

# RF310-series

## Midland Narrow-band UHF/VHF Radios

The RF310, RF312 and RF313 are rugged, narrow-band radios manufactured by Midland. They are well suited for network use. A single frequency can support up to 254 dataloggers. Each station can transmit up to 25 miles line-of-sight, and each station can act as a repeater to extend the transmission distance attainable by the network.

### Features

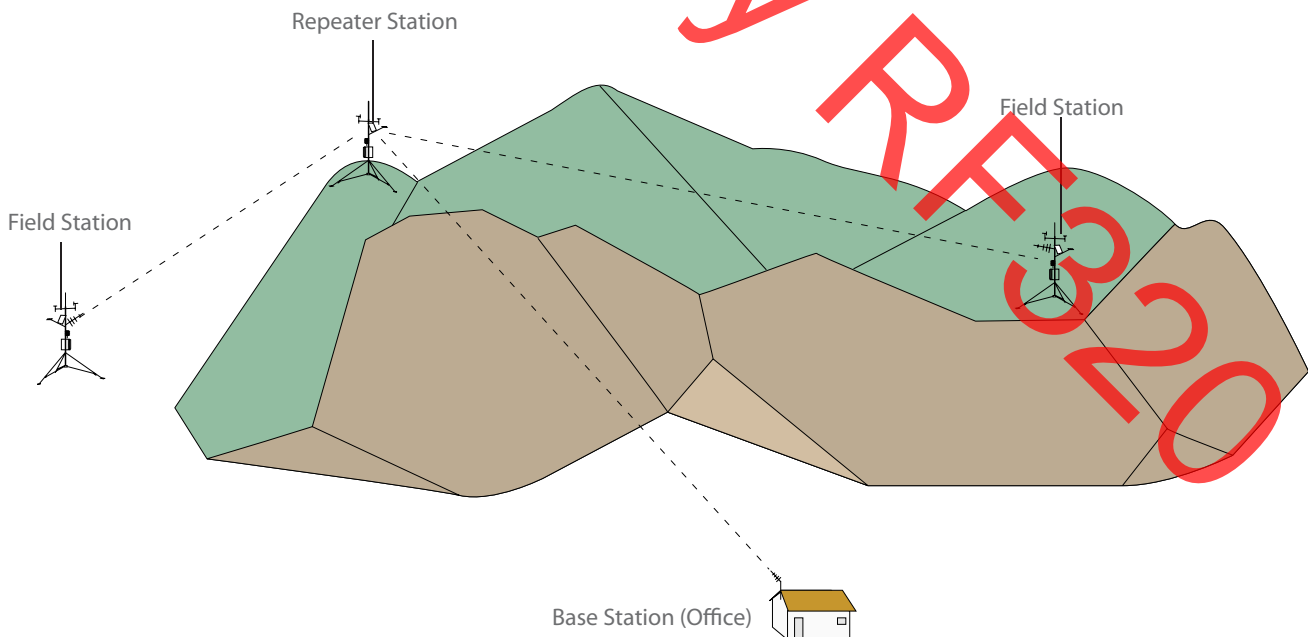
- Meets NTIA narrowband and FCC re-farming requirements for transmissions
- Compatible with our CR800, CR850, CR1000, CR3000, CR7, CR500, CR510, CR10(X), 21X, and CR23X dataloggers
- Supports up to 16 channels

A user-supplied antenna that matches the FCC-assigned radio frequency is required for each radio. Typically, the COAXNM-L coaxial cable is used to connect the antenna with the radio. Contact Campbell Scientific for more information about selecting the antenna and cable.



Besides the radio, each field station and repeater station must have an RF500M or RF310M radio modem; base stations need either an RF500B or RF310B base station. More information is provided in the Narrow-band RF Networks brochure, RF500M/RF500B brochure, and RF310M/RF310B brochure.

### Line of Sight



Our RF networks require line-of-sight transmission. The mountain in this drawing obstructs line-of-sight with the base station. Use of the repeater station allows the base station to receive data from the field stations.

## Ordering Information

| Model  | Description   |
|--|---|
| You must submit an application to the Federal Communications Commission (FCC) to acquire an FCC license and be assigned a frequency range. Go to <a href="http://wireless.fcc.gov/uls">http://wireless.fcc.gov/uls</a> to file for an FCC license on-line. Once there, you can register then log in and apply for the license. The FCC-assigned frequency must be specified on your order. |   |
| <b>RF310</b>   | Midland VHF Radio programmed for 148 to 174 MHz frequency   |
| <b>RF312</b>   | Midland UHF Radio programmed for 440 to 470 MHz frequency   |
| <b>RF313</b>   | Midland UHF Radio programmed for 400 to 430 MHz frequency   |
| <b>21243</b>   | Mounting Kit for securing an RF310-series radio to an enclosure backplate; select this if using the RF500M Modem. |
| <b>21245</b>   | Mounting Kit for securing an RF310-series radio to an RF310M Modem  |
| <b>13855</b>   | Optional push-to-talk switch that triggers a brief transmission to verify operation of radio                      |
| <b>16980</b>   | Surge Suppressor Kit for UHF/VHF radios   |



Field stations are located at the measurement site. This field station uses a Yagi antenna to transmit the data.

## Specifications

RF Power Output (nominal):

5 W (High); 1 W (Low)

Frequency error:

$\pm 5.0$  ppm (VHF);  $\pm 3.0$  ppm (UHF)

Frequency deviation:

peak  $\pm 2.5$  (VHF, 25 kHz channel spacing);

peak  $\pm 5.0$  (UHF, 12.5 kHz channel spacing)

Adjacent channel power:

70 dB @ nominal conditions

(VHF, 25 kHz channel spacing);

60 dB @ nominal conditions

(UHF, 12.5 kHz channel spacing)

Current drain:

<65 mA (standby, muted);

<2000 mA (transmit, 5 W RF power);

<1000 mA (transmit, 1 W RF power);

<80 mA (receiver)

Operating temperature range:

-30° to +60°C

Dimensions:

1.2" x 2.4" x 4.6" (3.0 cm x 6.2 cm x 11.7 cm)

Weight:

7.7 oz (218 g)



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

