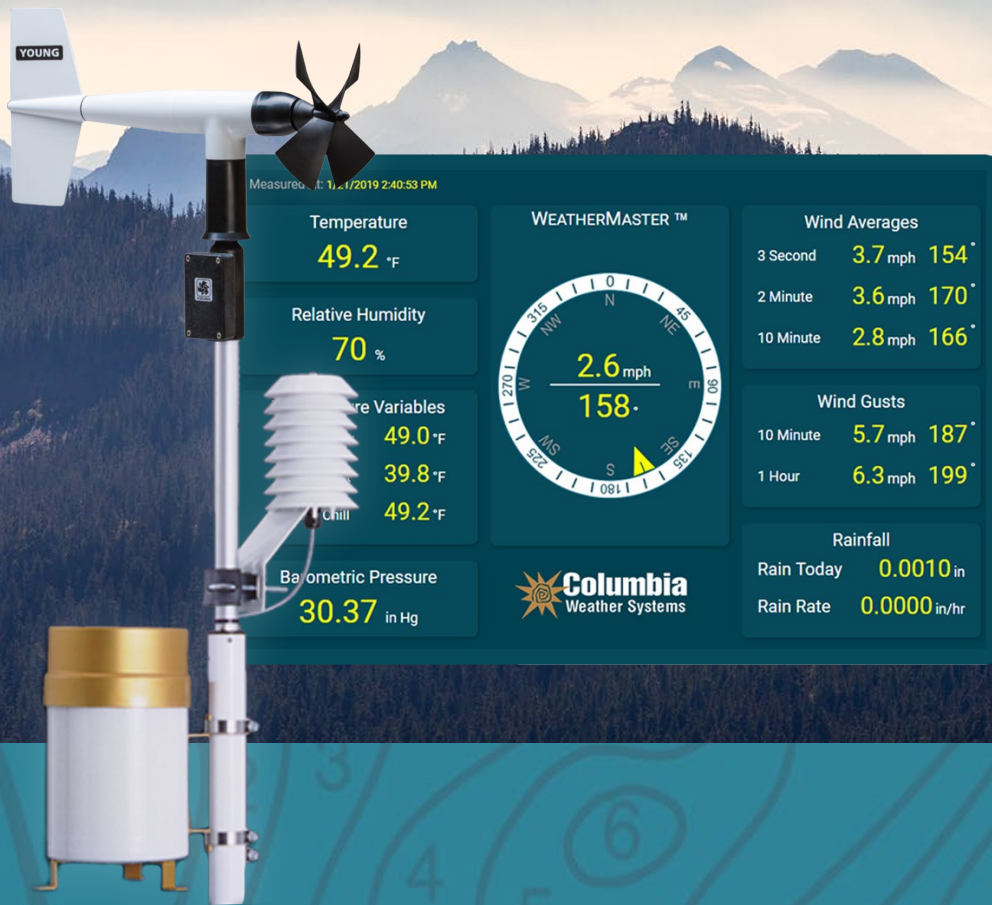


# Capricorn FLX™

## WEATHER STATIONS

Wind | Temperature | Humidity | Rainfall | Barometric Pressure | Solar Radiation



## Modular, Reliable Meteorological Monitoring



Capricorn FLX™ weather station's modular design offers flexible parameter selection for optimal sensor location. Low power consumption makes this system compatible with alternate power sources such as solar and battery where required.

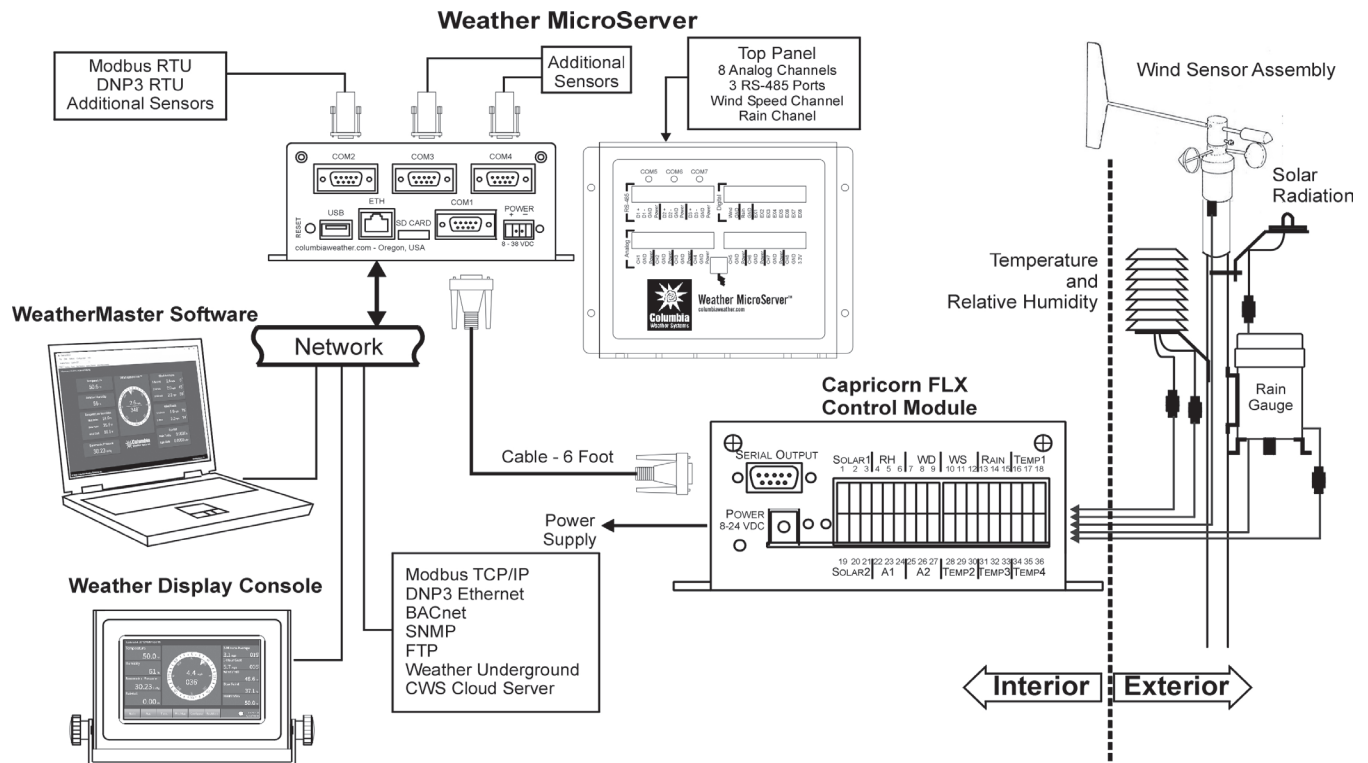
The Control Module can accept signal inputs from the following met sensors:

- Mechanical wind speed and direction
- Relative Humidity
- Temperature (up to four total; air, soil and/or water)
- Barometric Pressure (internal to Control Module)
- Rain Gauge (tipping bucket)
- Solar Radiation (up to two total)
- Two general purpose analog channels for additional sensors such as Leaf wetness and Soil Moisture

Capricorn FLX data can be monitored with our proprietary Weather Display Console™, WeatherMaster™ Software, and/or the Weather MicroServer™ for Internet-ready output as well as industrial automation interfaces including Modbus TCP/IP.

All systems come standard with a one-year warranty.

### 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.

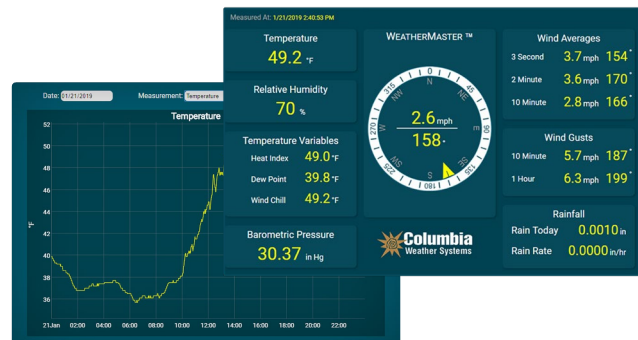
The app includes real-time weather monitoring screens, NWS forecasts, and custom alarm notifications. Access to a Cloud Weather Server account is required.



## 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 Capricorn FLX 420™ offers 4-20mA signal output to interface to PLC, DCS, and SCADA systems.

# Specifications

**Temperature:** Digital semiconductor type  
Accuracy:  $\pm 0.9^{\circ}\text{F}$  from  $+14^{\circ}$  to  $185^{\circ}\text{F}$   
 $\pm 3.6^{\circ}\text{F}$  from  $-67^{\circ}$  to  $257^{\circ}\text{F}$   
Resolution:  $0.01^{\circ}\text{F}$

**Barometric Pressure:** MEMS; temperature compensated and calibrated  
Accuracy:  $\pm 0.03$  in. Hg (1 hPa)  
Range: 14.8 to 32.5 in. Hg (500 to 1100 hPa)  
Resolution: 0.001 in. Hg (0.01 hPa)

**Wind Speed:** Four-blade helicoid propeller  
Accuracy:  $\pm 0.3$  m/s (0.6 mph) or 1% of reading  
Range: 0-78 m/s (175 mph), 0-  $360^{\circ}$

**Wind Direction:** Precision Potentiometer  
Accuracy:  $\pm 3$  degrees

**Relative Humidity:** Capacitance  
Accuracy:  $\pm 3\%$  (or better) from 10 to 90% RH  
Temperature Effect: less than  $<\pm 1.5\%$  RH  
Stability:  $\pm 2\%$  RH over 2 years  
Reporting Resolution: 1% RH

**Rainfall:** Tipping bucket  
Accuracy:  $\pm 1\%$  at 2 in./hr or less  
Resolution: 0.01 inch

**Solar Radiation:** Silicon photodiode  
Cosine Response:  $45^{\circ}$  zenith angle  $\pm 1\%$ ,  
 $75^{\circ}$  zenith angle  $\pm 5\%$   
Absolute Accuracy:  $\pm 5\%$   
Repeatability:  $\pm 1\%$   
Output Responsivity: 0.200 mV per  $\text{W}/\text{m}^2$   
In full sunlight: 220 mV ( $1,100 \text{ W}/\text{m}^2$ )  
Linear Range: 0 - 350 mV (0 -  $1,750 \text{ W}/\text{m}^2$ )  
Sensitivity: 5.00  $\text{W}/\text{m}^2$  per mV

## Parameter Measurements

**Wind Measurement:** Durable wind sensor assembly. Helicoid propeller measures wind speed. Wind direction determined by vane attached to precision potentiometer inside internal housing.

**Barometric Pressure:** The on-board barometric pressure sensor provides accurate pressure data with full temperature compensation. The sensor outputs are digitized by a high-resolutions 24-bit analog to digital converter.

**Ambient Temperature:** Up to four temperature sensors can be connected. Digital, semiconductor-type probes all connect to a single port, reducing susceptibility to noise interference, reducing cost, and increasing accuracy

**Panel-Mount Temperature:** For solar panel monitoring.

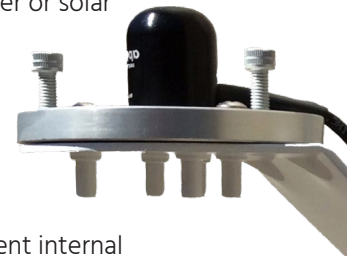
**Soil/Water Temperature:** Sealed in thermally conductive epoxy for protection against corrosion and moisture.

**Humidity:** This compact capacitive sensor can be installed in a radiation shield for protection from the elements. This sensor offers long-term stability with minimal drift and resistance to contamination.



**Rainfall:** Tipping bucket electronic rain gauge composed of a complex spun collector funnel with a knife edge that diverts the water to a tipping bucket mechanism. For each tip, a magnet causes an electronic pulse to be recorded. The rainfall sensor is completely automatic and requires no servicing.

**Solar Radiation:** The pyranometer or solar radiation sensor is calibrated to measure the shortwave radiation reaching the Earth's surface, measured in Watts per square meter. Self-cleaning dome-shaped head prevents water accumulation. Sensor head is potted solid to prevent internal condensation in humid environments.



## System Configurations

The Capricorn FLX weather station includes:

- Control Module with barometric pressure
- Select sensors with cable
- Select desired monitoring option(s) from previous page
- One-year warranty
- 50-ft sensor cables. Optional sensor mast, mounting hardware, and extra-length cable available.

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



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