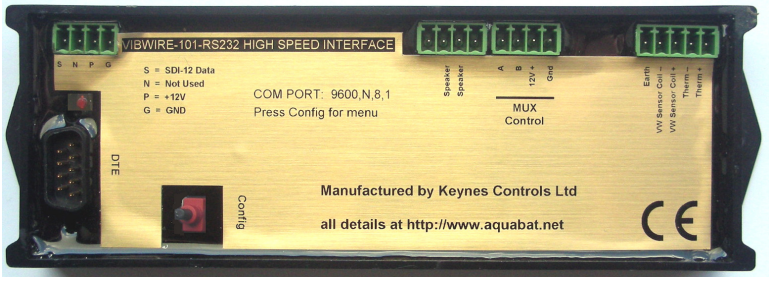
# High Speed Vibrating Wire Sensor Measurements
## for Dynamic & Static Applications

Last updated: Dec 2011

### Using the VibWire-101-HS




VibWire-101-HS

**Contact details**

Main Web site
http://www.aquabat.net

Mobile phone Web Site
http://www.keynes-controls.com

Tel: (0044) 118-327-6067

## Introduction

The **VibWire-101-HS** is a high speed single channel vibrating wire interface capable of offering both **static** and **dynamic** measurement capability using a range of vibrating wire sensors. The device is best suited to sensors operating above the 1.2 KHz range due the method of excitation and the speed for which data can be

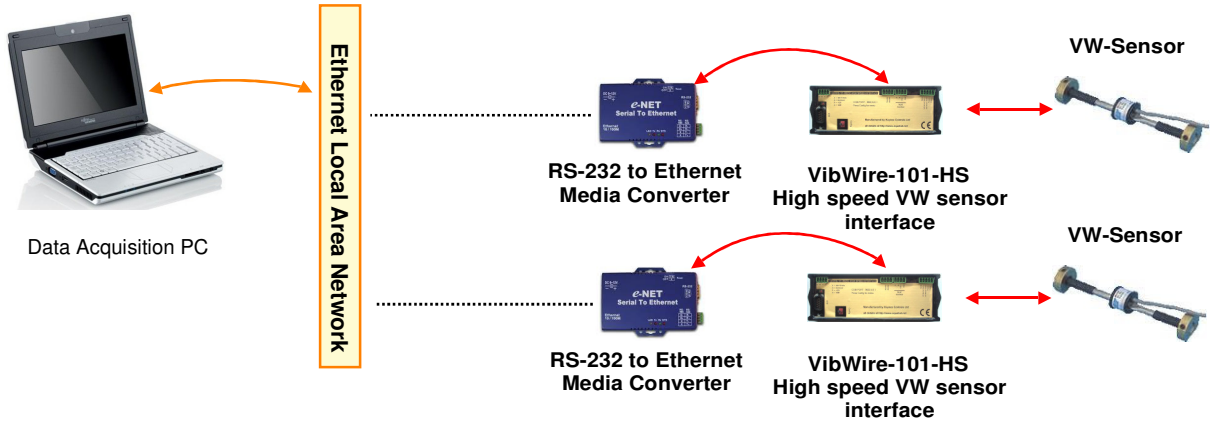
The device is fully encapsulated and is safe for operation in the harshest of environments.

The **VibWire-101-HS** is a software controlled device so that its sample rate can be adjusted by the User to suit the application. The instrument offers remote control capability enabling the sampling rates to be adjusted remotely over a network. A dedicated monitoring system can i**ncrease and decrease the sample rate automatically** depending upon the application.

## Applications

The **VibWire-101-HS** is commonly used in applications where dynamic and static measurements are required in harsh environments particularly suiting the vibrating wire type sensors. The most common application is pile driving. Many different solutions can be created and it is very easy to integrate the higher speed measurements from the **VibWire-101-HS** to the slower static results from the surface mount or embedded strain gauges using the other interfaces.

The **VibWire-101-HS** uses the updated auto-resonance sensor excitation technique to make measurements and so still minimises the wear on a sensor compared to standard excitation techniques.

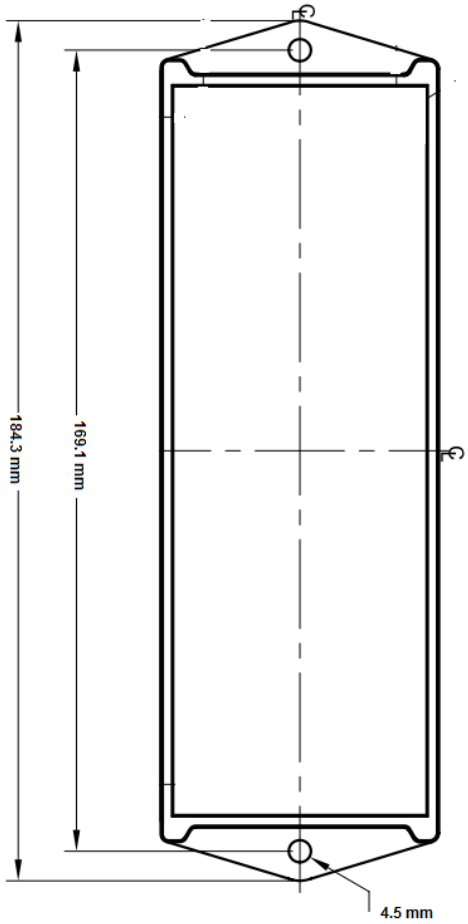




The image opposite shows the basic layout for a high speed load cell application and is typical of what is used for pile driving applications. The display for all results is shown on a laptop screen. The number of load cells that can be handled can be expanded using multiple port interfaces.

# Technical Specification

| | |
|---|---|
| **Measurement Data:** | |
| Number of channels | 1 x 4 Wire VW Inputs |
| VW sensor coil resistance | to 2 K Ohm (standard):- other ranges on request |
| Distance of VW sensor to interface | 0 .. 500 m depending on cabling. |
| Frequency range | 1.4- 6 KHz (standard)<br>Other ranges on request |
| Frequency Resolution Accuracy | 32 bit resolution 0.001 Hz |
| Long term stability | ± 0.05 % FS max. Per year |
| Temperature range | - 50 to 70 Deg C |
| Temperature resolution | 0.1 ºC +/- 0.2 Deg Thermistor 10 K Ohm standard 3.3 K Ohm on request |
| Temperature accuracy | ± 0.2 ºC / 0.2 ºF |
| Thermistor measurement | A half bridge ratio-metric measurement . Value returned in mV. Is used for temperature compensation on VW measurements. |
| Thermistor excitation | 2.5 V DC 50 ppm /Deg C |
| Thermistor resistance | 10 K Ohm 0.1 % Completion resistor (Standard)<br>3.3 K Ohm on request |
| Units | Freq (Hz) Temperature (mV) |
| Resolution | 5 digit - 0.1 Hz |
| **Electrical Data** | |
| Voltage supply | 11 to 16V DC<br>Typical values are @ 12 V DC Excitation |
| Idle mode<br>Active / measurement | 1.2 mA<br>10 mA data transmission<br><br>These values may change slightly between sensors. Use figures as a guide only. |
| Measuring time<br>warm up<br>response | <br>100 ms<br>20 readings a second depending on the VW sensor being used (Typical) |
| Length of data lines | 0 .. 100 m Typical |
| RS-232 Comm Port | 9600 Baud, 8 data, 1 Stop, N Parity - other range on request |
| **General Data:** | |
| Dimensions (mm) | L =160.27 W = 58.42 D = 25.44 |
| Material | ABS with epoxy waterproof coating around the connectors |
| Digital Port | 9600 Baud, 8 data, 1 Stop, N Parity - other range on request |
| CE Conformity | CE conformity according to<br>EN 61000-6 |
| Weight | 400 g |

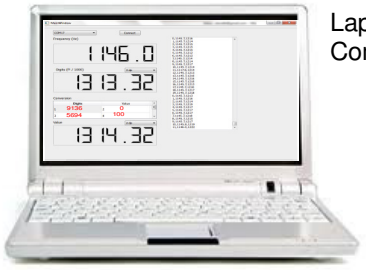



**Physical Dimensions**

## Customised Applications

The **VibWire-101-HS** can be supplied in a complete customised application.

Contact Keynes Controls with your application details.



Laptop / PC Computer

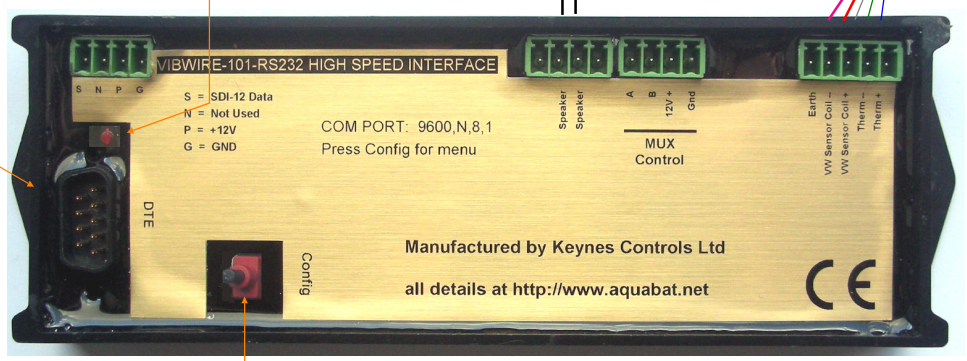
Miniature Ceramic loud speaker to listen to sensor signal

**Scan Status LED**

Illuminates when a scan is being made

Full 4 Wire VW Sensor Input

RS-232 Comms Port




Press button to configure interface