WeatherStation® Multisensor – Ultrasonic Instruments for Dynamic Platforms

A Compact, Rugged Instrument for Informed Decision-Making

200WX Multisensor

The WeatherStation 200WX is the best choice for mobile, land-based, weather-monitoring applications. Sensor-rich, in a durable, rugged, compact housing that is IPX6-rated, the 200WX is ideal for dynamic platforms such as agricultural tractors, weather-chasing vehicles and military vehicles.

Knowing the Dynamic True wind speed and direction is important and often mission-critical. The 200WX calculates the Dynamic True wind speed and direction based upon the Apparent wind speed of the vehicle, and vehicle heading. Its internal 10 Hz GPS and three-axis compass provide heading, position, speed-over-ground, and course-over-ground functionality that are necessary for Dynamic True wind data processing on a moving vehicle.

The 3D compass with dynamic stabilization provided by a three-axis rate gyro enhances compass accuracy in heavy pitch and roll conditions. The 200WX maintains dynamic compass performance in hilly and mountainous terrain—common in military situations.

Applications:

- Mobile weather vehicles
- Agricultural vehicle system integration
  - Tractors and Sprayers
- Construction site awareness
- Autonomous vehicle navigation and data collection
- Commercial Vehicles
  - Trucks, Trains, and Buses

Ultrasonic Wind Measurement
Dynamic True and Apparent wind speed and direction with no moving parts

Barometric Pressure
Accurate atmospheric pressure measurement

Air Temperature
With calculated heat index and wind chill

10 Hz GPS
Position, COG,SOG, time stamping

3-Axis Accelerometer
For pitch and roll

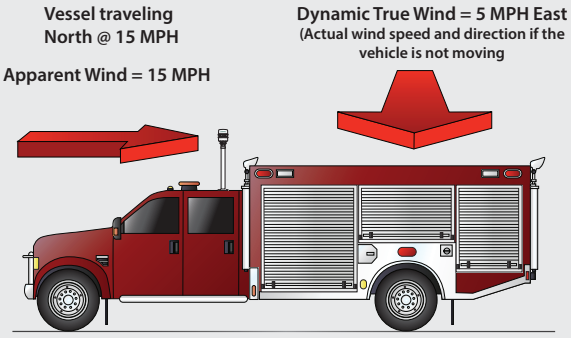
3-Axis Compass
With dynamic stabilization and better than 1° accuracy

3-Axis Rate Gyro
For rate-of-turn data

Relative Humidity (optional)
Field serviceable RH sensor with calculated dew point

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:** 0-40 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

Relative Humidity (optional)
- **Range:** 0-100% RH
- **Accuracy:** ±5% RH @ 0 to 90% RH @ 20°C
- **Resolution:** 0.1% RH

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° static heading accuracy; 2° dynamic heading accuracy
- **Resolution:** 0.1°

Pitch & Roll
- **Measurement Type:** MEMS
- **Range:** 60°
- **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
Operating Voltage
- **Supply Voltage:** 9 VDC to 40 VDC
- **Supply Current (@ 12 VDC):** <75 mA (<0.9 W)
- **NMEA 2000® Load Equivalency Number (LEN):** 2

Weight: 300 grams (0.7 lb)
Mounting-thread Size, Base M39: Adapter on cable is 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

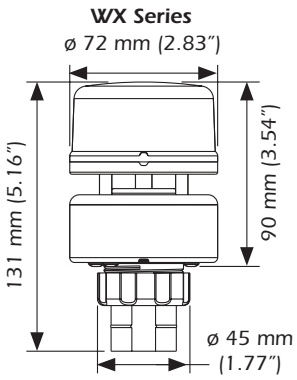
Hardware Interfaces: Serial RS232, Serial RS422, CAN
Data Protocols: Serial – NMEA 0183, CAN – NMEA 2000
Serial Data Transmission Code: ASCII
Serial Output Rate: 1 Hz typical. User selectable. 10 Hz max recommended

PART NUMBERS

200WX: 44-835-1-01, NMEA 0183 (RS422) and NMEA2000® (CAN Bus)
200WX: 44-837-1-01, RH, NMEA 0183 (RS422) and NMEA2000® (CAN Bus)
200WX: 44-846-1-01, NMEA 0183 (RS232) and NMEA2000® (CAN Bus)
200WX: 44-847-1-01, RH, NMEA 0183 (RS232) and NMEA2000® (CAN Bus)

Cables sold separately unless otherwise specified
RH = Relative Humidity

DIMENSIONS



AIRMAR® TECHNOLOGY CORPORATION
An Amphenol Company