



Vibrating Wire DSP Interface

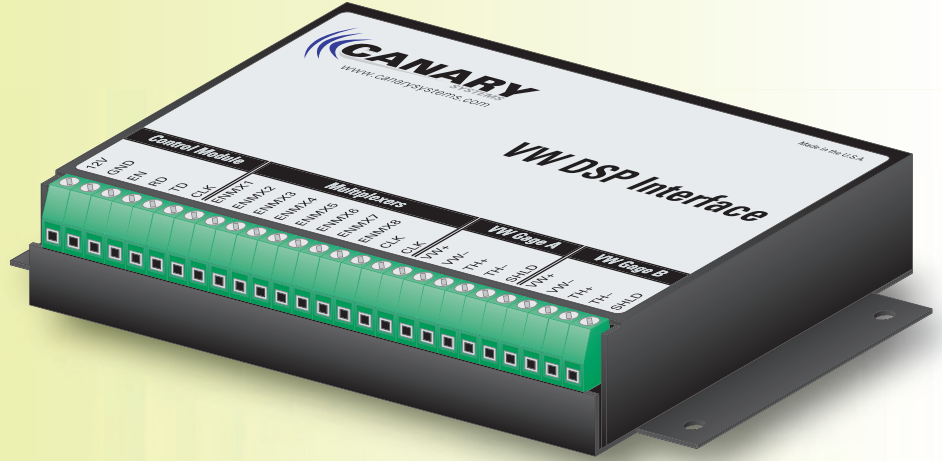
High Performance Vibrating Wire Gage Signal Processing

Key Features

- Compatible with a wide range of sensors
- Reliable vibrating wire gage measurement
- Programmable gage characteristics
- Low power operation from 12 V
- High performance processing
- Easily integrates with Campbell Scientific and Sutron MCU's
- Supports multiplexer expansion

Specifications

Controller	Hitachi 32-bit 3067F
Processor Speed	7.3728 MHz
Program Memory	128K FLASH
Data Memory	64K SRAM
Communication	RS-232 or TTL serial I/O
Communication Speed	1200 bps
Measurement Range	200-4500 Hz
Algorithm Resolution	0.1356/cycles
Algorithm Accuracy	0.05% FSR
Excitation Range	200-4500 Hz
Operating Power	12 V @ 40 mA
Quiescent Power	0.001 mA
Dimensions (L×W×H)	125×75×25 mm
Operating Temperature	-40 to +60° C



Due to its simplicity, resistance to water and other environmental effects, and its long-term stability the vibrating wire gage is very popular in civil engineering applications, eg. monitoring installations on dams, bridges, tunnels, etc.

However, the instrument and measurement techniques usually employed to process the instrument output have a few shortcomings that a DSP based system resolves. Generally speaking it is described as the "errant reading", in other words a reading was obtained but it is not the right one. This is usually obvious by examining readings before and after the "errant reading." Typically the "errant reading" is manually removed from the data during data processing. This technique can be problematic as it can prove difficult to establish criteria for accepting or rejecting data points. Also, if the system must operate unattended and vibrating wire measurements are being used to signal alarm conditions obtaining readings must be automatic and reliable.

The VWDSP Interface consists of a precision differential amplifier front-end and analog filter in addition to digital signal processing techniques to effectively ensure that a proper measurement is obtained initially. A TTL or RS-232 level interface is used for connecting to the host device. The default interface is RS-232, contact Canary Systems or your product vendor to configure the interface for TTL. The VWDSP does not have data storage capability so it must be used in conjunction with other devices to deploy a data acquisition system. Typically it is used in conjunction with control modules such as the Campbell Scientific CR10X/CR800/CR1000 or Sutron Xpert. The VWDSP Interface utilizes all surface mount manufacturing technology (SMT) as well as transient protection components on all connections to ensure maximum reliability.