WXRS Series

WeatherStation® Multisensor – Acoustic Measurement of Wind and Rain

A Compact, Rugged Instrument for Informed Decision-Making

150WXRS Multisensor

AIRMAR's WeatherStation WXRS provides real-time information on rain intensity, accumulation and event duration. An acoustic sensor measures the impact energy of individual raindrops on the patented "umbrella" sensor located on the top of the WeatherStation instrument. This rain detecting sensor is virtually maintenance free as it has no moving parts or components that need to be emptied, cleaned or will become clogged by debris.

With minimal maintenance plus the integration of a full suite of ultrasonic wind, temperature, barometric pressure and relative humidity, WeatherStation WXRS delivers a significantly lower total cost of ownership (TCO) than traditional measurement devices.

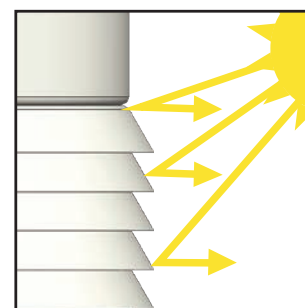| Rain	Wind Speed & Direction	Barometric Pressure	Temp	Relative Humidity	GPS	Compass

FEATURES

- Ultrasonic measurement of apparent, true wind speed and direction
- Acoustic measurement of rain accumulation, intensity and duration
- GPS for time stamping and internal compass for true wind data
- Maintenance-free operation is superior to tipping buckets, weighing gauges, optical measurement. No obstruction and data integrity loss due to debris.
- Rugged, compact, UV stabilized housing with no moving parts
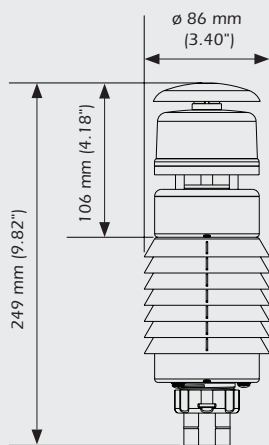
Acoustic Rain Measurement
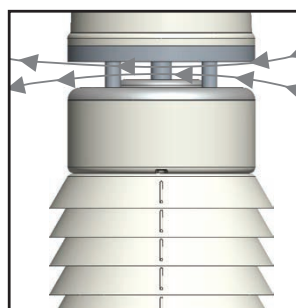
Ultrasonic Wind Measurement Speed and Direction

Solar Stabilization

AIRMAR®
TECHNOLOGY CORPORATION

DIMENSIONS

ø 86 mm (3.40")

106 mm (4.18")

249 mm (9.82")

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
$WIXDR…….. Rain Measurements

CAN DATA OUTPUT PROTOCOL

NMEA2000® 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
130880……… Rain Measurements

SPECIFICATIONS

Rainfall Amount: Cumulative accumulation after the latest automatic or manual reset
— **Output Resolution:** 0.01mm
— **Accuracy:** 5% typical
Rainfall Intensity: One minute running average in 10 second intervals
— **Range:** 0 to 200mm/h
— **Output Resolution:** 0.1mm/h
Rainfall Duration: Counting each second whenever water droplet is detected
— **Output Resolution:** 1 second
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: ±0.3°C @ 20°C
  Resolution: 0.1
  Units: °C
Relative Humidity
  Range: 0-100% RH
  Accuracy: ±3% 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
Two Axis Compass
  Range: 0 to 359.9°
  Accuracy: 1° RMS when level
  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
Power
  Supply Voltage: 9 VDC to 40 VDC
  Supply Current (@ 12 VDC):
  <105 mA (<1.25 W), LEN 3 — 150WXRS
Output Rate: User specified, 0.1 seconds – fastest interval
Weight: 1.3 lbs (600 grams)
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, CAN
Available Protocols
  Comma delimited ASCII, NMEA 0183, NMEA2000®

WEATHERSTATIONWX.COM

ISO CERTIFIED

CE

MADE IN THE USA

AIRMAR® TECHNOLOGY CORPORATION

WXS Series

WeatherStation® Multisensor – Ultrasonic Measurement of Wind

A Compact, Rugged Instrument for Informed Decision-Making

150WXS and 110WXS Multisensor

AIRMAR's WeatherStation series provides accurate, site-specific, weather data from a single compact device. As an integral component of a comprehensive weather station, the WeatherStation WXS measures seven critical weather parameters in real-time.

The compact housing features ultrasonic wind and barometric pressure measurements. Plus the solar radiation shield increases the accuracy of temperature and relative humidity readings. The maintenance-free features of the WeatherStation WXS makes it perfect for remote mounting as a network of stationary or moveable sensors.

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

FEATURES

- Ultrasonic measurement of apparent and true wind speed and direction
- Barometric pressure, air temperature and relative humidity readings with calculated dew point, heat index and wind chill
- GPS for time stamping and internal compass for true wind data
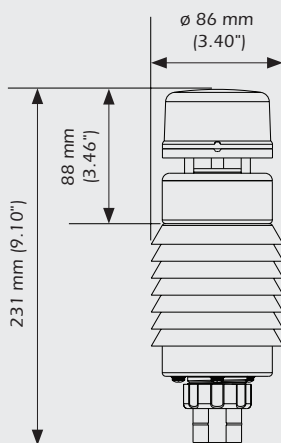- Rugged, compact, UV-stabilized housing with no moving parts
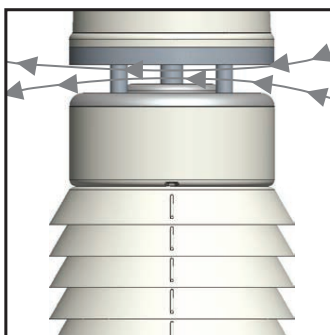
Ultrasonic Wind Measurement

Solar Stabilization

AIRMAR®
TECHNOLOGY CORPORATION

ø 86 mm (3.40")

88 mm (3.46")

231 mm (9.10")
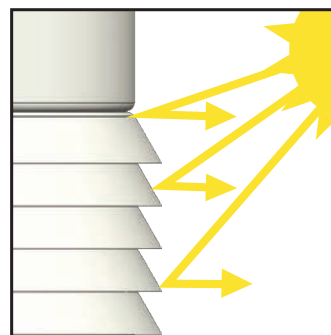
SPECIFICATIONS

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:** ±0.3°C @ 20°C
- **Resolution:** 0.1
- **Units:** °C

Relative Humidity
- **Range:** 0-100% RH
- **Accuracy:** ±3% RH @ 0 to 90% RH @ 20°C
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Barometric Pressure
- **Range:** 300 to 1100 hPa
- **Accuracy:** ±0.5 hPa @ 25°C (or better)
- **Resolution:** 0.1 hPa

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- **Range:** 0 to 359.9°
- **Accuracy:** 1° RMS when level
- **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
Power
- **Supply Voltage:** 9 VDC to 40 VDC
- **Supply Current (@ 12 VDC):**
  - <75 mA (<0.9 W), LEN 2 — 150WXS
  - <55 mA (<0.7 W), LEN 2 — 110WXS

Output Rate: User specified, 0.1 seconds – fastest interval
Weight: 1.3 lbs (600 grams)
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

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