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!

Actual Size

Wind Speed & Direction | Barometric Pressure | Temp | Relative Humidity | GPS | Compass

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

Photo courtesy of MOBA

AIRMAR® TECHNOLOGY CORPORATION

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, EN14982

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

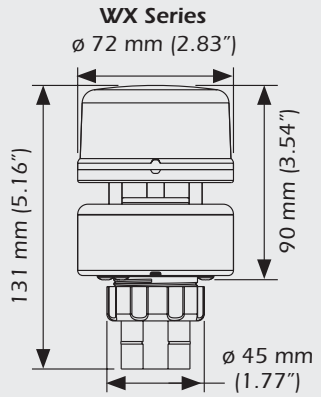
110WX: 44-820-1-01, RH, NMEA 0183 (RS422) and NMEA 2000® (CAN Bus)
110WX: 44-823-1-01, NMEA 0183 (RS422) and NMEA 2000® (CAN Bus)
110WX: 44-843-1-01, RH, NMEA 0183 (RS232) and AG (CAN Bus)

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

$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

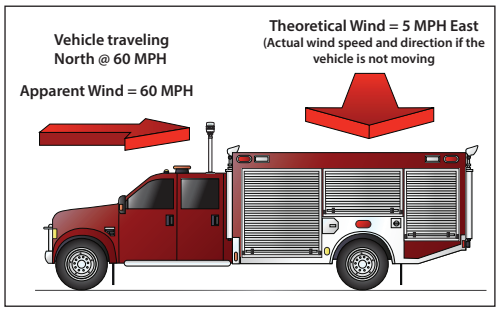
CAN DATA OUTPUT PROTOCOL

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.

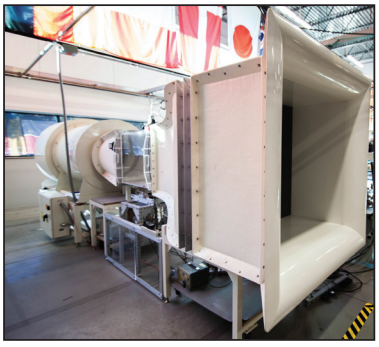


Airmar's WX Series products are the only all-in-one unit to offer theoretical and apparent wind speeds without additional sensors.

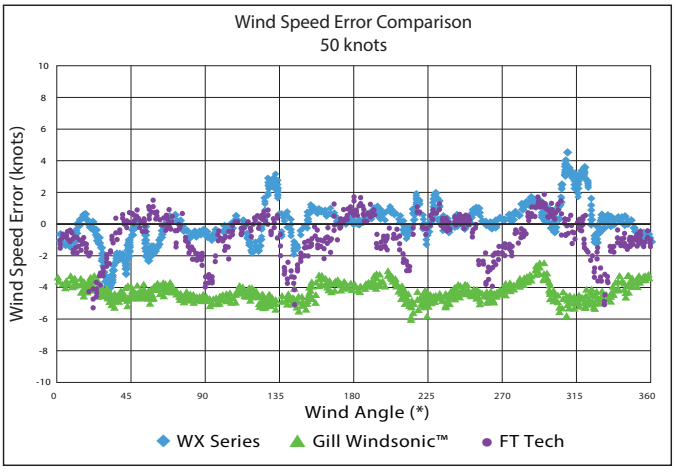
Theoretical wind information is significant for numerous applications on hazardous response vehicles. Theoretical wind speed and direction is also mission-critical. When enroute to an emergency situation, first responders can use the theoretical wind readings to predict wind conditions at the disaster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

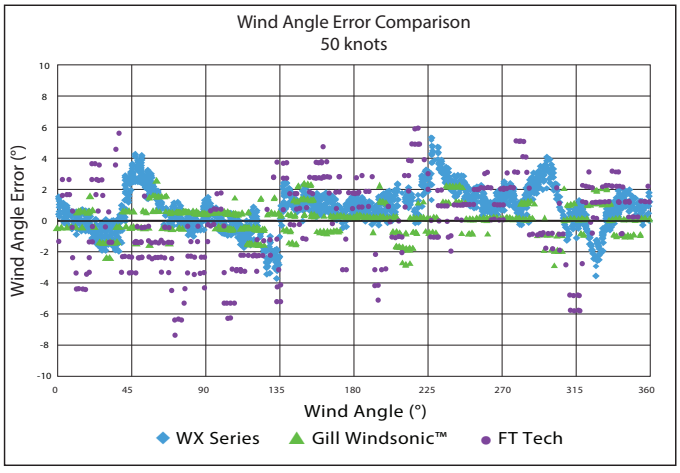
True Wind: True wind is the same as above BUT relative to True (or Magnetic) North. In the case of a moving vehicle, True wind is not relevant because the vehicle will (almost) never be aligned to True (or Magnetic) North. In a mobile application True wind is a meaningless value.

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



Performing Above and Beyond Competitive Products on the Market





ISO CERTIFIED CE MADE IN THE USA

WEATHERSTATIONWX.COM

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WX_Series_LAND_APP_rP 05/18/22
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