



SeafloorTM

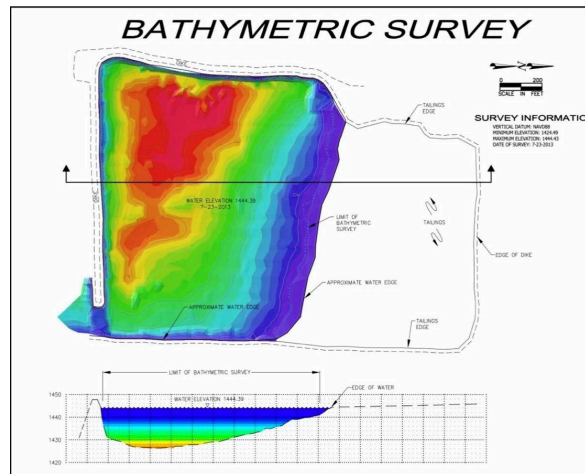
HydroLite-TM

User Manual

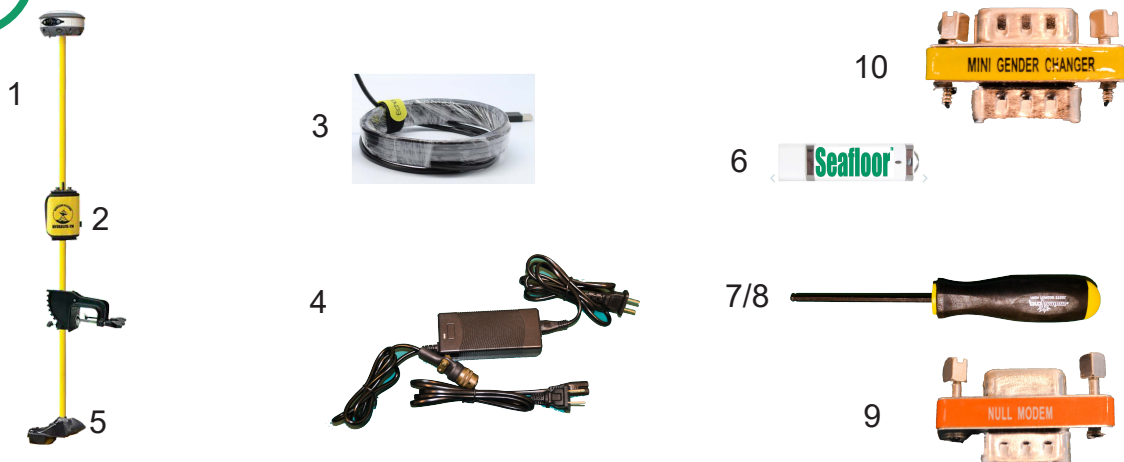


Getting Started

Congratulations on your purchase of the Seafloor HydroLite-TM. The Hydrolite-TM (Transom Mount) was developed to meet requirements for the U.S.Army Tactical Dive Teams. The rugged, wireless Hydrolite-TM looks and feels like your traditional survey instrument. It quickly measures and logs depths, making fast work of ponds, rivers, lakes, and more.



Parts List



Number	Description	QTY
1	HydroLite Survey Poles	3
2	SonarMite MILSpec Bluetooth echosounder	1
3	Serial interface cable	1
4	12-volt power supply/charge	1
5	200 kHz echosounder transducer	1
6	USB Walk Through and Troubleshooting	1
7	$\frac{5}{32}$ allen tool	1
8	$\frac{3}{16}$ allen tool	1
9	Null Modem	1
10	Mini Gender Changer	1

Introduction

Introduction

The HydroLite-TM™ is designed to be the “land surveyor’s” echosounder, and provide topographic elevations through bodies of water. It’s lightweight, very portable, battery powered, very easy to use, and sends depths via Bluetooth OR 9-pin Serial directly to your Land Survey software. The depths are added to your rod height and elevation to give you a RAW .CSV “topo” file of your survey area.

Equipment Supplied

- HydroLite pole kit (3)
- SonarMite MILSpec Bluetooth echosounder
 - internal battery
 - Bluetooth™
 - IP65 weatherproofing
 - MILSpec connectors and caps
- 200 kHz echosounder transducer
 - digital smart transducer
 - 7-degree beam
 - bottom tracking technology
 - QA sonar strength signal
 - breakaway design
- 12-volt power supply/charge
 - rapid charge
 - discharge feature
 - charge disconnect when battery is fully charged
- Serial interface cable
 - used for data transfer
- Quick Start Manual, including
 - Sound Velocity Charts: Freshwater / Seawater
 - setup guides for GPS antenna by manufacturer
- Training USB Drive
 - user manual
 - other programs
- 1-year warranty parts & labor

Options

- GPS antenna
- Data logger
- Software



Setup

1. Assemble the pole kit

Assemble the pole kit and attach to the boat. The pole should be as straight as possible. The transducer should be in water before turning it on.

2. Plug in the transducer

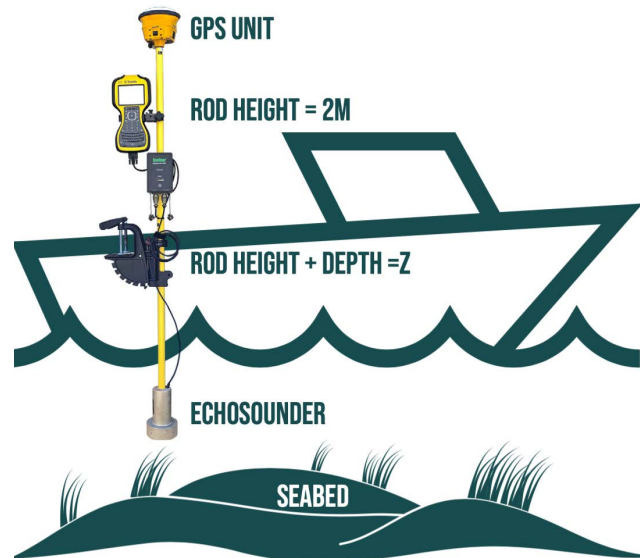
Plug the transducer into the echosounder. The left LED light will flash continuously indicating the echosounder is turned on. The transducer should be lower than the bottom of the boat. If not, the hull could reflect return soundings (multi-path).

3. Attach the GPS antenna

Attach the GPS antenna to the top of the pole and turn it on. Give it 2-10 minutes to track satellites. Ensure the GPS antenna has a clear view of the sky at all times.

4. Set the device

Depending on the GPS/data collector, follow the appropriate startup guide for that specific system. Follow the same set-up process you would if running a standard topographic survey; including survey style, job configuration, geodesy etc. You will be running a continuous survey; we recommend using the interval by time function rather than the interval by distance (every 1 second).



Typical setup for using the HydroLite-TM



Setup

5. SonarMite settings

Connect to terminal program:

- Sonarmite via Bluetooth
- WCOM32 Bluetooth or serial to laptop.
(Software is included on SonarMite USB)

View streaming data:

Control-F: cycles through the output formats below
Control-S: saves the output format
Control-R: resets the system to default output (the unit MUST be in system format for this to work.)

Format Old SonarMite (example below)

```
1 0.48 0 0 0 8.9 115 0
1 0.48 0 0 0 8.9 115 0
1 0.48 0 0 0 17.8 116 0
1 0.48 0 0 0 8.9 115 0
1 0.48 0 0 0 8.9 115 0
```

"Old SonarMite" format is the default format used by Trimble (except Terrasync), Carlson, SM Mobile and HYPACK.

0.48 represents the depth.

8.9 represents the volts output of the internal battery.

115 represents the sounding return quality number from 70 to 135.

Format ASCII mode (example below)

```
0.48
0.48
0.48
0.48
```

ASCII mode is mainly for Leica users; 0.48 represents the depth.

Format 2 DBT NMEA mode (example below)

```
$SMDBT,1.6,f,0.48M,,#5C
$SMDBT,1.6,f,0.48M,,#5C
$SMDBT,1.6,f,0.48M,,#5C
$SMDBT,1.6,f,0.48M,,#5C
$SMDBT,1.6,f,0.48M,,#5C
$SMDBT,1.6,f,0.48M,,#5C
```

This is a standard NMEA output which can be used with various logging software, including Trimble Terrasync

Format 6 Polled mode (example below)

This will be blank.

Format 7 mode for system settings (example below)

```
SYS> 54 0.48 109 109 0 116 1500 0.2 0
SYS> 54 0.48 109 109 0 116 1500 0.2 0
SYS> 54 0.48 109 109 0 116 1500 0.2 0
SYS> 54 0.48 109 109 0 116 1500 0.2 0
SYS> 54 0.48 109 109 0 116 1500 0.2 0
SYS> 54 0.48 109 109 0 116 1500 0.2 0
SYS> 54 0.48 109 109 0 116 1500 0.2 0
```

Sound velocity output can be changed using this method:

This is the system format.

Control-U: increases from the default 1500

Control-D: decreases in increments of 10

When satisfied with sound velocity: Control-S: save

Control-F: to reach desired output format.

Control-S: save again



Troubleshooting

There are 2 troubleshooting routes; WCOM32 (PC) and Sonarmite APP (Android).

Both will allow you to diagnose problems with: battery voltage, output format, sound velocity and Bluetooth. Example of output string below.

1 0.00 0 0 0 10.3 00 0

- First character is an identifier, if anything other than 1 you will see "?" in software (if so, please call technical support)
- Second character is depth 1 (you need to be in water to see depth)
- Third, fourth and fifth characters are place holders
- Sixth character is battery voltage (if under 10.3 you will see some sporadic data)
- Seventh character is confidence interval (we generally ignore this)
- Eighth and final character is another place holder

PC:

Download Troubleshooting Tools can be found in the wcom32.exe app:

<https://www.seafloorsystems.com/user-manuals>

Baud Rate: 4800; Data Bits: 8; stop bits: 1, No parity

Android:

Basic troubleshooting can be solved through the SonarMite App, found in the Google Play Store. ONLY Android devices, NO Apple.

Things to check before calling technical support

Other Common Instances

Position of HydroLite-TM Pole

Is the pole as straight as possible? Is the transducer in water and lower than the bottom of the boat?

Is there a blinking red light on the faceplate? Is the transducer making a ticking sound?

If not, unplug the transducer, then plug in again.

Bluetooth: Is there a solid blue light on the faceplate?

If not, check Bluetooth pairing and connection.

Serial Connection

Baud rate = 4800

For models prior to 2012: Baud rate = 9600

Model year last two digits of SN*

Data format:

Ensure you are using the correct data output format—should be “Old SonarMite Format” for Trimble Access, Trimble Survey Controller, Carlson SurvCE and Topcon Magnet Field. Leica software uses “Simple ASCII”. See below for procedure to change output format.



Troubleshooting

Other Common Instances

Pairing your echosounder should not take more than 10 minutes. If you experience issues please work through these steps 1 or 2 times and verify the equipment is working in a serial terminal application. If you continue to have trouble please download the Android Sonarmite App and call a support representative. So long as you have the correct survey software you will have no issues; Trimble (Access, SCS900, survey controller, Terrasync, Leica (Viva, Smartworx, Captivate), Carlson (SurvPC, SurvCE), Topcon Magnet Field, Hypack, Hydromagic.

1. Plug transducer into Sonarmite box to turn system on
2. Use pairing guide (in Hydrolite manual or www.seafloorssystems.com to pair echosounder to correct survey software
 - a. Pair to generic Windows Bluetooth settings before survey software
3. You must run a continuous survey by 'time' or 'distance' and you must also have GNSS device paired to software
4. If you see a "?" or "NO depth" or you get an error when pairing to echosounder, please unpair and restart all equipment involved
5. There are Youtube tutorials on how to assemble, connect, and troubleshoot.

Video Resources:

<https://youtu.be/g2zixKr2kR8>



Disassembly

Transducer Removal from HydroLite-TM

To remove the transducer, unscrew the section containing the transducer from the remaining pole kit.



Use pry tool or flathead screwdriver to pop off sides and bottom connectors.



Contacting Technical Support

Phone: (530) 677-1019

Email: info@seafloorssystems.com

Hours: Mon - Fri, 8:30 a.m. - 5:00 p.m. PST



Speed of Sound Table - Freshwater

Speed of Sound in Freshwater							
Celcius/Meter				Fahrenheit/Meter			
Temp	Speed	Temp	Speed	Temp	Speed	Temp	Speed
4	1421.62	17.5	1474.38	39.2	1421.62	63.5	1474.38
4.5	1423.9	18	1476.01	40.1	1423.9	64.4	1476.01
5	1426.15	18.5	1477.62	41	1426.15	65.3	1477.62
5.5	1428.38	19	1479.21	41.9	1428.38	66.2	1479.21
6	1430.58	19.5	1480.77	42.8	1430.58	67.1	1480.77
6.5	1432.75	20	1482.32	43.7	1432.75	68	1482.32
7	1434.9	20.5	1483.84	44.6	1434.9	68.9	1483.84
7.5	1437.02	21	1485.35	45.5	1437.02	69.8	1485.35
8	1439.12	21.5	1486.83	46.4	1439.12	70.7	1486.83
8.5	1441.19	22	1488.29	47.3	1441.19	71.6	1488.29
9	1443.23	22.5	1489.74	48.2	1443.23	72.5	1489.74
9.5	1445.25	23	1491.16	49.1	1445.25	73.4	1491.16
10	1447.25	23.5	1492.56	50	1447.25	74.3	1492.56
10.5	1449.22	24	1493.95	50.9	1449.22	75.2	1493.95
11	1451.17	24.5	1495.32	51.8	1451.17	76.1	1495.32
11.5	1453.09	25	1496.66	52.7	1453.09	77	1496.66
12	1454.99	25.5	1497.99	53.6	1454.99	77.9	1497.99
12.5	1456.87	26	1499.3	54.5	1456.87	78.8	1499.3
13	1458.72	26.5	1500.59	55.4	1458.72	79.7	1500.59
13.5	1460.55	27	1501.86	56.3	1460.55	80.6	1501.86
14	1462.36	27.5	1503.11	57.2	1462.36	81.5	1503.11
14.5	1464.14	28	1504.35	58.1	1464.14	82.4	1504.35
15	1465.91	28.5	1505.56	59	1465.91	83.3	1505.56
15.5	1467.65	29	1506.76	59.9	1467.65	84.2	1506.76
16	1469.36	29.5	1507.94	60.8	1469.36	85.1	1507.94
16.5	1471.06	30	1509.1	61.7	1471.06	86	1509.1
17	1472.73			62.6	1472.73		

Source: UNESCO equation provided by National Physical Laboratory.



Speed of Sound Table - Saltwater

Speed of Sound in Seawater @ 35 PPT / per Mille							
Celcius/Meter				Fahrenheit/Meter			
Temp	Speed	Temp	Speed	Temp	Speed	Temp	Speed
4	1466.86	17.5	1515.03	39.2	1466.86	63.5	1515.03
4.5	1468.95	18	1516.49	40.1	1468.95	64.4	1516.49
5	1471.02	18.5	1517.93	41	1471.02	65.3	1517.93
5.5	1473.07	19	1519.35	41.9	1473.07	66.2	1519.35
6	1475.09	19.5	1520.75	42.8	1475.09	67.1	1520.75
6.5	1477.08	20	1522.13	43.7	1477.08	68	1522.13
7	1479.05	20.5	1523.48	44.6	1479.05	68.9	1523.48
7.5	1481	21	1524.82	45.5	1481	69.8	1524.82
8	1482.93	21.5	1526.14	46.4	1482.93	70.7	1526.14
8.5	1484.83	22	1527.43	47.3	1484.83	71.6	1527.43
9	1486.71	22.5	1528.71	48.2	1486.71	72.5	1528.71
9.5	1488.56	23	1529.97	49.1	1488.56	73.4	1529.97
10	1490.39	23.5	1531.21	50	1490.39	74.3	1531.21
10.5	1492.2	24	1532.43	50.9	1492.2	75.2	1532.43
11	1493.98	24.5	1533.64	51.8	1493.98	76.1	1533.64
11.5	1495.74	25	1534.82	52.7	1495.74	77	1534.82
12	1497.47	25.5	1535.99	53.6	1497.47	77.9	1535.99
12.5	1499.18	26	1537.15	54.5	1499.18	78.8	1537.15
13	1500.87	26.5	1538.28	55.4	1500.87	79.7	1538.28
13.5	1502.53	27	1539.4	56.3	1502.53	80.6	1539.4
14	1504.18	27.5	1540.51	57.2	1504.18	81.5	1540.51
14.5	1505.79	28	1541.6	58.1	1505.79	82.4	1541.6
15	1507.39	28.5	1542.68	59	1507.39	83.3	1542.68
15.5	1508.96	29	1543.74	59.9	1508.96	84.2	1543.74
16	1510.51	29.5	1544.79	60.8	1510.51	85.1	1544.79
16.5	1512.04	30	1545.83	61.7	1512.04	86	1545.83
17	1513.55			62.6	1513.55		

Source: UNESCO equation provided by National Physical Laboratory.

