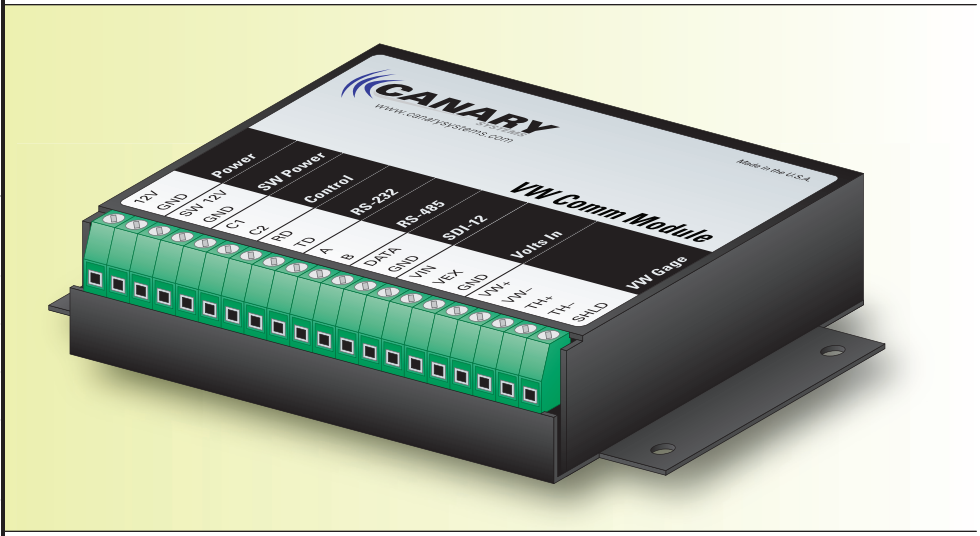
VW Comm Module



Key Features

- Includes RS-232 / RS-485 / SDI-12 interfaces
- Low-cost wired or wireless networking
- Compatible with a wide range of sensors
- Reliable vibrating wire measurements
- Internal battery and temperature measurements
- Voltage input with 4-20 mA optimization
- Very low quiescent power consumption
- Digital outputs for control applications
- Switched 12 VDC connection for device control
- Easily integrates with Campbell Scientific and Sutron MCU's

Specifications

Controller	Microchip PIC18F4580
Program Memory	32 K Flash
Interface	RS-232 / RS-485 / SDI-12
Communications Speed	1200-115 K bps
VW Measurement Range	100-6000 Hz
VW Sweep Range	100-6000 Hz
VW Resolution	0.1 μs/cycles
Temperature Input	YSI44005
Temperature Input Range	–40 to +100° C
Temperature Accuracy	±0.5° C
Voltage Input Ranges	0-2.5, 0.5-2.5 VDC
Voltage Input Resolution	10 bit (1 part in 1024)
Operating Power	6-16 VDC, max 50 mA
Operating Temperature	–40 to +65° C
Quiescent Power	< 500 μA
Dimensions (L×W×H)	140×75×25 mm
Mounting Dimensions	127×51 mm

The VW Comm Module is a flexible, low-cost interface for vibrating wire gages. Three industry standard communication interfaces are included: RS-232, RS-485 and SDI-12. The RS-232 interface provides compatibility with a wide range of standard wireless adaptors and modems, facilitating the deployment of cost-effective networks of wireless sensors. The RS-485 interface allows an inexpensive, reliable wired network to be built using simple twisted pair cabling.

Up to 61 nodes may be connected with a maximum cabling length of 1200 m (4000'), which can be extended with repeaters and isolators. The SDI-12 networking interface provides vibrating wire gage measurement capability to any MCU or communications transceiver equipped with an SDI-12 port.

The vibrating wire interface consists of a precision differential amplifier with band-pass filtering, which improves noise rejection and measurement reliability. The excitation and measurement parameters are programmable to support all commonly used vibrating wire instruments. Reading output can be programmed for digits ($Hz^{\wedge}2 \times 10^{-3}$), frequency (Hz) or period (μS). The VW Comm also includes support for reading YSI44005 type thermistors to provide sensor temperature measurements. Other thermistors or temperature devices can be supported as well.

In addition to the vibrating wire and thermistor input capability, a single-ended voltage up to 2.5 VDC can be measured. A high accuracy 2.5 VDC reference is also provided for powering other sensors such as RTD's and linear potentiometers. 10-bit measurement resolution can be improved with configurable averaging. The voltage input range can be offset from 0.5 to 2.5 VDC to optimize the resolution for 4-20 mA sensors. The VW Comm can also read the power supply voltage and internal temperature.

The VW Comm is equipped with two control ports, which can be used to control other devices such as multiplexers to expand the channel measurement capability. Power to other devices can be controlled through the use of its built-in, switched 12 V control output, supplying up to 500 mA. All inputs and outputs are protected against over-voltage, or other electrical transients, with a combination of gas tubes and transzorbs.

A programmable power-down timer puts the VW Comm in sleep mode when no communications activity is detected. With a sleep mode power consumption of well under 500 μA, the unit is ideal for use in battery powered applications. Contact Canary Systems for additional application assistance and information on supported sensors and peripherals, including wireless adaptor compatibility.

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