

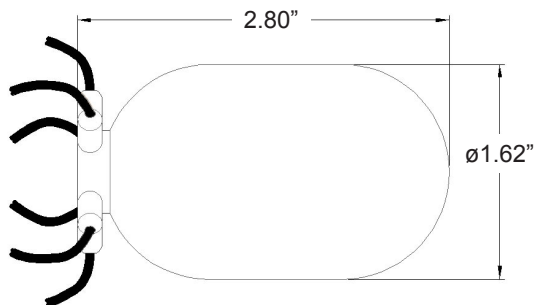
# Mid-frequency vector sensor

## VS-209

### SPECIFICATIONS

<b>Output sensitivity, nominal<sup>1</sup>:</b>	
Accelerometer	1.5 V/g
Hydrophone	-164 dB re 1.0 V/ $\mu$ Pa
<b>Full scale input range:</b>	
Accelerometer	1.0 g peak
Hydrophone	200 Pa peak
<b>Frequency response, <math>\pm 3</math> dB:</b>	
Accelerometer	3.0 Hz - 7.0 kHz
Hydrophone	8.0 Hz - 7.0 kHz
<b>Transverse sensitivity, max</b>	5%
<b>Power requirement:</b>	
Voltage	6.5 - 12.0 VDC
Current, nominal	40 mA
<b>Output type, differential</b>	2.1 - 2.6 V bias
<b>Output impedance, max</b>	100 $\Omega$
<b>Pressure range:</b>	
Operational, max	1,500 psi
Absolute max	2,500 psi
<b>Operating temperature</b>	-10° to +60°C
<b>Diameter</b>	1.62 in.
<b>Length</b>	2.80 in.
<b>Buoyancy in water</b>	-65%
<b>Weight, without cables</b>	95 grams
<b>Cable<sup>2</sup></b>	6 cables, 15 ft. each
<b>External material</b>	polyurethane

Options: Connector; cable length



- Notes:**
- <sup>1</sup> Actual values of X, Y, Z, and H are recorded on calibration sheet.
  - <sup>2</sup> Cable: twisted, shielded pair, polyurethane jacket.
  - <sup>3</sup> Cable shield is not connected in the sensor.
  - <sup>4</sup> B (EIA-485): also known as TX+ / RX+ or D+ as alternative for B (high for MARK i.e. idle)
  - <sup>5</sup> A (EIA-485): also known as TX- / RX- or D- as alternative for A (low for MARK i.e. idle)
  - <sup>6</sup> A and B are compliant with other VS legacy sensors with digital RS-485.
  - <sup>7</sup> I.C manufacturers of RS-485 parts use an incorrect (but consistent) A/B naming designation.
  - <sup>8</sup> Sensor case connects to ground in the sensor.



### Key features

- Three orthogonal axis accelerometers and one omnidirectional hydrophone
- Four channel combination provides an approximately 4.8 dB improvement in signal to noise ratio
- Pitch and roll, heading
- Preamplifier and differential output
- Micro-controller with RS-485 link
- Manufactured in ISO 9001 facility

Cable	Lead color	Function
Power	White	PWR (+)
	Black	PWR (-)
	Shield	Cable shield <sup>3</sup>
Digital (RS-485) <sup>6,7</sup>	White	B (EIA-485) <sup>4</sup>
	Black	A (EIA-485) <sup>5</sup>
	Shield	Cable shield <sup>3</sup>
X-axis (Differential Out)	White	Signal (+)
	Black	Signal (-)
	Shield	Cable shield <sup>3</sup>
Y-axis (Differential Out)	White	Signal (+)
	Black	Signal (-)
	Shield	Cable shield <sup>3</sup>
Z-axis (Differential Out)	White	Signal (+)
	Black	Signal (-)
	Shield	Cable shield <sup>3</sup>
H-axis (Differential Out)	White	Signal (+)
	Black	Signal (-)
	Shield	Cable shield <sup>3</sup>
Sensor case <sup>8</sup>	N/A	PWR (-) via H-axis

Note: Due to continuous process improvement, specifications are subject to change without notice. This document is cleared for public release.