

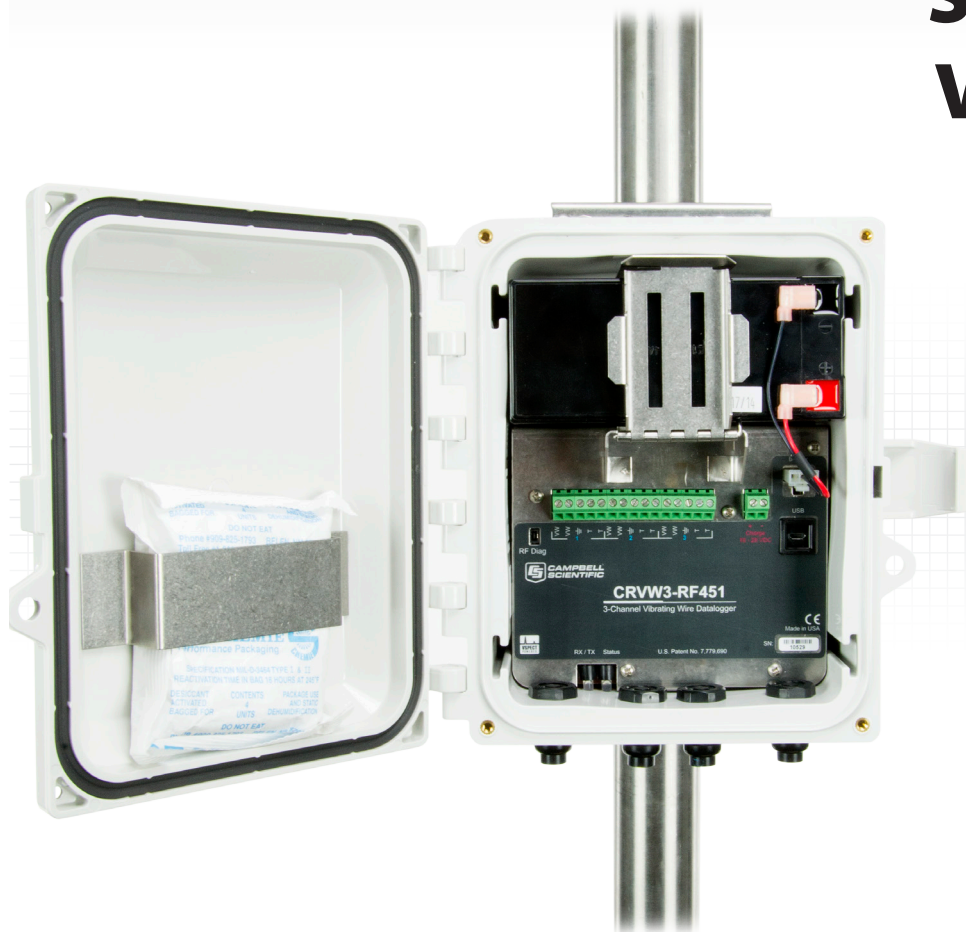


CRVW3

3-Channel Vibrating-Wire Datalogger

# Self-Contained Vibrating-Wire Datalogger

Using Patented  
VSPECT<sup>a</sup> Technology



## Overview

The CRVW3 is a self-contained, low cost 3-channel VSPECT vibrating-wire datalogger. It is designed to be an independent datalogger, or a reliable component in a larger data acquisition system.

Arriving field ready from the factory with power, communications, and an enclosure, the CRVW3 is ready for your monitoring needs.

## Benefits and Features

- › Complete data acquisition system in a single product
- › 3-channel vibrating wire datalogger
- › Wireless routing communications with integrated radio options
- › Charge regulator for easy solar panel connection
- › Enclosure rated to IP66
- › Software configurable; no programming required
- › Integrated rechargeable or alkaline battery options
- › PakBus router/radio repeater capabilities
- › Compatible with current Campbell Scientific datalogger networks

<sup>a</sup>The VSPECT technology is protected under U.S. Patent No. 7,779,690.

questions & quotes: 435.227.9040

[www.campbellsci.com/crvw3](http://www.campbellsci.com/crvw3)



## Technical Details



To provide better vibrating-wire measurements, Campbell Scientific developed the vibrating-wire spectral-analysis technology (VSPECT). This innovative, patented technology delivers the most accurate measurement for vibrating-wire sensors. VSPECT observes the

incoming sensor signal, performs a Fourier transform and a spectral analysis (transforming the time series into individual sinusoidal components in the frequency spectrum), and determines the sensor frequency by identifying the largest signal in the acceptable range and disregarding noise.

## Specifications

### Datalogger

- 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)
- Clock Accuracy:  $\pm 3$  minutes 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

### Measurements

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

### Vibrating Wire

- Measurement Excitation Options: 2 V ( $\pm 1$  V), 5 V ( $\pm 2.5$  V), 12 V ( $\pm 6$  V)
- Measurement (Frequency) Resolution: 0.001 Hz RMS ( $-40^\circ$  to  $+70^\circ\text{C}$ )
- Time-series Basic Resolution: 24-bit ADC
- Measurement Accuracy:  $\pm 0.005\%$  of reading
- Measurement Method: VSPECT (Spectral Analysis), U.S. Patent No. 7,779,690, includes diagnostic data

### Temperature (Resistance)<sup>b</sup>

- Measurement Method: half-bridge ratiometric, 24-bit ADC, built-in completion resistor 4.99 k $\Omega$  0.1%
- Resolution: 0.01  $\Omega$  RMS ( $-40^\circ$  to  $+70^\circ\text{C}$ )
- Accuracy:  $\pm 0.15\%$  of reading ( $-40^\circ$  to  $+70^\circ\text{C}$ )

### Wireless Communications

#### -RF451 Option

- Internal Radio Description: 1 W, 902 to 928 MHz license-free band, frequency hopping spread spectrum radio
- FCC ID: KNYAMM0300AT
- IC: 2329B-FGR2
- Radio Repeater: Devices with the -RF451 option can be setup as a radio repeater

### Power

- Charge Terminal: 16 to 28 Vdc from solar panel or dc power converter
- Battery Options: rechargeable 7 Ah or 8 D-cell alkaline

### Physical

- Weight: 4.2 kg (9.2 lb) with rechargeable battery, 3.0 kg (6.6 lb) with alkaline batteries
- Operating Temperature Range:  $-40^\circ$  to  $+70^\circ\text{C}$
- Compliance: CE, RoHS
- Enclosure Dimensions: 24.1 x 22.9 x 14.0 cm (9.5 x 9.0 x 5.5 in)
- Weather-proof Enclosure Rating: NEMA 4X (IP66) with proper use of cable entry points
- Enclosure Mounting: Stainless steel universal mount for pole/wall mount (optional) or plastic mounting tabs (included)

### Warranty

- One year against defects in materials and workmanship

<sup>b</sup> Thermistor or RTD resistance can be scaled to Temperature ( $^\circ\text{C}$ ) per manufacturer specifications. The resulting temperature can be used as a correction factor for the sensor's output.