

Build-Your-Own Weather Stations



The flexibility of our products allows you to select only the components you need, in the quantity you need to customize your own weather station.

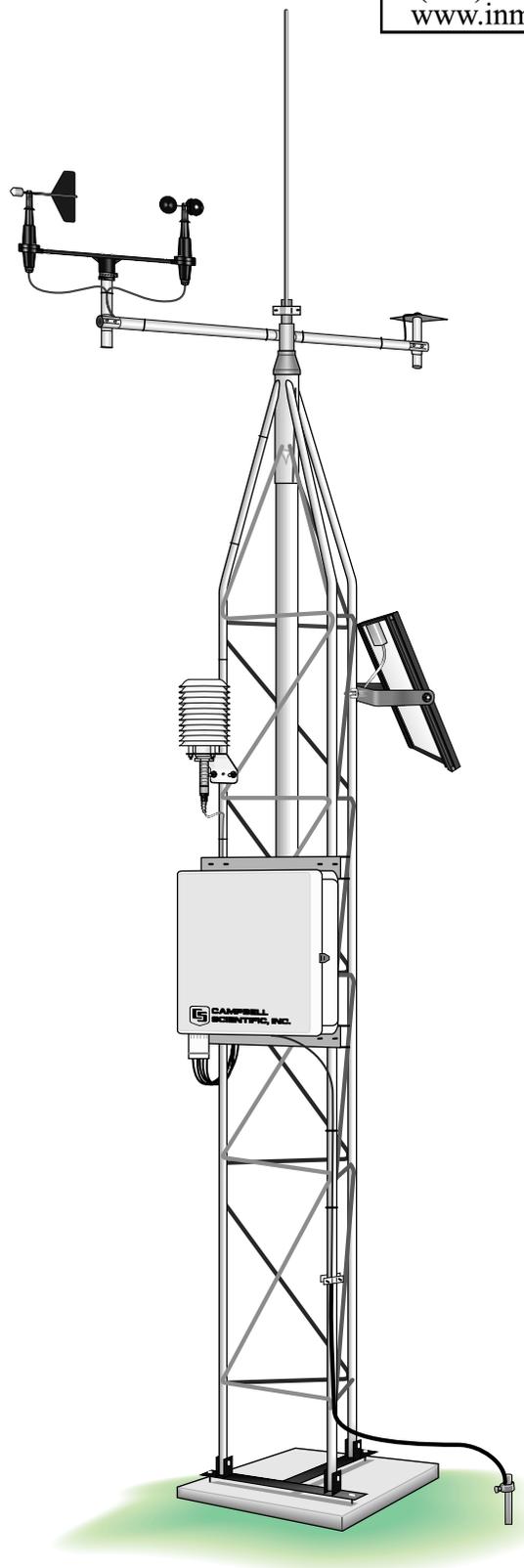
Tripods and Towers

Our corrosion-resistant tripods and towers provide sturdy support for sensors, solar panels, and enclosures. We have galvanized-steel tripods with 6- or 10-foot heights, stainless-steel tripods with 10-, 15-, or 20-foot heights, and towers with 10-, 20-, or 30-foot heights. Mounts for attaching wind sets, pyranometers, temperature and relative humidity sensors are available.

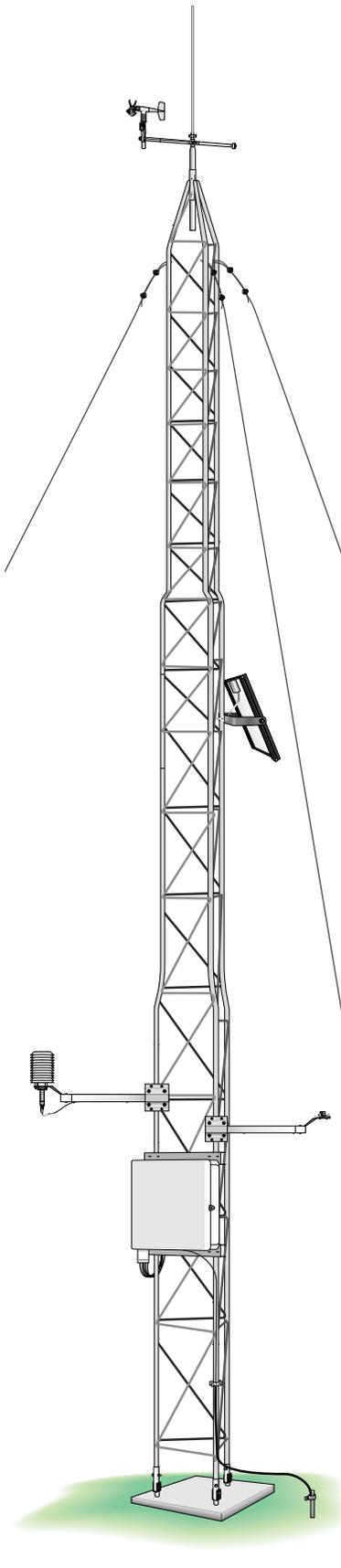
Sensors

Campbell Scientific offers high quality sensors for measuring the parameters listed below. These sensors interface directly to our dataloggers. If measurement needs are specialized, our dataloggers' analog, pulse counter, and digital inputs are compatible with sensors offered by most manufacturers.

- **Wind Speed:** cup, propeller, or sonic anemometers.
- **Wind Direction:** vanes containing precision potentiometers or sonic anemometers. A single sensor assembly may measure wind speed and direction.
- **Solar Radiation:** silicon cell or thermopile pyranometers, quantum sensors, or net radiometers.
- **Temperature (air, water, soil):** thermistors, thermocouples, or RTDs.
- **Relative Humidity:** capacitive sensors that use integral signal conditioning. RH and air temperature sensors are typically housed in a single body.
- **Precipitation:** tipping bucket rain gages or weighing gages. A snowfall conversion adapter that uses antifreeze or a heated tipping bucket can measure the water content of snow.
- **Snow Depth:** ultrasonic distance sensors.
- **Barometric Pressure:** capacitance or strain gage pressure transducers.
- **Soil Moisture:** moisture blocks, analog output tensiometers, or reflectometers.
- **Fuel Moisture:** thermistor and reflectometer in a Forest Service-approved ponderosa pine dowel.



Campbell Scientific weather stations can be customized using our standard product line to suit individual needs, employing a variety of towers, sensors, power supplies, and data retrieval products.



Dataloggers

Our weather stations are based around a programmable datalogger that measures sensors and stores data, in your choice of engineering units (e.g., wind speed in mph, $m s^{-1}$, knots). Sensor measurements are often processed and stored as hourly and daily arrays (e.g., maximums, minimums, averages). The datalogger also supports conditional outputs, such as rainfall intensity.

PC-based software is available for datalogger programming, data retrieval, and report generation. You can modify the program at any time to accommodate different sensor configurations or data processing requirements.

The datalogger has programmable execution intervals, on-board instructions for commonly used sensors, and adequate input channels to accommodate all standard sensor configurations. Use of measurement and control peripherals can expand the datalogger's capabilities.

Power Supply

The power supply consists of either a set of alkaline batteries or a sealed-rechargeable battery; the rechargeable battery can be recharged via solar panel or ac power. Campbell Scientific offers a range of batteries, solar panels, and chargers to meet the needs of your specific application. Weather stations with high current drain peripherals (satellite, cellular phone) may require one of our larger capacity batteries.

Enclosures

Environmental enclosures house the datalogger, power supply, data retrieval peripherals, and a barometer. The enclosures provide protection from dust, humidity, precipitation, sunlight, and environmental pollution. Our enclosures are UV-stabilized and reflect solar radiation. Enclosures can be customized for cable-entry openings or mounting brackets for our tripods or towers.

Easy Set Up

Our weather station installation manuals provide step-by-step instructions with detailed illustrations. Station set-up time for most customers is a few hours.



The UT30 tower places the wind speed and direction sensor at a 30 ft (10 m) measurement height that meets EPA requirements.

Data Retrieval Peripherals

To determine the best option for your site, consider the accessibility of the site, availability of service (e.g., cellular phone or satellite coverage), quantity of data collected, and time between data downloads.

On-site options:

- CompactFlash® cards
- Laptop Computer
- Datalogger keyboard display
- PDA Handhelds
- DataView Displays

Telecommunication options:

- Short-Haul Modems
- Telephone (land line, digital cellular, and voice-synthesized)
- Ethernet
- Radio Frequency (RF) Transceivers (VHF narrowband, UHF narrowband, or spread spectrum)
- Multidrop Interface (coaxial cable)
- Satellite Transmitters (Argos and High Data Rate GOES)



Claude Labine, Campbell Scientific Canada

Meteorological conditions are measured at Lake Louise, Alberta, Canada. The data are telemetered via phone-to-RF link to a base station.

Software

Starter

Our starter software is available, at no charge, from www.campbellsci.com/downloads or from our Resource CD.

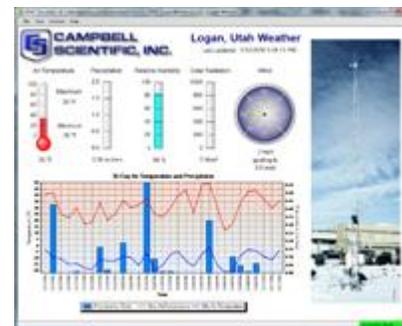
Short Cut Program Builder creates weather station programs that measure sensors and output data. It supports the meteorological sensors on our U.S. Price List.

PC200W Starter Software allows you to transfer the weather station program and collect data via a direct communications link (i.e., an optically isolated RS-232 interface or a similar device).

Datalogger Support

PC400, our mid-level software, provides advanced programming and telecommunications without introducing large network complexity. Scheduled data collection and combinations of communication options (e.g., phone-to-RF) are not supported.

LoggerNet is a full-featured software package based on a server application and several client applications. LoggerNet supports connection to a single datalogger and large datalogger networks. This software package supports scheduled data collection and combinations of communication options (e.g., phone-to-RF).



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