Overview
The CRW3-NE is a three-channel vibrating-wire data logger. It is designed to be an independent data logger, or you can use it as a reliable component in your larger data acquisition system. The CRW3-NE has multiple communication options and a power regulator for easy solar panel and battery connection.

The CRW3-NE and the CRW3 are similar products that share the same electronic components. The main difference between them is that the CRW3-NE allows you to select the enclosure and battery, whereas the CRW3 includes an environmental enclosure and battery as a complete system.

The VSPECT technology is protected under U.S. Patent No. 7,779,690.

Benefits and Features
- Reads and stores data from one to three vibrating-wire sensors
- Charge regulator included for solar panel connection
- Simple configuration interface
- Compatible with many existing Campbell Scientific data acquisition networks
- PakBus router/radio capabilities
- User-selectable battery and enclosure options

Specifications
- All CRW3-NE dataloggers are tested and guaranteed to meet the following electrical specifications in a -40° to +70°C non-condensing environment.

  - Operating Temperature Range
    - -40° to +70°C
    - Non-condensing environment

- The base -NA option and -RF422 option are CE approved, but the -RF451, -RF407, -RF412, and -RF427 options are not CE approved.
### Processor
ST ARM CORTEX-M4 (32-bit with hardware FPU, running at 144 MHz)

### Data Storage
16 MB serial flash, up to 420,000 records (single channel), up to 160,000 records (3 channels)

### Real-Time Clock Accuracy
±3 min. per year

### Measurement Interval Range
1 s to 1 day

### USB Micro B
Direct connect to PC (supplies power for configuration and data collection), 2.0 full speed, 12 Mbps

### Configuration
Software configurable, no programming required

### Compliance
RoHS

### Warranty
One year against defects in materials and workmanship

### Static Vibrating-Wire Measurements
Supported

### Mounting
Mounting holes for easy mounting and installation in a Campbell Scientific enclosure

### Dimensions
18.4 x 12.7 x 4.5 cm (7.25 x 5.0 x 1.75 in.)

### Weight
0.36 kg (0.8 lb)

### Power
- **Charge Terminal**: 16 to 28 Vdc (from solar panel or dc power converter). Typical applications use 10 to 20 W panels.
- **Battery Terminal**: Sealed, rechargeable, lead-acid batteries. Typical applications use 7, 12, and 24 Ah rechargeable batteries.
- **Current Drain**: ~37.5 mA/s (each time a channel is measured) / 1 mA (no radio, basic operation)

### Measurements
- **Channel Count**: 3 vibrating wire (VW) and 3 thermistor/RTD (temperature) measurements
- **Measurement Speed**: 1 s per sensor (VW and temperature)

### Measurements - Vibrating-Wire
- **Measurement Excitation Options**: 2 V (±1 V), 5 V (±2.5 V), 12 V (±6 V)
- **Measurement (Frequency) Resolution**: 0.001 Hz RMS (-40° to +70°C)
- **Time-series Basic Resolution**: 24-bit ADC
- **Measurement Accuracy**: ±0.005% of reading (-40° to +70°C)
- **Measurement Method**: VSPECT (Spectral Analysis), U.S. Patent No. 7,779,690, includes diagnostic data

#### Measurements - Temperature (Resistance)
- **Thermistor or RTD resistance can be scaled to Temperature (Deg C) per manufacturer specifications. The resulting temperature can be used as a correction factor for the sensor’s output.**
- **Measurement Method**: Half-bridge ratiometric, 24-bit ADC, built-in completion resistor 4.99 kΩ 0.1%
- **Thermistor Precision**: 0.020 Ω RMS @ 3000 Ω (~0.00015 °C RMS for most vibrating wire thermistors)
- **Accuracy**: ±0.15% of reading (-40° to +70°C)

#### -RF451 Option
- **Internal Radio Description**: 5 to 1000 mW, user selectable, 902 to 928 MHz license-free band, frequency hopping spread-spectrum radio
- **Radio Repeater**: Devices with the -RF451 option can be set up as a radio repeater.
- **Where Used**: US, Canada, Australia
- **Compliance Information**: KNYAMM0921TT (United States FCC ID) / 2329B-AMM0921TT (Canada [IC])

#### -RF407 Option
- **Internal Radio Description**: 5 to 250 mW, user selectable, 902 to 928 MHz license-free band, frequency hopping spread-spectrum radio
- **Radio Repeater**: Devices with the -RF407 option can be set up as a radio repeater.
- **Where Used**: US, Canada
- **Compliance Information**: MCQ-XB900HP (United States FCC Part 15.247) / 846A-XB900HP (Industry Canada (IC)) / RCPDIXB15-0672-A2 (Mexico IF)

For comprehensive details, visit: [www.campbellsci.com/crvw3-ne](http://www.campbellsci.com/crvw3-ne)