

# Pulsar™

## WEATHER STATIONS

Wind | Precipitation | Temperature | Humidity | Pressure | Solar | Lightning | Compass



Measured At: 1/21/2019 2:40:53 PM

Temperature	49.2 °F	WEATHERMASTER™
Relative Humidity	70 %	
Variables		<p>2.6 mph 158</p>
Heat Index	49.0 °F	
Wind Speed	39.8 °F	
Wind Direction	49.2 °F	
Pressure		
Pressure in Hg		

## Innovative All-in-One Weather Monitoring

### Sensor Models



Raising weather monitoring to a new level, Pulsar Weather Stations combine the convenience of all-in-one configuration with the flexibility of multiple high-accuracy sensor options. Wind speed and direction utilize ultrasonic technology. All wind models include an electronic, flux-gate compass for auto-align of wind direction. Precipitation can be measured with 24 GHz Doppler radar or tipping bucket.

### Pulsar Weather Stations Feature:

- Multi-parameter all-in-one sensor design for easy installation
- Fan-aspirated and ventilated radiation protective housing
- Heater for extreme cold environments
- Maintenance-free measurement advantage over mechanical sensors
- One-year warranty

### All-in-One Sensor Modules

**Model 100:** Doppler Radar Precipitation (type, intensity, accumulation)

**Model 200:** Ultrasonic Wind Speed and Direction

**Model 400:** Temperature, Humidity, Pressure, Doppler Radar Precipitation

**Model 500:** Temperature, Humidity, Pressure, Wind Speed and Direction

**Model 501:** Temperature, Humidity, Pressure, Wind and Solar Radiation (second-class pyranometer)

**Model 502:** Temperature, Humidity, Pressure, Wind and Solar Radiation

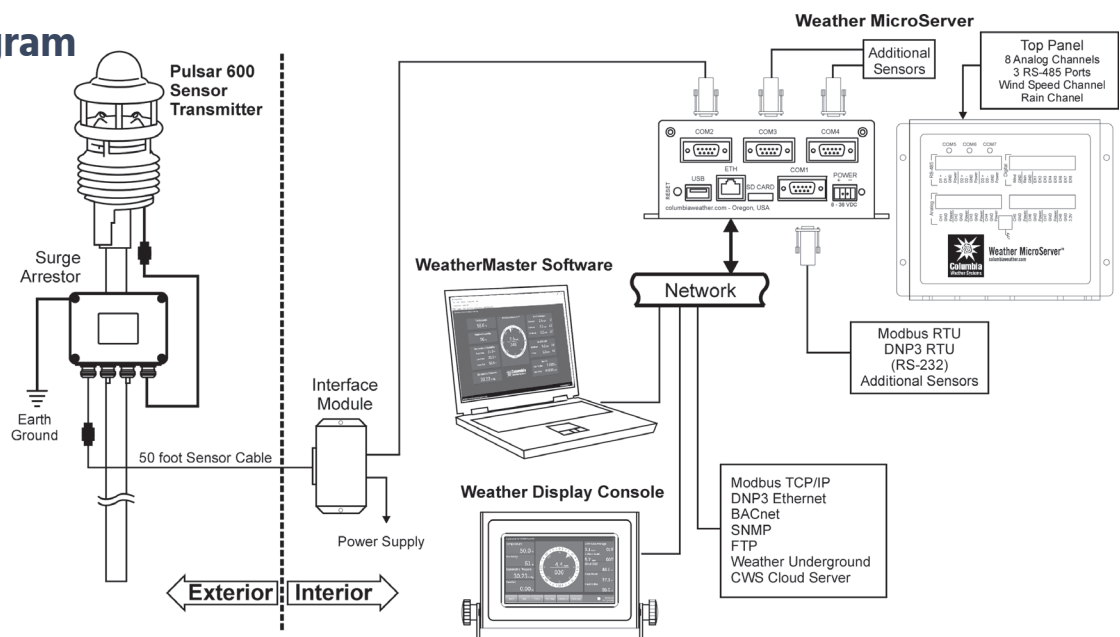
**Model 600:** Temperature, Humidity, Pressure, Wind and Doppler Radar Precipitation

**Model 601:** Temperature, Humidity, Pressure, Wind, Tipping Bucket Precipitation, and optional Leaf Wetness

**Model 700:** Solar Radiation, Doppler Radar Precipitation, Temperature, Humidity, Pressure, Wind Speed and Direction

**Model 800:** Lightning Detection, Solar Radiation, Doppler Radar Precipitation, Temperature, Humidity, Pressure, Wind Speed and Direction

### System Diagram



# 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.

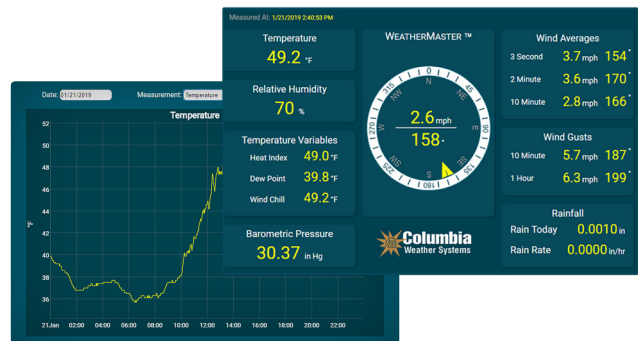
The app includes real-time weather monitoring screens, NWS forecasts, and custom alarm notifications. Access to a Cloud Weather Server account is required.



## 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

## Precipitation Intensity, Type, Quantity (Models 100, 400, 600, 700, 800)

Principle: Doppler Radar

Precipitation Type: Rain/Snow

Measuring Range Drop Size: 0.3 to 5 mm

Reproducibility: Typ.>90%

Resolution: 0.01mm

## Precipitation Quantity (Model 601 only)

Principle: Tipping Bucket

Accuracy: ±2 %

Resolution: 0.2mm / 0.5 mm

## Temperature

Range: -50 to +60°C

Accuracy: ±0.2°C (0.36°F) (-20° to +50°C)

otherwise ±0.5°C (>-30°C)

## Air Pressure

Range: 300 to 1200 hPa

Accuracy: ±0.5 hPa (0 to +40°C)

## Relative Humidity

Range: 0 to 100%

Accuracy: ±2%

## Wind Speed

Range: 0 to 75 m/sec (601: 0 to 30 m/s)

Accuracy: ±0.3 m/s or 3% (0 to 35 m/s), ±5% (>35 m/s)

Resolution: 0.1 mph (0.1 m/s)

## Wind Direction

Range: 0 to 359.9°

Accuracy: < 3°

## Solar Radiation (Model 501)

ISO Classification: Second Class

Non-stability (change/year): <1%

Non-linearity (0 to 1,000 W/m<sup>2</sup>): <1%

Directional error (at 80°with 1,000W/m<sup>2</sup>): <20W/m<sup>2</sup>

Temperature dependence of sensitivity:

<5% (-10 to +40°C)

Tilt error (at 1,000W/m<sup>2</sup>): <1%

Spectral Range (50% points): 300 to 2,800 nm

Maximum irradiance: 1,400 W/m<sup>2</sup>

## Solar Radiation (Model 502, 700, 800)

Response time (95%): <1 s

Accuracy: 5%

Spectral Range (50% points): 300 to 1100 nm

Maximum irradiance: 1400 W/m<sup>2</sup>

## Parameter Measurements

**Wind Speed and Direction.** The wind meter uses four ultrasonic sensors which take cyclical measurements in all directions. The resulting wind speed and direction are calculated from the measured run-time sound differential.

**Air Temperature and Humidity.** Temperature is measured by way of a highly accurate NTC-resistor while humidity is measured using a capacitive humidity sensor. To help mitigate the effects of external influences, these sensors reside in a fan-aspirated housing.

**Air Pressure.** Absolute air pressure is measured with a built-in micro-electro-mechanical sensor (MEMS). The relative air pressure referenced to sea level is calculated using the barometric formula configured with local altitude input by the user.

**Precipitation.** Models 100, 400, 600, 700, 800 precipitation sensor works with a 24GHz Doppler radar, which measures drop speed and calculates precipitation quantity and type by correlating drop size and speed.

Model 601 has a tipping-bucket and offers an optional leaf wetness sensor.

**Solar Radiation.** The Model 501 thermopile sensor construction measures the solar energy that is received from the total solar spectrum and the whole hemisphere (180 degrees field of view). Models 502, 700 and 800 use a silicon photodiode sensor.

**Compass.** Included on all models with wind measurement, the electronic compass helps orient the module and correlate wind direction automatically.

**Lightning Detection.** Model 800 only. An integrated sensor analyses the radio wave emission of lightnings. It delivers a count of lightnings and suppresses man-made electrical discharges with a 5 - 10 km coverage area.

## Sensor Configurations

Pulsar Model	800	700	601	600	501/2	500	400	200	100
Compass	x	x	x	x	x	x		x	
Wind Speed/Dir.	x	x	x	x	x	x		x	
Temp/Humidity	x	x	x	x	x	x	x		
Pressure	x	x	x	x	x	x	x		
Precipitation	x	x	x	x			x		x
Solar Radiation	x	x			x	x			
Lightning Detect.	x								

**Contact us today for a free quotation!**



5285 NE Elam Young Pkwy, Suite C100, Hillsboro, OR 97124 | phone 503-629-0887  
info@columbiaweather.com | fax 503-629-0898 | ColumbiaWeather.com

©2024 Columbia Weather Systems | All Rights Reserved.