



Magellan MX500 all-in-one sensor configuration

Innovative Weather Monitoring

Especially ideal for mobile installations, Magellan MX Weather Stations combine the convenience of an all-in-one multi-parameter weather sensor with an internal compass and GPS. Four different models offer sensor options including:

- Ultrasonic **wind speed and direction** measurement
- A combined **temperature, pressure, humidity** instrument mounted inside three double louvered, naturally aspirated radiation shields
- Optical **rain gauge** provides measurements based on the size and number of drops

MX600: rain gauge, ultrasonic wind speed and direction, temperature, relative humidity, air pressure, compass, GPS

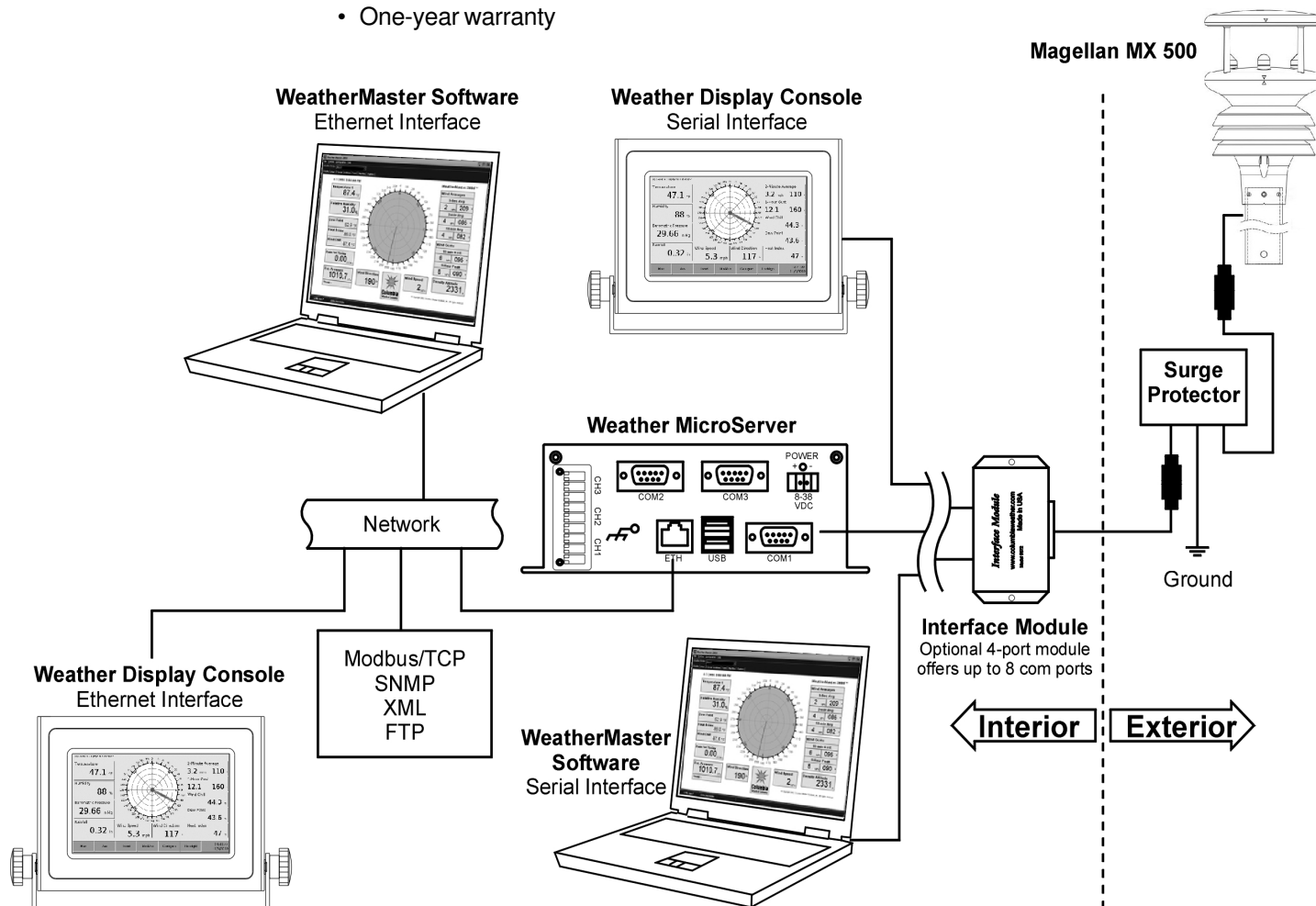
MX500: ultrasonic wind speed and direction, pressure, temperature, relative humidity, compass, GPS

MX300: pressure, temperature, relative humidity (no compass or GPS)

MX200: ultrasonic wind speed and direction only, compass, GPS

Magellan MX Weather Stations Feature

- Weather-protected sensor unit designed for maximum portability and utility
- GPS for compensated wind speed
- Automatic self-alignment of wind direction using internal compass
- No mechanical components means virtually no maintenance
- Low power consumption – ideal for battery or solar-powered installations
- One-year warranty



Magellan MX™ Weather Stations

Color Weather Display Console™

The Weather Display Console uses "intelligent" touch-screen technology. With its programmable microprocessor and abundant memory, the console displays weather information, performs complex computations, and stores data.

The Weather Display Console features a seven-inch, TFT color LCD panel with 800 x 480 pixels resolution. It can connect directly to the weather station with a serial port or to the Weather MicroServer utilizing existing Ethernet.

The display console is flexible and can be factory-programmed to suit specific market and industry requirements. It is available in three mounting options:

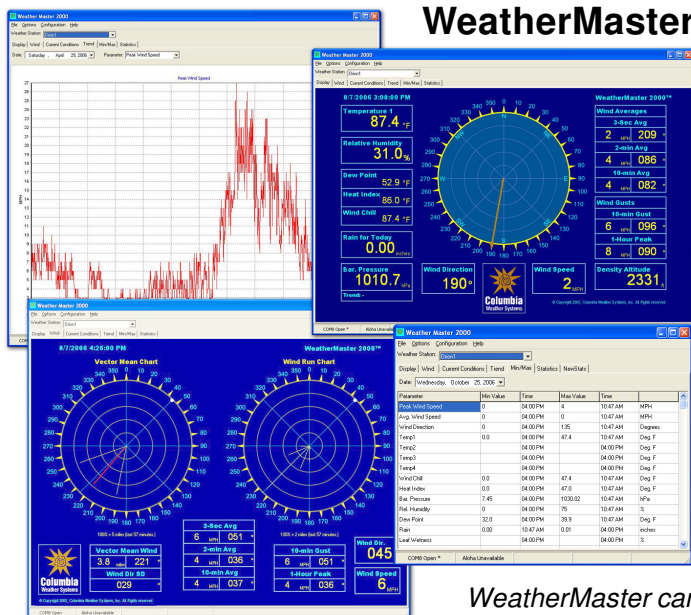
- Desktop/Wall-Mount • Panel Mount/Flush Mount • 19" Rack Mount



WeatherMaster™ Software

This professional-grade software is designed to optimize the capabilities of Magellan MX Weather Stations. Providing real-time computer weather monitoring, WeatherMaster offers:

- Display and automatic logging of all measured and calculated parameters
- Downwind vector wind and wind character-plotting screens
- An open Microsoft Access® database for archival with easy retrieval and compatibility with other Windows® programs
- On-the-fly graphing and trend display of all parameters
- Alarm notification via computer, email, pager or cell phone
- Multi-station monitoring and data acquisition
- Quick-North orientation
- Interface with CAMEO/ALOHA software for plume modeling and evacuation corridor predictions



WeatherMaster can be customized to meet specific industry requirements.

Weather MicroServer™

The Weather MicroServer is a self-contained, proprietary computer utilizing an embedded Linux operating system. It creates an "Internet-ready" weather monitoring system by automatically providing FTP output, XML web service, and Internet browser user interface.

SNMP and Modbus/OPC communication protocols are standard for Industrial Management applications.

The Weather MicroServer has datalogging capability. It connects to your network with an included Ethernet cable.

Two serial ports offer interface to both the Weather Display Console and additional peripheral devices or sensors such as visibility, solar radiation, and the Orion LT wind sensor.

The Weather MicroServer can provide real-time weather data to WeatherMaster Software over the network. This allows users to simultaneously monitor the weather using WeatherMaster on any network computer.



Weather MicroServer Optional Sensors:

The **visibility** sensor measures atmospheric visibility (meteorological optical range) by determining the amount of light scattered by particles (smoke, dust, haze, fog, rain, and snow) in the air that pass through the optical sample volume. A 42-degree forward scatter angle is used to ensure performance over a wide range of particle sizes.

For applications requiring additional **wind speed and direction**, the Orion LT wind-only sensor module offers ultrasonic technology for high accuracy and stability. Triangular design ensures excellent data availability and 360° measurement accuracy with a starting threshold of virtually zero. A heated model is available.



Sensor Specifications

Temperature

Range: -40 to +70°C (-40 to +185°F)

Accuracy: $\pm 0.3^{\circ}\text{C}$ (20°C);
 $\pm 0.54^{\circ}\text{F}$ (68°F)

Resolution: 0.1°C (0.18°F)

Units: $^{\circ}\text{C}$, $^{\circ}\text{F}$

Barometric Pressure

Range: 8.85 – 32.48 inHg (300 - 1100 hPa)

Accuracy: ± 0.015 inHg (± 0.5 hPa) @ 77°F
(25°C)

Resolution: 0.003 inHg (0.1 hPa)

Units Available: kPa, hPa, mbar, inHg

Wind Speed

Range: 0-134mph (0-60 m/s)

Accuracy: $\pm 3\%$ 0.02 mph to 90 mph ($\pm 3\%$
0.01m/s to 40 m/s), $\pm 5\%$ above 90 mph and
up to 134

Resolution: 0.02 mph (0.1 m/s)

Units Available: knots, mph, km/hr, m/s

Wind Direction

Range: 0 to 359°

Accuracy: $\pm 3^{\circ}$ 0.02 mph to 90 mph (0.01 m/s
to 40 m/s), $\pm 5^{\circ}$ above 90 mph and up to 134
mph (40 m/s and up to 60 m/s)

Resolution: 1.0°

Relative Humidity

Range: 0 to 100%

Accuracy: $\pm 2\%$ @ 68°F (10%-90% RH)

Resolution: 1.0%

Precipitation

Accuracy: $\pm 2\%$ at <6 inches/hour

Resolution: (0.007in/tip) (0.2mm/tip)

Units Available: mm, inches

Compass

Measurement Range: 0- 359°

Resolution: 1°

GPS

Horizontal Position Accuracy: Less than 2.5M
Circular Error Probability

Accuracy: Longitude and Latitude report to 6
decimal places

Magellan™ Weather Stations

Parameter Measurements

Temperature / Pressure / Humidity

A combined instrument of solid state devices mounted inside three double louvered, naturally aspirated radiation shields with no moving parts. The special shield plate geometry, with its double louvre design, provides excellent response time performance of quick ambient temperature changes while still working effectively as a baffle to stop larger contaminants such as salt or dirt from reaching the sensors. The result is high performance across each measurement.

Wind Measurement

Wind speed and direction measurements are provided via an ultrasonic sensor. An electronic compass provides apparent wind measurements. GPS provides true wind and other features.

Precipitation

An integrated optical rain gauge that automatically senses water hitting its outside surface and provides measurements based on the size and number of drops. Algorithms interpret this data and simulate the output of a tipping bucket rain gauge. The optical rain gauge has no moving parts associated with tipping bucket gauges.

Compass

The 2-axis compass and magnetic field sensing module uses Magneto-Inductive (MI) sensors. The sensor incorporates a temperature and noise stabilized oscillator/counter circuit. The compass has a high degree of azimuth accuracy. Wind direction data is corrected for the orientation of the sensor. The output of the wind direction is relative to magnetic North.

The compass is calibrated at the factory for optimal declination at delivery location before the unit is shipped.

GPS

A highly accurate GPS antenna receiver module including a ceramic GPS patch antenna. Small size and highend GPS functionality are combined with low power consumption.

Additional Calculated Parameters

With WeatherMaster Software or the Weather MicroServer, data from these sensors are computed to provide calculated parameters including Dew Point, Heat Index, Wind Chill, Degree-Day Temperatures and Density Altitude.

System Configurations

Magellan MX weather stations are available in Fixed-Mount, Vehicle-Mount and Portable system configurations.

Fixed-Mount Weather Stations include 50-ft cable. Optional accessories:

- Sensor mast and mounting hardware options
- Extra cable length
- Wireless Transceivers

Vehicle-Mount Weather Stations include a detachable 9-ft telescoping sensor mast and mounting hardware.

Portable Weather Stations include wireless transceivers, batteries, transportation case and tripod with telescoping mast.