

BathySurvey

A Trimble Access hydrographic survey module

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1. Introduction

BathySurvey is a plugin for the Trimble Access software. It's a hydrographic software package capable of communicating via a serial port with an echo sounder. At the moment the following echo sounders are supported:

- Odom Echotrac CVM
- Odom Echotrac CV100
- Ohmex Sonarmite
- NMEA DBS
- NMEA DBT

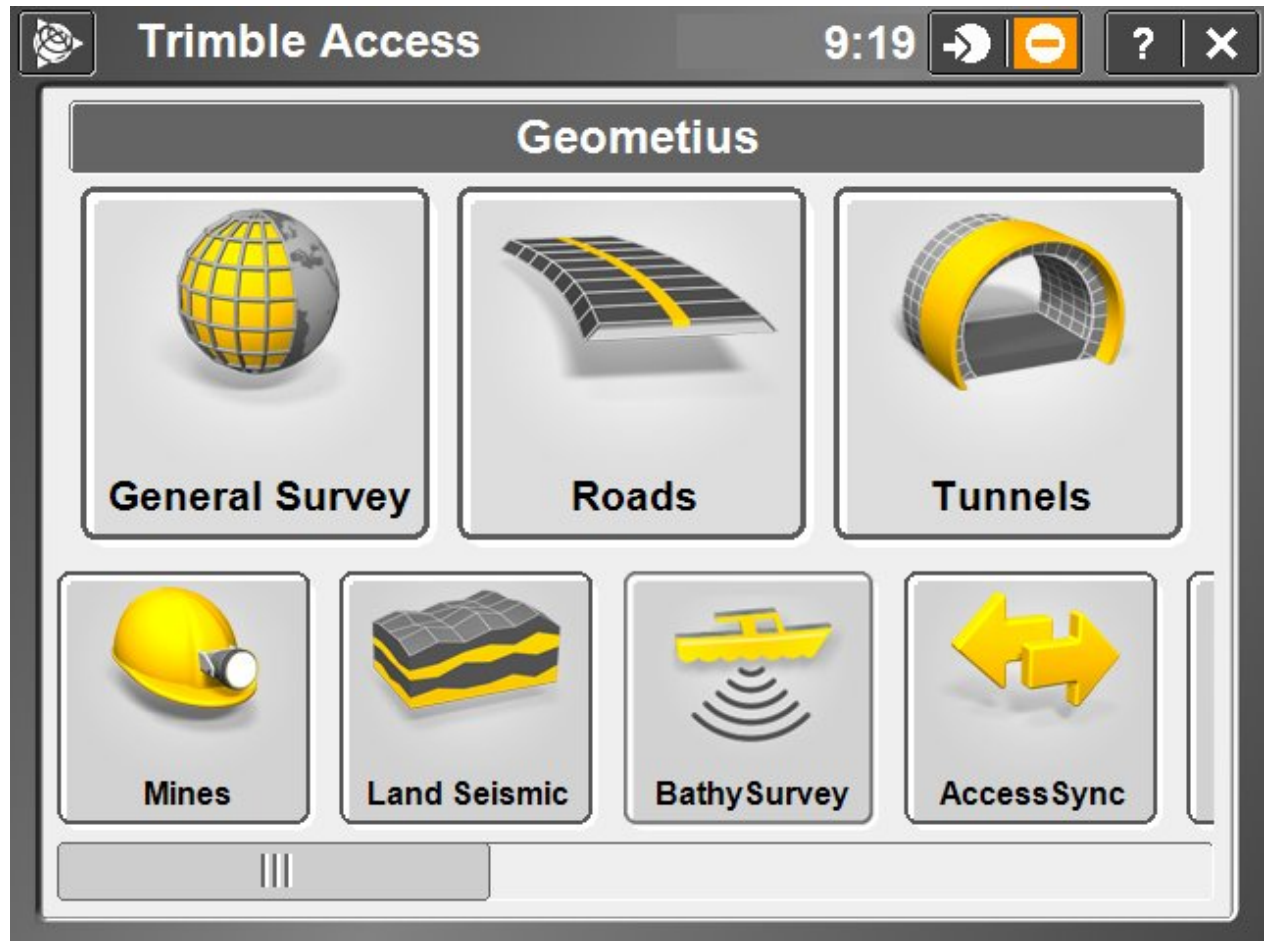
BathySurvey adds a depth to a GNSS position record. A custom stylesheet is delivered with the software to convert the Trimble Access Job file to a comma separated ASCII file.

When using the Odom Echotrac CVM/ CV100 or Ohmex Sonarmite the settings of the echo sounder can be changed. The NMEA protocols are just for reading the depth(s) from an NMEA string.

A barcheck wizard can determine the transducer depth and sound velocity.

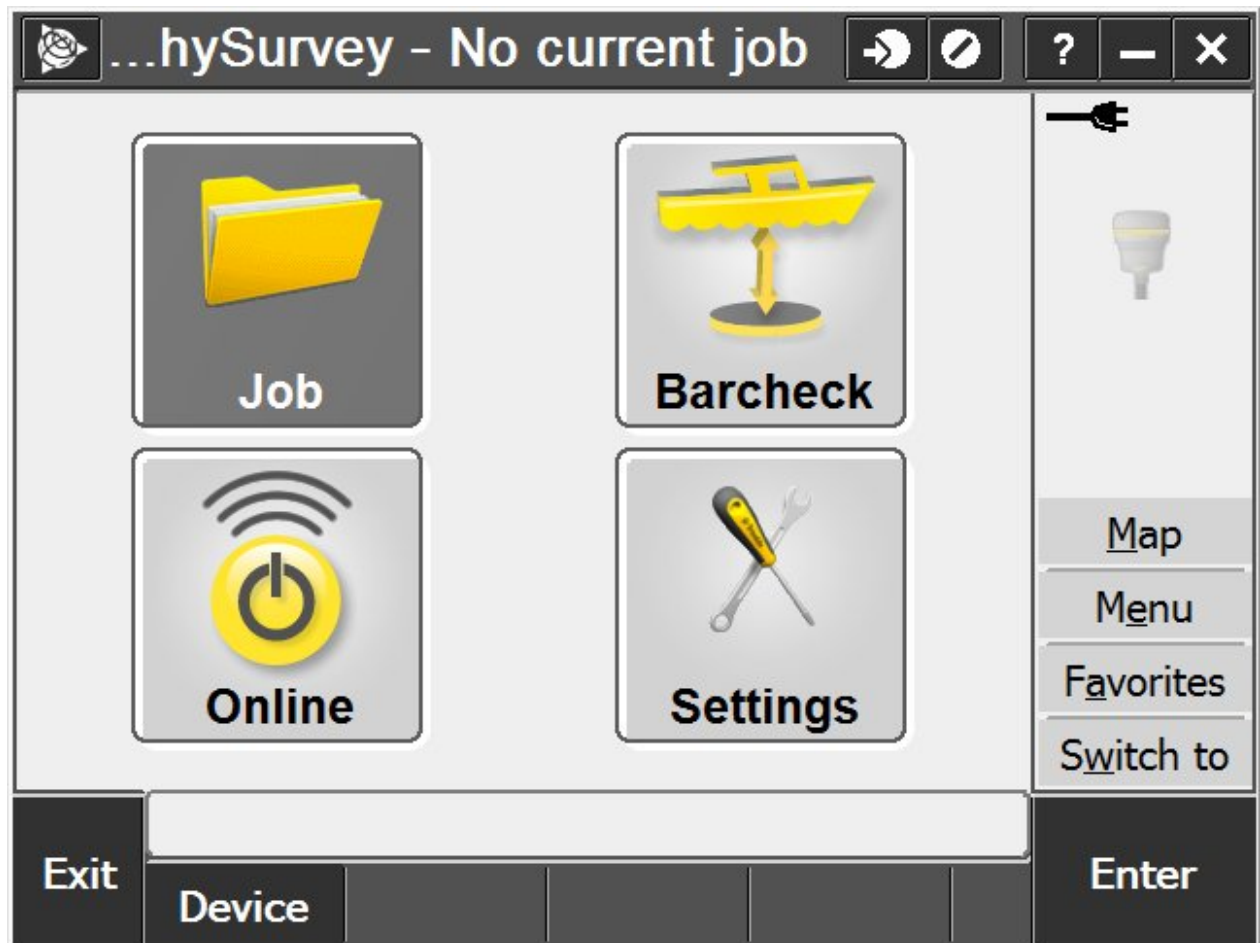
2. Installation

After installing BathySurvey via the Trimble Access Installation Manager the BathySurvey icon will appear on the main screen of Trimble Access.



3. Main Screen

The Bathy Survey main screen has four buttons and one soft key to choose the correct echo sounder device and communication parameters. Always start by checking the device settings.



4. Device

Choose the correct echo sounder and communication settings.

Device:

Odom Echotrac CVM ▼

Controller port: **COM 1** ▼

Baud rate: **9600** ▼

Data bits: **8**

Stop bits: **1**

Parity: **None** ▼

Flow control: **None** ▼

Map

Menu

Favorites

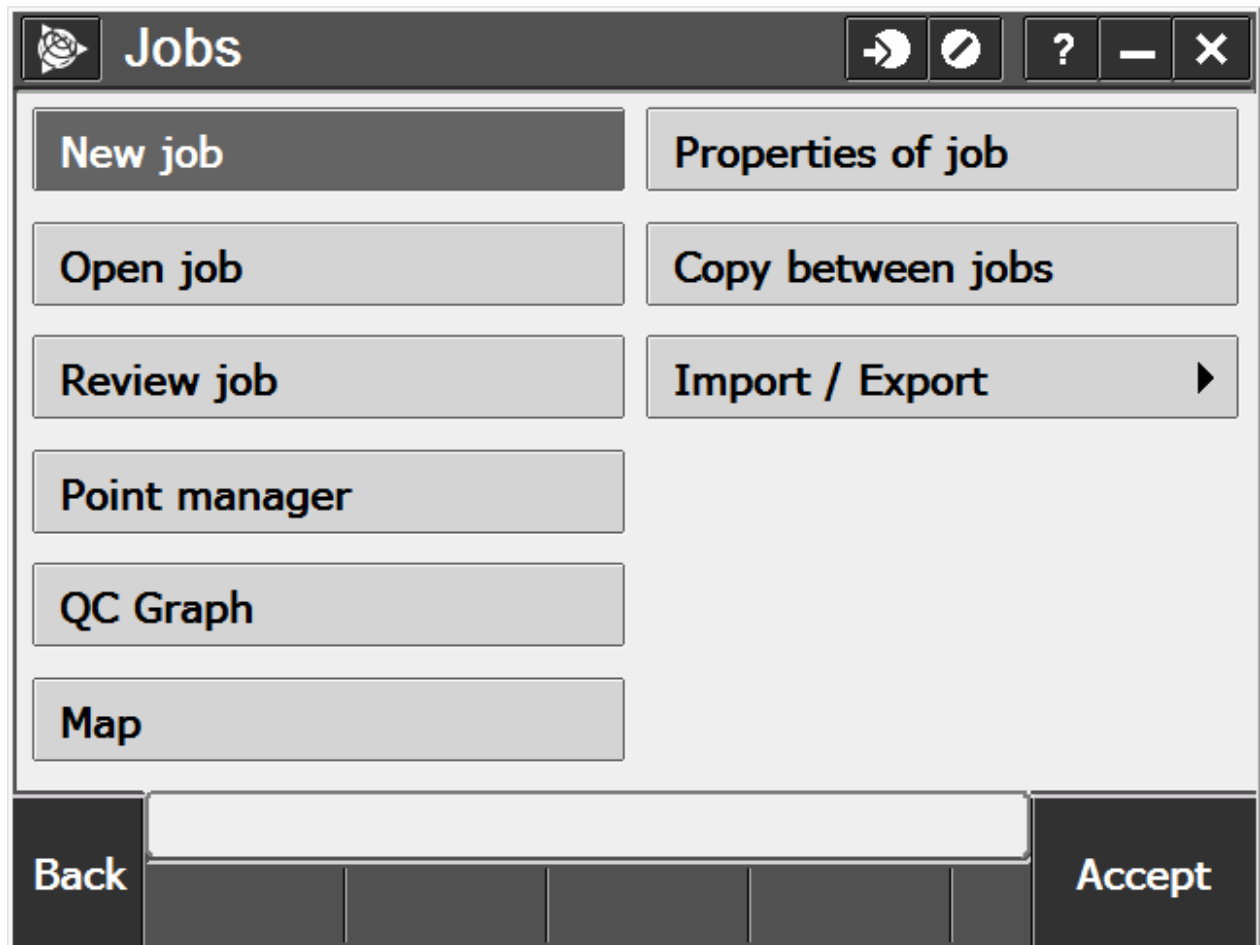
Switch to

Esc

Enter

5. Jobs

Has the same functionality as the Jobs menu in General Survey.



6. Settings Odom Echotrac

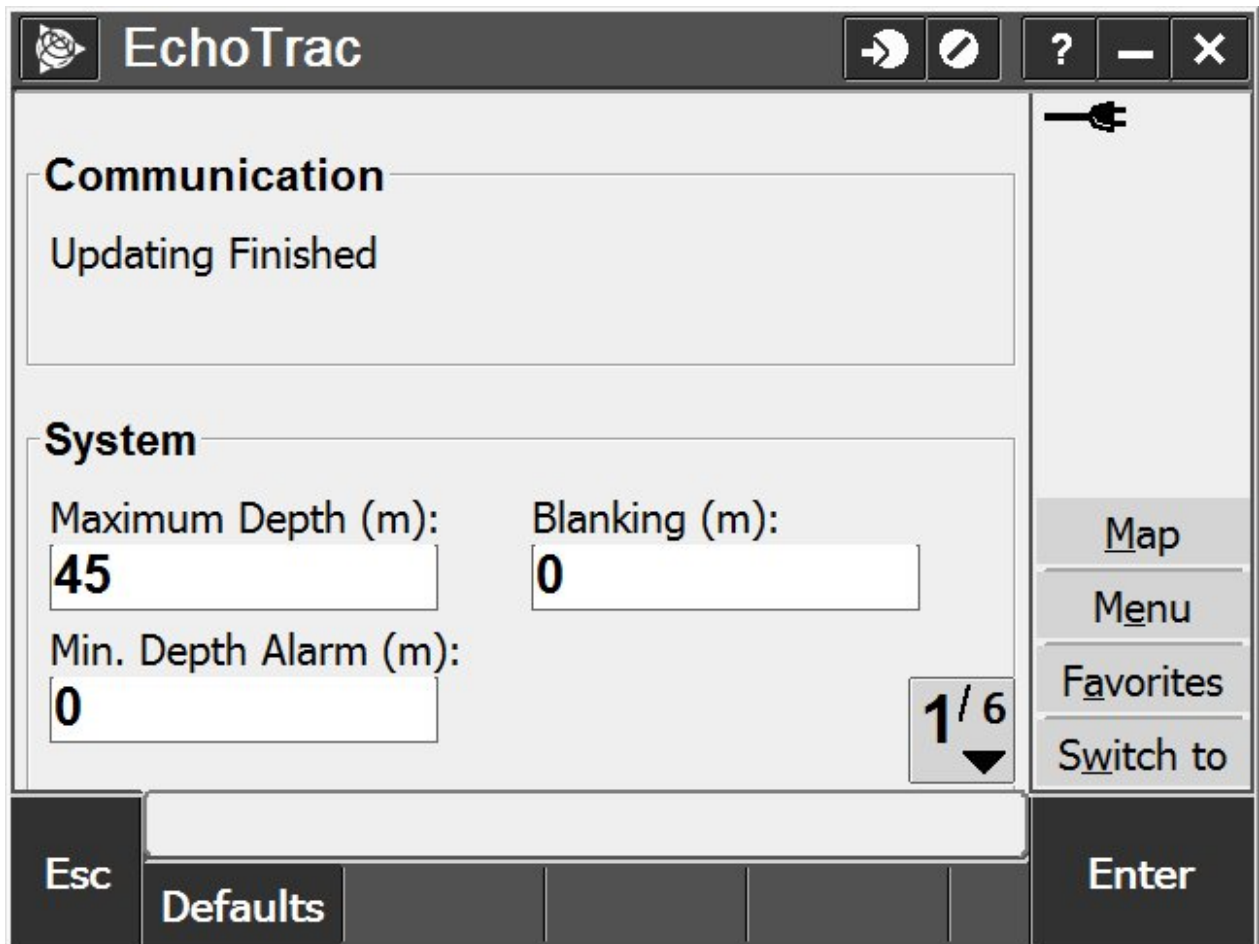
After starting the settings menu from the main screen BathySurvey will query the echo sounder settings. This will take a couple seconds. After the message “Updating Finished” appears you will be able to change the settings.

The maximum operating depth range of the echo sounder.
Valid parameters from 0 to 12000 meters. The default is 45 meter.

Blanking level to digitizer. Digitizer will not track anything above this depth.
Valid parameters from 0 to 12000 meters. The default is 0 meter.

Minimum depth alarm. The echo sounder will sound an alarm if the depth is shallower than this depth.
Valid parameters from 0 to 30 meters. The default is 0 meter.

The ‘Defaults’ button will reset all the echo sounder parameters. Note that this will set the communication baud rate to 19200.



The screenshot shows the 'EchoTrac' settings window. The title bar includes a back arrow, a lock icon, and standard window controls (help, minimize, close). The main area is divided into two sections: 'Communication' and 'System'. The 'Communication' section shows 'Updating Finished'. The 'System' section contains three input fields: 'Maximum Depth (m):' with the value '45', 'Blanking (m):' with the value '0', and 'Min. Depth Alarm (m):' with the value '0'. To the right of these fields is a '1/6' indicator with a downward arrow. On the right side of the window, there is a vertical menu with buttons: 'Map', 'Menu', 'Favorites', and 'Switch to'. At the bottom, there is a navigation bar with buttons: 'Esc', 'Defaults', and 'Enter'.

When set to 0 the echo sounder pings at the highest rate for that depth. When set from 1-20 the echo sounder will sound up to a maximum to that ping rate/sec as long as the water depth allows it. Valid parameters from 0-20. Default is 0.

Echo Alarm. When switched on the echo sounder will sound an alarm when the depth is shallower the the set minimum depth.

Standby Bit. When set to On the echo sounder will go to standby when turned on.

High frequency channel operating frequency.
Valid parameters from 12 to 1000 kHz. Default is 200 kHz.

High frequency channel pulse width in cycles.
Valid parameters from 1 to 256. Default is 20.


EchoTrac







Ping Rate (0=auto):

Echo Alarm:
 ▼

Standby Bit:
 ▼

Channel 1

Frequency (kHz):

Pulse Width (cycles):

2 / 6 ▼

Map

Menu

Favorites

Switch to

Esc

Defaults

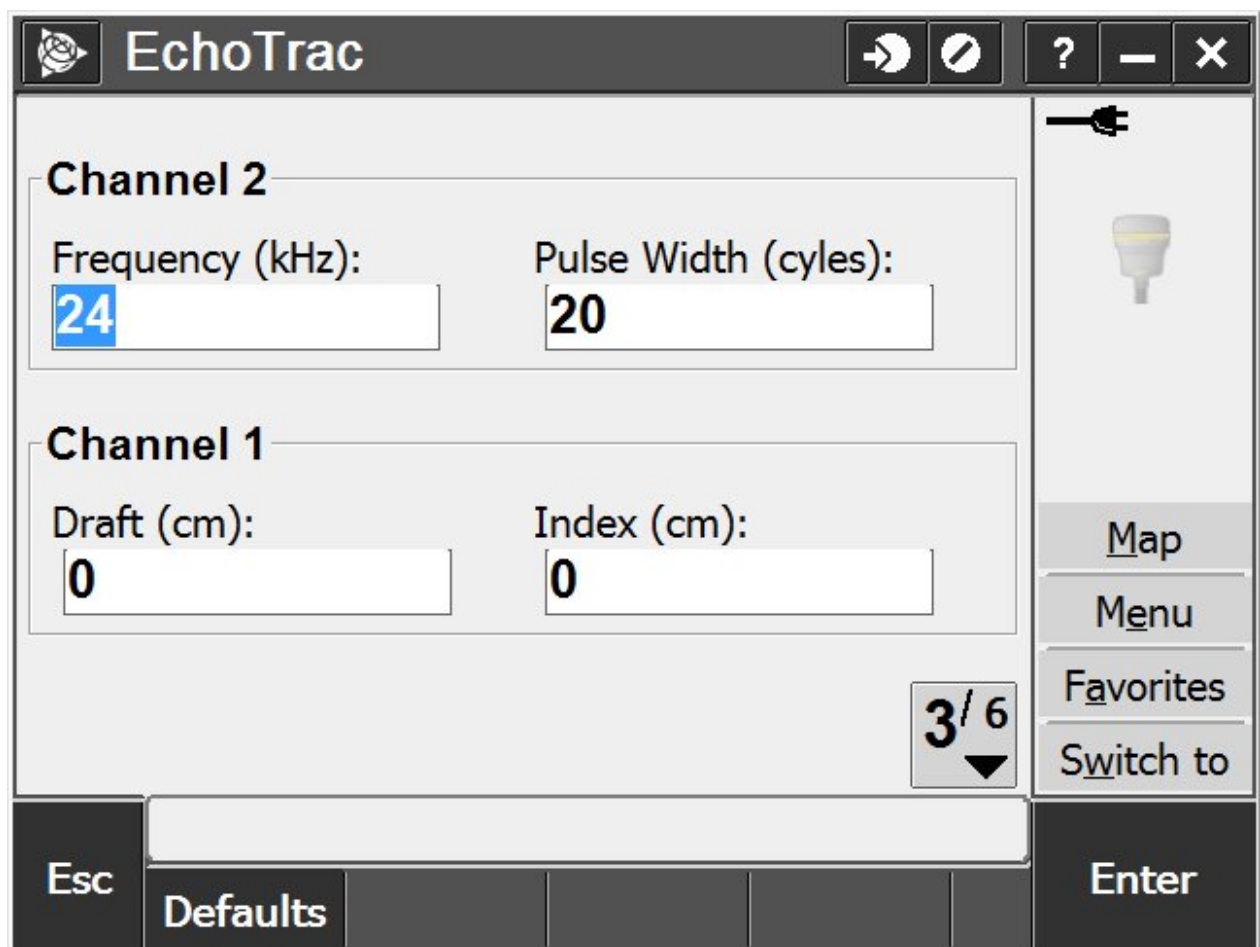
Enter

Low frequency channel operating frequency.
Valid parameters from 8 to 200 kHz. Default is 24 kHz.

Low frequency channel pulse width in cycles.
Valid parameters from 1 to 256. Default is 20.

Draft of high frequency transducer.
Valid parameters from 0 to 1500 centimeters. Default is 0 centimeter.

Index error of high frequency transducer. (Opposite of draft)
Valid parameters from 0 to 1500 centimeters. Default is 0 centimeter.



EchoTrac

Channel 2

Frequency (kHz): Pulse Width (cycles):

Channel 1

Draft (cm): Index (cm):

3/6

Map
Menu
Favorites
Switch to

Esc Defaults Enter

Draft of low frequency transducer.

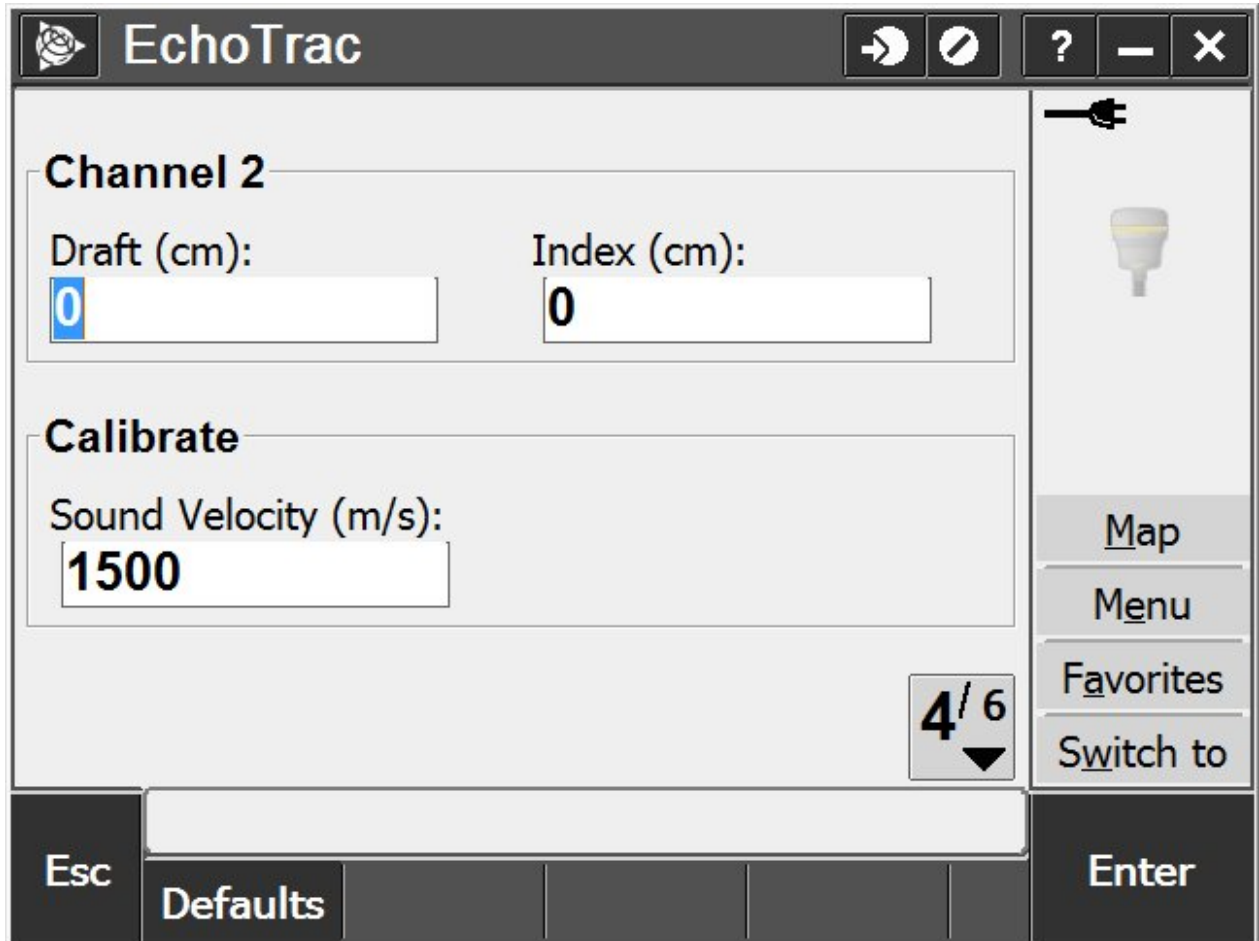
Valid parameters from 0 to 1500 centimeters. Default is 0 centimeter.

Index error of low frequency transducer. (Opposite of draft)

Valid parameters from 0 to 1500 centimeters. Default is 0 centimeter.

The Sound Velocity.

Valid parameters from 1370 to 1700 m/s. Default is 1500 m/s.



The screenshot shows the EchoTrac software interface. At the top, there is a title bar with the 'EchoTrac' logo and several control buttons (back, forward, help, close). The main window is divided into sections. The 'Channel 2' section contains two input fields: 'Draft (cm):' with a value of '0' and 'Index (cm):' with a value of '0'. Below this is a 'Calibrate' section with a 'Sound Velocity (m/s):' input field set to '1500'. On the right side, there is a vertical toolbar with icons for a cable, a transducer, and buttons for 'Map', 'Menu', 'Favorites', and 'Switch to'. At the bottom, there is a navigation bar with 'Esc', 'Defaults', and 'Enter' buttons. A status bar at the bottom right shows '4/6' with a dropdown arrow.

Function and baud rates of the serial ports.

EchoTrac

COM 1

I/O:
Echotrac DBT

Baud Rate:
9600

COM 2

Remote:
Remote Display Off

Baud Rate:
9600

Map

Menu

Favorites

Switch to

5/6

Esc

Defaults

Enter


EchoTrac
→
⊘
?
—
×

COM 3

NMEA:

No GPS input

Baud Rate:

9600

COM 4

Heave:

Heave Turned Off

Baud Rate:

9600

6 / 6





Map

Menu

Favorites

Switch to

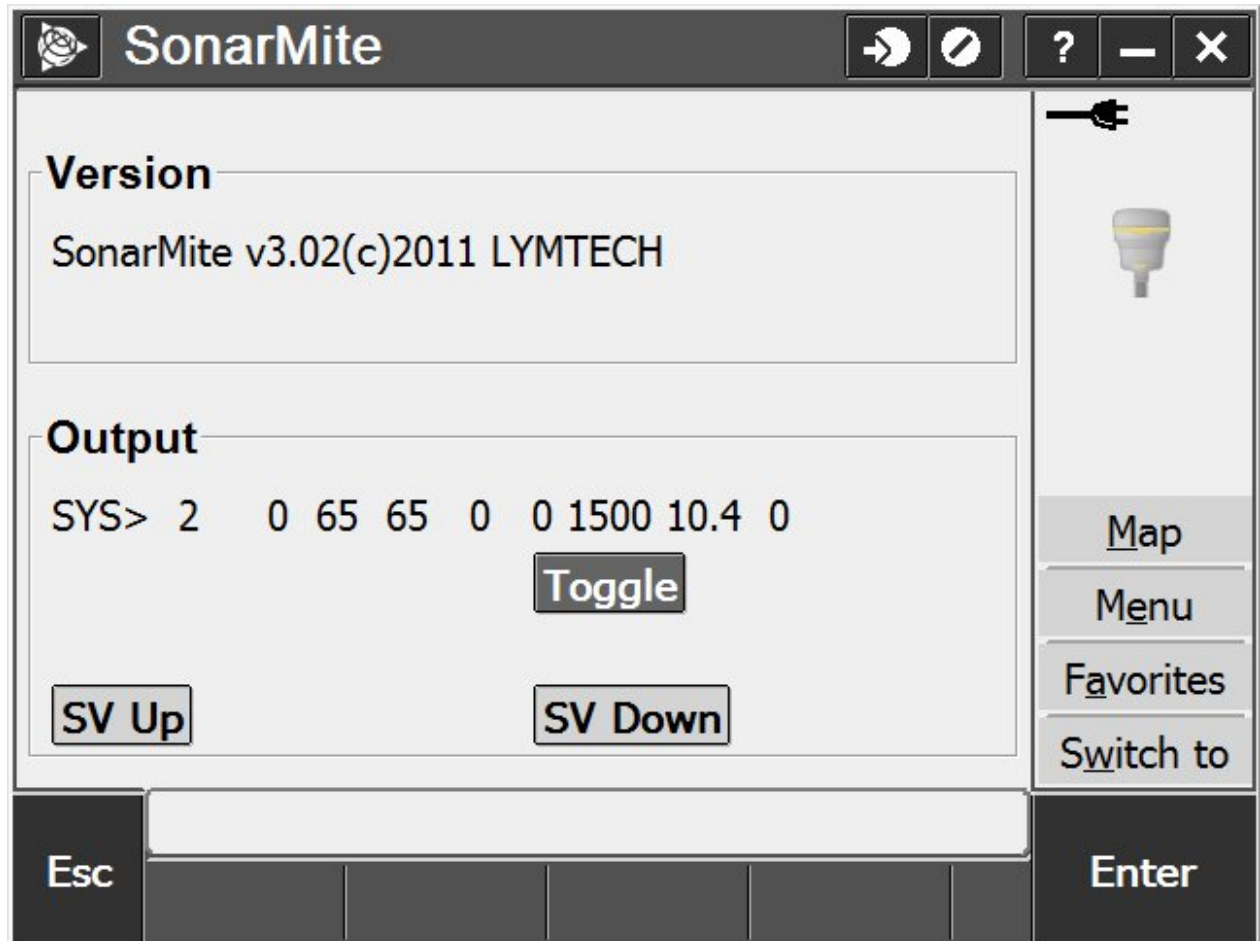
Esc

Defaults

Enter

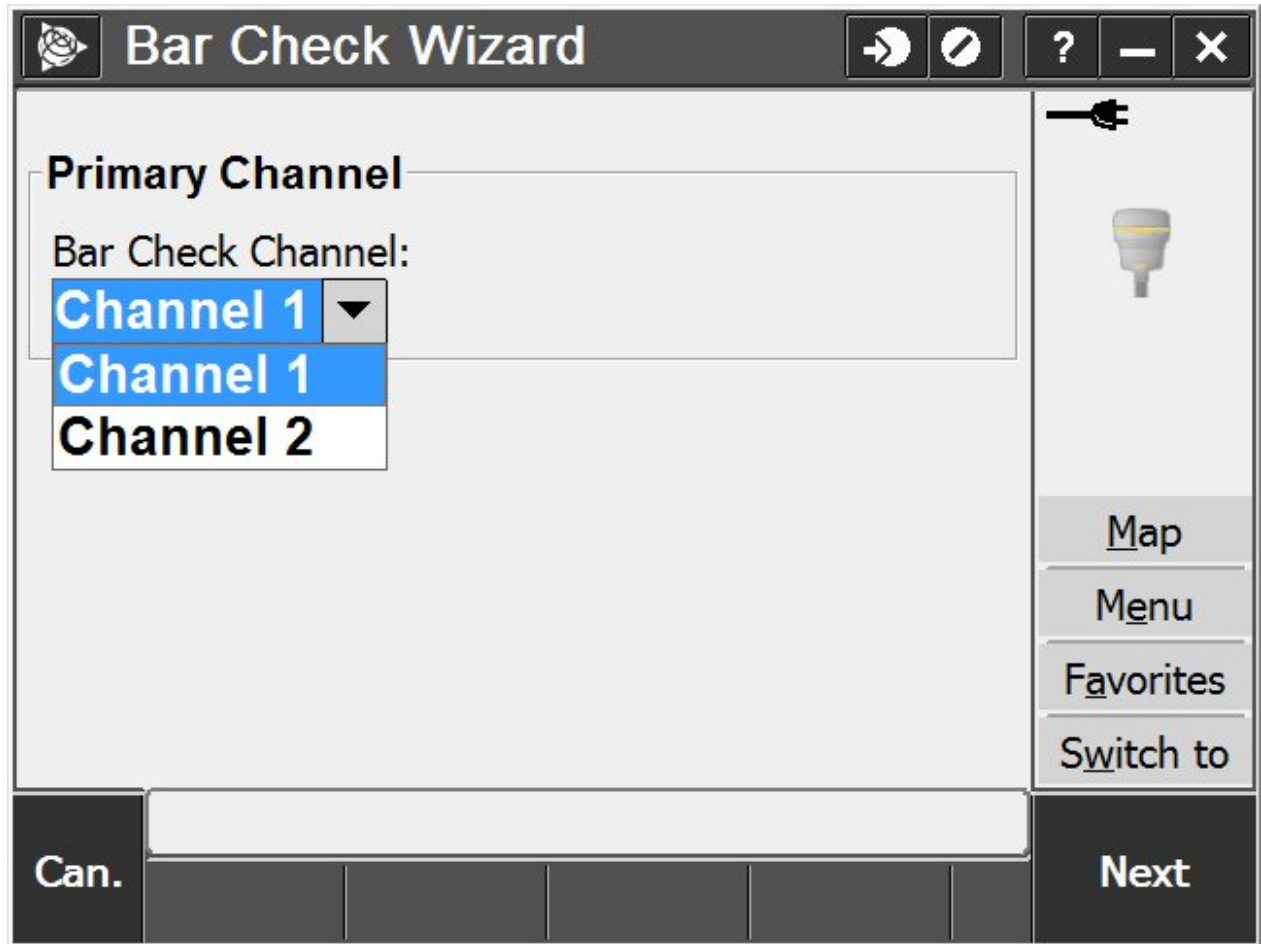
7. Settings Ohmex Sonarmite

With the 'Toggle' button you can switch between the different outputs of the Sonarmite. When you reach the SYS output, the sound velocity (7th field) can be changed with the 'up' and 'down' buttons.



8. Barcheck Odom Echotrac

You can use the barcheck wizard to determine the transducer draft and sound velocity. Choose the channel to calibrate.



Bar Check Wizard

Primary Channel

Bar Check Channel:

Channel 1 ▼

Channel 1

Channel 2

Map

Menu

Favorites

Switch to

Can.

Next

Enter the initial sound velocity to get an approximate depth. The default is 1500 m/s. Enter the draft of the transducer as physically measured from water surface to bottom of transducer.

Bar Check Wizard

Sound Velocity (m/s)

Enter initial sound velocity (m/s):

Channel 1

Enter draft (cm) of transducer:

Map
Menu
Favorites
Switch to

Back
Enter

Deploy the bar below the transducer at a depth of less than 5 meters and enter the bar's known depth. Set the width of the digitizer gate to eliminate returns other than the bar. Once you have a digitized depth from the bar press calculate to get the draft and index.

Bar Check Wizard

Enter the bar's known depth (m):

Set width (m) of digitizer gate:

Digitized Depth (m):

3.01

Adjust index (cm):

Enter draft (cm) of transducer:

Calculate

Map

Menu

Favorites

Switch to

Back

Next

Deploy the bar below the transducer to the deepest calibration depth and enter the bar's known depth. Set the width of the digitizer gate to eliminate returns other than the bar. Once you have a digitized depth from the bar press calculate to get the sound velocity. If you are doing your survey using RTK, make sure to check the 'Reset Draft en Index' checkbox. The draft and index parameters will then be set back to zero.

Bar Check Wizard

Enter the bar's known depth (m):

11

Digitized Depth (m):

11.00

Adjust sound velocity (m/s):

1426

Set width (m) of digitizer gate:

5

Calculate

Reset Draft en Index:

☒

100%

14

2.000

Map

Menu

Favorites

Switch to

Back

RTK H:0.008m V:0.010m

Enter

9. Barcheck NMEA

Deploy the bar below the transducer at the shallowest calibration depth and enter the transducer draft.

Draft = Bar Depth – Digitized Depth

Bar Check Wizard

Shallowest depth (m)

Enter draft (m) of transducer:

Digitized Depth (m):

Map
Menu
Favorites
Switch to

Can.

Enter

Deploy the bar below the transducer to the deepest calibration depth and enter the bar's known depth and the sound velocity as setup in your echo sounder. Once you have a digitized depth from the bar press calculate to get the sound velocity. When using NMEA output from an echo sounder you can use the calculated sound velocity to change the sound velocity setting in your echo sounder.

Bar Check Wizard

Deepest depth (m)

Bar Depth (m):

Digitized Depth (m):

20.2

20.0

Enter initial sound velocity (m/s):

1500

Calculated sound velocity (m/s):

1470

Calculate

Map

Menu

Favorites

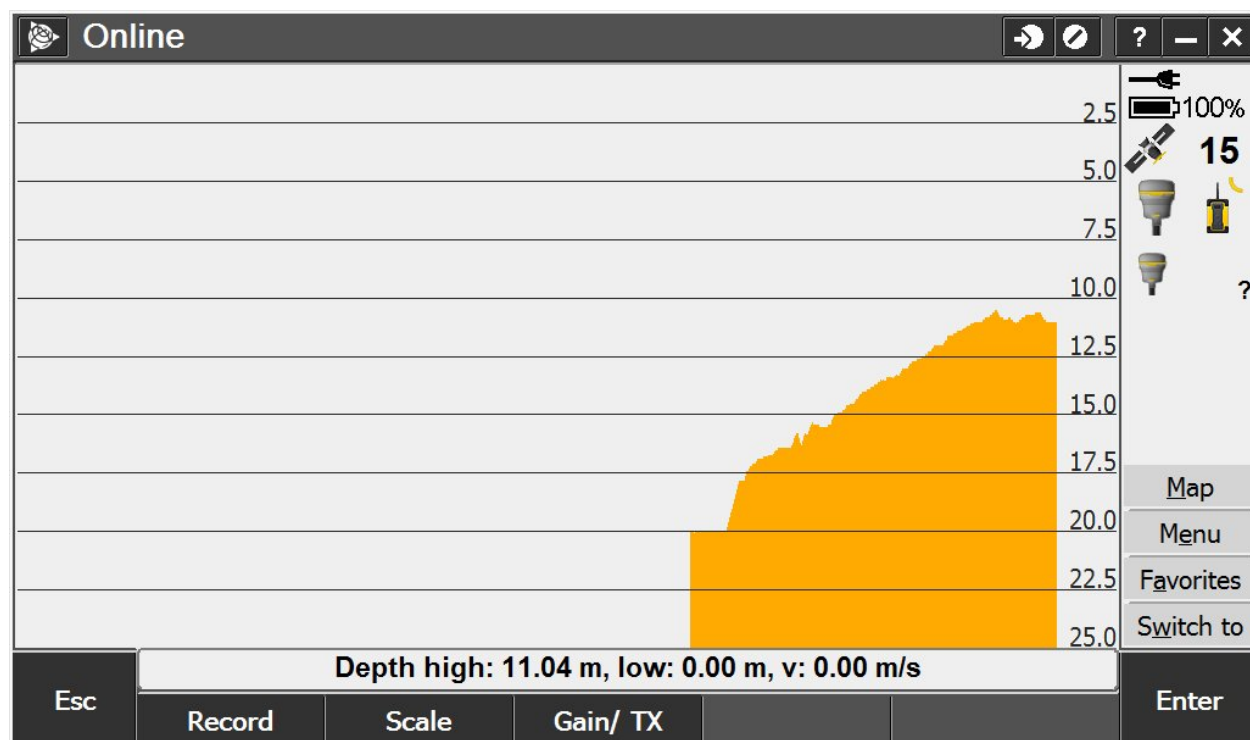
Switch to

Back

Save

10. Online

The Online screen shows a side view of the bottom profile. When a second frequency is used it will become visible in light yellow. The lower frequency is drawn behind the higher frequency. At the bottom the depth and speed are shown. When using a Sonarmite the battery voltage and quality indicator are also shown.



11. Gain/ TX

To set the gain and Tx power for the Odom Echotrac.

Gain/ TX Power			
Channel 1		100% 15 ?	
Gain, 0-256, 256 = auto:	Tx Power, 0-12, 0 = auto:		
255	6		
Channel 2			
Gain, 0-256, 256 = auto:	Tx Power, 0-12, 0 = auto:		
255	6		
		Map Menu Favorites Switch to	
Depth high: 11.05 m, low: 0.00 m, v: 0.00 m/s			
Esc			Enter

12. Scale

To set the bottom side view plot scale and the speed units.

Scale

Scale

Min:

Max:

Units

Speed:

m/s

m/s

kn

100%
 15

Map

Menu

Favorites

Switch to

Esc

No survey PDOP:1.3

Enter

13. Record

Pressing 'Record' from the Online screen will start a continuous topo measurement.

Continuous topo
↶ ⊘ ? — ×

Method:
Fixed time

Antenna height (Uncorrected):
2.358m

Measured to:
Bottom of quick release

Start point name:
50

Time interval:
0m1s

Code:
1

100%
 14
 2.000

Map
Menu
Favorites
Switch to

Esc

Depth high: 11.04 m, low: 0.00 m, v: 0.00 m/s

Enter

eBubble

Options