

TurfWeather®

Automated Weather Station for OEMs



Campbell Scientific's TurfWeather® is an automated weather station designed for OEMs in the turf grass market. The TurfWeather is preprogrammed according to each OEM's needs—whether the OEM requires simple meteorological data or complex data processing such as ETo calculations.

The TurfWeather consists of meteorological sensors, a solar panel, and a protective case that houses the datalogger/transmitter and rechargeable battery. The case and solar panel mount to a pole with a 1¼-inch to 2-inch outer diameter (optional or user-supplied).

The TurfWeather's datalogger measures the sensors, then stores and processes the data. The datalogger contains an internal spread spectrum radio for transmitting data to a PC. Campbell Scientific ships an RF401-series spread spectrum radio with the TurfWeather. This radio connects to the PC, and receives transmissions from the weather station. With typical line-of-sight conditions and using a ¼ wave antenna, the TurfWeather can transmit data over distances of half a mile.

Please note that the TurfWeather is an inexpensive, commercial-grade station. Campbell Scientific offers the ET107 Evapotranspiration Station for turf grass applications that require research-grade performance or more durable sensors.

TurfWeather Measurements

- Air Temperature
- Relative Humidity
- Barometric Pressure
- Rainfall
- Solar Radiation
- Wind Direction
- Wind Speed



TurfWeather can provide real-time weather measurements and calculate ETo on an hourly and daily basis.

Specifications

Temperature Range:	-40° to +50°C
Data Storage:	512 kbytes Flash Final Storage; data format is 4 bytes per data point (table-based); 60 kbytes Flash (OS/program)
Power Requirements:	16 Vdc to 24 Vdc
<i>Power Supply</i> Battery:	Onboard, 0.8 Ahr lead-acid
Solar Panel:	5 W

Specifications Continued

Spread Spectrum Radios

Frequencies Available:	916 MHz (US/Canada); 922 MHz (Australia/Israel); 2.4 GHz (Worldwide)
Average Current Drain	
Standby:	<1 mA (power-saving options used)
Receiving:	24 mA (900 MHz radios), ~36 mA (2.4 GHz radios)
Transmitting:	<75 mA (900 MHz radios), 75 mA (2.4 GHz radios)

Antenna for Internal Radio

Description:	Omnidirectional, ¼ wave, whip (fully enclosed in weatherproof housing)
Gain:	0 dBd
Transmission Range:	½ mile (0.8 km) line of sight

Air Temperature Sensor

Sensor Type:	Thermistor
Operating Range:	-40° to +50°C
Accuracy:	±0.5°C
Interchangeability:	±0.2°C

Relative Humidity (RH) Sensor

Sensor Type:	Precision, temperature corrected, bulk polymer
Operating Range:	0 to 100% RH
Accuracy:	±5% for 90% to 100% RH; ±3% for 10% to 95% RH

Barometer

Sensor Type:	Piezoresistive transducer
Range:	15 kPa to 115 kPa (4.43 inches to 33.96 inches of Mercury)
Accuracy:	< ±1.5% of Full Scale Reading; ±1.5 kPa (0° to +85°C); ±0.443 Hg

Rain Gauge¹

Sensor Type:	Tipping bucket
Orifice Size:	7.75 in ² (50 cm ²)
Resolution:	0.04 inch (1 mm)

Solar Radiation Probe

Sensor Type:	Silicon pyranometer
Light Spectrum Waveband:	300 to 1100 nm
Accuracy:	±2.5%
Output:	~0.25 mV per W m ⁻²
Measurement Range:	0 to 2000 W m ⁻²
Operating Temperature:	-40° to +55°C

Wind Direction Sensor

Sensor Type:	Vane
Range:	360° mechanical, 352° electrical
Accuracy:	±2.5%
Linearity:	1%
Sensitivity:	~1 m s ⁻¹ (2.2 mph)

Wind Speed Sensor

Sensor Type:	Cup anemometer
Starting Threshold:	0.78 m s ⁻¹ (1.75 mph)

¹A high accuracy (0.01"/tip), external tipping bucket rain gauge is also available; contact Campbell Scientific for more information.

