

Capricorn 2000EX™ Weather Station

*For Critical Weather
Monitoring Requirements*

- **Modular Flexibility**
- **Field Proven Reliability**
- **Dependable Accuracy**
- **Powerful Software**
- **Superior Customer Service**

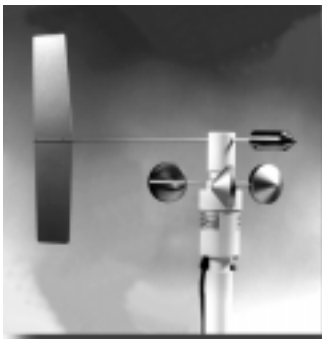


The Capricorn 2000EX™ weather station's modular design provides professional grade data capture, storage and transfer. Designed around the Control Module, this flexible modular system can easily accept signal inputs from a wide variety of meteorological sensors.

Data is viewed using the Capricorn 2000 Weather Display Console and/or computer software connected to the Control Module via dual RS-232 ports.

CONTROL MODULE

Housed in a compact, utility-grade or weatherproof enclosure, the Control Module includes a data logger storing up to 511 records at user-defined intervals with time and date stamp. Max/Min information is also stored at user-defined intervals. Dual on-board RS-232 interfaces allow connection to a display console, modem, or directly to a computer at the same time.



WIND DIRECTION AND SPEED

The Capricorn 2000EX features a durable aluminum/stainless steel wind sensor assembly. The wind direction sensor offers superior resolution and accuracy. The wind speed sensor is rated up to 160 MPH.

The wind direction sensor uses a precision potentiometer while the wind speed sensor uses a sealed reed switch.

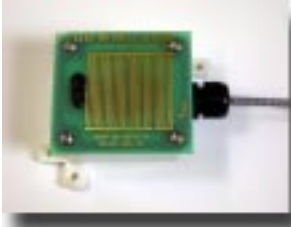
BAROMETRIC PRESSURE

Housed in the Control Module, the barometric pressure sensor is a silicon shear stress strain gauge. This state-of-the-art sensor integrates on-chip, bipolar op amp circuitry and thin film resistor networks to provide a high-level analog output signal and true temperature compensation. The on-chip integration results in high reliability and accuracy. The sensor is calibrated at the factory NIST traceable standard.

RELATIVE HUMIDITY

This capacitive sensor is compact and easy to use. It 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.





LEAF WETNESS

Measured with a capacitance grid, this proprietary leaf wetness sensor provides a precise, high resolution scale, not just wet or dry. It is useful to determine the wetness condition of surfaces including foliage, or example, in preparation for spraying pesticides.



SOLAR RADIATION

The pyranometer or solar radiation sensor is calibrated to measure the shortwave radiation reaching the Earth's surface, measured in Watts m^{-2} . Self-cleaning dome-shaped head prevents water accumulation.

Sensor head is potted solid to prevent internal condensation in humid environments.



TEMPERATURE

The Capricorn 2000™ comes standard with one temperature sensor and 50 feet of cable. Up to four temperature sensors can be connected with a maximum of 400 feet combined cable length. These digital, semiconductor-type probes all connect to a single port, reducing susceptibility to noise interference, reducing cost, and increasing accuracy. The sensors are calibrated at the factory.



SOIL/WATER TEMPERATURE

An environmentally hardened temperature sensor is also available for soil and water temperature. This sensor is housed in stainless steel and is sealed in thermally conductive epoxy to provide protection against corrosion and moisture. The sensor is calibrated at the factory.

RAINFALL

The tipping bucket electronic rain gauge is 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.



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Sensor Specifications

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

Barometric Pressure: Silicon shear stress strain gauge; temperature compensated and calibrated
Accuracy: ± 0.03 in. Hg over range
Range: 27.00 to 33.96 in. Hg
Resolution: 0.01 in. Hg

Wind Speed: Sealed reed switch
Accuracy: ± 0.25 mph from 0 to 23 mph, $\pm 1\%$ 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: $\pm 3\%$ (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

Leaf Wetness: Capacitance grid (measures percentage of wetness where 0.00 volts corresponds to dry and 5.00 volts corresponds to dripping)
Accuracy: $\pm 5\%$
Resolution: 0.01 volts

Solar Radiation: Silicon photodiode
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 m⁻²
In full sunlight: 220 mV (1,100 W m⁻²)
Linear Range: 0 - 350 mV (0 - 1,750 W m⁻²)
Sensitivity: 5.00 W m⁻² per mV

The Capricorn 2000EX is a modular-design weather station providing professional grade data capture, storage, and transfer. Designed around the Control Module, this flexible system can easily accept signal inputs from wide variety of meteorological sensors.

The Capricorn 2000EX features a durable aluminum/stainless steel wind direction and speed sensor. This sensor offers superior wind direction resolution and accuracy.

The Control Module, housed in a compact, utility-grade enclosure, includes a data logger storing up to 511 records at user-defined intervals. Dual on-board RS-232 interface ports allow simultaneous connection to a display console, modem, or directly to a computer.

Three viewing options are available for the Capricorn 2000EX: The Capricorn 2000 Weather Display offering LCD flat touch screen interface, Weather View 32 software and WeatherMaster 2000 software.

Weather Parameters Monitored

- Temperature (up to four sensors)
- Barometric pressure, standard sensor
- Wind direction and speed
- Relative humidity
- Rain gauge
- Solar Radiation (Pyranometer)
- Leaf wetness
- Soil moisture

Ordering Information:

8156-F-1	Standard system with Weather Display Console
8156-G-1	Standard system with WeatherMaster Software
8156-J-1	Standard system with WeatherMaster and Display Console
8156-E-1	Standard system with Weather View 32 Software

Standard System Includes:

- Control module/data logger, wall mount power supply, and internal **barometric pressure** sensor
- One **temperature** probe with 50 ft. of cable
- **Relative Humidity** probe with 50 ft. of cable
- Self-Aspirating radiation shield for temperature and humidity sensors
- **Wind speed and direction** sensor with waterproof cable connector, mounting hardware (includes cross-arm support and u-bolt assembly) and 50 ft. of cable
- RS-232 computer cable, 6 feet

Accessories

- Sensor mast and mounting hardware
- Additional temperature sensors
- Rain gauge
- Leaf wetness sensor
- Solar radiation sensor
- Soil moisture sensor
- Wireless communications
- Weatherproof Control Module
- Extra sensor cable



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