

CafloorTM Hydrote Plus Dual FrequencyTM

Single Beam Sonar



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Introduction

Overview

The HydroLite Plus Dual Frequency system is a hydrographic grade echosounder kit. This system's rugged design and flexibility address the need for general land survey applications and more detailed hydrographic surveys. The system has the ability to integrate with traditional land survey data collectors and software to generate generic bottom track elevation data. It can also output high quality echogram data into dedicated collection software to post process the bottom track more accurately.

Components

Components



*GPS & data collector not included

HydroLite Plus topside HydroLite Plus Dual Frequency transducer Charger Data cable RS232 – USB adapter 3x Poles Transom mount 4mm allen driver Null modem Gender changer

Warranty Information

Seafloor Systems, Inc. makes every effort to assure its products meet the highest quality, reliability and durability standards and warrants to the original purchaser or purchasing agency that each HydroLite Plus be free from defects in materials or workmanship for a period of one year from date of shipment.

Warranty does not apply to defects of misuse, negligence or accidents. Warranty also does not cover repairs or alterations outside of our facilities, or use of the HydroLite Plus for purposes other than water measurements. Seafloor is not responsible for loss of instruments, damage to property, or injury/death associated with the use of any of its products or 3rd party products that may be included or used with Seafloor products. Seafloor does not warranty third-party products sold by Seafloor. These may include GPS, depth sounders and other ancillary equipment. All warranty services are FOB Seafloor's facility in Shingle Springs, California, U.S.A.

Assembly

To assemble the HydroLite Plus, attach the transducer to one of the provided survey poles. Loosen the locking nut on the Transom Mount and slide the pole through both holes, tighten the locking nut when in the desired position. When mounting on the side of a vessel, ensure that the pole is as close to vertical as possible. Additional 2ft pole sections can be threaded on.

Attach the HydroLite Plus topside to the pole using the included allen driver and plug in the transducer cable. To the "Sonar/Charger" port. The included MilSpec-RS-232 cable attaches to the RS-232 port. Note – When this is plugged in, the Bluetooth output is disabled.

Connection – Windows Device

Power on the HydroLite Plus by pushing the button the front face of the unit. This system is capable of connection over either Bluetooth or hardwire connection.

Bluetooth – Connection and Com Port

- 1. Open Settings in Windows 10-11
- 2. Select Bluetooth and Devices
- 3. Add Device
 - a. Device ID: HYDROLITE###
 - b. Password: SEAFLOOR
- Open Control Panel > Hardware and Sound > Devices and Printers (Win 11 when in Hardware and Sound, right click Devices and printers and select Open in New Window)
- 5. Scroll to the bottom where the "Unspecified" devices are. Double Click the HydroLite and navigate to the Hardware Tab. From there, Note the COM number assigned to the Device. See figure on the next page.

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Device Settings

Control Program

The control program is included on the USB dongle, if misplaced it is also available on seafloorsystems.com

Connect to the control program by selecting the COM port assigned to the echosounder.

Echosounder default baud rate: 115200

GPS: Does not need to be assigned as we are not logging in the control program.

Once connected you can use this program to monitor your bottom track as well as change the parameters of the system to better suit the environmental condition.



On the left-hand side of the window you can see the different parameters that can be changed. If both frequencies are to be used, ensure that the frequency option is set to "Dual mode"

On the right will be a bottom track of the system returns this can be utilized to better tune the system this is referred to as an echogram.

Parameters

The Setup Parameters, shown under the Detail Settings button, are as follows:

Common

- Range, m
 - o Range in Meters
- Interval, sec
 - o Interval (repetition rate) between pulses in seconds. (From 0.1 to 3600 (1 Hour))
- Tx Length, µsec
 - \circ Set transmitted pulse length in microseconds. (Up to 100 $\mu sec)$
- Tx Power, dB
 - Sets pulse length output power in dB.
- Gain, dB
 - Analog gain of amplifier in dB
- TVG spread coef
 - Spreading coefficient of transmission losses for time variable gain (TVG). This t is a part of TVG formula: TVG(R) = K*log(R/R0) + R *ATL
- TVG absorb, dB/m
 - Absorption coefficient of transmission losses for TVG This is a part of TVG formula: TVG(R) = K*log(R/R0) + R *ATL.
- Attenuator, μs
 - Initial time interval to attenuate -20dB analog input

Altimeter

- Deadzone, mm
 - increase value to clock any unwanted surface noise that may be effecting the true bottom surface return.
- Offset, mm
 - Vertically offset the position of the device in millimeters.
- Altimeter Threshold, %
 - Altimeter threshold percentage of Full Scale (return sensitivity)
- Sound Speed, m/s
 - \circ Speed of sound in water
- Output mode
 - Select output data formats

Each of these settings can be adjusted by using the drop-down menus. For the settings to be updated on the echosounder, one must hit "Apply" after any changes are made.

ting (Dual)					\times	
Common						
Common	Low frequer	ю	High freque	ency		
Range, mm	10000	\sim	10000	\sim		
Interval, sec	0.1			\sim		
Tx Length, µs	20	\sim	20	\sim		
Tx Power, dB	0			\sim		
Gain, dB	0	\sim	0	\sim		
TVG spread coef.	15	\sim	15	\sim		
TVG absorb, dB/m	0.08	\sim	0.14	\sim		
-20dB Attenuator, µs	0	\sim	0	\sim		
Altimator						
Aitmeter	Low freque	ncy	High freque	ncy		
Deadzone, mm	150	\sim	150	\sim		
Threshold, %	20	\sim	20	\sim		
Offset, mm	0	\sim	0	\sim		
Sound speed, m/s	1500.0					
Median filter	3			~		
Average filter	3					
-						
Set			Cancel			
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Echogram

The Echogram is an important feature of this system when data is being collected in software that can utilize the data to better post process the data. This is also a useful tool for configuration and troubleshooting issues. Below is an example of the echogram window and descriptions of the different functions.



When the real time returns are being shown in the echogram, the altitude is determined when the signal passes the set threshold parameter. For this reason, Altitude threshold, Deadzone, and Gain are the important settings when tuning the system. See example below.



All tuning should be conducted with the Output Mode: Echo Bin 12bit

Notice that the circled altitude is reporting a depth of 0.387 m. This is due to the initial reverberation

(1), being picked up as a return.

To avoid this, make sure that the Dead zone parameter, is large enough to bypass the reverberation and track the real reflection (2).

In altimeter modes (Simple, NMEA, PSA-916, OLD Sonarmite, Sonarmite DFX) increase the Gain, so the return signal can be saturated enough to strongly reflect the true bottom.

Furthermore, the altitude threshold should be as small as possible without generating returns off of the unwanted signals. If this is not set properly, the system will generate false returns from reflections in the water column and not off the true bottom.

Seafloor default settings:

	Low	High
	Frequency	Frequency
Range	100000	100000
Interval	0.05	0.05
Tx Length	50	50
Tx Power	0	0
Gain	+6	+6
TVG spread	15	10
coef.		
TVG absorb	0.05	0.05
-20dB	0	0
Attenuator		
Deadzone	800	800
Threshold	10	10
Offset	0	0
Sound speed	1500	1500
Median filter	OFF	OFF
Average	OFF	OFF
Filter		

Software Integration

Trimble Access

Output Format: Sonarmite DFX

Data Example: 1 0.00 0.00 11.0 10 7

Connection Guide:

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. Configure



🐌 RTK	- > O	? _
Base options		
Base radio		
Topo point		
Observed control point		
Rapid point		
Continuous points		
Stakeout		
Site calibration		
Duplicate point tolerance		
Laser rangefinder		
Echo sounder		
F]	
ESC		Εαπ

Туре:		100
SonarMite		
Controller port:	Baud rate:	
COM1 🔻	9600 or 4800 🔻	
Data bits:	Parity:	
8	None 💌	
Stop bits:	Latency:	Map
1	0.0s	Menu
Draft:		- Mond
?	•	Favorite:
·		Switch to

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	→ Ø	? – 🗙
Type:		100%
SonarMite	•	
Controller port:	Baud rate:	
COM1 🔽	9600 or 4800 🔻	
COM1	Parity:	
COM2	None 💌	
Bluetooth	Latency:	Map
1	0.0s	Menu
Draft:		Favorites
?		a a l a
		Switch to
Esc		Accept

Type:		100
SonarMite	-	
Controller port:	Latency:	
Bluetooth 🔽	0.0s	
Draft:	_	
?	•	
		Map
		Menu
		Eavorite
		S <u>w</u> itch to



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.

ype:		100%	Base options	<u>ـ</u>
SonarMite	•		Base radio	
ontroller port:	Baud rate:	2	Topo point	H
COM1 🔻	9600 or 4800 🔽	~	Observed control point	
ata bits:	Parity:		Rapid point	
	None V		Continuous points	
-	Laboraria		Stakeout	=
top bits:	Latency:	Map	Site calibration	
	0.05	Menu	Duplicate point tolerance	
raft:	-	Eavorites	Laser rangefinder	
	·	Culture to	Echo sounder	
		Switch to		•

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

Trimble Access 11:29 • • • • • • • • • • • • • • • • • • •	Settings Survey Styles Feature Libraries
Connect Internet Setup GNSS contacts Auto connect Radio settings Bluetooth	Bluetooth ? - × Connect to GNSS rover: Connect to GNSS base: R8 ROVER 3 R8 BASE 3 Connect to conventional instrument: None None Send ASCII data to: None None Connect to echo sounder: Automatically enable Bluetooth: SONARMITE ECHO 1 ✓

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.

Bluetooth Image: Connect to GNS5 rover: Connect to GNS5 rover: Connect to GNS5 base: R8 ROVER 3 R8 BASE 3	Settings +*x ≠€ 11:47 ok Bluetooth
Connect to conventional instrument: None None Waiting for Bluetooth configuration. Connec None Location Locat	 ✓ Turn on Bluetooth ✓ Make this device discoverable to other devices
Esc Accept	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	↔ × 4 € 11:48	1	Settings	+	*
Select a Bluetooth Device	0	9	Select a Bluetooth Devi	ce	0
Select a device to connect with and tap Next.		- S N	ielect a device to connect (lext.	with and tap	
() SMIL040111		(?)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].

Nettings +* + + 11:47 ok	11:49 €ettings
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 Bluetooth Pin for this is set to: SEAFLOOR

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

Leica Captivate

Output Format: Sonarmite OLD

Data Example: 1 0.00 0.00 11.0 10 7

Connection Guide:

From the home screen go to Settings connections all other connections.

Settings		× @	2D 1D	@	09:19
Connections	GS Sensor	2	Point storag	e	3
Liii 4 Customisation	System	5	Tools		6
About Leica Captivate					
n OK					Fn
 ☐ Connection Setti CS connections GS connections 	ngs	[%] , @ ⁴ 0	2D 1D	@ Q	09:20
CS internet Device CS PXS8 CDMA	Port CS modem				
CS internet Device CS PXS8 CDMA GS rover Device GS14	Port CS modem Port Cable				
CS internet Device CS PXS8 CDMA GS rover Device GS14 ASCII input Device -	Port CS modem Port Cable Port -				
CS internet Device CS PXS8 CDMA GS rover Device GS14 ASCII input Device - GS hidden points Device Disto Sigma	Port CS modem Port Cable Port - Port Internal Disto				
CS internet Device CS PXS8 CDMA GS rover Device GS14 ASCII input Device - GS hidden points Device Disto Sigma Export job Device -	Port CS modem Port Cable Port - Port Internal Disto				
CS internet Device CS PXS8 CDMA GS rover Device GS14 ASCII input Device - GS hidden points Device Disto Sigma Export job Device - Fn OK	Port CS modem Port Cable Port - Port Internal Disto Port - Edit		Pa	ge	Fn

Page 15

Check the box store ASCII data received via an.

Use the pull down to choose Bluetooth 1, or Bluetooth 2.

Select Device on the bottom of page.

				□ <u>f</u> 2D				
S ASCII Inp	ut			@ 1D	@	09:20		
ASCII input Anno	otation 1 A	nnotation 2 🖌	Annotation 3	Annotation 4				
Store ASCII data external device	a received to an ann	via an otation	\checkmark					
Connect using			CS Blueto	oth 1	\sim	/		
Device			<cs bluet<="" td=""><td>ooth 1></td><td></td><td></td><td></td><td></td></cs>	ooth 1>				
Fn OK				Device	Page	Fn		
Ise the down a	rrow on th	າe thumb w	heel to hig	hlight RS232				
elect New at th	e bottom	of the page	2.					
Devices (E	BT)		7 ×	@ 2D 1D	@	09:21		
Modems/GSM O	thers				Q			
<cs bluetooth<="" th=""><th>1></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></cs>	1>							
Type <cs 3<="" bluetooth="" td=""><td>L> C</td><td>reator</td><td></td><td></td><td></td><td></td><td></td><td></td></cs>	L> C	reator						
RS232 Type RS232	C	creator Default						
Fn OK	New	Edit	Delete		Page	Fn		
ill in the Name								
bango the have	d to 1000							
he rest of the s	ettings sh	ould match	the defau	It, if not mat	ch the sett	ings in	the picture	e to th
elect Store .								
elect Store .								

/ 		= *	[] 1 2D		
Edit Device		1 0	@ 1D	w	09:24
Name		sonarmite			
Туре		RS232			
Baud rate		9600		N	/
Parity		None		\	/
Data bits		8			/
Stop bit		1		```	/
Flow control		None			/
Store					
Select OK					
			□ € 2D		
Devices (BT)			@ 1D	@	09:24
Modems/GSM Others				Q,	
<cs 1="" bluetooth=""> Type <cs 1="" bluetooth=""></cs></cs>	Creator				
RS232 Type RS232	Creator Default				
sonarmite Type RS232	Creator User				
Fn OK New	Edit	Delete		Page	Fn
Page over to Annotation	n 1				

つ ASCII Input	₩ 0 0 2D 1D	@	09:24
ASCII input Annotation 1 Annotation 2	Annotation 3 Annotation 4		
Store ASCII data to this annotation			
ОК		Page	
Check the box Store ASCII data to the Message description enter depth . Select OK	is annotation.		
ら ASCII Input	₩ 0 0 1D	@	09:24
ASCII input Annotation 1 Annotation 2	Annotation 3 Annotation 4		
Store ASCII data to this annotation	✓		
Message desc	depth		
Message ID			
Or		Dago	
UK		Page	
Search for device.			
When through select OK			
afloor Systems, Inc. support@se	afloor.com +1(530) 6	77-1019	

つ ASCII Input			2D 1D (D) (D) 09:27
ASCII input Annotati	on 1 Annotation 2	Annotation 3 Anno	tation 4
Store ASCII data red external device to a	ceived via an In annotation		
Connect using		CS Bluetooth 1	\vee
Device		sonarmite	
Bluetooth ID			
Fn OK		Search De	evice Page ^{Fn}
Select OK.			
 └ Connection S 	Settings		2D 1D
CS connections GS co	onnections		9
CS internet			
Device CS PXS8 CDMA	Port CS moden	n	
GS rover Device GS14	Port Cable		
ASCII input			
Device sonarmite	Port CS Blueto	oth 1	
GS hidden points Device Disto Sigma	Port Internal D	isto	
Export job Device -	Port -		
Fn OK	Edit	Control	Page Fn

Use RS232 for Bluetooth per the instructions, but the baud rate has to be 115200. When searching for the sonarmite it connects right away and starts providing depths (if you have the baud rate correct). It does not wait until starting the mission and you do not have to enter a password. When setting up as US Survey Feet but the depths will come through in meters.

Terminal

The system can also be connected to a terminal program to quickly check and adjust settings or view the data being output. This is an alternative to the control program for adjusting settings, not recommended for tuning the system. The terminal can be used to alter the NMEA messages as well as adjust the baud rate of the system. These adjustments cannot be made in the control program and must be edited through the terminal program. See example below of the terminal program displaying settings of the echosounder.

III COM119600bps - Tera Term VT	-	0	×
File Edit Setup Cgntrol Window Help	_	_	-
Info			
Ultrasonic Precision Dual-Prognomy Enhousement/Altimeter 124/18222 (c) SefE Oftensonics Co., 144, 286			
8-24 Uni - 3.5, build 646 Nov 16 2002 11:32:28 ameri: \$80,000 Afric Nov 16 2002 11:32:28			
hovise ID: 285 Description I: ECT D082			
High Programs.gs: 2000001. (Active) Law Programs.gs: 2000001. (Active)			
Mater Tangersture (Fol-Linu): 13-KHC Internal Tangersture (Fol-Linu): 24-LHC			
Till Sensor: Bitch(X-axis inclination).degree -8.6 Till Sensor: Bitch(X-axis inclination).degree -1.9			
8641NP01HQEARBAnAABBAAAAABBAAAAAQBAAAAAAACACBVEEAAUDCBZ2ZC58s2t/11/266BYQq]			
Connands			
The Loss Finfo Clinow this screen? Bage Clinow box Monkow Bage Clinow box Monkow Bage Clinow box Monkow Basest Clinow Basest Clinow box Monkow Same Hould Frequence Basettrequence Same Hould Frequence Ba			
Common settings:			
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Altimeter settings:			
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Connect

Open TeraTerm. Click Setup>Serial port. Select the com port assigned to the system either hardwired or Bluetooth. Adjust baud rate to 115200. Then click "New Setting" to open the port.

Once connected, data will start coming across. To issue commands the data coming in needs to be stopped by pressing the space bar.

Commands

The next page contains a list of commands that can adjust the settings of the system.

Commands

Below is a list of commands that can adjust the settings of the system.

#range #range 10000 Set range in mm, from 1000 mm to 100000 mm #range <enter> >ok. #range h #range h 10000 Range for high frequency, 1000 ~ 200000 ##rangeh #range h 10000 Range for high frequency, 1000 ~ 200000 >#range h #range h 10000 Range for low frequency, 1000 ~ 200000 >#rangel 10000 Range for low frequency, 1000 ~ 200000 Range for low frequency, 1000 ~ 200000 #rangel #rangel 10000 Range for low frequency, 1000 ~ 200000 Pulse #rangel #rangel 10000 Range for low frequency, 1000 ~ 200000 Pulse #rangel #rangel 10000 Range for low frequency, 1000 ~ 200000 Pulse #rangel #rangel 10000 Range for low frequency, 1000 ~ 200000 Pulse #rangel #rangel 10000 Enterval Pulse > lopput Value: 10000 Enterval Pulse # interval 0.5 Enterval Set # interval 0.5 Enterval Set > look. Frequency in the erval Bet Bet Bet <</enter>	Command	Sample of input/output	Comments
KENTER> or Shrange <enter> Shput Value: 10000<enter> Sok. Range for light frequency, 1000 ~ 200000 #rangeh <enter> or Shrungeh <enter> or Sok. #rangel #rangel #rangel Hinterval 0.000 Set interval Sok. #interval Sok. Jinput Value: 0.05 Set interval Sok. Finterval Sok. Finterval Sok. Finterval Set interval Sok. Finterval Sok. Sok. Finterval Sok. Finterval Sok. Finterval Sok. Finterval Sok. Sok. Finterval Sok. <</enter></enter></enter></enter></enter></enter></enter></enter></enter></enter></enter></enter></enter></enter></enter></enter></enter></enter>	#range	#range 10000	Set range in
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#interval #interval 0.5 <enter> or Pulse repetition rate. ># interval <enter> Set >Input Value: 0.5<enter> int >ok. erval bet ween pulses (pings) in seconds. From 0.1 to 3600 seconds 3600 seconds</enter></enter></enter>		>ok.	
># interval <enter> repetition rate. >Input Value: 0.5<enter> Set >ok. int erval bet veen pulses (pings) in seconds. pulses (pings) in seconds.</enter></enter>	#interval	#interval 0.5 <enter> or</enter>	Pulse
># interval <enter> rate. >Input Value: 0.5<enter> Set >ok. int >ok. erval bet ween pulses (pings) in seconds. From 0.1 to 3600 seconds Setonds</enter></enter>			repetition
>Input Value: 0.5 <enter> Set int erval bet ween pulses (pings) in seconds. From 0.1 to 3600 seconds</enter>		># interval <enter></enter>	rate.
Set int int erval bet ween pulses (pings) in seconds. From 0.1 to 3600 seconds			-
>ok. Pok.		>Input Value: 0.5 <enter></enter>	Set
erval bet ween pulses (pings) in seconds. From 0.1 to 3600 seconds		sok	int
bet ween pulses (pings) in seconds. From 0.1 to 3600 seconds			erval
ween pulses (pings) in seconds. From 0.1 to 3600 seconds			bet
pulses (pings) in seconds. From 0.1 to 3600 seconds			ween
(pings) in seconds. From 0.1 to 3600 seconds			pulses
seconds. From 0.1 to 3600 seconds			(pings) in
From 0.1 to 3600 seconds			seconds.
3600 seconds			From 0.1 to
			3600 seconds

#pingonce	#pingonce 0 <enter></enter>	One-shot on
		#go
		command, 0,1
		- OFF.ON
#threshold	#threshold 10 <enter></enter>	Set altimeter
		threshold in %
		of Full Scale
		(maximum
		amplitude of
		echo signal)
#threshold	#thresholdh 10 <enter></enter>	Threshold for
h		high
		frequency. 1 ~
		100% of Full
		Scale
#thresholdl	#thresholdl 10 <enter></enter>	Threshold for
		low frequency.
		1 ~ 100% of
		Full Scale
#offset	#offset 0 <enter></enter>	Set offset of
		output
		altitude in mm
#offseth	#offseth 0 <enter></enter>	Offset for high
		frequency, (-
		/+1000 mm)
#offsetl	#offsetl O <enter></enter>	Offset for low
		frequency, (-
		/+1000 mm)
#deadzone	#deadzone 200 <enter></enter>	Set minimal
		deadzone in
		mm.
#deadzone	#deadzoneh 200 <enter></enter>	Dead Zone for
h		high frequency
		0 ~ Range
		(mm)

#deadzonel	#deadzonel 200 <enter></enter>	Dead Zone for
		low frequency
		0 ~ Range
		(mm)
#txlength	#txlength 20 <enter></enter>	Set
		transmitted
		pulse length in
		Max value
		100 uks
#txlengthh	#txlengthh 20 <enter></enter>	Tx Pulse length
		for high
		frequency, 10
		~ 500 mks
#txlengthl	#txlengthl 20 <enter></enter>	Tx Pulse length
		for low
		frequency, 10
		~ 1000 mks
#0	#output 1 <enter></enter>	Output format
utput		1,2,3,4
		1 - Altimeter
		Simple
		2 -
		EchoSounder
		txt 10bits
		3 - Altimeter
		NIVILA
		4 -
		EchoSounder
		txt 12bits
		6 - DESO-25
		(Metric Mode,
		A - HF, B - LF)
		7 - Altimator
		Dual (Date
		Time, HF, LF)
		8 -
		SONARMITE_D
		FX(ID, HF, LF,

		Temp, Batt,
		Flags)
		9 - SONARMITE_O LD(ID, Depth, Roll, Pitch, Heave, Batt, Qa, Flags)
		100 - EchoSounder binary 12bits
		101 - EchoSounder binary 8bits (12bits compressed to 8bits)
#gain	#gain 3 <enter></enter>	Set analog gain of preampli- fier in dB.
#gainh	#gainh 3 <enter></enter>	Analog Gain for high frequency, (-/+ 60 dB)
#gainl	#gainl 3 <enter></enter>	Analog Gain for low frequency, (-/+ 60 dB)
#tvgmode	#tvgmode 1 <enter></enter>	TVG Curve type, 0,1,2,3,4
#tvgabs	#tvgabs 0.05 <enter></enter>	Absorption TL for active frequency, 0~2 * R
#tvgabsh	#tvgabsh 0.05 <enter></enter>	Absorption TL for high frequency, 0~2 * R
#tvgabsl	#tvgabsl 0.05 <enter></enter>	Absorption TL for low frequency, 0~2 * R

ttygened	#tygened 1E < ENTED	Coroading T
#tvgspra	#LVgSpr0 15 <enter></enter>	Spreading IL
		coefficient for
		frequency,
#ty goordb		
#tvgsprun	#tvgsprun 15 <enter></enter>	Spreading TL
		bigh
		frequency
		10~40 *
#tygsprdl	#tygened 15 <enter></enter>	Spreading TI
#tvgspi ui		coefficient for
		10~40 *
#attn	#attn O <enter></enter>	-20dB
#attri		Attenuator
		enable time
		for active
		frequency
#attnh	#attnh O <fntfr></fntfr>	-20dB
nattini		Attenuator
		enable time
		for high
		frequency
#attnl	#attnl 0 <enter></enter>	-20dB
		Attenuator
		enable time
		for low
		frequency
#speed	#speed 4800 <enter></enter>	Set serial port
		speed in
		bods. User
		can set:
		- 4800
		- 9600
		- 19200
		29400
		- 30400
		- 57600
		- 115200
		- 230400
		- 460800

		- 921600
#nmeadht	#nmeadbt 1 <fntfr></fntfr>	ŚGPDBT
		message
		enable - 1
		disable - 0
#nmeadot	#nmeadpt 1 <enter></enter>	ŚGPDPT
		message
		enable - 1.
		disable - 0
#nmeamtw	#nmeamtw 1 <enter></enter>	ŚGPMTW
		message
		enable
		chable
		- 1, disable - 0
#nmeaxdr	#nmeaxdr 1 <enter></enter>	\$GPXDR
		message
		enable - 1,
		disable - 0
#nmeaema	#nmeaema 1 <enter></enter>	¢CDEN4A
		ŞGPEMA
		message
		enable - 1
		disable - 0
#nmeazda	#nmeazda 1 <fntfr></fntfr>	
mineazaa		NMEA ZDA
		message
		output, 0,1 -
		OFF,ON
#nmearate	#nmearate 0 <enter></enter>	NMEA min.
		interval,
		0~1sec, 0 -
		same as
		#interval
#nmeadpto	<pre>#nmeadptoff 0<enter></enter></pre>	NMEA DPT
ff		offset value (-
		/+ 50 m)
#nmeadpz	#nmeadpzero 1 <enter></enter>	NMEA
ero		DPT/DBT show
		zero if no
		signal, 0,1 -
		OFF/ON
#sound	#sound 1500 <enter></enter>	Set sound
		speed in
		water.
#help or	Info	Show device
#info		state and

Ult	trasonic Precision Dual-Frequency Echosounder/Altimeter	information
	4/RS232 Foff Ultrasonics Co. Ltd. 2016	about
		and
S/\	W Ver: 3.5 build 646 Nov 16 2022 11:32:28	commands.
arr	mcc: 5030076/O2	
De	escription: ECT D032	
Hig	gh Frequency: 200000Hz (Active)	
Lo	ow Frequency: 30000Hz (Active)	
Wa	ater Temperature [Celsius]: 13.5°C	
Int	rernal Temperature [Celsius]: 24.1°C	
Tilt	t Sensor: Pitch(X-axis inclination), degree -0.6	
	t Sensor: Roll (Y-axis inclination), degree 1.9	
B64	4INFO[HQEAABAnAABkAAAAgD8AAAAACgAAAAAAAAAAAAA	
cBZ	ZqZGb8zM/M/c6BYQQ==]	
Со	mmands	
	help or #info (Show this screen)	
- #	go (Goto Work Mode)	
- #0	echo [0,1] (Terminal echo on/off)	
- #0	default (Set settings in default values)	
- #	reset (Reset device)	
- #:	setfrequency)	
- #:	setfreqdual or #setfd (Set Dual frequency Mode)	
- #	getfreq or #getf (Get current Tx frequency)	
- #(getfl (Get Low frequency value)	
- #[gettin (Get High frequency value)	
Со	mmon settings:	
- #	range [10000 mm] Range for active frequency, 1000 ~ 200000	
- #	rangeh [10000 mm] Range for high frequency, 1000 ~ 200000	
- #	rangel [10000 mm] Range for low frequency, 1000 ~ 200000	
- #	interval [1.000 sec] Interval between pulses, 0.01 ~ 10sec	
- #	pingonce [0] One-shot on #go command, 0,1 - OFF,ON txlength [100 uks] Tx Pulse length for active frequency 10 ~	
500	Internet in the second of the	

```
- #txlengthh [ 100 uks ] Tx Pulse length for high frequency, 10 ~ 500
mks
- #txlengthl [ 500 uks ] Tx Pulse length for low frequency, 10 ~ 1000
mks
- #txpower [ 0.0 dB ] Transmit power, 0(max)~-48(min)dB
- #gain
        [ 0.0 dB ] Analog Gain for active frequency, (-/+ 60 dB)
- #gainh [ 0.0 dB ] Analog Gain for high frequency, (-/+ 60 dB)
- #gainl [ 0.0 dB ] Analog Gain for low frequency, (-/+ 60 dB)
- #tvgmode [ 1 ] TVG Curve type, 0,1,2,3,4
- #tvgabs [ 0.050 dB/m ] Absorption TL for active frequency, 0~2 *
R
- #tvgabsh [ 0.050 dB/m ] Absorption TL for high frequency, 0~2 * R
- #tvgabsl [ 0.006 dB/m ] Absorption TL for low frequency, 0~2 * R
- #tvgsprd [ 15.0 ] Spreading TL coefficient for active frequency,
10~40 * log(R/R0)
- #tvgsprdh [ 15.0 ] Spreading TL coefficient for high frequency,
10~40 * log(R/R0)
- #tvgsprdl [ 15.0 ] Spreading TL coefficient for low frequency,
10~40 * log(R/R0)
- #attn [ 0 uks ] -20dB Attenuator enable time for active
frequency
- #attnh [ 0 uks ] -20dB Attenuator enable time for high
frequency
- #attnl [ 0 uks ] -20dB Attenuator enable time for low frequency
Altimeter settings:
- #sound [ 1500 mps ] Sound speed, mps
- #deadzone [ 500 mm ] Dead Zone for active frequency 0 ~ Range
(mm)
- #deadzoneh [ 500 mm ] Dead Zone for high frequency 0 ~ Range
(mm)
- #deadzonel [ 2000 mm ] Dead Zone for low frequency 0 ~ Range
(mm)
- #threshold [ 10 % ] Threshold for active frequency, 1 ~ 100% of
Full Scale
- #thresholdh[ 10 % ] Threshold for high frequency, 1 ~ 100% of
Full Scale
- #threshold[ 10 % ] Threshold for low frequency, 1 ~ 100% of Full
Scale
- #offset [ 0 mm ] Offset for active frequency, (-/+1000 mm)
- #offseth [ 0 mm ] Offset for high frequency, (-/+1000 mm)
- #offsetl [ 0 mm ] Offset for low frequency, (-/+1000 mm)
- #medianflt [ 2 ] Median filter, 3,4,5,6,7,...21 samples, <3-off
- #movavgflt [ 1 ] Moving average filter (SMA) 2~12 samples, <2-
off
                1 ] NMEA DBT message output, 0,1 - OFF,ON
- #nmeadbt [
```

headpt [0] NMEA DPT message output, 0,1 - OFF,ON heamtw [1] NMEA MTW message output, 0,1 - OFF,ON heaxdr [1] NMEA XDR/TILT message output, 0,1 - OFF,ON heaema [1] NMEA XDR/EMA message output, 0,1 - OFF,ON heazda [1] NMEA ZDA message output, 0,1 - OFF,ON hearate [0.000 sec] NMEA min. interval, 0~1sec, 0 - same as val headptoff[0.000 m] NMEA DPT offset value (-/+ 50 m) headpzero[1] NMEA DPT/DBT show zero if no signal, 0,1 - DN
/Output settings:
 tput [3] Output format 1,2,3,4 1 - Altimeter Simple 2 - EchoSounder txt 10bits 3 - Altimeter NMEA 4 - EchoSounder txt 12bits 6 - DESO-25 (Metric Mode, A - HF, B - LF) 7 - Altimeter Dual (Date, Time, HF, LF) 8 - SONARMITE_DFX(ID, HF, LF, Temp, Batt, Flags) 9 - SONARMITE_OLD(ID, Depth, Roll, Pitch, Heave,
100 - EchoSounder binary 12bits
101 - EchoSounder binary 8bits (12bits compressed ts) mplfreq [0] Sampling rate. ,12500,25000,50000,100000]Hz, 0 - Auto eed or udrate [115200] Baud Rate, 2400-921600, 8N1 ne [353] Seconds since 00:00 hours, Jan 1, 1970 UTC
nronization:
ncextern[0] Sync Direction, 0,1 - Internal,External ncextmod[1] External Sync Pulse edge, 0,1 - Falling,Rising ncoutpol[1] Sync Pulse Output Polarity, 0,1 - Low,High
og output:
gmode [0] Analog output mode, 0,1 - Distance,Envelope grate [0.100 V/m] Analog output rate 0.005~10V/m gmax [4] Max. output voltage, 1,2,3,4 - ,2.5V,5V,10V

	Multinode interface: - #mniface [0] Multinode interface, 0,1 - OFF,ON - #mnid [1] Multinode id 1~240 #mnoune [0] Multinode sume 0.1.2 Int 5 th Decket	
#go	#go <enter></enter>	Start send pulses and receive echo signal
#default	<enter></enter>	Set default values: - range: 10000mm - interval: 1 sec - deadzone: 300 mm - offset: 0mm - threshold: 10% - txlength 20 uks - gain 0 dB - tvgmode: 1 - tvg slope 1 output mode: NMEA

Change of Record

6-20-2023Creation Date (V1.0)