . . . .	0 to 19.9 MEDs

### Ultra Violet (UV) Radiation Index (requires UV Sensor)

Resolution and Units . . . . .	0.1 Index
Range . . . . .	0 to 16 Index
Accuracy . . . . .	±5% of full scale (Reference: Yankee UVB-1 at UV index 10 (Extremely High))
Cosine Response . . . . .	±4% (0° to 65° incident angle); 9% (65° to 85° incident angle)
Update Interval . . . . .	50 seconds to 1 minute (5 minutes when dark)
Current Graph Data . . . . .	Instant Reading and Hourly Average; Daily, Monthly High
Historical Graph Data . . . . .	Hourly Average, Daily, Monthly Highs
Alarm . . . . .	High Threshold from Instant Calculation

### Wind

Wind Chill (Calculated)	
Resolution and Units . . . . .	1°F or 1°C. Celsius is converted from Fahrenheit and rounded to the nearest 1°C.

**Vantage Pro2™**

Range	-110° to +130°F (-79° to +54°C)
Accuracy	±2°F (±1°C) (typical)
Update Interval	10 seconds
Source	United States National Weather Service (NWS)/NOAA
Equation Used	Osczevski (1995) (adopted by US NWS in 2001)
Variables Used	Instant Outside Temperature and 10-min. Avg. Wind Speed
Current Display Data	Instant Calculation
Current Graph Data	Instant Calculation; Hourly, Daily, Monthly Low
Historical Graph Data	Hourly, Daily, Monthly Lows
Alarm	Low Threshold from Instant Calculation

**Wind Direction**

Display Resolution	16 points (22.5°) on compass rose, 1° in numeric display
Accuracy	±4°
Update Interval	2.5 seconds
Current Display Data	Instant (user-adjustable offset available)
Current Graph Data	Instant; 10-min. Dominant; Hourly, Daily, Monthly Dominant
Historical Graph Data	Past 6 10-min. Dominants on compass rose only; Hourly, Daily, Monthly Dominants

**Wind Speed**

Resolution and Units	Measured in 1 mph. Other units are converted from mph and rounded to nearest 1 km/h, 0.1 m/s, or 1 knot
Range (large wind cups, included)	2 to 150 mph, 2 to 130 knots, 1 to 67 m/s, 3 to 241 km/h
Range (small wind cups; optional, not included)	3 to 175 mph, 3 to 150 knots, 1.5 to 79 m/s, 5 to 282 km/h
Update Interval	Instant Reading: 2.5 seconds, 10-minute Average: 1 minute
Accuracy (large wind cups, included)	±2 mph (2 kts, 3 km/h, 1 m/s) or ±5%, whichever is greater
Accuracy (small wind cups; optional, not included)	±3 mph (3 kts, 5 km/h, 1.5 m/s) or ±5%, whichever is greater
Maximum Cable Length	240' (73 m). Maximum wind speed reading decreases as length of cable from Anemometer to ISS increases. At 140' (42 m), maximum speed is 135 mph (60 m/s). At 240', the maximum is 100 mph.
Current Display Data	Instant
Current Graph Data	Instant; 10-minute and Hourly Average; Hourly High; Daily, Monthly, Yearly High with Direction of High
Historical Graph Data	10-min. and Hourly Averages; Hourly Highs; Daily, Monthly, Yearly Highs with Direction of Highs
Alarms	High Thresholds from Instant Reading and 10-minute

**Wireless Communications**

Transmit/Receive Frequency	US Models: 902-928 MHz FHSS, Overseas Models: 868.0 - 868.6 MHz FHSS.
ID Codes Available	8
Output Power	902-928 MHz FHSS: FCC-certified low power, less than 8 mW, no license required 868.0 - 868.6 MHz FHSS. CE-certified, less than 8 mW, no license required
Range	
Line of Sight	up to 1000 feet (300 m)
Through Walls	200 to 400 feet (75 to 150 m)
Sensor Inputs	
RF Filtering	RC low-pass filter on each signal line



## Sensor Charts

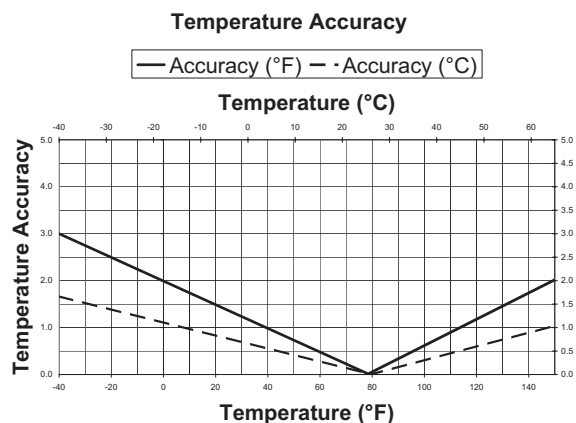


Figure 1. Temperature Accuracy

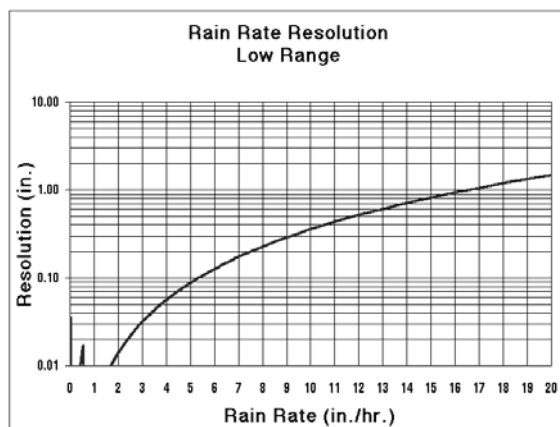


Figure 3. Low Range Rain Rate Resolution

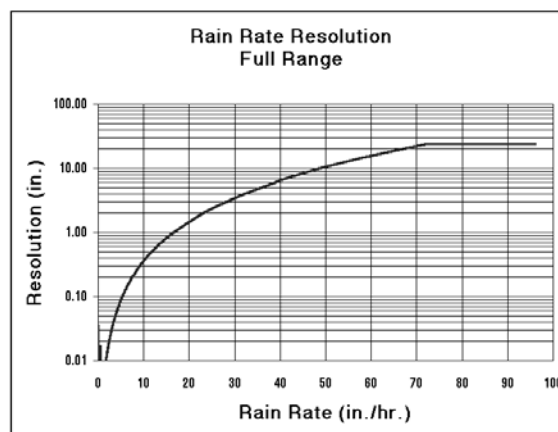


Figure 4. Full Range Rain Rate Resolution

## Package Dimensions

Product #	Package Dimensions (Length x Width x Height)	Package Weight	UPC Codes
6152 6152EU 6152UK	17.0" x 11.0" x 13.0" (410 mm x 264 mm x 330 mm)	12.8 lbs. (5.8 kg)	011698 00722 6 011698 00758 5 011698 00759 2
6162 6162EU 6162UK		13.3 lbs. (6.0 kg)	011698 00746 2 011698 00752 3 001698 00751 6
6153 6153EU 6153UK	15.0" x 13.0" x 24.0" (378 mm x 327 mm x 594 mm)	12.8 lbs. (5.8 kg)	011698 00750 9 011698 00760 8 001698 00761 5
6163 6163EU 6163UK		13.3 lbs. (6.0 kg)	011698 00747 9 011698 00762 2 001698 00763 9