

WX Series



## WeatherStation® Multisensor – Ultrasonic Instruments

AIRMAR's best-in-class solution for real-time, site-specific weather information



A Compact, Affordable Instrument for Harsh Weather Environments

### Available Heater Models: 120WXH, 220WXH

The WXH models have been carefully designed with a sophisticated heating system for operation in ice-prone areas, both onshore and offshore.

Its compact size, robust construction, and no moving parts provide many years of reliable service despite the harsh weather conditions associated with many land and marine applications.



The WXH models are designed, developed and manufactured to meet a growing need for real-time, site specific, weather information.



Wind  
Speed &  
Direction



Barometric  
Pressure



Temp



GPS



Compass



Actual  
Size

### FEATURES

- Model 120WXH – Measures apparent wind speed and angle, barometric pressure, air temperature and wind chill temperature
- Model 220WXH – Includes all of the features of the 120WXH and, with the internal compass and GPS, theoretical wind speed and direction can also be calculated
- UV stabilized, compact housing
- Automatic and user controlled heater operation



# Product Models to Satisfy Multiple Weather Needs



120WXH



220WXH

	Apparent Wind Model	Apparent & Theoretical Wind Model
	Recommended for Stationary Applications	Recommended for Moving Vehicle Applications
Apparent wind speed and angle	✓	✓
Theoretical wind speed and direction		✓
Barometric Pressure	✓	✓
Air temperature plus calculated wind chill	✓	✓
Heater	✓	✓
10 Hz GPS (Position, COG, SOG)		✓
Three-axis solid-state compass with dynamic stabilization: Better than 1° static compass accuracy Best-in-class 2° dynamic compass accuracy		✓
Three-axis accelerometer for pitch and roll		✓
Three-axis rate gyros provide rate-of-turn data		✓
Best-in-class pitch and roll accuracy		✓
Output options include: NMEA 0183 (RS422) NMEA 0183 (RS232)	✓	✓



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

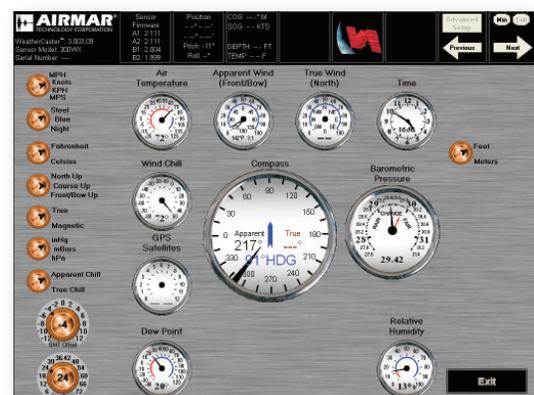
## WeatherCaster™ Software

### 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 NMEA2000® 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: 0-40 m/s  
 Accuracy: 5% @ 10 m/s (@4 angles)  
 Resolution: 0.1 m/s  
 Units: m/s  
 Calculations: User configurable damping

### Wind Direction

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

### Air Temperature

Range: -40° to 80°C  
 Accuracy: ±1.1°C @ 20°C  
 Resolution: 0.1  
 Units: °C

### Barometric Pressure

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

### Three Axis Compass

Range: 0 to 359.9°  
 Accuracy: 1° RMS when level, 1° static heading accuracy; 2° dynamic heading accuracy (200WXH only)  
 Resolution: 0.1°

### Pitch & Roll

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

### GPS Position Accuracy: 3 m (10') CEP

Operating Temperature Range: -25°C to 55°C

Heater Operating Temperature Range: -40°C to 55°C

Heater cycles on when sensor reaches 1°C

### Power

Supply Voltage: 12 VDC to 24 VDC  
 Supply Current (@ 24 VDC):  
 <28 mA (<0.7 W), LEN 2 — 120WXH  
 <38 mA (<0.9 W), LEN 2 — 220WXH  
 Heater Supply Current (@ 24 VDC):  
 <2.5 A (<60 W)

Output Rate: User specified, 0.1 seconds – fastest interval

Weight: 300 grams (0.8 lb)

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

Certifications and Standards: CE, IPX6 (Relative Humidity/IPX4), RoHS, IEC61000-4-2, IEC60945, IEC60950\_1C, IEC60950\_22A, EN55022, EN55024, EN15014982

## COMMUNICATIONS

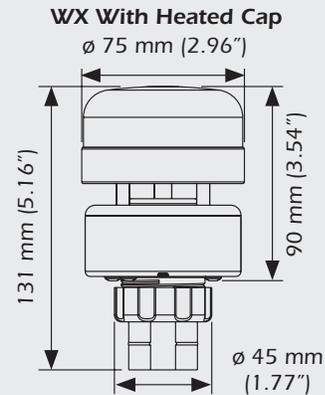
### Available Hardware Interfaces

Serial RS232, Serial RS422

### Available Protocols

Comma delimited ASCII, NMEA 0183

## 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

## PART NUMBERS

120WXH 44-852-1-01, NMEA 0183 (RS422)

120WXH: 44-851-1-01, NMEA 0183 (RS232)

220WXH: 44-856-1-01, NMEA 0183 (RS422)

220WXH: 44-859-1-01, NMEA 0183 (RS232)

Relative Humidity (RH) not available on heater models

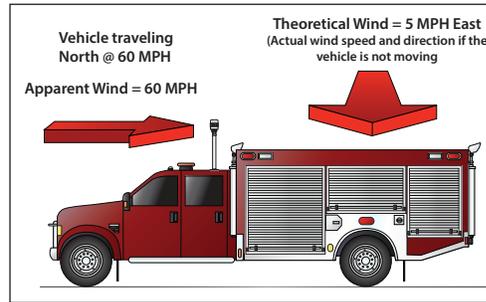
Cables sold separately

Heater requires 24VDC

# 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.

**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.

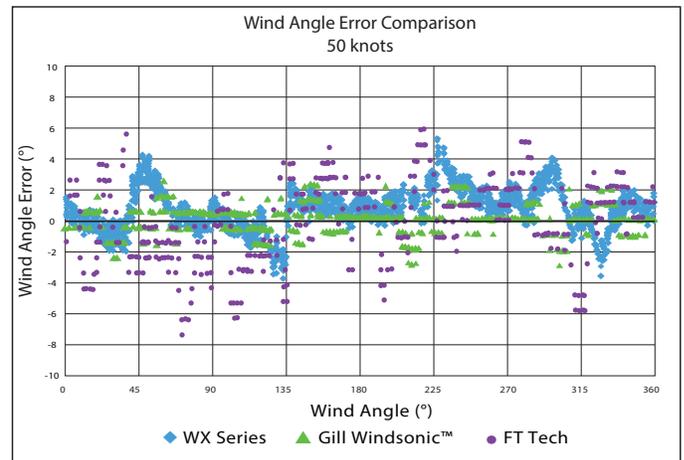
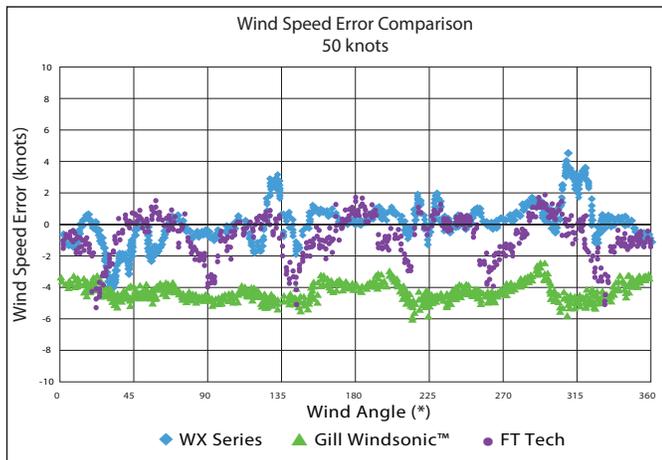


Airmar's WX Series products are the only all-in-one unit to offer theoretical and apparent wind speeds without additional sensors.

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



[WEATHERSTATIONWX.COM](http://WEATHERSTATIONWX.COM)

