Magellan MX™

WEATHER STATIONS

Wind | Temperature | Humidity | Pressure | Rainfall | Solar Radiation | GPS | Compass

![Columbia Weather Systems logo]

Columbia
Weather Systems

All-in-One Weather Monitoring with GPS

Sensor Models

200

300

500

501

600

Especially ideal for mobile and portable applications, 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
– Rain gauge provides measurements based on drop size and number
– Solar radiation measurement

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

MX600: Rain Gauge, Ultrasonic Wind Speed and Direction, Temperature, Relative Humidity, Air Pressure, Compass, GPS
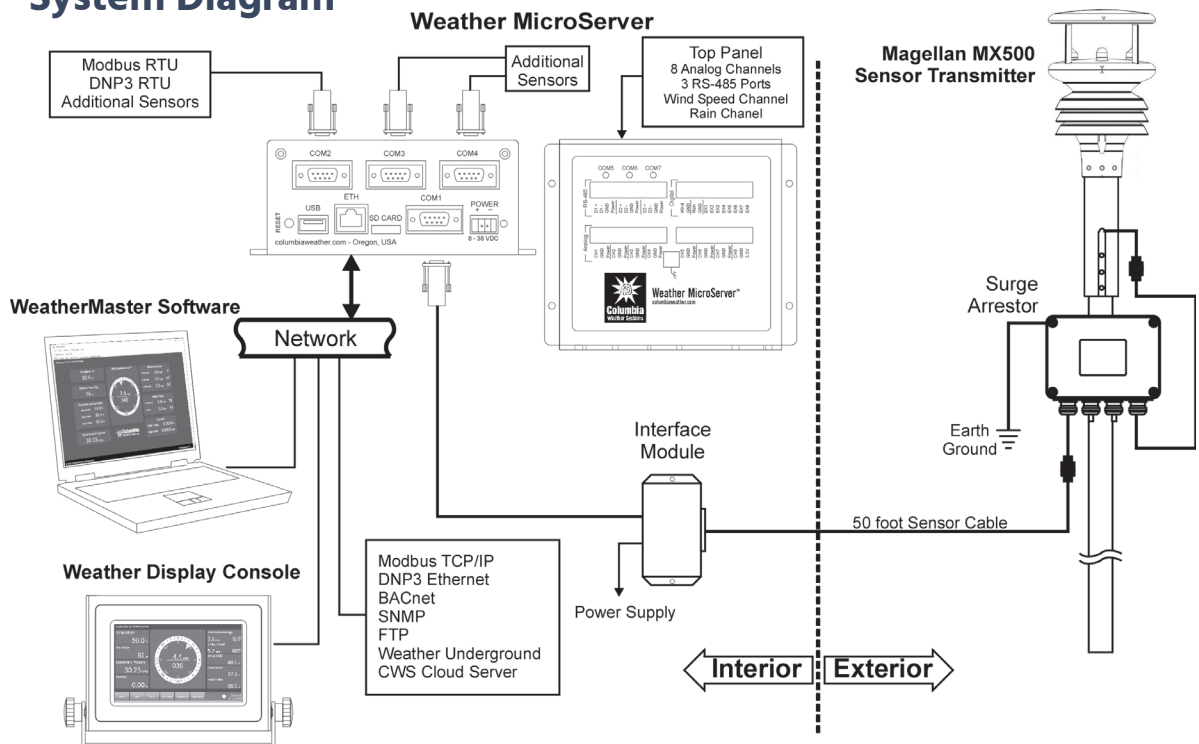
MX500: Ultrasonic Wind Speed and Direction, Pressure, Temperature, Relative Humidity, Compass, GPS

MX501: Solar Radiation, 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

System Diagram

Weather MicroServer

Modbus RTU
DNP3 RTU
Additional Sensors

Additional Sensors

Top Panel
8 Analog Channels
3 RS-485 Ports
Wind Speed Channel
Rain Chanel

Magellan MX500
Sensor Transmitter

COM2 COM3 COM4

ETH   COM1   POWER

RESET   USB   SD CARD   0 - 38 VDC

columbiaweather.com - Oregon, USA

COM5 COM6 COM7

Weather MicroServer™
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WeatherMaster Software

Network

Surge Arrestor

Interface Module

Earth Ground

Weather Display Console

Modbus TCP/IP
DNP3 Ethernet
BACnet
SNMP
FTP
Weather Underground
CWS Cloud Server

Power Supply

50 foot Sensor Cable

Interior   Exterior

Monitoring Options

Weather MicroServer™

Self-contained, proprietary weather data logger and powerful communication device. Compatible with all CWS weather stations and offers:

– Browser interface
– Data logging with 1-year capacity at 1-min interval
– "Internet-ready" weather monitoring with FTP output, XML, and Internet interfaces
– Industrial communication protocols (Modbus, DNP3, BACnet, and SNMP)

Four serial ports offer interface to the weather station and additional sensors such as visibility and ultrasonic wind sensors. Analog and digital channels available for additional sensor such as temperature, solar radiation, and rain gauge. The MicroServer provides real-time weather data to WeatherMaster software and the Display Console over the network. This allows users to simultaneously monitor the weather over the network.

Cloud Weather Server™

Free with the Weather MicroServer, this service offers real-time weather data monitoring on the Internet.

– View display screen remotely from any device using a web browser
– Data uploaded every five seconds
– Be alerted to critical weather conditions with alarm feature that generates email and push notifications
– For one or more weather stations

CWS Weather Monitor App™

Check current conditions quickly from a hand-held mobile device for decision-making in the field. The CWS Weather Monitor App is compatible with all CWS weather stations that include the Weather MicroServer.

The app includes real-time weather monitoring screens, NWS forecasts, and custom alarm notifications. Access to a Cloud Weather Server account is required.

Weather Display Console™

This touchscreen weather monitoring device displays real-time meteorological data, plus computations for wind chill, heat index and other calculated parameters. Measurements are designed to be viewed clearly from a distance even in a darkened control room.

– Seven-inch, TFT color LCD panel with 800 x 480 pixels resolution
– Connect directly to the weather station with a serial port or to the Weather MicroServer utilizing existing Ethernet
– Three mounting options: Desktop/Wall-Mount, Panel Mount/Flush Mount, 19" Rack Mount
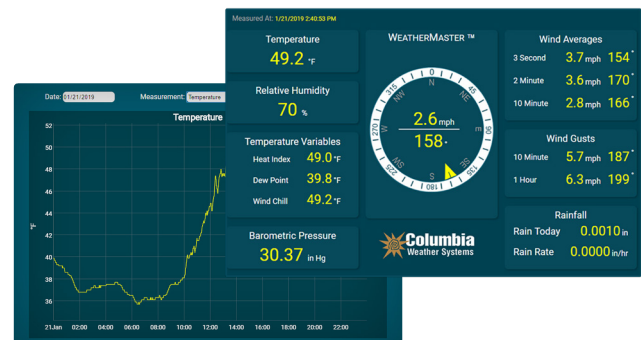
WeatherMaster™ Software

Professional-grade software providing real-time computer weather monitoring with display and automatic logging of all measured and calculated parameters.

– Expandable SQL database to archive measured and calculated parameters
– Graphing and trend display of all parameters
– Alarm notification via computer, email, and/or text
– Multi-station monitoring and data acquisition
– Interface with CAMEO/ALOHA software for plume modeling and evacuation corridor predictions
– Interface with Weather Underground

4-20 mA Signal Output

For industrial PLC interface, the Orion 420™ offers 4-20mA signal output to interface to PLC, DCS, and SCADA systems.

Specifications

Temperature
Range: -40 to +70°C (-40 to +158°F)
Accuracy: ±0.3°C (20°C); ±0.54°F (68°F)
Resolution: 0.1°C (0.18°F)
Units: °C, °F

Barometric Pressure
Range: 8.85 – 32.48 inHg (300 - 1100 hPa)
Accuracy: ±0.015 inHg (±0.5 hPa) at 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: ±3% 0.02 mph to 90 mph (0.01m/s to 40 m/s), ±5% above 90 mph and up to 134 mph (40 m/s - 60 m/s)
Resolution: 0.02 mph (0.1 m/s)
Units Available: knots, mph, km/hr, m/s

Wind Direction
Range: 0 to 359°
Accuracy: ± 3° 0.02 mph to 90 mph (0.01 m/s to 40 m/s), ±5° above 90 mph to 134 mph (40 m/s - 60 m/s)
Resolution: 1.0°

Relative Humidity
Range: 0 to 100%
Accuracy: ± 2% @ 68°F (10%-90% RH)
Resolution: 1.0%

Precipitation
Resolution: (0.003in/tip) (0.08mm/tip)
Precipitation Intensity: 0 to 5.90 inches/hour (0 to 150 mm/hour)
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

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 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 MagnetoInductive (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 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

All Magellan MX weather station systems include:
– Magellan Transmitter/Sensor Module (select model)
– Interface Module with dual communication ports
– Select the desired monitoring option(s) from the previous page
– One-year warranty, extended warranty available

Fixed-Base Weather Stations include 50-ft cable. Optional sensor mast, mounting hardware, and extra-length cable are available.

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

Magellan MX Portable Weather Stations include transportation case, tripod sensor mast, and batteries. Available in two configurations: Wireless (with transceivers), and Datalogging (with MicroServer).

Contact us today for a free quotation!