



# miniSVS - Sound Velocity Sensor

Valeport's unique digital time of flight technology gives unmatched performance figures, with signal noise an order of magnitude better than any other sensor. The miniSVS is available in a selection of configurations and with optional pressure or temperature sensors. There are a number of size options to suit many applications.

The miniSVS is titanium housed as standard and 6000 m rated, its rugged design allows it to withstand the toughest conditions.

## DATA SHEET

### Product Details



SOUND  
SPEED



DIALOGUE  
X2 SOFTWARE

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### Sound Velocity Measurement

Each sound velocity measurement is made using a single pulse of sound traveling over a known distance, so is independent of the inherent calculation errors present in all CTDs. Our unique digital signal processing technique virtually eliminates signal noise, and gives almost instantaneous response; the digital measurement is also entirely linear, giving predictable performance under all conditions.

<b>Range</b>	1375 - 1900 m/s	
<b>Resolution</b>	0.001 m	
<b>Accuracy</b>	Dependent on sensor size	
<b>100 mm</b>	Random noise (point to point) Max systematic calibration error Max systematic clock error <b>Total max theoretical error</b>	±0.002 m/s ±0.013 m/s ±0.002 m/s <b>±0.017 m/s</b>
<b>50 mm</b>	Total max theoretical error	±0.019 m/s
<b>25 mm</b>	Total max theoretical error	±0.020 m/s

**Acoustic Frequency:** 2.5 MHz

**Sample Rate:** Selectable, dependent on configuration

Rate	SV	SV+P	SV+T
Single Sample	•	•	•
1 Hz	•	•	•
2 Hz	•	•	•
4 Hz	•	•	•
8 Hz	•	•	•
16 Hz	•	•	•
32 Hz	•	•	•
60 Hz	•	•	•

### Optional Sensors

The miniSVS may be optionally supplied with either a pressure or temperature sensor. Data is sampled at the rates shown above.

Sensor Type	Pressure	Temperature
<b>Range</b>	Strain Gauge	PRT
<b>Resolution</b>	2, 5, 10, 20, 30, 50, 100, 300 or 600 Bar	-5°C - +35°C
<b>Accuracy</b>	0.001% range ±0.05% range	0.001°C ±0.01°C

### Data Output

The miniSVS has RS232 & RS485 output, selected by command code. RS232 data may be taken directly into a PC over cables up to 200m long, whereas RS485 is suitable for longer cables (up to 1000m) and allows for multiple addressed units on a single cable.

<b>Baud Rate</b>	2400 - 115200 (NB. Low baud rates may limit data rate)
<b>Protocol</b>	8 data bits, 1 stop bit, No parity, No flow control

### Electrical

<b>Voltage</b>	9 - 28 V DC
<b>Power</b>	0.25 W (SV only) 0.35 W (SV + Pressure)
<b>Connector</b>	SubConn MCBH6F (alternatives on request)

### Data Format

Examples of data formats are:  
`<space>{sound_velocity}<CR><LF>`  
`<space>{pressure}<space>{sound_velocity}<CR><LF>`  
`<space>{temperature}<space>{sound_velocity}<CR><LF>`

<b>SV</b>	Choose from: mm/s (1510123) m/s to 3 decimal places (1510.123) m/s to 2 decimal places (1510.12)	
<b>Pressure</b>	If fitted, pressure is always output in dBar with 5 digits, with a decimal point, including leading zeros if necessary. Position of the point is dependent on sensor range, e.g.	
	50 dBar	47.123
	100 dBar	047.12
	1000 dBar	0047.1
<b>Temperature</b>	If fitted, temperature is output as a 5 digit number with 3 decimal places and leading zeros, signed if negative, e.g.	
	21.456	02.298 -03.174

### Physical

Please refer to factory for detailed dimensions if required.

<b>Depth Rating</b>	6000 m (Titanium)
<b>Weight</b>	1 kg (housed type)
<b>Housing &amp; Bulkhead</b>	Titanium
<b>Transducer Window</b>	Polycarbonate
<b>Sensor Legs</b>	Carbon Composite
<b>Reflector Plate</b>	Titanium

### Ordering

All systems supplied with operating manual and carry case. OEM units come with a test lead, housed units with a 0.5 m pigtail.

Configuration	100 mm	50 mm	25 mm
<b>Titanium Housing</b>	0652004	0652005	0652006
<b>Bulkhead OEM</b>	-	-	0652003
<b>Remote OEM</b>	-	-	0652009
<b>Titanium + Pressure</b>	-	0652005-P-XX	0652006-P-XX
<b>Titanium + Temperature</b>	-	0652005-T	-
<b>Acetal Housing</b>	-	-	0652047

**Note** XX Where P = 2, 5, 10, 20, 30, 50, 100, 300 or 600 Bar.

## Datasheet Reference: miniSVS | February 2024

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