

WX Series



Photo courtesy of MOBA

WeatherStation® Multisensor – Ultrasonic Instruments for Land Applications

A Compact, Affordable Instrument for Informed Decision-Making

Available Models: 110WX, 150WX, 200WX

Whether you are harvesting crops, operating equipment, preparing for bad weather or responding to a hazardous event, understanding the weather is important. The WX Series allows users to make informed decisions based on site specific information, resulting in improved efficiency, reduced risks and overall cost savings. Various model options are available depending on the application and requirements.

The WX Series WeatherStation Instruments offer a truly best-in-class solution at a better price compared to any other weather monitoring system on the market today!



Wind
Speed &
Direction



Barometric
Pressure



Temp



Relative
Humidity



GPS



Compass

Actual
Size



FEATURES

- Model 110WX – Measures apparent wind speed and angle, barometric pressure, air temperature, relative humidity, calculated dew point, heat index and wind chill temperature
- Models 150WX and 200WX – Includes all 110WX functionality plus internal compass and GPS (for theoretical wind speed and direction), GPS position, speed and course over ground
- Model 200WX – Best-in-class dynamic stabilization via three-axis compass and three-axis rate gyro
- UV stabilized, compact housing

Product Models to Satisfy Multiple Weather Needs



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



110WX



150WX



200WX

	Apparent Wind Model	Apparent & Theoretical Wind Models	
	Recommended for Stationary Applications	Recommended for Moving Vehicle Applications	Recommended for Dynamic Moving Vehicle Applications
Apparent wind speed and angle	✓	✓	✓
Theoretical wind speed and direction		✓	✓
Barometric Pressure	✓	✓	✓
Ultrasonic wind readings up to 90 mph (40 m/s)	✓	✓	✓
Air temperature plus calculated wind chill	✓	✓	✓
10 Hz GPS (Position, COG, SOG)		✓	✓
Two-axis solid state compass		✓	
Three-axis accelerometer for pitch and roll		✓	✓
Three-axis solid-state compass with dynamic stabilization: Better than 1° static compass accuracy Best-in-class 2° dynamic compass accuracy			✓
Three-axis rate gyros provide rate-of-turn data			✓
Best-in-class pitch and roll accuracy			✓
Optional field-serviceable relative humidity Calculated dew point Calculated heat index	✓	✓	✓
Output options include: NMEA 0183 (RS422) and NMEA 2000® (CAN Bus) NMEA 0183 (RS232) and NMEA 2000® (CAN Bus)	✓	✓	✓

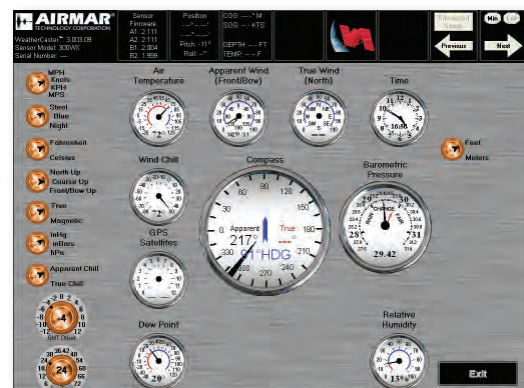
WeatherCaster™ Software

Developer Assistance

- Enable/disable functionality
- Optimize communications bandwidth NMEA 0183 (RS232, RS422)
- Change sampling rate (output interval)

Field Installation Assistance

- Enable/disable functionality
- Sensor orientation
- Compass calibration
- Temperature offset
- Select specific device on a NMEA 2000® network
- Alarms for wind speed and barometric pressure
- Altitude offset
- More accurate GPS position in 2D mode
- More accurate BP reading



Achieving Best-in-Class Product Specifications

SPECIFICATIONS

Wind Speed

Range: 0 to 40 m/s (0 to 89 MPH)
 Accuracy: 5% at 10 m/s at 4 angles
 Resolution: 0.1 m/s
 Calculations: User configurable damping

Wind Direction

Range: 0° to 359.9°
 Accuracy: ±3° at 10 m/s
 Resolution: 0.1°
 Calculations: User configurable damping

Air Temperature

Range: -40° to 80°C (-40 to 176°F)
 Accuracy: ±1.1°C at 20°C
 Resolution: 0.1°C

Optional Relative Humidity

Range: 0 to 100% RH
 Accuracy: ±5% RH at 0 to 90% RH at 20°C — 150WX and 200WX
 ±3% RH at 0 to 90% RH at 20°C — 110WX
 Resolution: 0.1% RH

Barometric Pressure

Range: 300 to 1100 hPa
 Accuracy: ±0.5 hPa at 25°C (or better)
 Resolution: 0.1 hPa

Two-axis Compass

Range: 0 to 359.9°
 Accuracy: 1° RMS when level (150WX only), 1° static heading accuracy;
 2° dynamic heading accuracy (three-axis compass, 200WX only)
 Resolution: 0.1°

Pitch and Roll

Measurement Type: MEMS
 Range: 50°
 Accuracy: ±1° in range of ±30°
 Resolution: 0.1°

GPS Position Accuracy: 3 m (10') CEP

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

Power

Supply Voltage: 9 VDC to 40 VDC
 Supply Current (at 12 VDC):
 <55 mA (<0.7 W), LEN 2 — 110WX
 <75 mA (<0.9 W), LEN 2 — 150WX and 200WX
 NMEA 2000® Load Equivalency Number (LEN): 2

Weight

275 grams (0.6 lbs) — 110WX
 300 grams (0.7 lb) — 150WX and 200WX

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

Certifications and Standards: CE, IPX6 (IPX4 with optional Relative Humidity sensor),
 RoHS, IEC61000-4-2, IEC60945, IEC60950_1C, IEC60950_22A, EN55022, EN55024,
 EN15014982

COMMUNICATIONS

Available Hardware Interfaces

Serial RS232, Serial RS422, CAN

Available Protocols

Comma delimited ASCII, NMEA 0183, NMEA 2000®

Serial Output Rate

1 Hz typical. User selectable. 10 Hz max recommended

PART NUMBERS

110WX: 44-820-1-01, RH, NMEA 0183 (RS422) and NMEA 2000® (CAN Bus)

110WX: 44-823-1-01, NMEA 0183 (RS422) and NMEA 2000® (CAN Bus)

110WX: 44-843-1-01, RH, NMEA 0183 (RS232) and AG (CAN Bus)

150WX: 44-832-1-01, RH, NMEA 0183 (RS422) and NMEA 2000® (CAN Bus)

150WX: 44-833-1-01, NMEA 0183 (RS422) and NMEA 2000® (CAN Bus)

150WX: 44-834-1-01, RH, NMEA 0183 (RS232) and AG (CAN Bus)

200WX: 44-835-1-01, NMEA 0183 (RS422) and NMEA 2000® (CAN Bus)

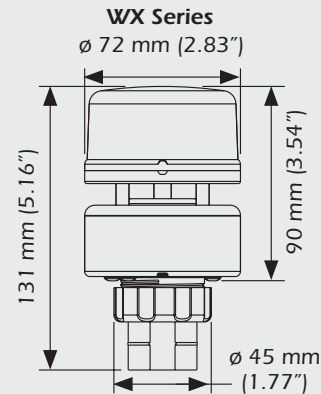
200WX: 44-837-1-01, RH, NMEA 0183 (RS422) and NMEA 2000® (CAN Bus)

200WX: 44-847-1-01, NMEA 0183 (RS232) and NMEA 2000® (CAN Bus)

Cables sold separately

RH— Relative Humidity

DIMENSIONS



SERIAL DATA OUTPUT PROTOCOL

NMEA 0183 Sentence Structure – Comma Delimited ASCII Format

\$GPDTH..... 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

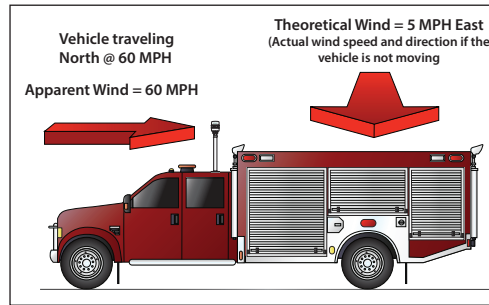
CAN DATA OUTPUT PROTOCOL

NMEA 2000® 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

Understanding Theoretical and Apparent Wind

Virtually all mechanical and ultrasonic anemometers report apparent wind speed and direction. The Airmar WX Series is unique because it calculates both theoretical and apparent wind speed and direction. These wind readings are the same if the unit is mounted in a fixed location. However, if the WX Series is mounted on a moving vehicle, the apparent wind is the wind you would feel on your hand if you held it out the window while going down the highway. Since the WX Series has a built in GPS and compass, it calculates the theoretical wind based upon the apparent wind, speed of the vehicle, and compass heading.



Airmar's WX Series products are the only all-in-one unit to offer theoretical and apparent wind speeds without additional sensors.

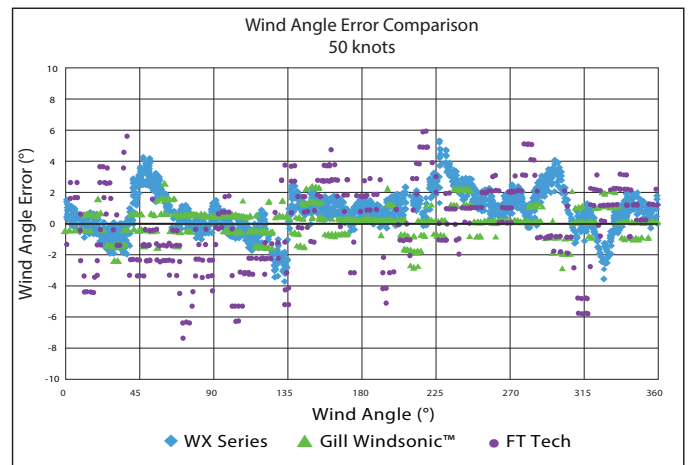
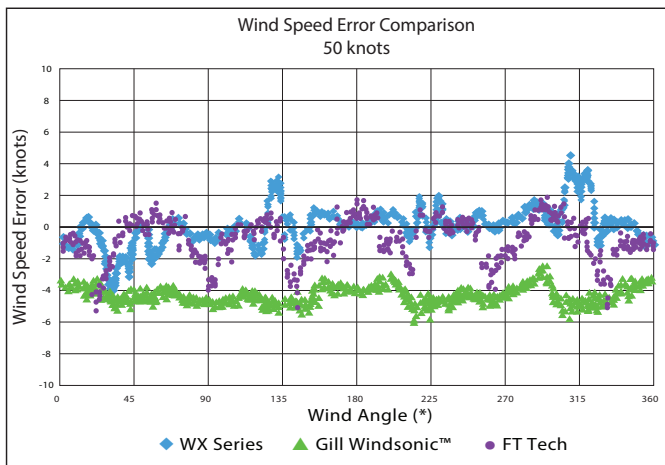
Theoretical wind information is significant for numerous applications on hazardous response vehicles. Theoretical wind speed and direction is also mission-critical. When enroute to an emergency situation, first responders can use the theoretical wind readings to predict wind conditions at the disaster site before they even arrive, giving vital information for planning operations and staging apparatus.

Each WeatherStation Instrument is factory calibrated in a wind tunnel at our state-of-the-art facility located in Milford, New Hampshire, USA.



True Wind: True wind is the same as above BUT relative to True (or Magnetic) North. In the case of a moving vehicle, True wind is not relevant because the vehicle will (almost) never be aligned to True (or Magnetic) North. In a mobile application True wind is a meaningless value.

Performing Above and Beyond Competitive Products on the Market



WEATHERSTATIONWX.COM



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