

WX Series



## WX Ultrasonic WeatherStation® Instruments for Offshore Weather Monitoring

### Available Model: 200WX-IPX7

Weather impacts every aspect of operations on offshore platforms, ships, and in ports. Rapid changes in weather and sea conditions make monitoring of both meteorological and oceanographic parameters a critical part of ensuring safety, while also maintaining operational efficiency.

Reliable environmental monitoring is critical for various offshore needs. The numerous sensors contained in the compact size of the 200WX is an attractive feature for installations where space is limited, such as on buoys, USVs, and ASVs.

Having worked with many autonomous vehicle and buoy manufacturers, we have further developed the 200WX to be more robust—meeting the operational challenges of the harsh ocean environment.

The WeatherStation WX Series products offer a truly best-in-class solution at a better price point than any other weather monitoring system on the market today, enabling individuals and professionals the ability to make informed decisions based on real-time site-specific weather information.



Actual  
Size

### FEATURES

The 200WX-IPX7 WeatherStation instrument accurately measures current weather conditions, including:

- Theoretical wind speed and direction
- Air temperature and calculated wind chill
- Barometric pressure
- GPS position, speed over ground, course over ground
- Three-axis solid state compass with dynamic stabilization
- Three-axis rate gyro for rate of turn
- Best-in-class <math><1^\circ</math> pitch and roll accuracy
- IPX7 waterproof rating
- Current draw: <math><105\text{mA}</math> (1.2W) at 12 VDC
- Available outputs: NMEA 0183 (RS422 or RS232) and NMEA2000® (CAN bus)

# Achieving Best-in-Class Product Specifications

## SPECIFICATIONS

**Wind Speed Range:**  
— 0 knots to 78 knots (0 MPH to 90 MPH, 0 m/s to 40 m/s)

**Wind Speed Resolution:**  
— 0.1 knot (0.1 MPH, 0.1 m/s)

**Wind Speed Accuracy @ 0°C to 55°C (32°F to 131°F), no precipitation\*:**  
— Low Wind Speeds:  
0-10 knots; 1 knot RMS +10% of reading  
(0 MPH to 11.5 MPH; 1.1 MPH + 10% of reading)  
(0 m/s to 5 m/s; 0.5 m/s + 10% of reading)  
— High Wind Speeds:  
10-78 knots; 2 knots RMS or 5%, whichever is greater  
(11.5 MPH to 90 MPH; 2.3 MPH or 5%, whichever is greater)  
(5 m/s to 40 m/s; 1 m/s or 5%, whichever is greater)

**Wind Speed Accuracy in wet conditions\*\*:**  
— 5 knots RMS (5.7 MPH RMS, 2.5 m/s RMS)

**Wind Direction Range:** 0° to 360°

**Wind Direction Resolution:** 0.1°

**Wind Direction Accuracy @ 0°C to 55°C (32°F to 131°F), no precipitation\*:**  
— Low Wind Speeds (5° RMS typical):  
4-10 knots (4.6 MPH to 11.5 MPH, 2 m/s to 5 m/s)  
— High Wind Speeds (2° RMS typical):  
> 10 knots (>11.5 MPH, >5 m/s)

**Wind Direction Accuracy in wet conditions\*\* (8° RMS Typical):**  
>8 knots (>9.2 MPH, >4 m/s)

**Compass Accuracy:**  
— 1° static heading accuracy; 2° dynamic heading accuracy

**Pitch and Roll Range / Accuracy:** ±50° / <1°

**Air Temperature Range\*\*\*:** -40°C to 55°C (-40°F to 131°F)

**Air Temperature Resolution:** 0.1°C (0.1°F)

**Air Temperature Accuracy:**  
±1.1°C (±2°F)\* @ >4 knots wind (>4.6 MPH wind) (>2 m/s wind)

**Barometric Pressure Range:**  
300 mbar to 1100 mbar (24 inHg to 33 inHg, 800 hPa to 1100 hPa)

**Barometric Pressure Resolution:** 0.1 mbar (0.029 inHg, 0.1 hPa)

**Barometric Pressure Accuracy:**  
±1 mbar (±0.029 inHg, ±1 hPa) when altitude correction is available

**GPS Position Accuracy:**  
3 m (10') with WAAS/EGNOS (95% of the time)

**Operating Temperature Range:** -25°C to 55°C (-13°F to 131°F)

**Supply Voltage:** 9 VDC to 40 VDC

**Supply Current (@ 12 VDC):**  
— (<105 mA) <1.25W —200WX

**Weight:** 300 grams (0.8 lb)

**Communication Interface:** NMEA 0183 (RS422 or RS232) and NMEA2000® (CAN bus)\*\*\*\*

**Mounting Thread Size on Base:** Standard 1"-14 UNS (3/4" NPT optional)

**Certifications and Standards:** CE, IPX7, RoHS, IEC61000-4-2, IEC60945

RMS—Root Mean Square

\*When the wind speed is less than 2 m/s (4.6 MPH) and/or air temperature is below 0°C (32°F), wind, temperature, and relative humidity readings will be less accurate.

\*\*Wet conditions include moisture, rain, frost, dew, snow, ice and/or sea spray in the wind channel.

\*\*\*Temperature and Relative Humidity report invalid during heater operation.

\*\*\*\*Airmar has made the address claiming modifications to enable compatibility with the ISO 11783 communication protocol for the agriculture industry – that is based on the SAE J1939 protocol.

## PART NUMBERS

200WX: 44-848-1-01, NMEA 0183 (RS422) and NMEA2000® (CAN bus)

200WX: 44-849-1-01, NMEA 0183 (RS232) and NMEA2000® (CAN bus)

\* Cables sold separately



Now available on iTunes — OnSiteWX  
The innovative App for real-time weather data!



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## DATA OUTPUT PROTOCOL

**NMEA 0183 Sentence Structure**

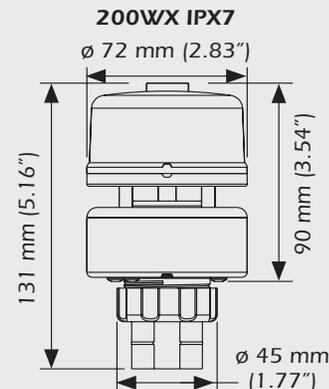
\$GPDTM.....GPS Datum Reference  
\$GPGGA.....GPS Fix Data  
\$GPGLL.....Geographic Position—Latitude and Longitude  
\$GPGSA.....GNSS DOP and Active Satellite  
\$GPGSV.....Satellites in View  
\$GPRMC.....Recommended Minimum GNSS  
\$GPVTG.....COG and SOG  
\$GPZDA.....Time and Date  
\$HCHDG.....Heading, Deviation, and Variation  
\$HCHDT.....True Heading  
\$HCTHS.....True Heading and Status  
\$TIROT.....Rate of Turn  
\$WIMDA.....Meteorological Composite  
\$WIMWD.....Wind Direction and Speed  
\$WIMWV.....Wind Speed and Angle  
\$WIMWR.....Relative Wind Direction and Speed  
\$WIMWT.....Theoretical Wind Direction and Speed  
\$YXXDR.....Transducer Measurements\*

**NMEA2000® Output Message Structure**

59392.....ISO Acknowledgement  
060928.....ISO Address Claim  
126208.....Acknowledge Group Function  
126464.....PGN List  
126992.....System Time  
126996.....Product Information  
126998.....Configuration Information  
127250.....Vessel Heading  
127251.....Rate of Turn  
127257.....Attitude  
127258.....Magnetic Variation  
129025.....Position and Rapid Update  
129026.....COG and SOG, Rapid Update  
129029.....GNSS Position Data  
129033.....Time and Date  
129044.....Datum  
129538.....GNSS Control Status  
129539.....GNSS DOPs  
129540.....GNSS Sats in View  
130306.....Wind Data  
130310.....Environmental Parameters  
130311.....Environmental Parameters  
130312.....Temperature  
130313.....Humidity  
130314.....Actual Pressure  
130323.....Meteorological Station Data

\* See Tech Data for details

## DIMENSIONS



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