



WEATHER STATION

MODEL NO. - ACM- 52303-J



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Knowing the latest weather conditions is crucial for every boater's plans. The new Acm 52303 Weather Station from Acmas accurately displays critical weather readings and forecasts for various users.

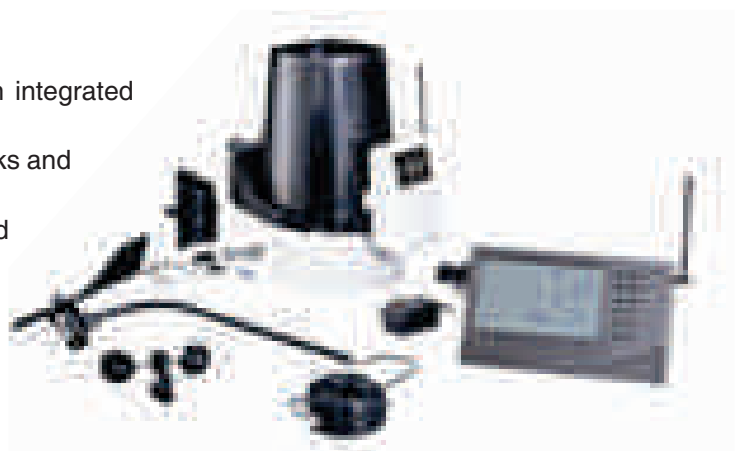
Knowing the latest weather conditions is crucial for every meteorological application. The new wireless weather station accurately displays critical weather readings and forecasts for boaters, anglers and other outdoor enthusiasts. Utilizing frequency hopping spread spectrum radio technology; it transmits and receives data up to 1,000'.

This is one of the most sophisticated, affordable personal weather stations available. Not only does it wirelessly transmit weather data from its sensors to a display console every 2.5 seconds, it collects historical data and does forecasting. It tracks a large number of weather variables including temperature, barometric pressure, humidity, rainfall, wind speed, wind direction and dew point.

Users can set more than 70 alarms simultaneously for multiple functions. They can graph readings from a 24-hour period, days or months and view more than 80 graphs showing additional temperature, rain, wind and barometric pressure analysis without using a computer. A ticker-tape display indicates forecast details and other data using 100 different messages.

All the weather station's sensors are housed in an integrated sensor suite that easily installs on piers, marina docks and larger boats. The sensor suite is solar powered, and electronic components are protected in a weather-resistant housing.

It has components that can withstand hurricane-



force winds and measure wind speeds up to 150 mph with $\pm 5\%$ accuracy. Its temperature sensors are accurate within $\pm 1^\circ\text{F}$. Vantage Pro weather stations have been recognized by the National Hurricane Center for their exact readings during recent hurricanes and tropical storms.

Users can customize their weather stations with optional sensors, accessories and software.

Our Equipment collects a wide range of data

- Wind Speed & Direction
- Rainfall
- Temperature
- Humidity
- Ultra Violet Radiation
- Barometric Pressure
- Wind Chill
- Heat stress

Sensor Specification

Console	-
Console Operating Temperature	+14° to +140°F (-10° to +60°C)
Display Temperature	+32° to +140°F (0° to +60°C)
Non-operating Temperature	-5° to +158°F (-20° to +70°C)
Current Draw	0.90mA 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	5VDC, 900mA, regulated
Batteries	3 C-cells
Battery Life	up to 9 months



Connectors	Modular RJ-11
Housing Material	UV-resistant ABS plastic
Console Display Type	LCD Transflective
Dimension	-
Console with antenna	10.375"x6.125"x1.5" (264mmx156mmx38mm)
Display	5.94"x3.375"(151mmx86mm)
Weight (with batteries)	1.88IBS.(.85kg)
Integrated Sensor Suite (ISS)	-
Operating Temperature	-40° to +150°F (-40° to +65°C)
Non-operating Temperature	
Current Draw (ISS SIM only)	50° to +158°F (-45° to +70°C)
Solar Power Panel (ISS SIM / Fan)	0.14 mA (average), 30mA (peak) at 4 to 6 VDC
Battery (ISS SIM / Fan (Fan-Aspirated))	0.5 watts / .75watts 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)	190 feet/min. (0.9m/s)(full sun), 80 feet/min, (0.4m/s)(battery only)
Connectors, Sensor	Modular RJ-11 4-conductor, 26 AWG
Cable Type	40' (12m)(included) 540'(165m) (maximum recommended)
Cable Length, anemometer	
Wind Speed Sensor	Wind cups with magnetic switch Wind vane with potentiometer
Wind Direction Sensor	
Rain Collector Type	Tip bucket, 0.01" per tip (0.2 mm with metric rain adapter), 33.2 in ² (214 cm ²) collection area
Temperature Sensor Type	Thermistor
Relative Humidity Sensor Type	Film capacitor element
Housing Material	UV-resistant ABS plastic

Wind Speed

Resolution and Units	1 mph, 1km/h, 0.1 m/s, or 1 knot (user-selectable)
Range (large wind cups)	2 to 150 mph, 2 to 130 knots, 1 to 67 m/s, 3 to 241 km/h
Range (small wind cups)	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 to 3 seconds, 10-minute Average: 1 minute
Accuracy (large wind cups)	± 2 mph (2 kts, 3 km/h, 1m/s) or $\pm 5\%$, whichever is greater
Accuracy (small wind cups)	± 3 mph (3 kts, 5 km/h, 1.5m/s) or $\pm 5\%$, whichever is greater
Maximum Cable Length	540' (165 m)
Current Data	Instant Reading; 10-minute and Hourly Average; Hourly High; Daily, Monthly and Yearly High with Direction of High
Historical Data	10-min, and Hourly Averages; Hourly Highs; Daily, Monthly and Yearly Highs with Direction of Highs
Alarms	High Thresholds from instant Reading and 10-minute Average

Wind Direction

	-
Display Resolution	16 points (22.5°) on compass rose, 1° in numeric display
Accuracy	$\pm 7^\circ$
Update Interval	2.5 to 3 seconds
Current Data	Instant Reading (user adjustable); 10-min, Dominant; Hourly, Daily, Monthly Dominant
Historical Data	Past 6 10-min. Dominants on compass rose only; Hourly, Daily, Monthly Dominants

Wind Chill (Calculated)

	-
Resolution and Units	1oF or 1oC (user-selectable)
Range	-110o to +130oF (-79o to +54oC)
Accuracy	± 2 oF (± 1 oC) (typical)
Update Interval	10 to 12 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 Data	Instant Calculation; Hourly, Daily and Monthly Low
Historical Data	Hourly, Daily and Monthly Lows
Alarm	Low Threshold from Instant Calculation



Sensor Chart

Rainfall	
Resolution and Unit	0.01" or 0.25 mm (user-selectable) (1 mm at totals ≥ 2000 mm)
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): $\pm 4\%$ 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): $\pm 5\%$ 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 Data	Totals for past 15-min, past 24 hours, Daily, monthly, yearly (start date user-selectable) and storm (with begin data): Umbrella is displayed when 15 minute Total exceeds zero
Historical Data	Totals for Past 15-min, Daily, Monthly, Yearly (start date user-selectable) and Storm (with begin and end dates)
Alarms	High Threshold from Latest Flash Flood (15-min, Total, default is 0.50", 12.7 mm), 24-hour Total, Storm Total,
Current Dat	0 to 99.99" (0 to 999.7 mm)
Rain Rate	
Resolution and Units	0.01" or 0.25 mm (user-selectable) at typical rates (see Fig. 3 and 4)
Range	0, 0.04"/hr (1 mm/hr) to 100"/hr (0 to 1999.9 mm/hr)
Accuracy	$\pm 5\%$ or ± 0.04 "/hr (1 mm/hr) (up to 10"/hr, (250 mm/hr)), whichever is greater
Update Interval	10 to 12 seconds
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 Data	Instant and 1-min, Reading; Hourly, Daily, Monthly and Yearly High
Historical Data	1-min Reading; Hourly, Daily, Monthly and Yearly Highs
Alarm	High Threshold from Instant Reading

Solar Radiation (requires solar radiation sensor)

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 Reponse	±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 Data	Instant Reading and Hourly Average; Daily, Monthly High
Historical Data	Hourly Average, Daily, Monthly Highs
Alarm	High Threshold from Instant Reading

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 Reponse	+4%(0' to 65' incident angle);9% (65' to 85' incident angle)
Update Interval	50 seconds to 1 minute (5 minutes when dark)
Current Data	Instant Reading and Hourly Average: Daily,Monthly high
Historical Data	hourly Average, Daily, Monthly highs
Alarm	High Threshold from Instant Calculation

Ultra Violet (UV) Radiation Dose (requires UV sensor)

Resolution and Units	0.1MEDs to 19.9 MEDs:1MED 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 minute (5 minutes when dark)
Current Data	Latest Daily totals(user resetable at any time from Current Screen)



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