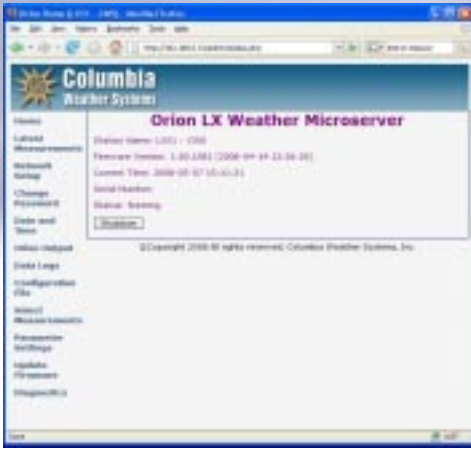




Weather MicroServer™

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





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, and Modbus/RTU 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.

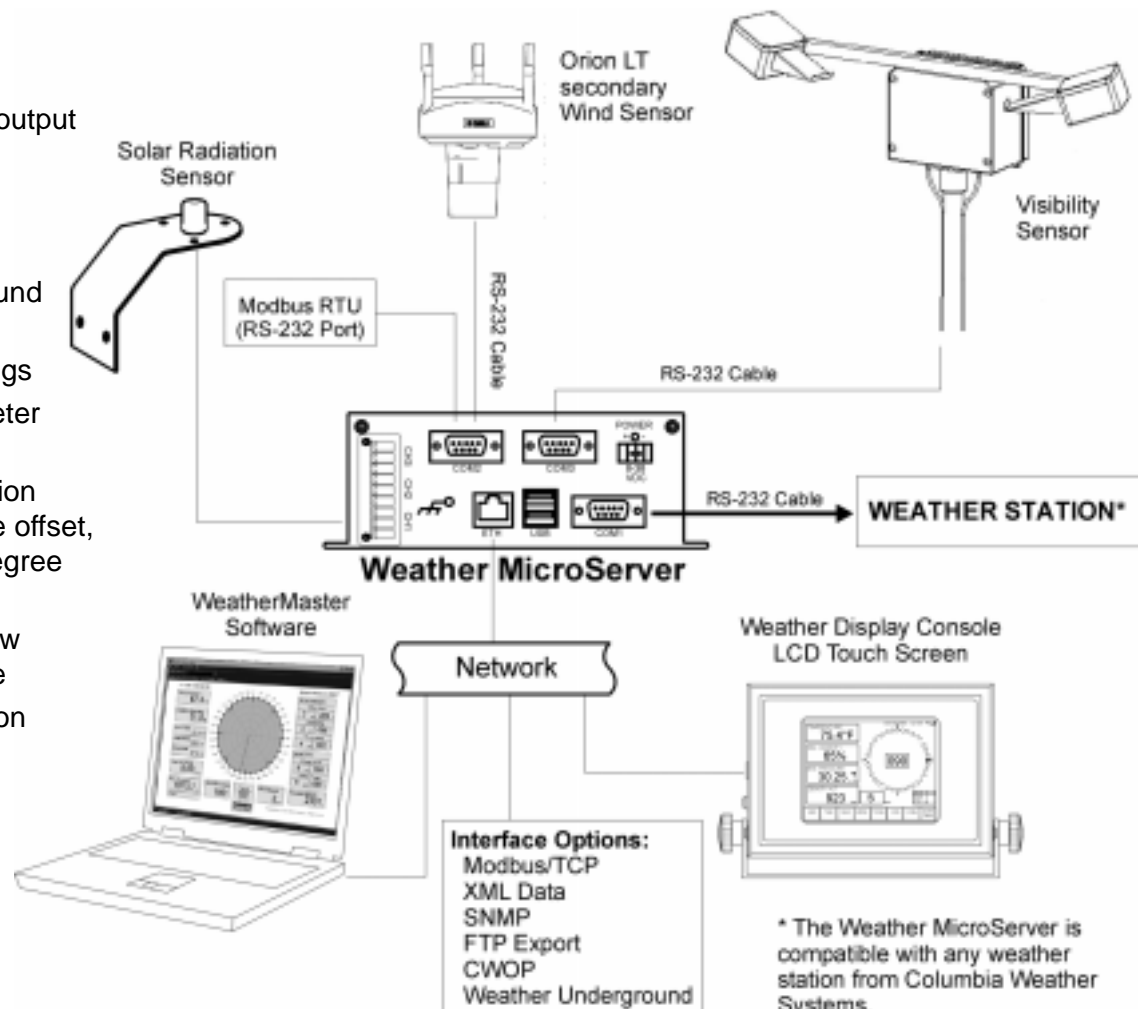
Optional sensors that integrate directly into the Weather MicroServer include visibility, solar radiation, temperature (up to two), and ultrasonic wind speed and direction.

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.

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



Columbia Weather Systems

Toll-free 1 888-508-7375

info@columbiaweather.com

www.columbiaweather.com



Weather MicroServer™

Communication Protocols

XML

XML (Extensible Markup Language) is a markup language designed to transport and store data.

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

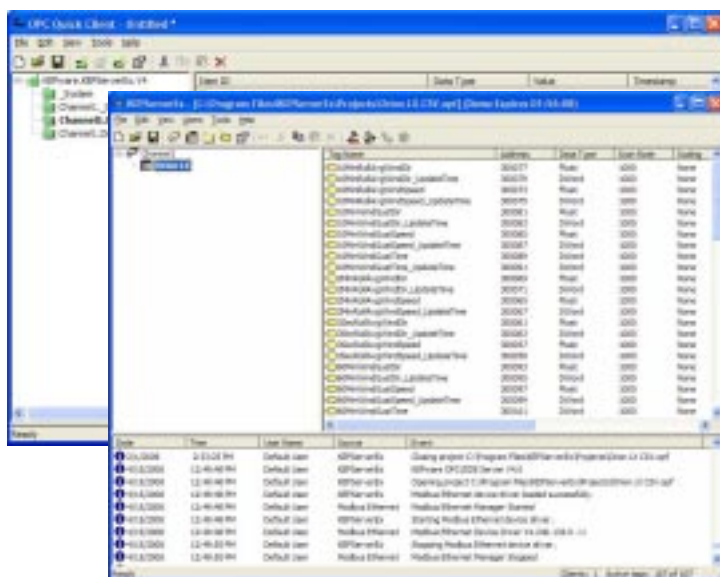
The Weather MicroServer has a built-in SNMPv2 interface for communication with network management systems.

The *Simple Network Management Protocol (SNMP)* is an application layer protocol that facilitates the exchange of management information between network devices. It is part of the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite. SNMP enables network administrators to manage network performance, find and solve network problems, and exchange data.

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

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.



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 published by Modicon in 1979 for use with its programmable logic controllers (PLCs). It has become a de facto standard communications protocol in industry, and is now the most commonly available means of connecting industrial electronic devices.

The Weather MicroServer uses a more recent variant: 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.

Specifications

Weather MicroServer™

Weather MicroServer

200 MHz ARM9 Processor
32 MB SDRAM, 512 MB Flash Memory
8-38 VDC Power Supply
2 Communication Serial Ports
1 Ethernet Port
Linux Operating System
Footprint Dimensions:
6.375" W x 2.55" H x 5.30" D

Optional Visibility Sensor

Visibility Range: 30m - 16 km standard
Extinction Range: 100 - 0.1863 km-1 standard
Accuracy: +/- 10% RMSE
Time Constant: 60 sec
Scatter Angle: 42 deg nominal
Source: 880 nm LED
Output: Serial RS-232
Power: 100-240 VAC, 24 VA Nominal
Operating Temperature: -40 to 60 C
Operating Humidity: 0-100%
Protection: IP66 (NEMA-4X)
Weight: 8 kg (18 lb)
Dimensions: 889 mm W x 292 mm H x 305 mm D
(35 in x 11.5 in x 12 in)
Mounting: Nominal 40 mm ISO pipe, 48 mm OD max
(1-1/2" IPS pipe, 1.9 inch OD max)

Optional Solar Radiation Sensor

Cosine Response: 45° zenith angle \pm 1%,
75° zenith angle \pm 5%
Absolute Accuracy: \pm 5%
Uniformity: \pm 3%
Repeatability: \pm 1%
Output Responsivity: 0.200 mV per W/m²
In full sunlight: 220 mV (1,100 W/m²)
Linear Range: 0-350 mV (0 - 1,750 W/m²)
Sensitivity: Custom calibrated to exactly
5.00 W/m² per mV

Optional Temperature Sensor

Specify Panel, Soil, Water, Ambient
Range: -40 to +125° C (-40 to + 257° F)
Typical Accuracy: \pm 0.5° C (\pm 0.9° F)
from +15 to 110° C (+59 to +230° F)
Resolution: 0.1° C (0.1° F)

Optional Wind Sensor

Wind Speed

Range: 0-135mph (0-60 m/s)
Accuracy: \pm 0.7 mph (+/-0.3 m/s)
Resolution: 1 mph (1 m/s)
Units Available: knots, mph, km/hr, m/s

Wind Direction

Azimuth: 0-360°
Accuracy: \pm 3°
Resolution: 1°
Units Available: ° Azimuth

© 2012, Columbia Weather Systems, Inc. 01/12.
Subject to change without notice.

Measurements and Calculations

Parameters depend on the weather station to which the MicroServer is connected. The MicroServer is compatible with any weather station from Columbia Weather Systems. Possible measurements and calculated parameters include:

▣ 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

▣ Precipitation

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

▣ Relative Humidity

▣ Solar Radiation

▣ Visibility

▣ Temperature

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

▣ Barometric Pressure

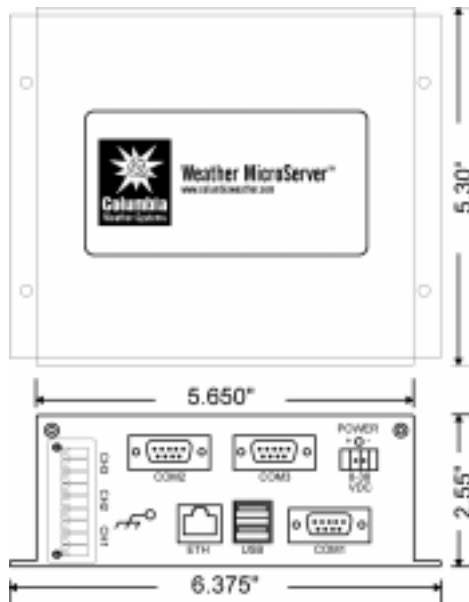
- Raw Barometric Pressure
- Adjusted Barometric Pressure

▣ Calculated Parameters

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

▣ Air Quality Parameters

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



Columbia Weather Systems, Inc.

2240 NE Griffin Oaks, Suite 100
Hillsboro, OR 97124
Toll-free 1 888 508-7375
Phone (503) 629-0887
Fax (503) 629-0898
info@columbiaweather.com
www.columbiaweather.com