



## WeatherStation® Multisensor – Ultrasonic Instruments for Use in Ice-Prone Areas

A Compact, Rugged Instrument  
for Informed Decision-Making

### 220WXH Multisensor

The patented 220WXH is Airmar's recommended model for weather-monitoring in ice-prone areas. Designed with an efficient, thermostatically controlled heating system, it operates effectively in extremely cold climates. The IPX4 housing is compact, rugged and durable with no moving parts, adding to its longevity and low cost of ownership.

The 220WXH has an internal 10 Hz GPS, and provides position, speed-over-ground, and course-over-ground data. The 220WXH calculates the Dynamic True wind speed and direction based upon the apparent wind speed, speed of the vessel, and vessel heading. A 3D compass with dynamic stabilization provided by the three-axis rate gyro enhances heading accuracy in heavy pitch and roll conditions.

### Applications:

- Commercial fishing vessels
- Offshore Platform
- High Altitude Stations



#### Ultrasonic Wind Measurement

Dynamic True and Apparent wind speed and direction with no moving parts



#### Barometric Pressure

Accurate atmospheric pressure measurement



#### Air Temperature

Accuracy of  $\pm 1.1^{\circ}\text{C}$  at  $20^{\circ}\text{C}$



#### 10 Hz GPS

Position, COG, SOG, time stamping



#### 3-Axis Accelerometer

For pitch and roll



#### 3-Axis Compass

With dynamic stabilization and better than  $1^{\circ}$  accuracy

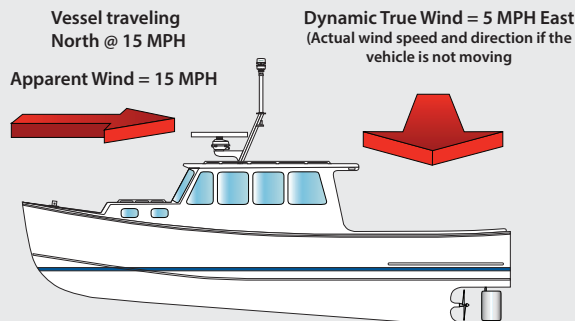


#### 3-Axis Rate Gyro

For rate-of-turn data

# Understanding Dynamic True and Apparent Wind

Virtually all anemometers report wind speed and direction. Airmar's WeatherStation Instruments are unique because they calculate both dynamic true and apparent wind speed and direction. When the WeatherStation instrument is mounted on a moving (dynamic) platform, the apparent wind is the wind felt on your hand if you held it out while moving. Dynamic true wind is the wind relative to North but also corrected for the speed and direction of the vessel. WeatherStation WX instruments integrate a GPS and 3-Axis compass, which allows for the calculation of the dynamic true wind speed and direction based upon the apparent wind, speed of the vehicle, and vehicle heading. Dynamic True wind measurement can be critical for any application where the platform is moving.



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

## SPECIFICATIONS

### Wind Speed

Range: 0 to 40 m/s  
Accuracy: 2 knots RMS @ 20 knots  
Resolution: 0.1 m/s  
Calculations: User configurable damping

### Wind Direction

Range: 0° to 359.9°  
Accuracy: 2.5° RMS @ 20 knots  
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

### Barometric Pressure

Range: 300 to 1100 hPa  
Accuracy: ±1 hPa @ 25°C  
Resolution: 0.1 hPa

### Three-axis Compass

Range: 0 to 359.9°  
Accuracy: 1° static heading accuracy; 2° dynamic heading accuracy  
Resolution: 0.1°

### Pitch and Roll

Measurement Type: MEMS  
Range: 60°  
Accuracy: ±1° in range of ±30°  
Resolution: 0.1°

### GPS Position Accuracy: 2.5 m (8') CEP

### Operating Temperature Range

WeatherStation: -25 to 55°C (-13 to 131°F)  
Heater: -40°C to 55°C (-40 to 131°F) Heater cycles on when sensor reaches 1°C

### Operating Voltage

Supply Voltage: 12-24 VDC  
Supply Current (@ 24 VDC): <38 mA (<0.9 W)  
Heater Supply Current (@ 24 VDC): <2.5 A (<60 W)

### Weight: 350 grams (0.8 lb)

### Mounting-thread Size, Base M39: Adapter on cable is standard 1"-14 UNS (3/4" NPT optional)

### Certifications and Standards: CE, IPX4, RoHS, IEC61000-4-2, IEC60945, IEC60950\_1C, IEC60950\_22A, EN55022, EN55024, EN14982

## COMMUNICATIONS

Hardware Interfaces: Serial RS232, Serial RS422

Data Protocols: Serial – NMEA 0183

Serial Data Transmission Code: ASCII

Serial Output Rate: 1 Hz typical. User selectable. 10 Hz max recommended

## PART NUMBERS

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

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

When the heater is ON, air temperature and wind chill functions are disabled. Relative Humidity (RH) not available on heater models

Cables sold separately unless otherwise specified

Heater requires 24VDC



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## DIMENSIONS

