

miniSVS



Our 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 in a variety of sizes to suit many applications.

miniSVS - the most accurate sound velocity sensor in the world. Why settle for less?

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.

| | | | |
|-------------|--|-----------------|--|
| Range: | 1400 - 1600m/s (extended range on request) | | |
| Resolution: | 0.001m/s | | |
| Accuracy: | Dependent on sensor size | | |
| 100mm | Random noise (95%) | ±0.002m/s | |
| | Max systematic calibration error | ±0.013m/s | |
| | Max systematic clock error | ±0.015m/s | |
| | Total max theoretical error | ±0.03m/s | |
| 50mm | Total max theoretical error | ±0.06m/s | |
| 25mm | Total max theoretical error | ±0.10m/s | |

Acoustic Frequency: 2.5MHz

Sample Rate: Selectable, dependent on sensor size.

| Rate | 100mm | 50mm | 25mm |
|---------------|--------|------|--------|
| Single Sample | ● | ● | ● |
| 1Hz | ● | ● | ● |
| 2Hz | ● | ● | ● |
| 4Hz | ● | ● | ● |
| 8Hz | ● | ● | ● |
| 16Hz | | ● | ● |
| Maximum | 11.3Hz | 16Hz | 21.8Hz |

Pressure Measurement

The miniSVS may be supplied with an optional pressure sensor to allow profile information to be collected. Data is sampled at the same rate as above, but the pressure value is appended to the data output string.

| | |
|-------------|---------------------------------------|
| Sensor: | Strain Gauge |
| Range: | Choose from 5, 10, 50, 100 or 600 Bar |
| Resolution: | 0.001% range |
| Accuracy: | ±0.1% range |

Data Output

Unit 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. However, it also requires a suitable RS485 adaptor to allow PC communications.

| | |
|------------|---|
| Baud Rate: | 1200 - 38400 |
| 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 Titanium MCBH6F (alternatives on request) |

Data Format

```
<space>{sound_velocity}<cr><lf>
<space>{pressure}<space>{sound_velocity}<cr><lf>
```

SV: Choose from mm/s (1510123), m/s to 3 decimal places (1510.123), or m/s to 2 decimal places (1510.12). The last does not use the full resolution of the sensor, but is offered as a mimic of other devices to allow easy sensor replacement.

| | | |
|-----------|--|--------|
| 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.: | |
| | 50dBar | 47.123 |
| | 100dBar | 047.12 |
| | 1000dBar | 0047.1 |

Physical

Please refer to the drawing on the reverse of this page for detailed dimensions.

| | |
|---------------------|--------------------------|
| Depth Rating: | 6000m |
| Weight: | 1kg (housed type) |
| Housing & Bulkhead: | Titanium |
| Transducer Window: | Polycarbonate |
| Sensor Legs: | Carbon Fibre Composite |
| Reflector Plate: | Titanium (Copper option) |

Note: Copper deters growth for long term deployments but tarnishing introduces a path length error, increasing the measured sound velocity by about 0.05m/s per year.

Ordering

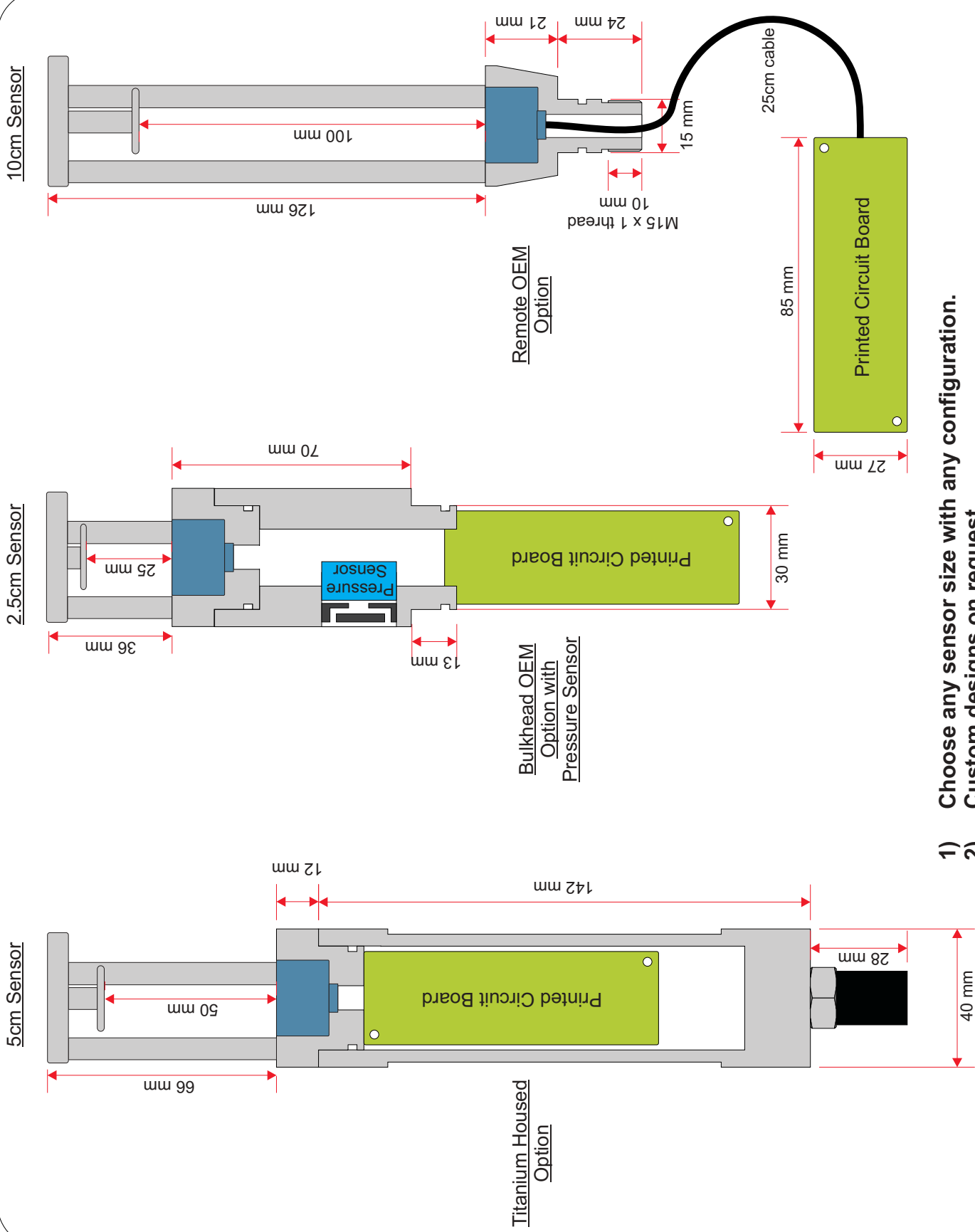
All systems supplied with operating manual and carry case. OEM units come with a test lead, housed units with a 0.5m pigtail.

| Configuration | 100mm | 50mm | 25mm |
|-----------------|---------|---------|---------|
| Titanium Housed | 0652004 | 0652005 | 0652006 |
| Bulkhead OEM | 0652001 | 0652002 | 0652003 |
| Remote OEM | 0652007 | 0652008 | 0652009 |

| | |
|---------|---|
| 0652010 | Spare 50cm Pigtail |
| 0652013 | Pressure sensor option for any unit (specify range) |

As part of our policy of continuing development, we reserve the right to alter at any time, without notice, all specifications, designs, prices and conditions of supply of all equipment.

Datasheet Reference Number: miniSVS v1A



- 1) Choose any sensor size with any configuration.
- 2) Custom designs on request.
- 3) Pressure sensor module is compatible with either Titanium Housed or Bulkhead OEM Options