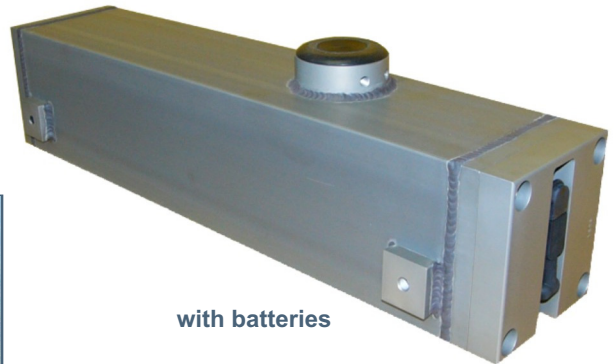
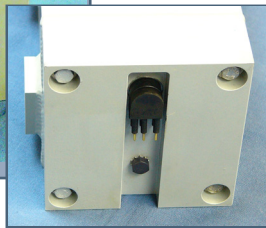
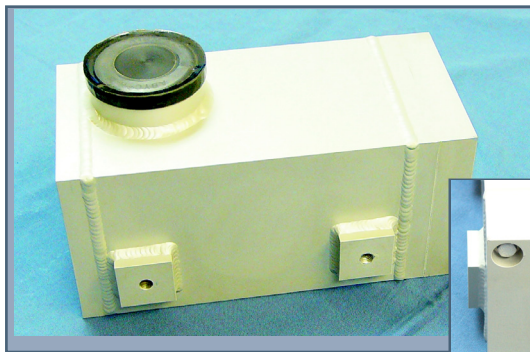


## Shallow Water Ice Profiler™



### Applications

In-situ measurements are essential for understanding and monitoring lake, river and tidal ice dynamics. The SWIP now facilitates measurements for applications such as:

- \* River ice cover monitoring for flood control
- \* River, lake and estuary ice research
- \* Frazil ice monitoring near potable and cooling water intakes

### Features

- \* SWIP can monitor and record ice targets at the water surface as well as backscatter returns from ice particles suspended in the water column (frazil ice)
- \* Real-time RS-232 or RS-422 communications
- \* Robust low-profile housing arrangement
- \* Excellent horizontal resolution using a high frequency 546 kHz transducer with a 7° beam width
- \* Low power (shore or external battery pack)
- \* Large on-board data capacity (4 Gbyte) provided by Compact Flash memory (up to 16 GB supported)
- \* Up to 2 Hz continuous sampling
- \* Versatile Windows-based software for deployment planning and initialization, instrument testing and downloading of stored data.

*Innovative Solutions for Global Environmental Challenges*

ASL Environmental Sciences Inc.

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# SWIP-5 Specifications

<b>UPWARD LOOKING SONAR</b> Operating Frequency 546 kHz (Standard) Beam Width 6° Sampling Rate up to 2Hz Duty Cycle up to 100% Maximum Range 20 m Precision ± 0.05 m (ice draft)	<b>DIGITAL BOARD</b> 16-Bit Analog to Digital conversion
	<b>TILT SENSOR</b> (for sonar beam angle) Range ± 20°, Accuracy ± 1.0°, Precision 0.1°(noise level)
<b>DATA STORAGE</b> Standard 4 GB Compact Flash (up to 16 GB Supported)	<b>TEMPERATURE SENSOR</b> Accuracy +/- 0.1°C
	<b>ABSOLUTE PRESSURE SENSOR</b> Range 0-30 psia, Accuracy ± 0.03 psia

## SHORE POWER REQUIREMENT:

8 to 15 V (or optional internal or external battery pack)

## SOFTWARE

A Windows-based software is included in the package:

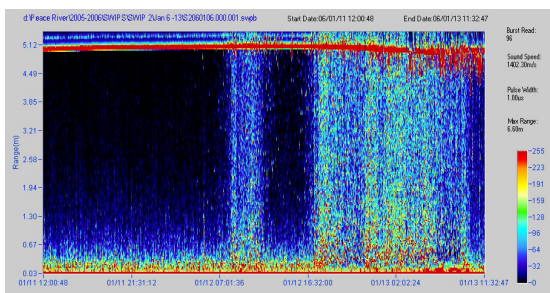
- Communications software to enable setup and download functions
- Utility package for data plotting, viewing and conversion

## MOUNTING

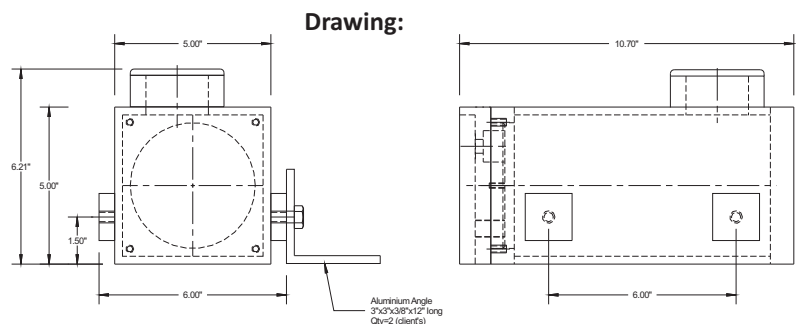
The instrument needs to be positioned within ± 15 degrees of vertical. Transducer tilt should be verified at deployment. See drawing below (angles not included). Considerations for ice impact and anchor ice issues are critical. Diver installation is preferred.

## OPTIONAL FEATURES AND SERVICES

- Internal battery pack (requires extended housing)
- Lower 235 kHz frequency with 11° Beam Width (for focusing on slush and thermal ice)
- RS-232 communications (RS-422 is standard)
- Anodes for corrosion protection (prolonged deployment)
- External battery pack
- Polyurethane jacketed cable (max 1200 m long)
- Armoured cable (max 300 m long)
- Mounting design assistance and equipment is available upon request
- Shore-based barometer
- Integrated Acoustic Current Doppler Profiler Instrumentation (ADCP)
- Customized shore-based data management system for SWIP and ADCP data
- ASL offers a suite of nearly 200 programs for data processing and analysis of Ice Profiler and ADCP ice velocity data sets.
- Data Processing services



**Frazil Ice Record on the Peace River**  
 - Courtesy Martin Jasek, BC Hydro



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