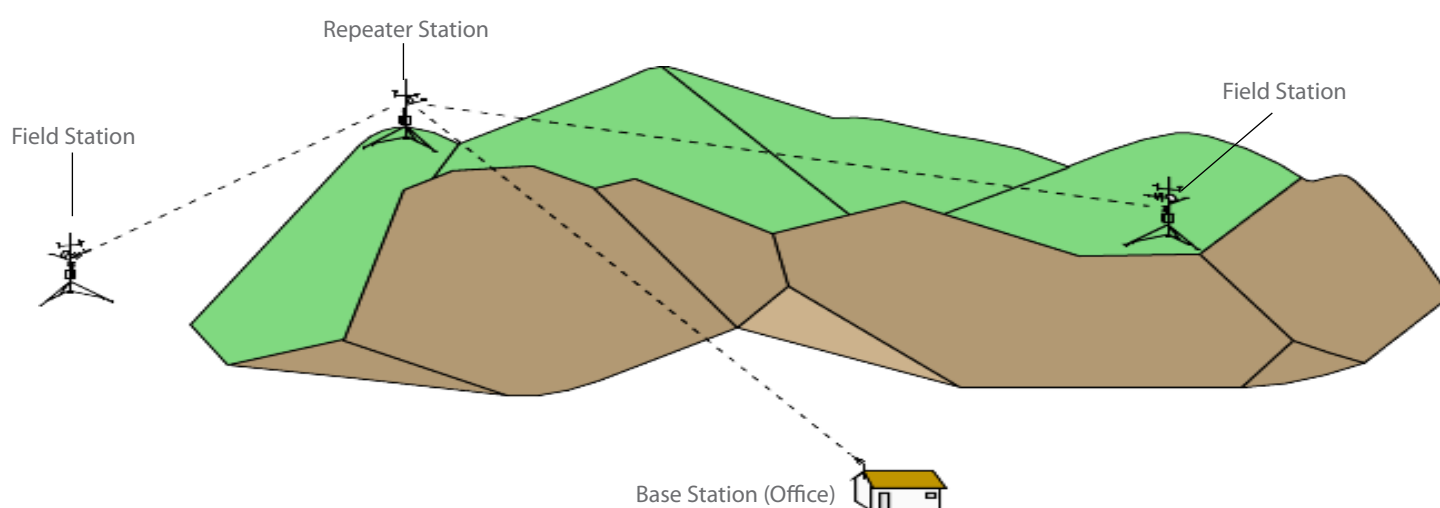


# Stable, long-range, wireless communication

Using narrowband, licensed, UHF/VHF radios



## Overview

Campbell Scientific's radiotelemetry (RF) systems support data retrieval from moving vehicles or remote areas where communication via cables is impractical.

Data from field stations are retrieved at a computer base station. The base station can communicate with up to 254 remote stations over a single frequency. A phone modem can also access an RF network.

Field stations and repeater stations can be located to allow communication over long distances and rough terrain. The maximum distance

between any two communicating stations is approximately 25 miles and must be line-of-sight (unobstructed by mountains, large buildings, etc.). Longer distances and rough terrain may require intermediate repeater station(s).

RF data transmission hardware includes radios, antennas, and radio modems. Power at the field and repeater stations is provided by sealed rechargeable batteries trickle-charged by solar or ac power.

## Benefits and Features

- › Measurement sites can be located in areas without phone lines or cellular coverage
- › Eliminates cables and cable costs
- › Supports local and remote data retrieval
- › Allows remote control of datalogger functions

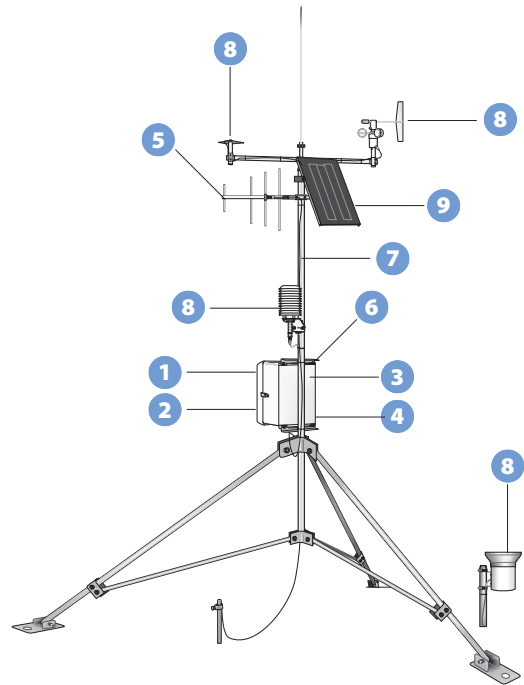
*Before ordering radios and antennas, you must submit an application to the Federal Communications Commission (FCC) to acquire an FCC license and be assigned a frequency range. To file for an FCC license on-line, go to <http://wireless.fcc.gov/uls> and register. Canadian DOC approval is available for radios in the 138 to 174 MHz and 403 to 470 MHz frequency bands only.*



## Field Station Components

Field stations are located at the measurement site. They can also act as a repeater to extend the range of the network.

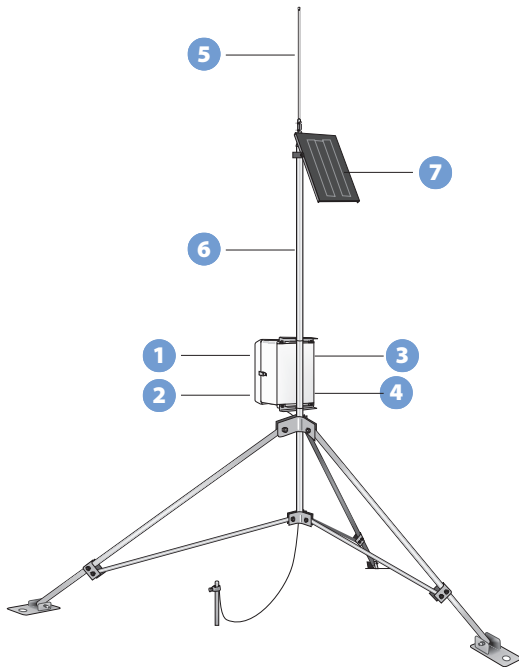
- 1 Datalogger
- 2 Power supply (5 Ah minimum)
- 3 RF500M Radio Modem
- 4 Radio transceiver such as the RF320, RF321, RF322, or RF323
- 5 Antenna (Yagi directional antenna shown) and antenna cable
- 6 Environmental enclosure
- 7 Tripod or tower
- 8 Sensors and sensor mounts
- 9 Solar Panel (optional)



## Repeater Station Components

Repeater stations act as communication relays between stations that cannot communicate directly due to distance or obstacles.

- 1 RF500M Radio Modem
- 2 Radio transceiver such as the RF320, RF321, RF322, or RF323
- 3 Power supply with charging regulator and null modem ports such as an A100 adapter connected to a CH150 regulator and a user-supplied rechargeable battery
- 4 Environmental enclosure
- 5 Omnidirectional antenna and antenna cable
- 6 Tripod or tower
- 7 Solar Panel



## Computer Base Station Components

Base stations support attended and unattended retrieval of the field station's data and provide communication error checking and data processing. AC power is required. Base stations should contain:

- RF500B Base Station or the RF500M modem and power supply
- Radio transceiver such as the RF320, RF321, RF322, or RF323
- PC running LoggerNet Datalogger Support Software
- Antenna (directional or omnidirectional) and antenna cable

## Power Considerations

The location of your site, number of calls, and length of calls affect the power requirements of your system. Information on analyzing your system's power requirements is provided in our Power Supply Overview brochure and the Power Supply application note. You can also contact an applications engineer who will help you determine an appropriate power supply for your system.