SWiFT SVP

Sound Velocity Profiler

Designed from the outset with the intention of a seamless workflow, the SWiFT SVP profiler provides survey-grade sensor technology coupled with the convenience of **Bluetooth®** connectivity and rechargeable batteries. An integral GNSS module, to geo-locate each profile, completes the package. Data can be easily and quickly downloaded and reviewed wirelessly via Bluetooth connectivity using Valeport's Ocean software for Windows, iOS or Android. Data can be instantly shared, in industry standard data formats through email and cloud services. A USB Cable and Bluetooth adapter are provided.

In addition to the directly measured sound speed, temperature and pressure observations, Conductivity, Salinity and Density are calculated using Valeport's proprietary algorithm developed from extensive laboratory and field work.

With an operational battery life of up to 5 days and the convenience of charging via USB, SWiFT SVP is intended for coastal, harbour and inland hydrographic survey use and offers the highest quality sound velocity profiles in a compact, robust and portable package. Optionally, the supplied deployment weight is available to bolt onto the sensor protection cage to help get the SWiFT SVP to depth in fast-flowing currents.

DATA SHEET

Product Details

SOUND SPEED

MULTI-PARAMETER CTD

OCEAN & CONNECT PATH-WAY EDITION SOFTWARE

Bluetooth® USB Rechargeable Battery GNSS

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VALEPORT

Sensor Specifications

The SWiFT SVP is fitted with Valeport's digital time of flight sound velocity sensor, temperature compensated piezo-resistive pressure transducer and a PRT temperature sensor.

Sound Velocity

Range	1,375-1,900 m/s
Resolution	0.001 m/s
Accuracy	±0.02 m/s

Pressure

Range	50 Bar
Resolution	0.001% FS
Accuracy	±0.01% FS

Temperature

Range	-5°C – +35°C
Resolution	0.001°C
Accuracy	±0.01°C

Calculated Parameters and Accuracy

Calculations based on Valeport's proprietary DASH formula

Conductivity	±0.05 mS/cm
Salinity	±0.05 PSU
Density	±0.05 kg/m³

Physical

Materials	Titanium | Stainless Steel deployment weight
Depth Rating	500m
Dimensions	ø78mm x Length 264mm
Weight	2.0kg (in air) / 0.9kg (in water) | 3.0kg (in air) / 1.8kg (in water) with deployment weight

Communications (set up and data offload)

USB Serial

Bluetooth v4 - low energy

Electrical

Battery	Internal rechargeable Li-ion battery pack
Battery life	Up to 5 days operations
Charging	USB Typically, 1 hour fast charge will give 12 hours operation

Software

iOS and Android Valeport Connect Pathway Edition for Bluetooth compatible mobile devices – instrument set up, data offload, display and translation to common data formats. Valeport's Ocean PC software, with both USB cable and Bluetooth connectivity, for instrument setup, data extraction, display and translation to common data formats.

Instrument and data time is synchronised to GNSS, UTC.

Ordering

0660047-50	SWiFT SVP Profiler Titanium housing rated to 500m
Supplied with	Deployment weight PC Bluetooth adapter USB interface and charging cable 1.5 A charger Valeport Connect software Operating manual System transit case

Datasheet Reference: SWiFT SVP | February 2023

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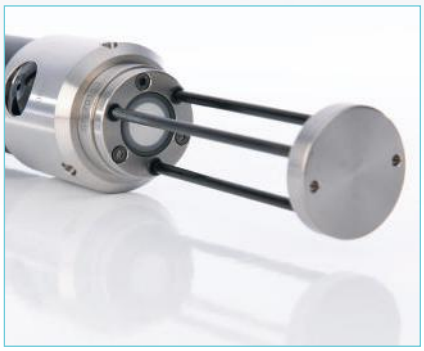

miniSVP
Sound Velocity Profiler

The miniSVP has been developed to provide a cost effective tool for the collection of Sound Velocity Profiles without compromising the quality of the data. Ideally suited to hydrographic survey operations, from coastal to deep water, the miniSVP will appeal to survey companies and academia alike, being simple to use and easy to handle.

DATA SHEET

Product Details

SOUND SPEED

DATALOG X2 SOFTWARE

WIRELESS

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VALEPORT

Sensors

Fitted with Valeport's digital time of flight sound velocity sensor, a PRT temperature sensor, and piezo-resistive pressure transducer.

Sound Velocity

Range	1375 - 1900m/s
Resolution	0.001m/s
Accuracy	±0.02m/s

Temperature

Range	-5°C - +35°C
Resolution	0.001°C
Accuracy	±0.01°C

Pressure

Range	5, 10, 30, 50, 100, 300 or 600 Bar
Resolution	0.001% range
Accuracy	±0.05% range

Data Acquisition

Features a selection of pre-programmed sampling regimes, covering many standard applications. Data may be sampled from 1 to 16Hz, making it suitable for rapid profiling or for continuous measurement at a fixed point.

Sampling Modes

Continuous	Regular output from all sensors at 1, 2, 4, 8 or 16Hz
Profile	Logs data as the device falls (or rises) by a defined amount through the water column.

Communications

Will operate autonomously, with setup and data extraction performed by direct communications with PC. Operates in real time, with a choice of communication protocols fitted as standard and selected by pin choice on the output connector.

RS232	Up to 200m cable, direct to serial port
RS485	Up to 1000m cable
Baud Rate	38400, 57600 or 115200
Protocol	8 data bits, 1 stop bit, No parity, No flow control
Wireless	Wireless logger and communication set available for cable free data recovery. Wireless module is limited to a depth rating of 500m.

Memory

Fitted with a solid state non-volatile Flash memory, capable of storing over 10 million lines of data (equivalent to 10,000 profiles to 500m, at 1m profile resolution).

Electrical

Internal	1 x C cell, 1.5V alkaline or 3.6V lithium
External	9 – 28V DC
Power	<250mW
Battery Life	approximately 30 hours operation (alkaline) approximately 90 hours operation (lithium)
Connector	SubConn MCBH10F

Physical

Materials	Acetal or Titanium housing (as ordered) Polycarbonate & Composite sensor components. Stainless steel (316) deployment cage
Depth Rating	500m (Acetal) 6000m (Titanium)
Note:	Maximum deployment depth may be limited by pressure transducer range
Instrument Size	Main Housing: 48mmØ Sensor Body: 54mmØ Length: 435mm (including connector)
Deployment Cage	110mmØ x 450mm long
Weight	0.8kg (Acetal) | 1.6kg (Titanium)
Shipping	51 x 42 x 27cm | 10kg

Software

The system is supplied with DataLog X2 software, for instrument setup, data extraction and display. DataLog X2 is licence free.

Ordering

0660001-XX	miniSVP Sound Velocity Profiler in Acetal Supplied with: • Deployment cage • Switch plug • 3m comms lead • DataLog X2 software • Manual and transit case
0660001BT-XX	miniSVP Sound Velocity Profiler in Acetal Supplied with: • Deployment cage • Switch plug • Wireless logger/communication set • DataLog X2 software • Manual and transit case
Note:	**XX** denotes pressure transducer range Select from 5, 10, 30 or 50bar
0660002-XX	miniSVP Sound Velocity Profiler in Titanium Supplied with: • Deployment cage • Switch plug • 3m comms lead • DataLog X2 software • Manual and transit case
Note:	**XX** denotes pressure transducer range. Select from 5, 10, 30, 50, 100, 300 or 600 Bar

Datasheet Reference: miniSVP | July 2023

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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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VALEPORT

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	1375 - 1900 m/s	
Resolution	0.001 m	
Accuracy	Dependent on sensor size	
100 mm	Random noise (point to point) Max systematic calibration error Max systematic clock error **Total max theoretical error**	±0.002 m/s ±0.013 m/s ±0.002 m/s **±0.017 m/s**
50 mm	Total max theoretical error	±0.019 m/s
25 mm	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	Pressure	Temperature
Type	Strain Gauge	PRT
Range	2, 5, 10, 20, 30, 50, 100, 300 or 600 Bar	-5°C - +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	9 - 28 V DC
Power	0.25 W (SV only) 0.35 W (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: mm/s (1510123) m/s to 3 decimal places (1510.123) 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 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
Temperature	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.

Depth Rating	6000 m (Titanium)
Weight	1 kg (housed type)
Housing & Bulkhead	Titanium
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 0.5 m pigtail.

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