



## 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.

miniSVS - still the most accurate sound velocity sensor in the world. Nothing else comes close.

### Sound Velocity Measurement

Each sound velocity measurement is made using a single pulse of sound travelling 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.

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

Acoustic Frequency: 2.5MHz

Sample Rate: Selectable, dependent on configuration

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

### Optional Sensors

The miniSVS may be optionally supplied with either a pressure or temperature sensor (but not both). Data is sampled at the rates shown above

| Sensor Type | Pressure Strain Gauge     | Temperature PRT |
|-------------|---------------------------|-----------------|
| Range       | 5, 10, 50, 100 or 600 Bar | -5°C to +35°C   |
| Resolution  | 0.001% range              | 0.001°C         |
| Accuracy    | ±0.05% range              | ±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.

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



### Electrical

|            |  |
|------------|--|
| Voltage:   | 8 - 30VDC                                |
| Power:     | 0.25W (SV only), 0.35W (SV + Pressure)   |
| Connector: | 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>
```

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

### Physical

Please refer to factory for detailed dimensions if required.

|                     |                                 |
|---------------------|---------------------------------|
| Depth Rating:       | 6000m (Titanium), 500m (Acetal) |
| Weight:             | 1kg (housed type)               |
| Housing & Bulkhead: | Titanium or Acetal, as selected |
| Transducer Window:  | Polycarbonate                   |
| Sensor Legs:        | Carbon Composite                |
| Reflector Plate:    | Titanium.                       |

### Ordering

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

| Configuration          | 100mm     | 50mm      | 25mm      |
|------------------------|-----------|-----------|-----------|
| Titanium Housing       | 0652004   | 0652005   | 0652006   |
| Acetal Housing         | 0652045   | 0652046   | 0652047   |
| Bulkhead OEM           | 0652001   | 0652002   | 0652003   |
| Remote OEM             | 0652007   | 0652008   | 0652009   |
| Titanium + Pressure    | 0652004-P | 0652005-P | 0652006-P |
| Titanium + Temperature | 0652004-T | 0652005-T | 0652006-T |