



Weather MicroServer™

Internet-Ready | XML | Modbus | SNMP | FTP | Data Logging

The image displays the Columbia Weather MicroServer hardware, a compact white device with various ports (COM1, COM2, COM3, ETH, USB, POWER) and a terminal block. It is shown alongside a web browser window displaying weather data for Hillsboro, Oregon, and a digital weather dashboard. The dashboard includes a wind speed gauge and various weather metrics.

| Latest Measurements (LX51 - CWS) - Mozilla Firefox | |
|--|-------------------|
| Sample Timestamp: | 12/13/06 15:16:53 |
| Wind Speed: | 3.7 |
| Raw Wind Direction: | 180 |
| Adjusted Wind Direction: | 180 |
| 3 Second Rolling Average Wind Speed: | 3.725 |
| 2 Minute Rolling Average Wind Speed: | 181.249976 |
| 2 Minute Rolling Average Wind Direction: | 3.658065 |
| 10 Minute Rolling Average Wind Speed: | 178.774391 |
| 10 Minute Rolling Average Wind Direction: | 3.69582 |
| 10 Minute Rolling Average Wind Speed: | 178.45542 |
| Temperature 1: | 69.4 |
| Relative Humidity: | 42.5 |
| Wind Chill: | 69.4 |

Updated at: 6/19/2018 10:24:43

| Weather Dashboard | |
|---------------------|--------------|
| Temperature | 73.7 °F |
| Humidity | 44 % |
| Barometric Pressure | 30.06 in Hg |
| Sea Level Pressure | 30.00 in |
| 2-Minute Average | 1.5 mph 034° |
| 1-Hour Gust | 5.3 mph 008° |
| Wind Chill | 73.7 °F |
| Dew Point | 50.2 °F |
| Heat Index | 73.0 °F |



User Interface

The Weather MicroServer is accessed through a web-based user interface using any browser such as Internet Explorer® or Mozilla Firefox®. Through the user interface, the MicroServer can be set up and fully configured. The user can:

- View the latest measurements
- Configure the network setup: IP Address, Subnet Mask, Gateway and DNS Server
- Change the password
- Set the date and time
- Set up and configure FTP output
- Enable Modbus interface
- Enable SNMP interface
- Enable CWOP interface
- Enable Weather Underground interface
- View and download data logs
- Select the weather parameter measurements
- Configure the weather station settings: Altitude, pressure offset, temperature offset, and degree day parameters
- Update the firmware as new versions become available
- View diagnostics information

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Network-Ready Weather Data for Integrated Environmental Monitoring

The Weather MicroServer creates an “Internet-ready” weather monitoring system by automatically providing FTP output, XML data output, and an Internet browser user interface. FTP output includes XML and CSV file formats. It utilizes the Linux operating system.

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

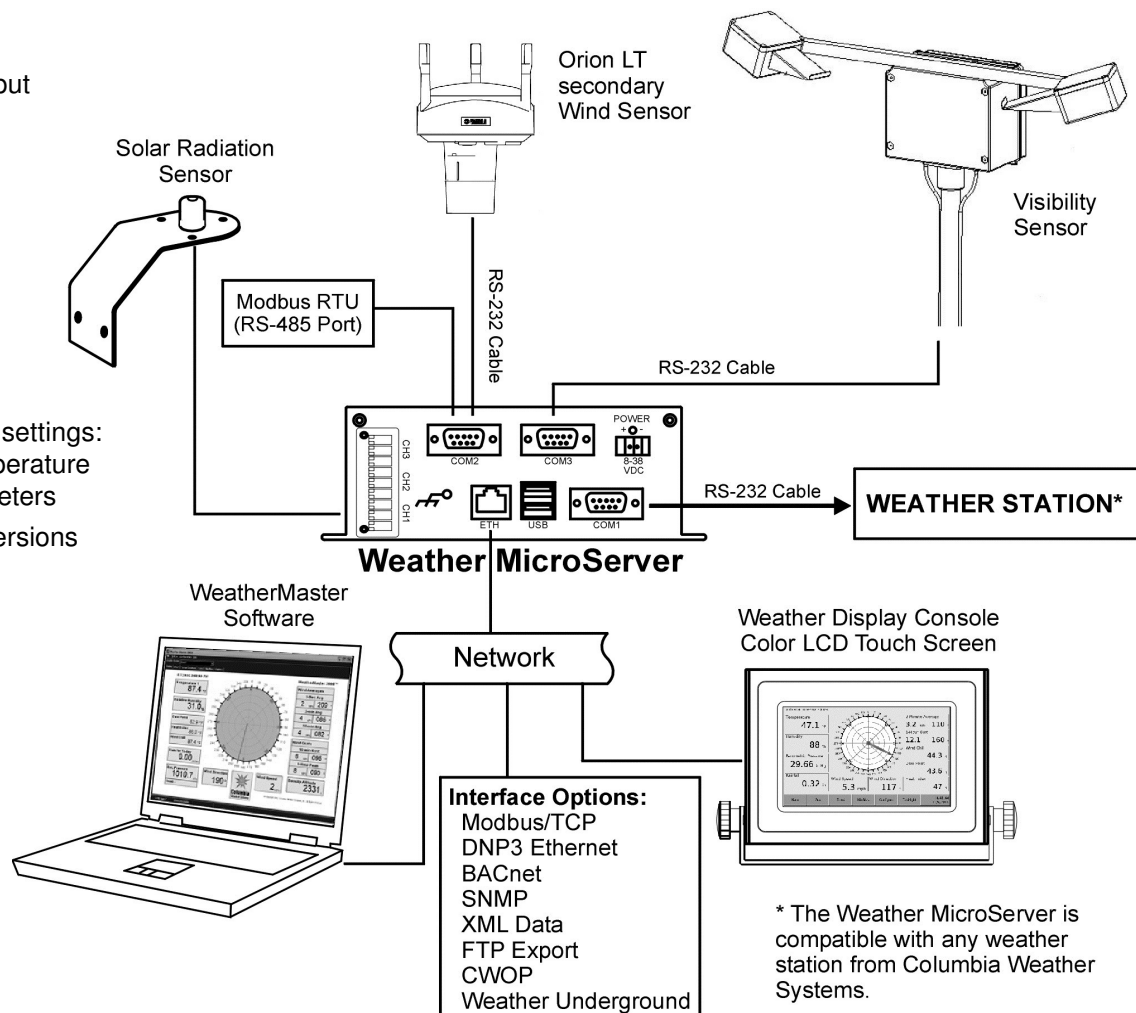
SNMP, Modbus/OPC, Modbus/RTU, BACnet, and DNP3 **communication protocols** are standard for Industrial Management applications.

Compatible with CWOP (Citizen Weather Observer Program) and Weather Underground, the MicroServer can automatically post data from your weather station to these **network websites**.

Two additional serial ports offer interface to the Weather Display Console and additional peripheral devices or sensors. Popular **additional sensors** include visibility, solar radiation, snow level, secondary wind, and particle concentration. See the website for a current list of available sensors.

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 computer connected to the network.

The Weather MicroServer interfaces with any CWS weather station model to provide a range of weather parameters and monitoring options, including portable and vehicle-mount sensor packages.



* The Weather MicroServer is compatible with any weather station from Columbia Weather Systems.

Weather MicroServer™

Communication Protocols

XML

The Weather MicroServer serves an XML page that contains current weather parameter values. It can also FTP the XML page to a web or FTP server on the Internet.

The XML page contains tags for all the selected parameters and current values.

FTP

The Weather MicroServer can use FTP to upload XML and CSV files to a website at 15 second intervals.

SNMP - Simple Network Management Protocol

The Weather MicroServer has a built-in SNMPv2 interface for communication with network management systems.

A MIB file is provided on our website and in the MicroServer user interface.

Modbus

The Weather MicroServer has a built-in Modbus/TCP and RTU interfaces for communication with industrial automation systems and OPC servers.

Modbus is a serial communications protocol used with programmable logic controllers (PLCs). The Weather MicroServer uses Modbus/TCP for connections over Ethernet (TCP/IP).

Using a Modbus OPC Server, the MicroServer can provide OPC data access. We offer the KEPServerEX Modbus OPC Server Suite.

The Modbus Point List is available on our website.

Additional Protocols

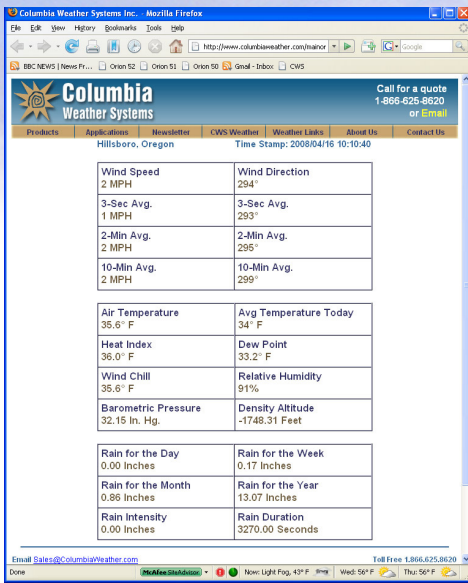
DNP3 and BACnet protocols are also standard for interface to common automation controls.

Cloud-based Weather Server

Real-time weather data monitoring that is easily accessible from any device using a web browser. A secure, no-hassle weather website. Data is automatically uploaded every 5 seconds.

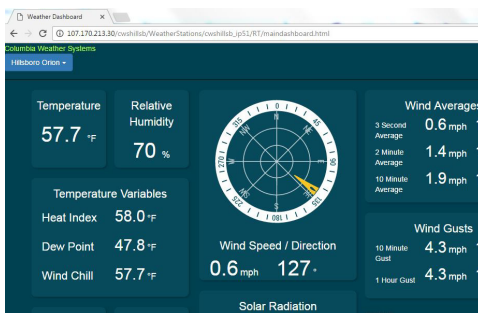
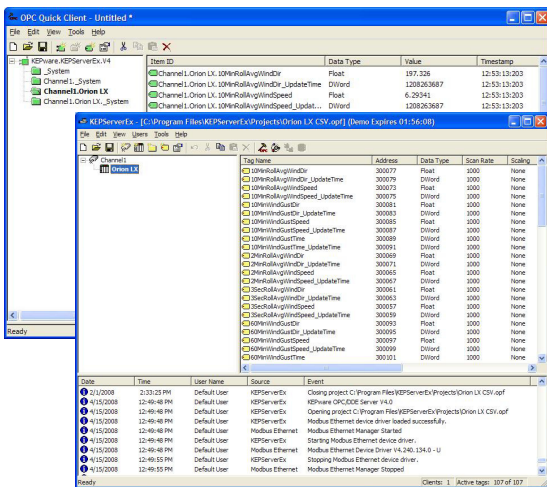
Multiple weather stations can be networked, with the display including an overview option to view key data points from weather stations simultaneously.

A security solution for customers who are unable to upload data (via FTP) to their website or implement port forwarding.



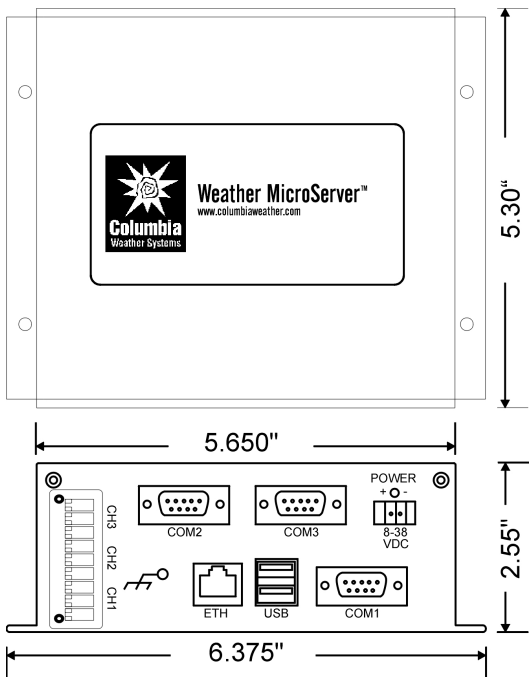
XML Weather Data Web Service

Through the XML weather data served by the MicroServer, the user can access the current values of any of the selected parameters through PHP or ASP web scripts.



- 600 MHz TI ARM Processor
- 128 MB RAM, 128 MB Flash Memory
- 8 GB micro SD card for Datalogger
- 8-38 VDC Power Supply
- 3 Communication Serial Ports
- 1 Ethernet Port
- Linux Operating System
- Footprint Dimensions:
6.375" W x 2.55" H x 5.30" D

Compatible with any Columbia Weather Systems weather station including Orion, Pulsar, Capricorn FLX, and Magellan MX.



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Measurements and Calculations

The parameters monitored depend on the weather station to which the MicroServer is connected. The MicroServer is compatible with any weather station from Columbia Weather Systems. For a current list, visit our website. Possible measurements and calculated parameters include:

o Wind Speed & Direction

- Wind Speed
- Raw Wind Direction
- Adjusted Wind Direction
- 3 Second Rolling Average Wind Speed
- 3 Second Rolling Average Wind Direction
- 2 Minute Rolling Average Wind Speed
- 2 Minute Rolling Average Wind Direction
- 10 Minute Rolling Average Wind Speed
- 10 Minute Rolling Average Wind Direction
- 10 Minute Gust Wind Direction
- 10 Minute Gust Wind Speed
- 10 Minute Gust Time
- 60 Minute Gust Wind Direction
- 60 Minute Gust Wind Speed
- 60 Minute Gust Time

o Precipitation

- Rain Today
- Rain this week
- Rain this month
- Rain this year
- Rain Intensity*
- Rain Duration
- Hail**
- Hail Duration**
- Hail Intensity**

o Relative Humidity

* Available only with Capricorn FLX Weather Stations

** Available only with Orion Weather Stations

o Solar Radiation

o Visibility

o Temperature

- Temperature 1
- Temperature 2*
- Temperature 3*
- Temperature 4*
- Average Temperature Today
- Degree Days
- Wet Bulb Temperature

o Barometric Pressure

- Raw Barometric Pressure
- Adjusted Barometric Pressure

o Calculated Parameters

- Wind Chill
- Heat Index
- Dew Point
- Density Altitude

o Air Quality Parameters

- Saturated Vapor Pressure
- Vapor Pressure
- Dry Air Pressure
- Dry Air Density
- Wet Air Density
- Absolute Humidity
- Air Density Ratio
- Adjusted Altitude
- SAE Correction Factor

o Additional Parameters

- Depending on sensors