

HydroLite-TM™

A quick start guide/user manual.









HydroLite-TM[™]

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HydroLite-TM[™]

1. Introduction

What do you do when your topo survey meets water? 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.

2. Equipment Supplied

- •HydroLite pole kit
- •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

3. Options

- •GPS antenna
- •datalogger
- software

- •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



4. Getting Started

4.1 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.

4.2 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).

4.3 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.



Typical setup for using the HydroLite-TM

4.4 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).

5. Things to check before calling technical support

5.1 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?

5.2 Is there a blinking red light on the faceplate?

5.3 Is the transducer making a ticking sound?

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

5.4 Bluetooth:

If using Bluetooth, is there a solid blue light on the faceplate? If not, check Bluetooth pairing and connection.

5.5 Serial Connection:

Baud rate = 4800 For models prior to 2012: Baud rate = 9600

5.6 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.

6. Troubleshooting:

If all things above are working properly, you have 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. More in depth description given on page 11.

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

6.1 PC:

Download Troubleshooting Tools can be found in the wcom32.exe app: www.seafloorsystems.com/support/software-support

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

6.2 Android:

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

Connect to generic Bluetooth settings on phone before opening APP. Once paired open APP, press blue drop down, select device, PRESS connect on screen

7. Transducer Removal from HydroLite-TM

To remove the transducer, unscrew the section containing the transducer from the remaining pole kit. At a 45-degree angle, place the transducer head on a protective pad, and press firmly until it releases.

To view on YouTube: https://www.youtube.com/watch?v=6MqtkR7Q0SE



7.A: Place transducer on protective pad.



7.B: Press down firmly until it releases.

8. Contacting Technical Support

Phone: (530) 677-1019 Email: info@seafloorsystems.com Hours: Monday - Friday, 8:30 a.m. - 5:00 p.m. Pacific Time

HydroLite-TM[™] Schematic



Step 7—SonarMite settings

7c. Connect to terminal program:

7c1. Sonarmite via Bluetooth:

7c2. WCOM32 Bluetooth or serial to laptop. (Software is included on SonarMite CD ROM)

7d. 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.)

7d1. 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 defaul 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.

7d2. 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.

7d3. 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

7d6. Format 6 Polled mode (example below)

This will be blank.

7d7. 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

 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

This is the system format.

Sound velocity output can be changed using this method:

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

F.A.Q.

Is dual frequency required?

Dual frequency echosounders were originally designed for use by sea going vessels to report reliable, low frequency depths in deep water situations, and more accurate, high frequency navigation within shallow areas. Low frequency is of limited use in shallow hydrographic surveys Reasons are as follows:

•physical accuracy is outside IHO specifications

•power consumption prohibits true portable use

•minimum depth possible outside survey requirements

Can mud thickness be measured with dual frequency?

The residual difference between low and high frequency shown on an echogram gives the impression that mud thickness can be measured. In fact, the trace gives an impression of soft sediment. However, in most sounders, this is the difference in reflected energy as a result of simple penetration of higher power low frequency signals plotted against the low power high frequency returns.

To measure mud thickness and avoid litigation on wrong results, the surveyor should use equipment specifically designed for geophysical measurements such as a sub-bottom profiler, penetrometer, seismograph or a simple bottom sample.

Is a bar check required?

Many older technology echosounders needed to "warm up" before they became stable. In addition to their internal frequency/timing circuits, varying with ambient conditions, the physical parameters that effect speed of sound in water also varied with location. The accepted solution was a "barcheck"—where a large plate was lowered in a specified sequence where the depth measured by the echo sounder to the plate was compared with an absolute stave or tape measurement. This method ensured that all variable parameters were included in the calibration, as a gross check the barcheck was normally also performed at the start and end of a survey.

There are several problems with this method:

- •The location of the barcheck is only relevant to the water column at that particular barcheck location and time.
- •Older analogue echosounders gave the user facilities to "fiddle" with many parameters during the survey, modern digital sounders do not expose settings such as gain and threshold.
- •Older instruments do not record changes to instrument settings during the survey.
- •Narrow beam sounders with bottom detection algorithms can misdetect the moving plate.
- Modern digital electronic timing components are very accurate and stable.

There is still a requirement for calibration of sound velocity, but if required, this should be measured using a calibrated sound velocity probe lowered through the water column to build a velocity profile.

A simple equivalent of the barcheck is to accurately visit with several locations within the survey area which have a known elevation, normally derived from GPS and a weighted tape. These points should be used as a reference throughout the duration of the survey.

Should pitch/roll angle be applied to the depth?

Many surveyors assume that sonar is like a laser being shone through the water and that the distance measured should be assumed is a hypotenuse measurement to be trigonometrically corrected by any pitch/roll angle that has been measured.

The best physical analogy of the echo sounder beam would be a torch light beam that is shone over an area, within that area there is a small piece of mirror that reflects the light at that point, sonar is very similar except that the reflected point is normally the closest point within the beam.

What is a narrow beam transducer?

The properties of a transducer are normally a function of its physical size/shape and its resonant frequency. The beam pattern of a given transducer is normally presented as a radial distribution pattern versus output power applied. This generally means that the spread (beamwidth) of the transmitted ultrasound increases with amplitude. Most modern echosounders use a digital signal processing (DSP) technique to reduce the power/gain of its transmitted signal and thus maintain the minimum beam width for a given transducer.

The advantage of a narrow beamwidth survey transducer is the ability to "see" into narrow valley shapes thus gain a clearer representative definition of the bottom surface being surveyed. This is contrary to the navigation use of an echosounder, which has a reasonably wide beamwidth, where the returned signal within the beam is the "shoalest" or shallowest point within the beam, obviously of more interest for hull clearance requirements.

Is my fishfinder okay for survey use?

Fishfinders are not designed for a survey application. Modern fishfinder type navigation echo sounders use quite sophisticated DSP techniques to show the bottom surface, bottom type, and fish in the water column. In particular, the depth values are either heavily averaged to show a smooth transition in numeric depth values or are optimized to show the shallowest depth seen in the particular beam area. Similarly, survey echosounders make efforts to remove anomalies such as fish swim bladder reflections from the measured data.

Do I require more pings per second?

Assuming the pings all return good values, the advantage of more pings per second is that the survey boat can travel faster and therefore cover much larger areas in a shorter time. The assumption that more pings provide higher quality dense survey data is not so. Density is a function of boat speed and is constrained by the limitations of transducer beamwidth as discussed above. More pings can also create more noise with the high degree of insonaration in the water, particularly in shallow water situations with multipath reflections.

What is latency?

Latency is the time difference between a position and depth being recorded. The topic is extremely complex and can included some of the following sources of error. Generally latency will not be changed.

- •GPS position correction source time differences
- •Time of flight of ultrasound in water
- •Serial transmission of data to, from and through computer systems

•Physical mounting of antennas and transducers In general the survey software attempts to minimize theerror by recording a precise timestamp on each piece of data recorded, the sum of all latency sources can then be calculated by post-process adjustment of the data using a "patch test" algorithm. The degree of latency is dynamic so is always a function directly related to speed of the boat when data acquired, faster the boat then more potential latency.

What affects sound velocity?

The speed in which sound travels through water is directly proportional to the density of the water. The parameters which change the density are:

- •turbidity-the amount of sediment in suspension within the water
- salinity-the amount of substance (normally salt) dissolved in the water
- •temperature-the temperature of the water sample
- •temperature—sum of water depth and barometric pressure

All of these parameters can vary considerably in any particular water column, but the assumption made with a singlebeam echosounder is:

•the sound travels near vertically and does not suffer any refraction

•the sound travels there and back and so the average of all condition changes

Contacting Technical Support

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	Speed of Sound in Freshwater							
	Celcius	/Meter				Fahrenhe	eit/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		

Speed of Sound — Freshwater

Source: UNESCO equation provided by National Physical Laboratory.

Speed of Sound — Seawater

	Speed of Sound in Seawater @ 35 PPT / per Mille							
	Celcius	/Meter				Fahrenhe	eit/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.

SonarMite Android Bluetooth App Ver 2.1

SonarMite App is an Andriod App designed to work with the popular **SonarMite** Bluetooth Echo Sounder using in hydrographic surveying applications. With the demise of Hyperterminal as a standard terminal application, the user is left with little choice for a simple communications program with serial data devices. Connecting via Bluetooth is cleaner than USB cable, there are no wires and the connection is independent of baud rate and other serial port settings. Most terminal programs are not easily configured with commands to directly interface with instruments such as **SonarMite**.

The App is dedicated to connecting to the **SonarMite** and providing most simple commands via pre-programmed buttons. Dedicated buttons give a more intuitive interface than using the dropdown keyboard or voice interface. Buttons include "**Format**" to change the data output format, "**Version**" will show the current firmware version and "**Reset**" will cancel any changes and set the instrument back to its default settings. It is advised not to use SonarMite+.

App Layout

The SonarMite App is a single layer program with all access from the main screen, to maximize the display area the screen only supports portrait mode and suppresses screen rotation.

Bluetooth Connec	ted Paired Device Selection
	Bluetooth Connection
Increase SV	230114 ->00:01:95:1C:13:1E
Decrease SV	SV- SV+ Connect Disconnect
Connect Bluetooth	
Disconnect Bluetooth	1 0.00 0 0 0 10.6 0 128 1 0.00 0 0 0 10.6 0 128
	SonarMite BTX v4.01(c)2013 LYMTECH
Data Display	Format = Old SonarMite
	1 0.00 0 0 0 10.6 0 128 1 0.00 0 0 0 10.5 0 128 1 0.00 0 0 0 10.6 0 128 1 0.00 0 0 0 10.5 0 128 1 0.00 0 0 0 10.5 0 128 1 0.00 0 0 0 10.5 0 128
Current Depth	—Depth 0.00 m (36)
	Format- Reser Version Save
	Change System Version Settings Format Reset Information Save

Configuration

Before running the App - The SonarMite App does not override the system settings so before

the user launches the App they should configure the following system settings ...

1 Enable Bluetooth, if the Android does not have or support Bluetooth an error message will be displayed and the application will halt. The App has been tested with all versions of the operating system that support Bluetooth.

2 Pair with the Device - Switch on the SonarMite, then using the system Bluetooth settings search for the device and when found 'Pair' with it. Once paired the system will retain the settings for this device so it need not be located for future connections.

3 Clicking the Paired devices Spinner (currently showing 'none') and select the device ...

0	± ∓ ⊠ ⇔			0 😤 🛔	18:47
	SonarMite				
F	Paired Bluetooth Device	ŝ			
SM	A230114 →00:01:95:1C:13:1E				
	De	pth n/	a		
	¢	\Box	Ū		

4 Press the Connect button, the transmit LED on the SonarMite should illuminate and data should start to appear scrolling in the data window...



5 Pressing disconnect or making the App lose top window will force any open Bluetooth connection to close. This is to prevent the connection consuming power when it is out of focus. The depth display is only shown when the unit is in SonarMite output format.

Version Changes 18th March 2014

2.1 - SAVE Button added - This will save any format or SV changes on the SonarMite so they will appear on the device at start up or reboot.

2.1 - SV+ and SV- Buttons added - These will increase/decrease the Sound Velocity by 10 m/s when the format is in the SYS> output format.



Trimble Survey Controller/Access

To Configure Survey Style

Upload custom style sheet (delimited w/depth applied).

From the Trimble Access menu, tap settings / survey styles / <Style name>







Tap Echosounder. Select an instrument from the type field.

Survey Styles	- 30	7 = X	INTK	-3 0 ? - X	Echo sounder	30 7 - X
Name	Size Modified	Location	Base options	-	Type:	
CSDS-VSN RAPID-STATIC	2kb 3/29/2011 2kb 3/29/2011	Trimble D	Base radio Topo point	E C	SonarMite Controller port: I	aud rate:
RTK RTK & LOGGING	2kb 3/29/2011 2kb 3/29/2011	Trimble D Trimble D	Observed control point Rapid point Continuous points		COM1 Data bits:	9600 or 4800 💌
NIKON	2kb 3/29/2011	Trimble D	Stakeout Site calibration Duplicate point folerance Laser rangefinder	-	8 Stop bits:	None V atency: Map 0.0s Mgnu
		10	Echo sounder	•	[?)	Fevorite: Seetch to
Esc New Copy	Delete Options	Edit	Esc	Edit	Esc	Accept

Configure the Controller port: If you set the Controller port to Bluetooth, you must configure the Echosounder bluetooth settings. If you set the Controller port to COM 1 or COM 2, you must configure the port settings.

🖗 Echo sounder	307-X	Echo sounder	30 7 - X	Echo sounder	30 7 - X
Type: SomarMite Controller port: COM1 COM1 Parity: COM1 Com]	Type: SonarMite V Controller port: Latency: Illingtottativ 0.0s Draft:		Type: SonarMite Controller port: Baud rate: COM1 Porto: Parity: Data bits: Parity:	1 00x
COM2 Hone V Elustooth Latency: 0 caft: 7 P	Mgru Pgrottes	?	Bio Mgnu Fgrontes Switch Io	8 Nonel * Stop bits: Latency: 1 0.0s Draft: 7 I	Mgnu Fgyorites Switch In
Esc	Accept	Esc	Accept	Esc	Accept

1

Latency and draft are normally left at 0. The latency caters for echo sounders where the depth is received by the controller after the position. General survey software uses the latency to match and store the depth when it is received with continuous topo points that were saved previously. Tap accept and then tap Store to save changes.

Type:		100%	Base options
SonarMite Controller port: COM1 Data bits: 8	Baud rate: 9600 or 4800 V Parity: None V	8	Base radio Topo point Observed control point Rapid point Continuous points Stakeout
Stop bits:	Latency:	Map	Site calibration
1	0.05	M <u>e</u> nu	Duplicate point tolerance
Draft:	2	Favorites	Laser rangefinder Echo sounder
		Switch to	Certo sounder
Esc		Accept	Esc Store

Bluetooth Partnership

Tap Settings from the main Trimble Access menu. Tap connect to continue. Select Bluetooth. Survey styles - log by time, GPS output every .5 seconds



Tap Config and make sure that Bluetooth is switched on. On a TSC2 controller, make sure that the [turn on Bluetooth] and [Make this device discoverable to other devices] check boxes are selected. On a Trimble CU (model 3) controller, select the power tab and then make sure that the [enable bluetooth] and [Discoverable] check boxes are selected. On a Trimble CU controller, make sure that the [Enable Bluetooth] checkbox is selected.

-> O ? - X

Edit

Bluetooth Connect to GNS5 rover: R8 ROVER 3 Connect to conventional instrum None Please wait Connect None Connect None None	Connect to GVSS base: R8 BASE 3 ment: th configuration. Cancel	Settings Initial Settings Bluetooth ✓ Turn on Bluetooth ✓ Make this device discoverable to other devices
Esc	Config	Mode Devices COM Ports

Start a scan on the controller. On a Trimble Tablet, Tap [Add a device]. On a TSC2 controller, tap the [devices] tab and tap. [New Partnership...]. On a Trimble CU (Model 3) controller, tap the [scan device] tab and then tap [scan]. On a Trimble CU controller, tap [Scan Device]. (Do not use [stop] - wait for the scan to complete.) Tip - Be sure that the transducer is plugged into the TXR before selecting the bluetooth partnership.

🧧 Settings +‡ ◀€ 11:47 ok	💤 Settings 💦 +‡ 11:48
Bluetooth	Select a Bluetooth Device 💡
Tap New Partnership to scan for other Bluetooth devices. Tap on a device to modify	Scanning for Bluetooth Devices
New Partnership	
Mode Devices COM Ports	Refresh
	Cancel 🔤 Next

Start a scan on the controller. On a Trimble Tablet, Tap [Add a device]. On a TSC2 controller, tap the [devices] tab and tap. [New Partnership...]. On a Trimble CU (Model 3) controller, tap the [scan device] tab and then tap [scan]. On a Trimble CU controller, tap [Scan Device]. (Do not use [stop] - wait for the scan to complete).

👫 Settings	+ ; , , , , , , , , , ,		💤 Settings	↔ * * * * * * * * * *
Select a Bluetooth Device		0	Select a Bluetooth Device	3
Select a device to connect with and tap Next.			Select a device to connect with and tap Next.	
() SMIL040111			(2)SMIL040111	
	Refresh			Refresh
Cancel 🔤	Next		Cancel 🔤	Next

The controller searches for other Bluetooth devices within range. Once the scan is complete, highlight the Bluetooth device to connect to: On a Trimble Tablet tap [Next].

Bluetooth	Partnership Settings 🚱
Enter Passkey	Display Name: SMIL040111
Enter a passkey to establish a secure connection with SMIL090311.	Select services to use from this device.
Passkey: ****	
Mode Devices COM Ports	Refresh
	Back 🕮 Finish

The Ohmex SonarMite typically uses a PIN/Passkey set to: 1111 or 0000 if the unit is a version two or older. Version 3 or the latest MILSpec SonarMite the PIN/Passkey is: 1234

Leave the serial port box empty. Tap finish and the bluetooth will be configured.

Data Collection Tip:

When starting Data Collection, it should be configured as follows:

- Continuous Topo
- · by Time

Trimble Terrasync Setup

*If using a Trimble GeoExplorer® (or having trouble with any other controller), please proceed to Step 5.

1.0 How to connect to SonarMite through Bluetooth:

- 1.1 Start -> Settings -> Connections -> Bluetooth
- 1.2 Ensure Bluetooth is turned on.
- 1.3 Search for Devices -> Select SonarMite Serial Number
- 1.4 Pass Key is either 1111 or 1234
- 1.5 Leave "Serial Port" box unchecked.
- 1.6 Tap "COM Ports" tab and assign the SonarMite an Outgoing Port (Port 8 or 9) refer to **Illustration 1**.

2.0 Configure TerraSync to use SonarMite as an External Device:

- 2.1 Tap upper dropdown (section) and select "Setup" refer to Illustration 2.
- 2.2 Tap "External Sensors" refer to **Illustration 3**.
- 2.3 Check Sensor 1 (or SonarMite) and tap "Properties".
- 2.4 Set "Port" to the COM you assigned the SonarMite to.
- 2.5 Baud: 9600, Data Bits: 8, Stop Bits: 1, Parity: None.
- 2.6 Set Prefix to: \$SMDBT.
- 2.7 Set Suffix to: ,**f** (this will bring depths in as feet).
- 2.8 Set Receive mode to Unsolicited.
- 2.9 All logging intervals to either 1s or 5s.
- 2.10 Set data destination to Uninterpreted.

3.0 Configure the rest of TerraSync as you normally would.

4.0 Start Logging Data to a File:

- 4.1 Check that the SonarMite is outputting data.
- 4.1.1 Verify that your data point are continuously logging refer to **Illustration 4**.
- 4.1.2 Tap upper dropdown and select "Status".
- 4.1.3 Tap lower dropdown and select "Sensor".
- 4.1.4 Verify that the sensor is active and sending numerical data

5. If Using Trimble GeoExplorer or Other Controller

- 5.1 Press New Outgoing Port and add the SonarMite device as Port 5.
- 5.2 Continue with the rest of directions and choose Port 5 rather than port 8 or 9— refer to Illustration 1.

6. Contacting Technical Support:

- Phone: (530) 677-1019
- Email: info@seafloorsystems.com
- Hours: Monday Friday, 8:30 a.m. 5:00 p.m. Pacific Time

Illustration 1

A 2500 300	80	↔	-
Logging Settings	ок	Cancel	ŀ
Accuracy Settings: Horizont Point/Vertex Auto-par	al - In th use Coun None	e field <u>*</u> t;]=
Antenna Height:	2.00	00 m 🦨	
Log Carrier Data:	Auto	•	

Illustration 2



Illustration 3



Illustration 4



SCS900 with SonarMite Echosounder

Summary

Brief instructions on how to use SCS900 and a SonarMite echosounder for a small hydrographic survey.

🚰 File Explorer	🕲 at 🗟		
Show		Name	• •
• ·	2/14/06	2.75M	-
Program Files	2/14/06	2.32M	
• <u>T</u> rimble SCS900	9/8/06	2688	
≝SMtsc	8/15/06	302K	
Spoken_losttarget	12/8/05	22.8K	
StorePoint	12/8/05	6.08K	
Success	12/8/05	12.7K	-
Warning	12/8/05	5.68K	
wgs84	12/8/05	2558	-

In Trimble's SCS900 software it is possible to combine the depths of an SonarMite echosounder and the positions or opti-cal instruments.

In order to do so, a DLL and program should be stored in the following order \Program Files\Trimble SCS900 there are different programs available, one for each type of data logger. In this document the TSC2 was used (Windows Mobile 5).

It is possible to create a shortcut of the executable in the folder \Windows\Start Menu enabling the software to be started from the start menu. First of all, the echosounder should be connected to the data logger, this can be done using a serial connection, i.e. via Bluetooth (it is also possible to use a serial cable if the GPS receiver supports Bluetooth).

Pairing Bluetooth Devices

Assuming the SonarMite is not paired yet, go to Start>Settings>Connections and select Bluetooth. Make sure the checkboxes are both ticket (turn on Bluetooth and make this device discoverable to other devices) now select the page devices. At this stage, turn on the already armed SonarMite by connecting the transducer (the green light flashes briefly) now selct new partnership and the scanning procedure will start. After all discoverable devices are found, select the SonarMite (usually named SM******, ***** stands for the the serial number) and select next.



Enter the passkey (usually this is 1111) and enter the partnership settings, by checking the serial port service. After this, the SonarMite is visible under the tab Devices.

🚰 Settings 🛛 🚳	1 # 4€ 2:29	🖅 Settings 🖉	A = 4€ 3:05	🚝 Settings	0	2 4€ 3:06
Select a Bluetooth Device	0	Enter Passkey	0	Partnership Settin	gs:	0
Select a device to connect with and tap Next.		Enter a passkey to establish a secure connection with \$M020405.		Display Name: Select services to use	From this device.	
300-1820 Franky Societa Rob's K750 K	*	Passkay:		Serial Port		
	Refresh	11 ST				Refresh
Cancel 🖾	Next	Back 🖾	Next	Back	49	Finish

After this, the serial port has to be assigned by selecting the tab COM ports and select New Outgoing Port. Again select the SonarMite and select Next. Now deselect (uncheck) secure connection and select Finish. Remember the comport number assigned to this service (in this case COM 8)

for Settings	③ # 4€ 3:24 mm	for Settings	(D) 🚅 📲 S	23	for Settings		
Bluetooth		Add a Device		0	Bluetooth		0
To connect to a device, tap New O Port. To allow other devices to con New Incoming Port. For other optic and hold an existing port.	utgoing nect, tap ns, tap	Select the device you want t SMOROSOF HOLUX GPSIm236	to add		Port: COMB	•	
New Outgoing Port New Incoming Port		DLE 150 Connect R8-2, 4550104523: Rob Rob's K7501 R8-2, 4550104540: R8G	's Base NSS		Decretoriectory		
Mode Devices COM Ports							
9		Cancel	Next		Back	6	Finish

Starting a Hydrographic survey

In order to combine the depths from the SonarMite and the positions in SCS900 it is essential the SonarMite software is started and remains running during the survey.

Starting the SonarMite Software

If a shortcut is created, select Start>SMtsc. If the shortcut is not created, find the executable located under \Program Files\Trimble SCS900. If the software is not registered, please register on Ohmex's website http://ohmex.com/register.htm



Now select Device>SonarMite and select the previously assigned COM port (in this case COM 8) Leave the other settings as per default (9600 or 4800,8,n,1 no flow control) Select OK and the echo sounder should now return depths. It is possible to fine-tune the Quality threshold, it is advised to leave it low in order to pass all data. Leave the SonarMite software running and continue with the next part. If you encounter problems (unable to connect etc) reset the TSC2 (switch Bluetooth back on) and retry. If this fails, start from the beginning (pairing devices)

In the latest version of the SonarMite SW or SCS900, it is now possible to set the sound velocity. To do this, double tap the center of the SonarMite screen and the following display appears.



The functions that display, select Device>SonarMite and select the previously assigned COM port (in this case COM 8) Leave the other settings as per default (9600,8,n,1 no flow control) Select OK and the echo sounder should now return depths. It is possible to finetune the Quality threshold, it is advised to leave it low in order to pass all data. Leave the SonarMite software running and continue with the next part. If you encounter problems (unable to connect etc) reset the TSC2 and SonarMite.

The concept of Sites, Designs and Work orders are assumed as common knowledge. If not, please refer to the SCS900 manual. If a folder structure is prepared by the Survey office, simply start SCS. If not, it is assumed the following files are selectable on the data logger:

- · Design (DXF or TTM)
- ·Site Calibration (or DC file)
- · Control points or Bench Marks (TXT)
- · Background map

In this example we take this step, which is not required if a folder structure is prepared by the Survey office.

Before starting the Hydrographic survey, be sure to check the system setup by measuring a bench mark. Start SCS900 and create a new Work Order Select the site or create a new one (A site contains the items mentioned above) in this case a new site is created.





In the new site, the various files are selected, a minimum is the site calibration file (DC file) in order to get the proper coordinate system, or a csv file containing control points (Since it is recommended to check the system setup, a .csv file is important). Currently this site calibration can contain a Geoid model, but **CAN NOT** contain a shiftgrid!..

	Select a Site		Site Creation Options
	Select a site for this v Site] to create a new	vork order, or tap [New site.	Select site background plan:
	Select Site:	New Site	Select site calibration file
	050905PG01 ADVIN KANTOOR		PSEUDO-RD-NOGED.dc Browse
			Select control point file:
			IT WORKS.csv Browse
	(?) Esc Cancel	Next 🛃	() Esp Back Finish 🛃
			3
Copyright June 201	17 Seatiloor Systems, Inc. All ri	ghts reserved.	Page 2

If no calibration file (DC) is at hand, it is possible to calibrate the site using the known points in the .csv file. Simply select calibrate site in the Systems Setup menu.

System Settings

It is possible to set the required accuracies under Settings, this can vary from one jobsite to another. There is a difference in acceptance criteria (will it store a position and depth or not) and the Calibration tolerance (will it accept a System Setup check)

Settings Menu - 1 / 2	GPS Precision & Calibration			
(Units & Formats	GPS position acceptance criteria:			
(2) GPS Precision & Calibration	Required Horz Accuracy:	0.05 m		
(Internet Connection Settings)	Required Vert Accuracy:	0.05 m		
(Instrument Setup Tolerances	Calibration tolerances:			
5 Setting Out Tolerance	Horizontal:	0.05 m		
6 (Data Output Options	Vertical:	0.05 m		
Close More	() ESC Cancel			

System Setup

Now it's time to start the rover, Select System Setup and Setup Rover, or go directly to Measure Surface. Topo Surface and SCS900 will prompt you to set up a GPS rover. In this process, follow the instructions on screen.

Measure Surface Menu	No Device Connected
1 Check Surface Elevation	You should setup an instrument or a GPS receiver before you proceed. Do you want to:
2 Check Material Thickness	1 Setup a GPS Rover.
(3) (Topo Surface	2 Setup an instrument.
Measure Site Features S Display Real-Time Cut/Fill	3 Continue without setting up a device.
	Continue without setting up a device, and do not show this prompt again.
? Esc Close 🛛 🗙 🕅 🔒	Esc Cancel 🛛 🔀 🕅 🔒

The instructions will take you step by step trough the system setup. It will ask you if the receiver is connected by cable or Bluetooth (a), if it uses an internal, external radio or other correction method (b), and the coverage map grid size and antenna height (c)



Once started, SCS900 will ask you if you want to check the system setup, it is advised to do so. After the System Setup is completed and checked, the topo survey can start. Bear in mind there are survey methods, shown in the top left corner. These are Standing (red figure) Walking (yellow figure) and on vehicle mode (yellow quad) Those methods automatically set the position update rate and the different antenna heights. Changing this mode can be done by clicking it. For a hydrographic survey, select the vehicle mode (click here) and enter the height from the bottom of the transducer to the bottom of the antenna.



Finally select the measurement density required for the job, this will make the system log at a minimum interval or elevation change.

Are you recording the bottom?

In order to check if the system is indeed setup to record the bottom, look at the difference of the elevation shown on top of the screen and the recorded point elevation. To annotate points with their elevation, select the take the following steps. Select the button 123 Des (buttons may be changed by selecting the black triangle) Check display Point Elevations and select OK.



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Remember that if loads of points are stored, this option can slow down the CE device and make the map hard to read.

Now Start a measurement, SCS900 will prompt you for a point name (this will increment automatically) and a code (tip-this code can be used to identify a cross section number or profile number) After selecting OK again, a point is measured and stored, annotated with the actual height. In this example, the elevation of the bottom of transducer was 5.330, the measured depth was 0.377 (bucket) and the bottom is in that case 4.953.



Complete Work Order

Once finished with the survey, the export files are written in the export folder those files consist of a record.TXT and report.txt optional a DXF can be written but remember this can consume a lot of memory.

Site: Brief Instructio Current W.O.: day o Design: N/A	ns SM ne	
1 (New		
2 (Open		
3 (Change Design		
(Complete Work	Order	
5 Export Data		

File Explorer	🚱 #‡ ┥€ 5:38 [2
Show 🗸	Name
My Device	
Trimble SCS900 Data	9/12/06 4.79K
Brief Instructions SM	9/12/06 238B
Work Orders	
• day one	

Trimble Access Drivers for SonarMite[™] DFX

Pile 1	a System Files Home Share View					
+-	- + This PC + Local Disk (C) + ProgramD	ete + Trimble	e + Trimble Access Emulator 2016.00 + Trim	ble Deta 🕡 System Files		
	Program Files	~	Neme	Date modified	Туре	Side
Г	ProgramData		CSV WGS-84 Lat-long points ad	4/12/2015 9:05 AM	O.L. Film	2.88
1	Adobe		CSV with attributes.csl	4/12/2015 9:05 458	XSL Stylesheet	13.83
	AUSCT Software		Default.jot	3/7/2016 4:21 794	107 File	3.623
			DefaultSettings.jnl	5/31/2016 3:53 PM	IFAL File	2 83
	001/0/39+1033-0		FastStatic.sty	5/17/2016 4:23 PM	STY File	3 83
	66176739-4763-9		GDM area.ssl	4/12/2016 9:05 AM	RSL Stylesheet	0.838
	65176759-3103-1		GDM jeb xal	4/12/2016 9/05 AM	XSL Stylesheet	39 KB
	boost_interprocess		Crid (local) coordinates.xsl	4/12/2016 9:05 AM	XSL Stylesheet	30 XB
	Comms		15 Rever.sty	5/7/2016-4-21.944	STV File	3.8(8
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	InstallShald		JobDetails.scprf	4/12/2016 9:05 AM	SCRIFF File	3.60
			Lasticijni	\$/31/2016 3:53 PM	JUL File	2.83
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	USOPrivate		SonarMite DFX.ESD	6/3/2016 2,06 PM	ESO File	1.838
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	ViTelemetry		an Traverse adjustment reportasi	4/12/2016 9/05 AM	XSL Stylatheet	57.#B

1) Copy the two SonarMite ESD files to Trimble Access 'System' directory

2) In Trimble Access menu screen select SETTINGS



3) In the Settings Menu screen choose SURVEY STYLES



4) in the Styles screen select a style

Survey Styles	i.		30 ? - >
Name	Size Modified	Location	
FastStatic PPK	2kb 5/17/2016 2kb 5/7/2016	C:\ProgramData\Trim C:\ProgramData\Trim	ble\Trimble A ble\Trimble A
RTK	2kb 6/1/2016	C:\ProgramData\Trim	ble\Trimble A
		-	

5) Within the Style properties select ECHO SOUNDER



6) In E/S screen select type and the SonarMites will appear

P Trimble Access		- <u>R</u> X
Echo sounder		→ Ø ? – ×
Туре:	Controller port:	
SonarMite DFX 🔻	COM4 👻	
None	Data bits:	
NMEA SDDBT device	8	
SonarMite BTX	Stop bits:	
SonarMite DFX	1	
Latency:	Draft:	
0.0s	0.000m	•
En		Accept
ESC		Accept

7) Select required Echo Sounder configure then ACCEPT and STORE

SonarMite™ with Carlson SurvCE

Depth Sounder

Currently supported depth sounders are Sonarmite, Horizon, Hydrotrac, Innerspace, and Odom Digitrace. If you have a different depth sounder, contact Carlson Software to discuss adding support for it. You can use a depth sounderwith GPS to map an underwater surface. When the depth sounder is enabled, SurvCE will alternate between reading from GPS and reading from the depth sounder, so if you aren't using a depth sounder, you must be sure this feature has been deactivated, or you may experience slow GPS readings. When active, incoming Depth readings are viewable in Monitor/Skyplot. Elevation values in the Store Point screen are automatically depth adjusted.

To activate the Depth Sounder, follow these steps:

1. Plug in your Depth Sounder to any of your device's unused COM ports and turn it on.

2. Enter the Peripherals menu, and select the DEPTH SOUNDER tab, as shown right

3. Check Active

4. Select the Type of Depth Sounder you are using.

5. If the Unit Mode radios are not grayed, you will have to set the units to

correspond to those output by the depth sounder.

6. Specify the Port the Depth Sounder is plugged in to.

Laser	Depti	i Sounder	Light Bar	
Active	9			
Model	£	Sonarmi	te	
Unit M	4ode entime	ters C D	ecimeters	· Feet
Serial	Port:	сомі 💌	Baudrate:	9600 or 4800

Data Collection Tip:

When starting Data Collection, it should be configured as follows:

- Auto by Interval
- by Time











5 Ulablisht (ACOULS and	NO 880	91	80 / 177
5. Highlight 'ASCII Input',	NA 010		
	Connection Set	ungs	
then Press F3, 'Edit'.	Connection	Port	Device
	CS Internet	-	-
	GPS Rover	Cable	GS
	ASCII Input	- 14	
	GPS Hidden Pt	-	
	Export Job	50 C	1
	or	5-04 I	Fn abc 1
	ОК	Edit.	Pa





	······	94
11. Create new 'Name', eg 'Sonarl	IIte' New Device	
40 OL	Name:	Sonarlite
12. Choose 'Baud rate' as 9600	Type:	RS232
or 4800	Baud rate:	9600 or 4800 •
12 Droce Ed (Store)	Parity:	None •
13. Press F1 Store .	Data bits:	8 •
	Stop bit:	1 •
	Flow control:	None •
	2	En she 1/
	Store	Fill add 14

Connecting viva control CS10/CS15 Settings	ler to SonarLi	te
The new device will appear.	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 @ /4 🖾
	Devices	Others
14. Press F1 'OK'.	Name	Type
	<cs port="" rs232=""></cs>	<cs port="" rs232=""></cs>
	RS232	RS232
	OK New Ec	Fn abc 1 lit Delete More Pa

15. For 'E	nd of message' choose	ASCII Input
'CR/LF' (o	lo not press OK yet)	ASCII input Annotation 1 Annotation 2 Annotation
	Not available in Smartworx v5	70 Device: Sonarlite
(15.a lf us	ing Bluetooth, press	End of message: CR/LF •
F4 'Searc	h', identify the	Fn abc OK Devce F
SonarMit	e, and press F1 'OK' to a	ccept the device)
3 0 1141 Mill	Pg 11 of	- when it has to be right Geosy
30 Har Mile	Pg 11 of	- when it has to be right Geosy
" Connec CS10/CS	Pg 11 of cting Viva controlle S15 Settings	13 - when it has to be right Geosy
Connec CS10/C3 16. Press	Pg 11 of Cting Viva controlle S15 Settings S F6 and page to the tab	13 • when it has to be right Geosy
" Connec CS10/CS 16. Press 'Annotati	Pg 11 of cting Viva controlle S15 Settings a F6 and page to the tab on 1'.	13 • when it has to be right Geosy • to SonarLite • Store ASCII data to this annotation • Store ASCII data to this annotation

Pg 12 of 13

CS10/CS15 Settings	
18. In the 'Message desc' box,	ASCII Input
enter a description, eg 'Depth'.	ASCII input Annotation 1 Annotation 2 Annotation 4
19. Press F1 'OK'.	Message desc: Depth Message ID:
20. Press F1 'OK' again to	Prefix '@ <desc>@' when writing</desc>
return to the opening screen	Ph abc 10:1
And you have finished!	
You can now use the 'Star' (fav Keys' and select 'GPS – ASCII the incoming depth data at any	ourites) key, scroll down to 'Hot Input Status' on a hot-key to view time.
STEP 18A. When starting a NEW job, you Message ID and place a <space> in the ID This field is reset every time you start Sma Otherwise the DEPTH values will not be a</space>	must come to this o field. artworx VIVA when it has to be right vailable.

Tips on Data Collection:

Surveys must be performed using the following setting:

- AUTO tab (stores shots at intervals)
- AUTO POINTS (log every 1 or 5 seconds)

Survey: SONARLITE	4 1 2 2 3	Configuration	· · · · · · · · ·
Survey Code Annot SmartCodes Auto Map	0 4 5 <u>5 5</u>	SmartCodes Auto points Hidden points	Q4 5. 50
Auto point ID: GPS Auto 0001	FT @ @ @ @ F12	🖓 Log auto points	170 0 0 0 0 0FT
Code (auto): <none> 1</none>	2 8 3	etore points by: Time •	7 8 8
Description:	110- 0 0 0 (Q10	Log every:> 5.0s •	10.000 0 0H
Moving antenna ht: 0.000ft	HD 20 0 (H)	Store points: To DBX (pts8codes) •	710 20 0 = dri
3D CQ: /ft	1 of	Logging starts: Controlled Don't store auto log point if CQ exceeds	1 at
Boconnet Boconnet Boconnet Relation Quit		3DCQ:ft 2DCQ:ft 1DCQ:ft Fn ARC 06:33 OK Config Page	-00 - 00 - 50
un un un un un	Ho A		di to da

SonarMite[™] with Leica 1200 GPS System

Getting Started

Setting Up ASCII Terminal Settings. From the main menu go to interfaces Command : Cont. Select your ASCII Input. Command : Cont.

Configuration: B	athymetric X	Interfaces	Contraction of the second
2 Instrument Set	tings	Real-Time 1	<port 1=""></port>
3 General Setting	15	ASCII Imput 2	<port 2=""></port>
§ Interfaces		NHEA Out 1 -	
		Export Joh	
		Hidden Pt -	
		Tilt -	•
PRO LA LONG	12.0	Heteo -	
coart 1	i i iau	CONT EDIT	1 (219)
15-40 CONFIGURE	sidan di Seg		ina 139
15:40 CONTINUE Une Device	িয়া ৫০০ জন্ম	15:59 CONFIGURE D P 15 Participe Prodem v0591 01	() 1941 à 2017 1944 à 1947
15-40 CONTINUE Vier B CPCI Use Device : Port : Ports	Note of the second seco	15:59 Conticut Of the Part of Hodes / 65H of Astronomic Continues Astronomic Continues Astronomic Continues	Tell à Cal
15-40 Comflegg More Device	Fort 20 Gort 20	15:59 CONFICURE OF 55 Participer Participer Participer Approx 10 SPEP	Formal Kernal Kernal
15-40 CONFIGURE Use Device Port Device End of Hig Amentation 1	2년 1 월년 1 월 2 월 Vicited Port 2 년 CR/LF 년	15:59 Conticut Of 15:59 Particut Ratio (Rodes: (05)) <part 2=""> SPEP</part>	Thera KPort 2 SPE
15:40 Commiscure Vice Borise Use Device Port End of Hsg Annotation 1 : Annotation 2 :	Port 29 CR/LF 9	15:59 Conticute Distance (65t 0 And top Prodeen (65t 0 SPER	Part 2 Stars
15.40 Complexest Use Device : Port : Device : End of Mag : Annotation 1 : Annotation 2 : Annotation 3 :	Port 24 CPort 25 CR/LF 4	15:59 CONFIGURE I III IIII Pactos Prodem //GSt 0 Antonia Configure 2>	Chers Chers Che
15:40 COMPLEXE Use Device : Port : Device : End of Hsg : Annotation 1 : Annotation 2 : Annotation 4 :	Foit Port 2년 CR/LF한 	15:59 CONTIONT OF 15 Partices Partices Partices Partices Partices Partices Partices Partices Partices Partices Spare	Chern L Chern

Select the Use Device In Port 2 (or your choice) Command : Cont. Highlight the RS232 And select New Command : Cont.

Name	1	Sonar	Light	Reation Rodews/651	thera
Type Baud Rate Parity Duta Bits Stop Bit	-	=900	Nose 4 8 0 1 0	<port 2=""> R5232 Some Light</port>	<port 2=""> R5232 133410</port>
Flow Control	T		None 🖭	CONT NEW EDIT	DEL MORE PAGE

Type in your Name. We have used Sonar Light. Set the Rates as above. See Sonar light manual page 14. Command : Store. The GPS will now receive Data from the Sonar light. Command : Continue.

15 42 DINFIGURE	1 15-7	如果 言之职	15.44 CONFIGURE	+18-7 7 13-7	ふれ 言之野
Use Device		Yes	Annotation	to be L	Annotation 1
Port Device	1	Port 2 <u>야</u> Sonar Light	Accept ASCII	:	Yes 🕁
End of Hsg Annotation 1	2	CR/LF 也	Message Desc Message ID	1	Depth
Annotation 2 Annotation 3 Annotation 4	1		Use Profix Send Reply	1	None +
CONT ANNOT	1	JOEVCE] TO O	ABCDE FGHIJ	KLHNO P	ORST UVNXY Z-?/

You must now set the end of message and Annotation 1. Command : Annot. Type in your Message description. We use Depth. Ensure the Accept ASCII is set to Yes. User Prefix is set to None. Send Reply is set to No. Command : enter.

The next screen should be as above confirming your settings. Command : Cont. Congratulations the Sonar light will now talk to the GPS. Command : Cont.

15:44 CONFIGURE	Ð	7 157 151	1 2	15:44 CONFIGURE	⊕ *u	AN ACH
ASCII Input			×	Interfaces	There are a	×
Use Device	1.1	: .	Yestel	Interface.	Port	Device
Band		21 C.	Inter August	Real-Time	1	<port 1=""> *</port>
Port			011 2 33	ASCII Inpu	t 2	Sonar Light
Device		: Sonar	Light	NHEA Out 1		
End of Hsg		:	CR/LF +	NHEA Out 2		
Annotation	1	:	Depth	Export Job	- I	
Annotation	2	:		Hidden Pt	•	
Annotation	3	:		Tilt		
Annotation	4	:		fleteo	-	
1			0.0	· · · · · · · · · · · · · · · · · · ·		30
CONT ANNOT	1	DE	VCE	CONT	EDIT	CTRL

Antenna Set up procedure

From the main screen, (3) Management, (6) Antennas. Start with the ATX1230 Pole. This will bring over the correct phase offsets for your new set up. Command : NEW.

12:05 0PS1200	和 言じ罪	12-06 MANAGE	机合物
Hanagement 1 Jobs 2 Data 2 Cadalists	×	Anteanas Nase ATX1230 Pole	Creation Default
4 Coordinate Systems 5 Configuration Sets		ATX1230 Tripod AX1201 Pole AX1201 Tripod	Default Default Default
	voite	AX1202 Pillar AX1202 Pole AX1202 Tripod	Default Default Default *
CONT	9 A)	CONT NEW EDIT DEL	A D

In the Name type in your description. In this instance we have used Bathymetric. Do not change other settings. In the IGS Screen change. IGS Name. Serial Number. Set Up Number. This gives your set up a unique IGS. Command : Store. Antenna is now set up : Note Antenna height must be set later !

12:07 MANAGE	⊕ * ¹¹⁻⁸ 8 13-8	利 言思期	12 08 MANAGE	利 言思罪
New Antenna General IBS		×	New Antenna General 165	×
Hz Offset		0.0000	IGS Name :	Bathymetric
L1 PhOffset L2 Phoffset	1	0.0888 0.0885	Serial Number:	C & S Survey
Copy Additi Corrections	onal :	Yes 🔶	Sot Up Number:	8
STORE		PAGE		CALC >INS<

Setting Antenna Configuration

From the main menu. (3) Management. (5) Configuration Sets. Command : CONT. Select : NEW

12.53 0P51200 日本日本日本	12:53 MANAGE ● PL>7 射 注意则 Configuration Sots
Jobs Data	Name Description
Codelists Coordinate Systems	
Configuration Sets	
• An ovings	
(a 0	[a.]
CONT	CONT NEW EDIT DEL HORE

Name your Configuration. Command : Store. Do not change. Command : Cont

		an englander te	nizara neve	VION AT	ocreens w
Description		3 mtr Rib			
Creator	:	C & S Survey			

Do not change this screen unless you require different measurements (In the USA they use feet) Command : Cont.

13:03 CONFIGURE	1390	13:04 CONFIGURE	机心肌
Languages on Instrument	×	Units & Formats	X
Language	1022	Units Angle Time For	sot
ENGLISH		Distance Unit:	Netro (m) (12
ARABIC		Distance Dec :	3 Decimals 🕫
CZECH	1.11	Angle Unit :	350****
DANISH		Angle Dec :	1**
GERHAN			
SPANISH		Grade Unit :	h:v-bill
FINNISH		Velocity Unit:	Kn/h (knh) +
FRENCH	-1	Aren Unit	m2 45 wi
r nemen	80	Allea entre .	12.9
CONT DEL	1	CONT	PAGE

Setting the Configuration

The R-Time Mode must be changed to Rover by toggling the arrows. Command : Cont. This is where you set up your specific base station. In this instance we have used a SR530 Antenna with a Pacific Crest radio in port 1. Set on the AT502 Tripod. Command : Cont.

13 09 CONFIGURE 10 7 10-7 月	i BR	13:10 CONFIGURE	267 AL 2 2011
R-Time Mode:	None	R-Time Mode: R-Time Data:	Rover 4 Leica 4
		Port : Device :	Port 1호 PacificCrest PDL
		Ref Sensor : Ref Antenna:	SR530 4
CONT	aĉ	CONT ROVER	DEVCE

Set your required radio channel. This can be changed later if the channel is unavailable or corrupt Command : Cont. Set the Antenna that you have already set up by toggling the arrows. Ensure that the Default HT & Moving Ht are set to the dimension from the base of the transducer to the bottom of the antenna. Command : Cont.

13.19 CONFIGURE	⊕ * ¹²⁷ 月	i D	13:20 CONFIGURE	9 7 15-7	최 급분)	
Radio Type	: Pacific Cre	st PDL	Antenna	1	Bathymotric D	T
Ch			Default Ht	1	1.405 #	٩.
Ceanse I	-		Vert Offset	4	0.000 #	
			Heas Type	1	Vertical 4	9
			Noving Ht	4	1.405 #	
		0.0	1			iii
CONT	5	CAN	CONT			

Topcon Magnet

GNSS receiver and Depth Sounder

Topcon Technical Support

- Writer: Javier Ramirez
- Product: Magnet field basic set up for Depth Sounder



These instructions are basic depth sounder set up for further detail in the equipement being used it will depend on the hardware and configuration being used (RTK, Optical, Network RTK, DGPS)



Add a new Confirguration or you cand edit an existing one | Choose the correcton type



>>>Next 3 Times the Perirals set up button will be available | Also remember to use the correct driver for the depth sounder if driver not available select generic NMEA and the port information default is Bluetooth but serial is incorraged

Config: Rover Re	oceiver		Peripherals	V 🐹	Config: De	pth Sounder	V 🐱
Ert. Receiver	Bluetooth		INMEA Ports		Simulatio	n Made	
Elevation Mask	13	deg			Model	Hydrolite-tm	
		Pepth Sounder	Parameters			_	
Protocol NTR	P E	I sal	mmGPS+		Depth Sounder Port Setting		
And 10 10 10 10 10 10 10 10 10 10 10 10 10	2 1150	Vertical	External Laser		Boud D	SOUCH48CO Parity	Note T
					Stop [Data	
Bespherals		Back Next >>			-		

Also remember that you can go to the topo module, then to the map view and tab on the screen to select depth Note: Newer 2013 and 1/2 models use baud rate of 4800

Contact Technical Support for any additional questions - 1 (866) 486-7266



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