Capricorn FLX™

WEATHER STATIONS

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

Temperature: 49.2°F
Relative Humidity: 70%
Dry Bulb: 49°F
Dew Point: 39.8°F
Wind Chill: 49.2°F
Barometric Pressure: 30.37 in Hg

Wind Averages:
- 3 Second: 3.7 mph, 154°
- 2 Minute: 3.6 mph, 170°
- 10 Minute: 2.8 mph, 166°

Wind Gusts:
- 10 Minute: 5.7 mph, 187°
- 1 Hour: 6.3 mph, 199°

Rainfall:
- Rain Today: 0.0010 in
- Rain Rate: 0.0000 in/hr
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 Direction and Speed (heavy-duty, heated available)
- 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

Available in three configurations — fixed-mount, vehicle-mount, and the Pegasus FLX™ portable weather station — 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™**
A self-contained, proprietary weather computer utilizing an embedded Linux operating system.
- “Internet-ready” weather monitoring with FTP output, XML, and Internet browser user interface
- Industrial communication protocols (SNMP, Modbus, DNP3, BACnet)
- Datalogging capability

Two serial ports offer interface to the Weather Display Console and additional sensors such as visibility and ultrasonic wind sensors.

The Weather MicroServer can provide real-time weather data to WeatherMaster Software and Display Console over the network. This allows users to simultaneously monitor the weather using

**Color Weather Display Console™**
“Intelligent” touch-screen technology incorporates programmable microprocessor and abundant memory to display weather information, perform complex computations, and store data.
- 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

**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
- For one or more weather stations

All monitoring devices can be factory-customized to suit application-specific requirements.

**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.

**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

Call or email for a quote | toll-free 1-888-508-7375 | info@columbiaweather.com
Specifications

**Temperature:** Digital semiconductor type
- Accuracy: ± 0.9°F from +14° to 185°F
- ± 3.6°F from -67° to 257°F
- Resolution: 0.01°F

**Barometric Pressure:** MEMS; temperature compensated and calibrated
- Accuracy: ± 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:** Sealed reed switch
- Accuracy: ± 0.25 mph from 0 to 23 mph, ± 1% from 24 to 160 mph
- Range: 0 to 160 mph (139 knots)
- Resolution: 1 mph
- Starting Threshold: 0.9 mph

**Wind Direction:** Precision Potentiometer
- Resolution: 2 degrees
- Range: 0 to 360 degrees
- Accuracy: ± 4 degrees

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

**Rainfall:** Tipping bucket
- Accuracy: ± 1% at 2 in/hr or less
- Resolution: 0.01 inch

**Solar Radiation:** Silicon photodiode
- Cosine Response: 45° zenith angle ± 1%, 75° zenith angle ± 5%
- Absolute Accuracy: ± 5%
- Uniformity: ± 3%
- Repeatability: ± 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: 5.00 W/m² per mV

Parameter Measurements

**Wind Measurement:** Durable aluminum/stainless steel wind sensor assembly. Wind direction sensor uses precision potentiometer. Wind speed sensor uses a sealed reed switch.

**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

All Capricorn FLX weather station systems include:
- Control Module with barometric pressure
- Select sensors with cable
- Select desired monitoring option(s) from previous page
- One-year warranty

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

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

**Pegasus FLX Portable Weather Stations** include wireless transceivers, batteries, transportation case and tripod with 10-ft telescoping mast.

Contact us today for a free quotation!