IP RECEIVER

Model GRx8mini

Instruction Manual





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1. Introduction

The highly sensitive GDD IP Receiver GRx8*mini* is a compact unit designed for high productivity resistivity and time-domain induced polarization (IP) surveys in mineral exploration, groundwater exploration, geotechnical investigations and other related fields. It features high capabilities allowing it to work in any field conditions. It can be configured for multi-pole or multi-dipole reception. The receiver uses a handheld field PC to process data acquisition and the software can easily be updated via internet.

Characteristics:

- **Reception poles/dipoles:** 8 poles/dipoles for dipole-dipole, pole-dipole or pole-pole arrays.
- **Programmable windows:** The GRx8*mini* offers twenty fully programmable windows for higher flexibility in defining the IP decay curve.
- User modes available: Arithmetic, logarithmic, semi-logarithmic, Cole-Cole and user defined.
- **IP display:** Chargeability values, Apparent Resistivity, IP decay curves and pseudosections can be displayed in real time thanks to the TFT VGA screen. Before data acquisition, the GRx8*mini* can be used as a one channel graphic display for monitoring the noise level and checking the primary voltage waveform through a continuous display process.
- Internal memory: Capacity to store up to 64 000 readings for 8 poles/dipoles, memory expandable to 512 000 readings on the field PC. Each reading includes the full set of parameters characterizing measurements. Data is stored on flash type memory that does not require any lithium battery for safeguard purposes.
- Full wave data with IP Post-Processing software: The GRx8mini records and saves the full wave data (*.mem file). This raw data can be imported, visualized and processed using GDD's IP Post-Processing software.

2. Receiver Accessories

- A 1x IP receiver, model GRx8*mini*
- B 1x UART programming adapter (Boot Loader)
- C 1x Allegro² field computer with a 10.6Ah rechargeable Li-Ion battery and an adjustable hand strap
- D 1x Allegro² capacitive stylus with tether
- E 1x Allegro² Holster case
- F 1x Allegro² wall charger with international plug kit
- G 1x IP receiver charger (*power supply*)
- H Blue cables with black banana connectors or red banana connectors
- I 1x Standard serial communication cable
- J 1x Rugged serial communication cable (*Amphenol connector*)
- K 2x Micro USB Communication Cables
- L 1x External GPS antenna (SMA connector)
- M 1x Input signals connector (14 positions) Optional
- N 1x Allegro² Quick Start Guide
- O 1x GDD Instruction manual
- P 1x Screwdriver
- Q 1x IP Receiver documentation CD/USB Stick

Not shown on the illustration:

1x Blue carrying case 1x GDD-RTE01 communication box with USB cable (optional accessory)

Optional accessories:

GDD-BP02 External battery pack (*for 8, 10 to 16 channels receivers*) GDD-RTE01 communication box with USB cable Input signals connector (14 positions)





3. Receiver Components

The GRx8*mini* components are described in this section.



A - RS-232 connector - 9 pin serial communication port

This connector is used to connect the serial communication cable between the Allegro² and the GRx8*mini*.

B - GPS Connector

This connector is used to connect an external GPS antenna (SMA).

C - CABLE/WIRELESS switch

This switch is used to select CABLE (RS-232) or WIRELESS (Bluetooth) communication with the field PC. The red light indicates that the switch is in the WIRELESS position.

D - ON/OFF switch

This switch is used to turn the GRx8*mini* ON. The ON red light indicates that the GRx8*mini* is ON.

E - FUSE

This fuse prevents damages that could be caused by a defective charger. Replacement fuse: 5x20mm 6A 125V fast action

F - SELF-TEST terminal

This terminal is used to perform a self-test.

G - R1 and R2 terminals

In pole configuration, the reference terminals (R1 and R2) are the infinite electrodes. In dipole configuration, the reference terminal is the first electrode in differential with the second electrode.

H - NUMBERED terminals

These terminals are referenced to the Ref terminal (Ref is infinity in pole configuration). In dipole configuration, the numbered terminals are differential terminals.





I - CHARGER/EXT. BATTERY connector

This connector is used to charge the receiver's batteries. It can also be used to connect an external battery pack provided by GDD (optional). The CHARGE red light on the top of the receiver indicates that the internal batteries are charging. The light turns off when the batteries are fully charged.

J - Input signal connector

This connector is used to connect the wires coming from the electrodes to the receiver channels to keep the Pelican case closed while taking the readings. An optional cable mount connector (14 pos.) can be purchased and used with the instrument.



K - RS-232 external Connector

This connector is used to connect the rugged serial communication cable (Amphenol connector), which allows communication between the Allegro² and the GRx8*mini* receiver.

4. Power

GDD's IP Receiver, model GRx8*mini*, is powered by two internal rechargeable Lithium-ion batteries.

The power level of the Rx internal batteries is indicated on the main screen of the Allegro² of the GDD Rx software.



Here are a few tips for using and storing your **<u>lithium-ion</u>** powered receiver:

<u>Usage</u>

- The connector located on the back of the receiver (CHARGER/EXT. BATTERY) is used to connect the power supply or an external battery pack supplied by GDD. Connecting other charger or external batteries using this connector could damage the batteries and the receiver.
- Do not replace the receiver's internal batteries without authorization and advice from GDD's technicians.
- The total operating time of the receiver depends on environmental conditions. Using the receiver in very cold weather $(-20^{\circ}C \text{ to } -40^{\circ}C)$ will lower the operating time.
- The receiver will turn itself off when the batteries reach a critical level.
- To extend battery life, avoid frequent full discharge and charge more often between each use.
- The CHARGE red light indicates that the batteries are charging. It turns off once the batteries are fully charged.



<u>Storage</u>

- To avoid permanent capacity loss, store the receiver at 40% charge.
- Store the receiver in a cool, dry place.
- If stored for several months, check the battery charge level every six months and recharge them to 50% if they are below 30% charge. Never store fully charged or completely discharged Lithium-Ion batteries for an extended period.

5. Quick Start Guide

- 1. Connect electrodes into terminals.
- 2. Turn ON the IP receiver using the ON/OFF switch on the GRx8*mini* panel.
- 3. Select the communication mode using the CABLE/WIRELESS switch on the GRx8*mini* panel. In CABLE mode, the red light will turn ON only when the GRx8*mini* software is active.
- 4. Connect the rugged serial communication cable (Amphenol connector) between the Allegro² (COM1) and the GRx8*mini* RS-232 external connector (CABLE communication only).
- 5. Turn ON the $Allegro^2$ with the ON/OFF button.



6. Click GDD RX.



7. Select the communication mode: *RS-232* (CABLE) or *BLUETOOTH* (WIRELESS).



8. The following screen appears.



9. Click START or press Enter keystroke to begin the acquisition procedure.

Note: If you want to start the process by using the same settings than those of the previous acquisition procedure, press F5 button. You have to start the first acquisition normally before being able to use F5 for the next acquisitions. Using F5 will skip all configuration and contact resistance windows. If F1 to F5 keystrokes do not work on your Allegro², see Section 12 – Troubleshooting.



10. The following screen appears. Click OK to continue.



11. Enter the project, line, station, move displacement, etc. for Tx and Rx. Click OK or press Enter keystroke to continue.

GDD Rx - 32 channels	*	I # Tx	◀€ @ 10:22
Project:	Test pro	ject	
Ln. Tx: 100	Rx: 100)	N-S 💌
Move LINE: Tx:	0	Rx :	0
Station: Tx1:	0	Tx2:	25
Station Rx:	50	Sep:	25
Move ST.: Tx:	25	Rx :	25
Setup Position Window	vs Synchroniza	ation	
			ОК

12. Verify if the positions are correct and click OK or press Enter keystroke to continue.



13. The Contact and Noise graph appears. If the values displayed are normal, click OK or press ESC keystroke to close the window.



14. Click NEXT or press Enter keystroke to continue.

*Note: If all stations show an INFINITE contact, the reference electrode might be disconnected.

GDD Rx	- 32 chanr	els	₿ 🛱 🏹	€ @ 1	0:30
Ln:	100 1	1-S	TOOLS	NE	×Т
Tx:	25 F	Rx: 50	10010		
Count	:	3300	V:	123.5	mV
MEM:	0	BATTE	CRY: 86.2	Ş	
Stati	on (m):	Contact	(kOhm)		>
	75 :	9.0	100:	9.0	
	125:	9.0	150:	8.9	
	175:	8.9	200:	8.9	
	225:	8.9	250:	8.9	
					\geq
(A)					5

15. Enter the transmitter current and click CONFIRM or press Enter keystroke to start the readings.

GDD Rx - 32 channels 🕺 🗱	Ƴx ◀€ @ 10:30	GDD Rx - 32 channels	*	☆ 🏹 4 € 🎟 10:30
Current:			Current:	
0 m	A		1000	mA
CONFIRM			CONFIRM	\supset
CANCEL			CANCEL	
	ОК			ОК

16. The following screens appear.

GDD Rx - 3	32 channels	₿ # \.	€ @ 10:31	GDD R	x - 32 channe	ls	* *	€ @ 10	:33
Ln: Tx:	100 N-S 25 Rx: 50	TOOLS	STOP	Ln: Tx:	100 N 25 Rz	-S K: 50	TOOLS	STOP	2
Count:	4800	V:	65.3 mV	Coun	t: 11	.700	V: -	-125.1	mV
MEM: 0	BATTE	RY: 85.8%		MEM: CH	0 B: 86. Rho	3% Stack: Vp	2 I: 10 M	00.0 ErrM	
		•		01 02 03 04 05	19.65 78.61 176.59 314.54 491.66	125.095 250.236 374.739 500.602 625.995	7.945 7.946 7.947 7.954 7.954 7.949	0.005 0.001 0.001 0.002 0.000	
)	ОК	Ð			-		K)

If using the optional GDD-RTE01 communication box (refer to section 8.2.5) to collect live information broadcasted by the GDD Tx4 IP transmitter, the Tx current "I" and power "P" can be displayed alternatively in the Rx main screen under the TOOLS and STOP/START buttons. To switch from one information to the other, use the following shortcut Key: "V" or click on the text label directly on the screen.

GDD Rx - 8	3 channels	¥ 📯 🥆 ◄	÷ 💷 12:26	GDD Rx - 8	8 channels	8 와 Y	┥; @ 12:27
Ln: Tx: Count:	1 N-S 500 Rx: 0 200	TOOLS	START	Ln: Tx:	1 N-S 500 Rx: 0 1000	TOOLS	START
MEM: 0	BATT	TERY: 99.0%		MEM: 0	BAT	TERY: 99.0	*
			(ок)		(1		(ок)

If no transmitter information can be received at the GRx8mini, the following symbol will be displayed instead of I and P: N/A.

17. Click STOP or wait until the end of the acquisition to stop the readings and save the data.

GDD R	x - 32 channel	s	∦ ₽ ₹.	€ @ 10	:33
Ln: Tx:	100 N- 25 Rx	s : 50	TOOLS	STOP	
Coun	t: 11	/00	V: -	-125.1	mν
MEM: CH	0 B: 86.3 Rho	% Stack: Vp	2 I: 10 M	00.0 ErrM	
01 02 03 04 05	19.65 78.61 176.59 314.54 491.66	125.095 250.236 374.739 500.602 625.995	7.945 7.946 7.947 7.954 7.954	0.005 0.001 0.001 0.002 0.000	
			_	0	ĸ

18. Click YES to confirm the operation.



19. Click YES to save readings into the memory.

GDD Rx - 3	2 channels	। **	€ @ 10:34
Ln: Tx:	100 N-S 25 Rx: 50	TOOLS	START
Count:	SAVE		28.2 mV
MEM: 0 1 CH	B: P Do you want to sa reading?	ave the $\frac{10}{M}$	00.0 ErrM
01 : 02 : 03 1:	19. 78. Yes	1 9 0	0.003
04 3: 05 4:	14.54 500.601 91.66 625.995	7.950 7.947	0.001
			ОК

20. Re-enter the transmitter's output current value if it has changed and click CONFIRM to save the current value.

If using the optional GDD-RTE01 communication box (refer to section 8.2.5) to collect live information broadcasted by the GDD Tx4 IP transmitter, this menu will show additional Tx current options to choose as the final "I" value. These are the first "I" transmitted, the average "AI" (with information regarding Standard Deviation "SI" and average time between each Tx values broadcasted "AT") and the last "I" transmitted. Click on one of the corresponding button.

GDD Rx - 8 channels	GDD Rx - 8 channels
	First I: AI: 7700 mA Last I: 9400 mA AT: 2.0 sec 0 mA
Current: 9400 mA	Current: 9400 mA
CONFIRM CANCEL	CONFIRM CANCEL
Redo positions	Redo positions
🕢 💿 Ок	С

Check the REDO POSITIONS option to change the transmitter or receiver position.

Note: This option alters the reading that was just completed in order to correct or revise the coordinates before saving the reading to the file. It should not be used to pre-set the next reading.



If the REDO POSITIONS option is checked, enter the transmitter and receiver position and click OK or press Enter keystroke.

*Each position can be changed individually or moved by clicking Next or Prev (or by using F1 to F4 keystrokes).

GDD	Rx - 32 chann	els	*	: 7,	(◀€ @ 10:35	GDD	Rx - 3	2 chann	els	*	↓ Y	ζ ι € @	10:35
LTX	100	1	50	5	150	LTx	100		1	75	5	175	
LRx	100	2	75	6	175	LRx	100		2	100	6	200	
Tx1	99999999	3	100	7	200	Tx1	999	9999	3	125	7	225	
Tx2	25	4	125	8	225	Tx2	50		4	150	8	250	
Ref	99999999		>>>>	> Pa	ge 2	Ref	999	9999		>>>	>> Pa	ge 2	
>	TX PREV RX ST F1	NEX ST	T PREV F2 LN F3	NE> LN	KT F4 OK		Fx Rx	PREV ST F1	NEX ST	T PREV F2 LN F3	NE LN	XT F4	ок
					ОК)						ОК

NOTE: Once your acquisition is completed, use Left and Right arrow buttons on the keypad of the Allegro to compare your current data with that of your previous acquisitions. Use the Up and Down arrows to see all the channels. By clicking on Start, the program will automatically come back to the last acquisition and will start a new acquisition procedure.

GDD Rx -	32 channels	:	8 ₽ ₹.	it 🗰 10:38		GDD Rx -	32 channels	;	x X	(÷)
Ln:	100 N-:	S	TOOLS	START		Ln:	100 N-	S	THE REAL PROPERTY OF	
Tx:	50 Rx:	: 75			<u>l</u>	Tx:	50 Rx	75	TOOLS	
Count:	255	00	V:	2.9 mV		Count:	252	200	V:	10
MEM: 2	B) 85.5	% Stack:	2 I: 100	0.0		MEM: 3	B: 85.7	% Stack:	5 I: 10	00.
CH	Rho	Vp	M	ErrM		SH	Rho	Vp	М	E
01	19.65	125.091	7.955	0.008 ^	4 0 0	01	15.72	100.066	3.929	0.
02	78.61	250.233	7.946	0.001	< © >	02	62.89	200.176	3.926	0.
03 1	-76.62	374.788	7.949	0.002		03	141.27	299.772	3.928	0.
04 3	314.54	500.598	7.947	0.002	~	04	251.60	400.423	3.925	Ο.
05 4	191.65	625.980	7.947	0.001		05	393.35	500.819	3.926	Ο.
						-				

21. Repeat steps 9 through 20 to take another set of readings.

6. RS232/Bluetooth Communication

1. Select the "RS-232" communication mode to use the GRx8*mini* with a serial communication cable.



2. Select the "BLUETOOTH" communication mode to use the GRx8*mini* with a wireless connection.



3. The following screen appears and you are ready to begin.



In Bluetooth mode, if a "COM Error" message appears, see Section 12 – Troubleshooting.

7. Cold weather and harsh environments tips

The GRx8*mini* receiver is designed to be used in cold weather (up to -40°C) but it is very important to consider these few tips to prevent damages or malfunctions:

- 1. Never charge the internal batteries of the GRx8*mini* in sub-zero;
- 2. As much as possible, turn on the GRx8*mini* receiver in a warm place before using it in cold weather;
- 3. Never turn off the GRx8*mini* receiver when using it in cold weather to keep the batteries warm;
- 4. If possible, use the serial communication (RS-232 cable) between the Allegro² field computer and the GRx8*mini* to prevent malfunction of the Bluetooth communication, and to maximize the battery charge.

When using the GRx8-32 receiver during rainy days, please consider the following tips to ensure a long term instrumental reliability:

- The receiver's control panel, including each connector and input channel, is water resistant. Nevertheless, it is important to bring the receiver back at the base of operation after each day, to leave the pelican case lid open and to remove the connectors' cap so that humidity is freed from the instrument;
- 2. If possible while collecting data, close the lid of the pelican case to avoid water to soak the jack connectors and potentially short the channels;

8. Tools Menu

Click TOOLS to select one of the following options:

GDD R	x - 32 channels	s >] # 7⁄2 €	(IIII 10:39
Ln:	100 N-	S	TOOLS	START
Tx: Count	50 Rx t: 265	: 75 500	Config	mV
MEM: CH	3 B: 85.5 Rho	% Stack: ! Vp	Special	-
01	15.72	100.066	Show	
02 03	62.89 141.27	200.176 299.772	Raw Da	ata 🕨 🔛
04 05	251.60 393.35	400.423 500.819	Memor	y →
Ð	_		About	ж

Config

Use the CONFIG option to change:

- Staking parameters
- Electrode array
- Active channel
- Trigger channel
- Line number and position
- Transmitter and receiver position
- Signal timing
- Mode
- GPS time synchronization

<u>Special</u>

Use the SPECIAL option to:

- Reinitialize the GRx8*mini*
- Test the GRx8*mini* with the internal simulator
- Set signal processing options
- Select battery type (if not automatically detected)
- Open Port (enables the RF (radio frequency) communication between GDD's IP transmitter Tx4 and receiver using the optional GDD-RTE01 box.

<u>Show</u>

Use the SHOW option to display:

- Hotkeys (shortcut keys menu)
- Pseudosection
- Signal graph
- Contact and Noise monitor graph
- Vp and Cycle synchronization graph
- Decay curve
- Windows chargeability
- SP (self-potential)

Raw Data

Use Raw Data option to:

- Check GPS
- Start recording a Binary Data file (.bdf)

Memory

Use the MEMORY option to:

- See the History
- Recall the previous memory
- Clear the memory
- Save data in a file

<u>About</u>

Use the ABOUT option to display the GDD Rx software version number.

8.1 Config option

8.1.1 Setup

The SETUP option is used to set the electrode arrays, the active channel(s) and the trigger channel.

1. Select Tools | Config | Setup. The following window appears.



GDD Rx ·	- 32 cha	nnels	* *	Γ⁄α •€ 💷 10:39
			El. array:	Tx - Rx
🖌 ALL	A P	LL Po.	le-Pole (1/3	52)
🗸 Ch	11	✔ Ch5	✔ Ch9	✔ Ch13
🗸 Ch	12	🖌 Ch6	✔ Ch10	✔ Ch14
Ch	13	Ch7	✔ Ch11	✔ Ch15
✔ Ch	14	🖌 Ch8	✔ Ch12	↓ Ch16
>>>	⊳> Pac	je 2	Trigger on:	1
Setup P	osition	Windows	Synchronization	
				ОК

- 2. Select the electrode arrays configuration.
 - Dipole-Dipole (1/32)
 - Dipole-Dipole (2/4)
 - Dipole-Dipole (2/16)*
 - Dipole-Dipole (4/8)*
 - Pole-Dipole (1/32)
 - Pole-Dipole (2/4)
 - Pole-Dipole (2/16)*
 - Pole-Dipole (4/8)*
 - Pole-Pole (1/32)
 - Pole-Pole (2/4)
 - Pole-Pole (2/16)*
 - Pole-Pole (4/8)*
 - Gradient (1/32)
 - Gradient (2/4)
 - Gradient (2/16)*
 - Gradient (4/8)*
 - Wenner
 - Schlumberger

*For GRx8-32 model only.





3. Check the active channel(s). Tap on the **□** ALL checkbox to select all channels, or tap on the **□** ALL checkbox to unselect all channels.



4. Select the trigger channel, this channel is used for the synchronization process.



8.1.2 Position

The POSITION tab is used to set the following parameters: the Tx line number, the Rx line number, the line direction, the transmitter position (Tx1 and Tx2), the receiver position, the separation, the transmitter movement offset and the receiver movement offset.

1. Select Tools | Config | Position. The following screen appears.

GDD R	x - 32 channel	s >] # ╦ ┽ @ 1	0:39	GDD Rx - 32 channels	*	↓		10:41
Ln:	100 N-	S	TOOLS STA	RТ	Project:	Test pro			
Tx: Coun	50 Rx t: 26	: 75 500	Config	mV	Ln. Tx: 100	Rx: 100		N-S	
MEM:	3 B: 85.5	5% Stack:	5 Special →		Move LINE: Tx:	0	Rx:	0	
CH 01	RIIO	vp	Show >		Station: Tx1:	0	Tx2:	50	
01 02	15.72 62.89	200.176	Baw Data		Station Rx:	75	Sep:	25	
03 04	141.27 251.60	299.772 400.423			Move ST.: Tx:	25	Rx:	25	
05	393.35	500.819	Memory →		Setup Position Window	vs Synchroniza	tion		
			About	ж					ОК

2. Enter the line number and select the line's direction.

GDD Rx - 32 channels	*	₩₩	10:41	GDD Rx - 32 channels	*	↓	€ @	10:41
Project:	Test pro			Project:	Fest pro			
Ln. Tx: 100	Rx: 100	N-S		Ln. Tx: 100	Rx: 100		N-S	
Move LINE: Tx:	0	Rx: 0		Move LINE: Tx:	C	Rx :	QE-W	
Station: Tx1:	0	Tx2: 50		Station: Tx1:	C	Tx2:	50	
Station Rx:	75	Sep: 25		Station Rx:	75	Sep:	25	
Move ST.: Tx:	25	Rx: 25		Move ST.: Tx:	25	Rx :	25	
Setup Position Window	vs Synchronizat	tion		Setup Position Windows	Synchroniza	tion		
			ОК					ОК

The labels N –S and E-W are used to define the direction of the lines.

3. Enter the first electrode position of the transmitter and receiver.

GDD Rx - 32 channels	*	#	┥< @ 10:41
Project:	Test pro		
Ln. Tx: 100	Rx: 100)	N-S 💌
Move LINE: Tx:	0	Rx :	0
Station: Tx1 🕻	0	Tx2:	50
Station Rx:	75	Sep:	25
Move ST.: Tx:	25	Rx:	25
Setup Position Window	vs Synchroniza	ation	
			ОК

A negative number is used to define South and West.

4. Enter the separation between the electrodes of the receiver.

GDD Rx - 32 channels	🖹 🗮 🏹 📢 🎟 10:41
Project: Test p	oro
Ln. Tx: 100 Rx:	100 N-S
Move LINE: Tx: 0	Rx: 0
Station: Tx1: 0	Tx2: 50
Station Rx: 75	Sep 25
Move ST.: Tx: 25	Rx: 25
Setup Position Windows Synch	ronization
) Ок

A negative number is used to define South and West.

5. Enter the moving distance of the transmitter and receiver electrodes.

GDD Rx - 32 channels	*	🗱 🏹	◀< @ 10:41
Project:	Test pro		
Ln. Tx: 100	Rx: 100)	N-S 💌
Move LINE: 🔨	0	Rx:	0
Station: Tx1:	0	Tx2:	50
Station Rx:	75	Sep:	25
Move ST.: T	25	Rx:	25
Setup Position Window	s Synchroniza	ation	
			ОК

A negative number is used to define South and West.

8.1.3 Windows

Use the WINDOWS option to set the signal timing and the mode.

1. Select Tools | Config | Windows. The following screen appears.



2. Select the maximum number of stacks.



3. Select the signal timing.



4. Select the Duty Cycle (50% or 100%)



5. Select the mode (windows time definition)



• Arithmetic

Semi logarithmic

Windows: 20 Delay (ms): 40 Timing (ms): 2000 40, 40, 40, 40, 40, 80, 80, 80, 80, 80, 80, 80, 160, 160, 160, 160, 160, 160

• Logarithmic

Windows: 4 Delay (ms): 160 Timing (ms): 2000 120, 220, 420, 820

• Cole

Windows: 20 Delay (ms): 20 Timing (ms): 2000 20, 30, 30, 30, 40, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 180, 200 User defined

Windows: between 1 and 20 Delay (ms): user defined Timing (ms): user defined

In USER mode, you can load settings you have previously saved, or you can create new settings.



Click YES to load your settings from a previously saved file. This window will appear.

GDD Rx ·	- 32 chanr	iels	*	' _ ◀	€ @ 10:42
Open					
Folder:	All Folder	s			Cancel
Type:	Windows	Files (*.w2	2)		
Name	A	Folder	Date		Size
🔟 Userl	Mode1.w2	>			
< [=					\rightarrow
H					

In this dialog box, select your file. The Windows window appears automatically. Click OK. The saved values will be loaded in the User defined mode.

OR

Click NO to manually enter the delay and window(s) width.

GDD	Rx - 3	32 channe	Is		*	⅀⋠	@ 10:	52
De	lay	(ms):	240	2	Ti	ming	(ms):	
01	80	06	80	11	80	16	80	
02	80	07	80	12	80	17	80	
03	80	08	80	13	80	18	80	
04	80	09	80	14	80	19	80	
05	80	10	80	15	80	20	80	
		OK			CAN	CEL		
)					-	િ	9

Click OK when your settings are configured.

Click YES to save your new settings.



Enter your filename and the location where you want to save your file. Then click SAVE. The User defined settings will be saved so you can reload them into the Allegro² field PC later.

OR

Click NO if you do not want to save your User defined settings to a file.

In all cases, you will be brought back to this display and the settings you have entered in the User defined window will be loaded into the Allegro² field PC.



8.1.4 Synchronization

Use the GPS time synchronization if you need to synchronize your receiver to your transmitter using GPS time.

Requirements:

- Your receiver must be equipped with an internal GPS module.
- Your Allegro² field PC must have the Rx software version # 4.2.39 and your receiver must have Rx firmware # 8.1.0.0 (or newer versions).
- Your transmitter (itself or linked to another unit) must be synchronized with a GPS.
- 1. Refer to *Section 8.4* to verify if a satellite is being tracked by the GPS module of your receiver.
- 2. Select Tools | Config | Synchronization. The following screen appears.



3. Check Use GPS Time Synchronization to enable the GPS synchronization.



IMPORTANT: Make sure that your transmitter is also synchronized by GPS before using this option.

Note that the GPS synchronization is disabled every time you start the program even if you checked it the last time you used it.

- 4. Before starting your acquisition process, make sure your transmitter and your receiver are well synchronized:
 - Wait for about 15 minutes before taking your first reading to ensure that the GPS module of the receiver gets the real UTC GPS time.
 - If possible, compare the GPS time of your transmitter with the GPS time of your receiver. They must have the same GPS time (see *Section 8.4* to know how to get the GPS time of the receiver).
- 5. During the acquisition process, you can verify if your receiver is still synchronized with GPS (see *Section 8.4* to know how to verify the GPS signal):

GPS well synchronized

If you checked *Use GPS Time synchronization* and if a GPS signal is detected, your receiver will be synchronized with GPS.



IMPORTANT: it does not confirm that your receiver is well synchronized with your transmitter. In the case that your transmitter and your receiver are not well synchronized together, your data could be erroneous.

GPS signal lost for less than 5 hours

If you checked *Use GPS Time synchronization* and if the GPS signal is lost for less than 5 hours, your receiver will still be synchronized with GPS using the internal GPS clock.



No GPS signal from the beginning, GPS signal lost for more than 5 hours or Use GPS Time synchronization unchecked

If your checked Use GPS Time synchronization and if there is no GPS signal or if it is lost for more than 5 hours, the receiver will automatically switch to synchronize with the ground signal.



Note that the data acquired with the GPS synchronization can be more accurate than those acquired with the ground signal, especially over noisy environment.

IMPORTANT: During the acquisition process, if all your Vp values are negative, you can switch the polarity of the current transmission at the transmitter (switch the wires at the HV block) and all de Vp will become positive.

6. The *.gps* output file indicates if the receiver is synchronized with signal or GPS (see *Section 8.5* to know how to create a *.gps* file).

Version PPC: 0.4.2.39 Version Rx: 8.1.0.0 Rx SN: 1266									
Project: Project									
Windows: 20 Setting: User Delay (ms)	(240 Timing (ms):	80, 80, 80,	80, 80, 80, 80, 80	, 80, 80, 80,	80, 80, 80,	80, 8			
Mem Date Hour GPS	SyncBy Array	LineTx	LineRx Dir n	Tx1	Tx2	Rx1			
1 27/08/2015 19:25:25.753399 YES	SIGNAL DP-DP	100.00	100.00 N-5 1.0	0.00	50.00	75.			
1 27/08/2015 19:25:25.753399 YES	SIGNAL DP-DP	100.00	100.00 N-5 2.0	0.00	50.00	100.			
2 27/08/2015 19:29:44.062906 YES	GPS P-P	100.00	100.00 N-5 0.0	9999999.00	50.00	75.			
2 27/08/2015 19:29:44.062906 YES	GPS P-P	100.00	100.00 N-5 0.0	9999999.00	50.00	100.			
The *SyncBy* column indicates SIGNAL if the receiver is synchronized with the signal connected to the trigger channel and GPS if the receiver is synchronized with the GPS time.

IMPORTANT: Even if the file indicates that your receiver is synchronized with the GPS time, it does not confirm that your receiver is well synchronized with your transmitter. In the case that your transmitter and your receiver are not well synchronized together, your data could be erroneous.

8.2 Special option

8.2.1 Reinit

The REINIT option is used to reset GRx8*mini* configurations and communication with the Allegro².

1. Select Tools | Special | Reinit



2. Click YES to reinitialize the GRx8*mini*.



*** WARNING ***

Please ensure your MEM number is the same than before having reinitialized your GRx8mini. If MEM displays a 0 value, you may need to exit the GDD_Rx software, wait 15 seconds and start the application again. The MEM should be back to its original count. This issue happens when the PDA does not detect the SD card.

8.2.2 Simulation

The SIMULATION option is used to perform a self-test with the internal waveform generator (you need to select the Pole-Pole configuration to use this option).

1. Short the SELF-TEST terminal with the channel(s) you want to test. The picture below shows a self-test testing the first four (4) channels.



- 2. Turn ON the receiver.
- 3. Select Tools | Config | Setup

GDD R	x - 32 channel	S	*	₩ \ 4	(m 1	0:39
Ln:	100 N-	S		TOOLS	STA	RТ
Tx: Coun	50 Rx t: 265	: 75 500	ł	Config		mV
MEM: CH	3 B: 85.5 Rho	5% Stack: Vp	(Л	Specia	l →	
01	15.72	100.066		Show	•	
02 03	62.89 141.27	200.176 299.772		Raw D	ata 🕨	
04 05	251.60 393.35	400.423 500.819		Memor	у→	
				About		ж

4. The following screens appear.

GDD Rx - 32 channels 🚯 🗰 🏹 📢 🎟 10:56	GDD Rx - 32 channels 🛛 🔀 🗰 🏹 📢 🎟 10:56
El. array: Tx - Rx	El. array: Tx - Rx
ALL Pole-Pole (1/32)	ALL Pole-Pole (1/32)
✔ Ch1 ✔ Ch5 ✔ Ch9 ✔ Ch13	✔ Ch17 ✔ Ch21 ✔ Ch25 ✔ Ch29
✔ Ch2 ✔ Ch6 ✔ Ch10 ✔ Ch14	✔ Ch18 ✔ Ch22 ✔ Ch26 ✔ Ch30
✔ Ch3 ✔ Ch7 ✔ Ch11 ✔ Ch15	✔ Ch19 ✔ Ch23 ✔ Ch27 ✔ Ch31
✔ Ch4 ✔ Ch8 ✔ Ch12 ✔ Ch16	✔ Ch20 ✔ Ch24 ✔ Ch28 ✔ Ch32
>>>> Page 2 Trigger on: 1	Page 1 <<<< Trigger on: 1
Setup Position Windows Synchronization	Setup Position Windows Synchronization
С	🕢 📖 Ок

5. Select the Pole-Pole array configuration.



6. Check the channel(s) you want to test. Click Ok.



7. Select Tools | Special | Simulation

GDD R	x - 32 channel	s >] # 72 € @ 10):55	GDD Rx	- 32 channels	🛿 💭 🏹 📢 🎟 10:57
Ln:	100 N-	S	TOOLS	эm	Ln:	100 N-S	TOOLS
Tx:	50 Rx	: 75	100L5 STAR	71	Tx:	50 Rx: 75	Config
Coun	t: 75	100	Config	mV	Count	: 80600	mV
MEM:	3 B: 83.8	3% Stack:	5 Special →		MEM:	Reinit	ial →
CH	Rho	Vp			CH	Circulation.	
01	15.72	100.066	Show ▶	^	01	Simulation	
02	62.89	200.176	Raw Data >		02	Signal processi	ng options Data 🖡 📓
04	251.60	400.423			04		
05	393.35	500.819	Memory >		05	Battery Type) pry
	_		About	<u> </u>			About
			·····	ж)			Э Анник Эк)

- 8. Enter the waveform timing (default = 2000ms).
- 9. Enter the primary voltage (default = 500mV).
- 10. Enter the chargeability (default = 0).



11. Click CONFIRM. The output signal of the self-test electrode will be activated only once you have click on CONFIRM.



12. Click START to begin the acquisition process.



13. It is important to disable the self-test output signal before starting a new acquisition process to prevent any erroneous values caused by the noise induced by the internal waveform generator. Go to Simulation window and enter OmV in the Voltage field.

If you keep the default settings you should obtain the following results for all channels:

Vp ~= 500mV M ~= 0.000

When you enter a VP of 500 mV in the self-test simulation mode, it is possible that the actual voltage generated is 504, 505, 506 mV, etc. It does not mean that the channels are not working properly. It would be a problem if the VP value is not the same during a reading for every channel. For example, a value of 520mV for one channel while you get a value of 503mV for the other ones.

8.2.3 Signal Processing Options

The SIGNAL PROCESSING OPTIONS are used to disable the default gain and offset settings. When offset and gains are applied, the signal to noise ratio is improved.



1. Select TOOLS | Special | Signal Processing Options

2. Check the checkboxes of the settings you want to disable and click CONFIRM.

GDD Rx - 32 channels 💦 🗱 🖓 🕂 🗰 10:58
Internal offset OFF
🗌 Input signal offset OFF
🗌 Input signal gain OFF
🗌 Input signal telluric OFF
CONFIRM CANCEL
😥 💿 Ок

Note that the gains and offsets are enabled (applied) every time you start the GDD Rx program again even if you disabled them the last time you used them.

8.2.4 Battery type

With the latest versions of Rx firmware, the GDD Rx program detects the type of batteries in the receiver automatically.

If a battery type is detected, the information will appear in the *About* pop-up window.

Select Tools | About

GDD Rx - 32 channels] 🛟 🏹 📢 🎹 10:58	GDD Rx - 32 channels 👔 🗱 🏹 🕂 🎹 10:58
Ln: 100 N-S	TOOLS START	Ln: 100 N-S TOOLS START
Tx: 50 Rx: 75 Count: 84700	Config mV	Tx: GDD Rx ok 103.5 mV
MEM: 3 B: 83.5% Stack: CH Rho Vp	Special →	MEM: 3 B CH GDD Rx Software Version PPC: 0.4.2.41 Version PV: 0.2.5 9
01 15.72 100.066 02 62.89 200.176	Show	01 1 02 6 Battery Type: Li-Ion 0.001
03141.27299.77204251.60400.42305393.35500.819	Memory >	03 14 0.004 04 25 00 100.110 0.22 0.005 05 393.35 500.819 3.926 0.002
	About	С СК

If the GDD Rx program cannot detect the battery type (older Rx firmware versions), the *About* pop-up window will indicate *Battery Type: not detected*.



In which case, it is possible to select the battery type manually.

Select Tools | Special | Battery Type



Select the type of batteries in your receiver. All GRx8*mini* receivers have Li-Ion batteries.

If the *Battery Type* menu is grey (disabled), it means that the battery type is detected by the GDD Rx program and you do not need to set it manually.



If you select the wrong battery type, the battery level indicated in the main window of the GDD Rx program will be slightly different from the actual value.

8.2.5 Open Port

The OPEN PORT option is used to enable the Tx-Rx RF communication when using the optional GDD-RTE01 box.

- 1. Connect the optional GDD-RTE01 box to the USB port of your Allegro²
- 2. Select Tools | Special | Open Port



If the GDD-RTE01 box is not connected or defective, the following message will pop up.



8.3 Show option

8.3.1 Hotkeys

The HOTKEYS option is used to display the shortcut keys menu.

1. Select Tools | Show | Hotkeys

Hotkey 'M'



2. The following screen appears.

GDD Rx - 8 channels 🛛 🔀 와 🏹	◀< @ 1:11	GDD Rx - 32 channels 🛛 🖹 🗮	₩ 🕂 🗰 11:00
Action	Key 🔨	Show M and ErrM:	"R" 🔨
		Show Decay:	"D"
Hotkeys:	"M"	Show Windows (1-8 ch):	"1"
Quick start (Repeat reading):	"F5"	Show Windows (9-16 ch):	"2"
Show Voltage or Current:	"V"	Show Windows (17-24 ch):	"3" _
Show Signal:	"S"	Show Windows (25-32 ch):	"4" ::
Show Contact and Noise:	"N" ==	Show Sp:	"P"
Show Vp and Cycle:	"C"	Mode Resistivity:	"E"
Show M and ErrM:	"R"	Mode Chargeability:	"A"
Show Decay:	"D"	History:	"H"
Show Windows (1-8 ch):	"1"	Pseudosection:	ייטיי 😬
Show Windows (9-16 ch):	"2" 🔽	Invert Pseudo Colors:	"I" 🔽
	ОК		ОК

Use the shortcut keys to navigate quickly between the different options. The Quick Start option (F5) can be used to start the acquisition procedure using the same settings as the previous acquisition. Using F5 will skip the settings and contact resistance windows.

8.3.2 Pseudosection

The Pseudosection option is used to display the calculated pseudosection (in color) for each surveyed line.

1. Select Tools | Show | Show Pseudosection Hotkey 'U'



2. The following screen appears.



Note: Use the hotkey 'I' to invert the Pseudo colors.

3. Color bar editing.



Click on the "Config" button in the pseudosection main screen.

The following screen appears.

Unclick the automatic range	GD ────►[D Rx - 32 channels	mpute limits	01 (Enter a maximum value the value suggested corresponds to the ine's highest value
option		Maximum value	7.969814		
		Minimum value	3.910375		Enter a minimum value (the value suggested
	(Note : Press ENT	ER when finished	\$	corresponds to the line's smallest value)

To validate and go back to the pseudosections view, you can either click on « Enter » or on the « OK » button.

4. To visualize the whole pseudosection, use the arrows on the field PC keyboard:



8.3.3 Signal

Hotkey 'S'

The SIGNAL option is used to display the signal graph of a selected channel.



GDD Rx - 32 channels

1. Select Tools | Show | Show Signal



3. Select offset voltage scale.



4. Select time scale.



5. Select display channel.

GDD Rx - 32 o	channels	*	₽ ₹	€ @ 1 :	1:03
TOOLS	1 mV	20	sec 💽	Ch01	
4096 S+				Ch01 Ch02 Ch03 Ch04	: :: >
				Ch05 Ch06 Ch07	
0- S-				Ch08 Ch09 Ch10	
-4096 -	_		_	Ch11 Ch12	ж)

8.3.3.1 Tools menu

8.3.3.1.1 Auto Correction

The AUTO CORRECTION option is used to optimize the graph scale and correct the offset of the signal. This option should be used after one signal period (8 sec for a 2 sec time base).

1. Select Tools | Auto Correction



8.3.3.1.2 Restore

The RESTORE option is used to reset the settings to default.

1. Select Tools | Restore



8.3.3.1.3 PAUSE/GO

The PAUSE/GO option is used to pause or play the signal.

1. Select Tools | Pause or Tools | Go



8.3.4 Contact and Noise

The CONTACT AND NOISE option is used to display the noise graph of all of the channels. This option can be useful for troubleshooting if you have a noise problem. The Contact graph shows the contact resistance between the electrodes and the ground.

*This option should be used before your transmitter sends a current. If the transmitter sends a current, the Vp signal will be displayed for each active channel.

1. Select Tools | Show | Show Noise Hotkey 'N'



2. The following screen appears.



Transmitter is *not* sending a current

8.3.5 Vp and Cycle

Steps 14 to 16 of *Section 5* of this Manual must be done before using this feature.

The VP AND CYCLE option is used to show the channel synchronization. This option can be useful for troubleshooting if you have any connection problems. The VP part of the graph shows the primary voltage of all your electrodes. The current graph is an example; your VP graph will depend on the physical configuration of the electrodes.

1. Select Tools | Show | Show Cycle Hotkey 'C'



Transmitter is sending a current.

2. The following screen appears.



- Green line indicates that this Vp is positive.
- Blue line indicates that this Vp is negative.
- Red dots indicate that the GRx8*mini* is not synchronized.
- Green dots indicate that the GRx8*mini* is synchronized.
- If the GRx8*mini* is synchronized and the green dots are not moving in the same direction, check the position of the electrodes on the GRx8*mini* front panel.

8.3.6 Show M and errM

Steps 14 to 16 of *Section 5* of this Manual must be done before using this feature.

The Show M and errM option is used to display the chargeability and the error in chargeability for each channel.

1. Select Tools | Show | M and errM Hotkey 'R'





2. The following screen appears.



8.3.7 Decay Curve

Steps 14 to 16 of *Section 5* of this Manual must be done before using this feature.

The *Decay Curve* option is used to display the decay graph of a selected channel.

1. Select Tools | Show | Show Decay Hotkey 'D'

GDD R	x - 32 channels	6	*	# 7. ◀	(m 1	0:59
Ln:	100 N-	S		TOOLS	STA	ЪШ
Tx: Coun	50 Rx: t: 871	: 75 _00	4	Config	0111	mV
MEM: CH	3 B: 83.5 Rho	% Stack: Vp	() ()	Specia	l →	
01 02 03	15.72 62.89	100.066		Show Raw D	ata 🕨	
03 04 05	251.60 393.35	400.423		Memo	r y →	
	_		l	About		эк)



3. Select the display channel.



8.3.8 Show Windows

Steps 14 to 16 of *Section 5* of this Manual must be done before using this feature.

The Show Windows option is used to display the chargeability windows of each channel.

1. Select Tools | Show | Show Windows (1-8 ch) Hotkeys '1' (1-8 ch)





8.3.9 Show Sp

Steps 14 to 16 of *Section 5* of this Manual must be done before using this feature.

The SHOW SP option is used to display the self-potential (SP) in mV of each channel.

1. Select Tools | Show | Show SP Hotkey 'P'





8.4 Raw Data Option

8.4.1 Check GPS

To use the GPS function, your receiver must be equipped with an internal GPS module. This GPS module is designed for use with applications that require accurate time (getting GPS timestamps in output files, synchronizing a receiver with a transmitter using GPS signal, recording raw data without synchronization for post processing, etc.).

The *Check GPS* option is used to verify if a satellite is being tracked by the GPS module.

Connect an external antenna (SMA) to the GPS connector of the GRx8mini receiver for more efficiency.



After turning on the GRx8mini receiver, it can take up to 2 or 3 minutes for the GPS receiver to track and synchronize with a satellite.

Important: the internal GPS module of the receiver can take up to 15 minutes to get the UTC time. Wait for this time before taking your first reading if your receiver needs to get the same GPS time than another device.

🛚 🖨 🏹 € 🎟 11:13 GDD Rx - 32 channels 🏹 📢 🎟 11:13 GDD Rx - 32 channels * 100 N-S Ln: 100 N-S Ln: TOOLS START OOLS 50 Rx: 75 Tx: 50 Rx: 75 Tx: Config Config 128000 128400 Count: mV Count: MEM: 5 B: 82.2% Stack: MEM: 5 B: 81.8% Stack: Special Special • Rho Vp CH Rho Vp Show Show 15.72 100.076 15.72 62.90 200.217 62.90 Raw Data Check G 141.25 141.25 299.750 400.424 04 251.60 04 251.60 Start recording Memory 05 393.39 393.39 500.868 About About HA

Select Tools | Raw Data | Check GPS

START

.

Data

bry

nV

If the GPS module is not synchronized with a satellite, the following window will appear.



Once the GPS module is synchronized with a satellite, the following window should appear.

GDD Rx - 8 channels Image: Status: Detected GPS Status: Detected Satellite: 8/8 GPS Time (UTC): 12/09/2017 15:34:34										
Satellite Signal Strength										
⁴⁸ ⁴⁶ ⁴⁰ ⁴³ ⁴³ ⁴⁷ ⁵⁰ ⁴³										
19 03 22 12 02 06 17 28										
С										

This window allows you to verify if the GPS works properly. You can close this window and continue to work normally with your GRx8*mini* receiver. You can occasionally verify if the GPS is still tracking the satellite.

The GPS timestamps will appear in the .gps file (see Section 8.5.5 to create a .gps file). The data in this file is the same than that of the .gdd file except for the GPS timestamp (the time in the .gdd file comes from the PDA).

Exam	ble	of	.aps	file
LNGIII	JIC.	<u> </u>	·gps	inc.

				,											
	Versio	on PPC	: 0.4	.2.39 Vers	ion Rx	: 8.1.	0.0 RX	SN: 1266							
	Projec	t: Pro	oject												
	Window	vs: 20	Sett	ing: Arith	n. Delay	(ms)	: 240	Timing (ms):	80, 80,	80,	80, 80, 80,	80, 80,	80, 80, 80	, 80, 80,	80, 80, 8
Λ	Mem	Date	e	Hour	ANT CONTRACTOR	GPS	SyncBy	Array	LineTx		LineRx Dir	n	Tx1	Tx2	Rx1
[]	1	27/08/	/2015	15:00:07.	049443	YES	SIGNAL	DP-DP	100.00		100.00 N-5	1.0	25.00	50.00	75.00
	1	27/08/	/2015	15:00:07.	049443	YES	SIGNAL	DP-DP	100.00		100.00 N-5	2.0	25.00	50.00	100.00
	1	27/08/	2015	15:00:07.	049443	YES	SIGNAL	DP-DP	100.00		100.00 N-5	3.0	25.00	50.00	125.00
	1	27/08/	2015	15:00:07.	049443	YES	SIGNAL	DP-DP	100.00		100.00 N-5	4.0	25.00	50.00	150.00
	1	27/08/	2015	15:00:07.	049443	YES	SIGNAL	DP-DP	100.00		100.00 N-5	5.0	25.00	50.00	175.00
	1	27/08/	2015	15:00:07.	049443	YES	SIGNAL	DP-DP	100.00		100.00 N-5	6.0	25.00	50.00	200.00
	1	27/08/	/2015	15:00:07.	049443	YES	SIGNAL	DP-DP	100.00		100.00 N-5	7.0	25.00	50.00	225.00
	1	27/08	2015	15:00:07.	049443	YES	SIGNAL	DP-DP	100.00		100.00 N-5	8.0	25.00	50.00	250.00
U	2	27/08	/2015	15:03:47.	001726	YES	SIGNAL	DP-DP	100.00		100.00 N-5	1.0	25.00	50.00	75.00

If there is GPS synchronization with a satellite, the column GPS will show YES as shown on the picture above. See *Section 8.1.4* to know more about SyncBy column.

If the GPS synchronization is lost, the synchronization will be kept for 5 hours (holdover). In that case, the Date and Hour will continue to increase following the GPS time but the GPS column will show NO as shown on the picture below.

١	Version PPC: 0.4	.2.39 Vers	ion Rx:	8.1.	0.0 RX	SN: 1266									
F	Project: Project					Statement Annual Statements									
V	windows: 20 Sett	ing: Arith .	. Delay	(115)	: 240	Timing (ms):	80, 80,	80,	80, 80, 80,	80, 8	80, 80	, 80,	80,	80, 80,	80, 80,
	Mem Date	Hour		GPS	SyncBy	Array	LineTx		LineRx Dir	n	T)	(1		Tx2	Rx1
	1 28/08/2015	17:03:35.	592977	NO	SIGNAL	P-P	100.00		100.00 N-5	0.0	999999	99.00		50.00	75.
	1 28/08/2015	17:03:35.	592977	NO	SIGNAL	P-P	100.00		100.00 N-5	0.0	999999	99.00		50.00	100.
	2 28/08/2015	17:04:31.	580638	NO	SIGNAL	DP-DP	100.00		100.00 N-5	1.0	999999	99.00		50.00	75.
	2 28/08/2015	17:04:31.	580638	NO	SIGNAL	DP-DP	100.00		100.00 N-5	2.0	999999	99.00		50.00	100.
	3 28/08/2015	17:05:31.	578131	NO	SIGNAL	DP-DP	100.00		100.00 N-5	1.0	999999	99.00		50.00	75.
Ľ	3 28/08/2015	17:05:31.	578131	NO	STGNAL	DP-DP	100.00		100.00 N-5	2.0	999999	99.00		50.00	100.

If there is no GPS synchronization from the beginning or if the GPS signal is lost for more than 5 hours, the Date and Hour will be replaced by *NO GPS TIME*.

١	/ersion	PPC: 0.4.2.	39 Versi	on Rx: 8.1.	0.0 Rx	SN: 1266												
F	roject	: Project																
V	vindows	: 20 Setting	: Arith.	Delay (ms)	: 240	Timing (ms):	80, 80,	80,	80, 80,	80,	80,	80, 80	, 80,	80,	80, 8	30,	80, 80), (
	Mem	Date	Hour	GPS	SyncBy	Array	LineTx		LineRx	Dir	n	T	x1		Tx2		Rx1	
	1	NO GPS	TIME	NO	SIGNAL	DP-DP	100.00		100.00	N-S	1.0	999999	99.00		50.0	00	75	. 0
	1	NO GPS	TIME	NO	SIGNAL	DP-DP	100.00		100.00	N-S	2.0	999999	99.00		50.0	00	100). 0
	2	NO GPS	TIME	NO	SIGNAL	P-P	100.00		100.00	N-S	0.0	999999	99.00		50.0	00	75	. 0
	2	NO GPS	TIME	NO	SIGNAL	P-P	100.00		100.00	N-S	0.0	999999	99.00		50.0	00	100). 0
	3	NO GPS	TIME	NO	SIGNAL	DP-DP	100.00		100.00	N-S	1.0	999999	99.00		50.0	00	75	.0
L	3	NO GPS	TTME	NO	STGNAL	DP-DP	100.00		100.00	N-5	2.0	999999	99.00		50.0	00	100). 0(

The GPS timestamps will also appear in the fullwave file (see *Section 8.5.5* to create a fullwave file) or in the raw data file (see *Section 8.4.2* to use raw data option).

Example of a fullwave file

	Version PPC: 0.4.2.39 Version F	x: 8.	L.O.O F	X SN: 1266							1
	Project: Project		and the second	and the second							l
	Windows: 20 Setting: Arith. De	ay (m	5): 240) Timing (ms	5): 80, 80), 80, 80, 8	30, 80, 8	0, 80,	80, 8	80, 80, 8	8
	MEM: 1 FULL WAVE: 8 channel(s)	27/08	2015 1	.5:00:07 (Ti	ime GPS) A	ARRAY: DP-DF	LINE TX	: 100.0	00 N-5	5 LINE R	>
1	Time GPS GPS		CH01	CH02	2 0	H03	CH04	CHO)5	CH00	ŧ
	27/08/2015 15:00:07.049443 YES	44)2.110	4417.473	4446.	574 4415	5.306 -	4404.32	20	4367.173	1
	27/08/2015 15:00:07.069458 YES	55	94.123	5619.028	5625.	894 5617	.490 -	5593.64	4	5572.302	7
	27/08/2015 15:00:07.089446 YES	59	17.275	5948.031	L 5945.	424 5948	8.056 -	5916.51	4	5904.229	9
	27/08/2015 15:00:07.109414 YES	59	92.098	6025.043	6020.	204 6026	5.248 -	5991.92	27	5982.474	4
	27/08/2015 15:00:07.129439 YES	60	08.621	6041.841	L 6036.	090 6042	2.971 -	6007.93	34	5999.322	2
	27/08/2015 15:00:07.149438 YES	60	1.757	6044.923	6039.	294 6046	5.429 -	6011.36	50	6002.89	5
	27/08/2015 15:00:07.169437 YES	60	12.301	6045.485	6040.	224 6046	5.776 -	6011.91	1	6004.07	5
	27/08/2015 15:00:07.189437 YES	60	12.851	6045.410	6040.	478 6047	.488 -	6012.05	7	6004.23	ę

As for the *.gps* file, if there is no GPS synchronization or if the GPS signal is lost for more than 5 hours, the *Date* and *Hour* will be replaced by *NO GPS TIME* in the *.fullwave* and *.bdf* files.

Take note that for some reasons, such as weak signal areas, the GPS module will not be able to track and synchronize with a satellite.

During the acquisition process, the GPS status is available by selecting Tools | Raw Data | Check GPS:



8.4.2 Start Recording (raw data)

This option is used to record raw data without any synchronization with a transmitter signal. This can be useful to record the telluric or noise from the ground.

The receiver will record a reading every 20 ms. Thanks to the GPS module, each recorded reading will be accurately time stamped. Your receiver must be equipped with an internal GPS module to use GPS with the raw data function.

Select Tools | Raw Data to begin the process.



1. Make sure that channel 1 or R1 is connected to the ground.

If a pole configuration is selected in the Setup – Config menu, make sure that reference R1 is connected to the ground.

If a dipole configuration is selected in the Setup – Config menu, make sure that channel 1 is connected to the ground.





2. If you want to verify the GPS time, select Check GPS.

GDD Rx - 32 channels 🛛 🔀 🗱 🏹 📢 🎟 11:13	GDD Rx - 32 channels 🛛 🕅 💭 📢 💷 11:13
Ln: 100 N-S TOOLS START	Ln: 100 N-S TOOLS START
Tx: 50 Rx: 75 Count: 128000 Config mV	Tx: 50 Rx: 75 Count: 128400
MEM: 5 B: 82.2% Stack: 5 Special > CH Rho Vp	MEM: 5 B: 81.8% Stack: 5 Special > CH Rho Vp
01 15.72 100.076 02 62.90 200.217 03 141.25 299.750 04 251.60 400.424	01 15.72 100.076 Show 02 62.90 03 141.25 04 251.60 Check GPS Data
04 201.00 400.424 05 393.39 500.868 About K	About
GDD Rx - 32 channels 🛛 🗱 🗱 🌾 🎟 10:54	4 GDD Rx - 32 channels 👔 🚜 🏹 ң숙 🏧 10:54
GPS Time (UTC):	GPS Time (UTC):
No GPS Time	27/08/2015 15:55:16
GPS Not Detected	GPS Detected
(m) (ok)

If you see No GPS Time, either the internal GPS module cannot receive any data from a satellite, or your receiver does not have this option.

3. To begin the data acquisition, select Tools | Raw Data | Start recording.





4. You will be prompted to name your file.

GDD Rx - 8	channels 🗸	* Y_x € (⊒ 9:37	GDD Rx -	8 channels	📰 🏹 📢 💷 9:38
Name:		^	Name:	full	
Folder:	None	==	Folder:	None	2
Type:	Binary Raw Data Files (*.B		Type:	Binary Raw Data Files (*.B	
Location:	SD Card		Location:	SD Card	
	Save Cancel	\sim		Save Cancel	~
			H		

5. The following icon will appear and data will be recorded until you stop the acquisition by selecting Tools | Raw data | Stop recording.

GDD Rx - 3	32 channels	8 🛱 🏹	ζ ◀€ @ 11:16	GDD Rx - 3	2 channels	🛿 🗮 🏹 📢 🎟 11:	:16
Ln:	100 N-S	TOOLS	TART .	Ln:	100 N-S	TOOLS STAD	T.
Tx:	50 Rx: 75	10016	, DIMIT	Tx:	50 Rx: 75		T
Count:	135200	V:	103.8 mV	Count:	135800	Conrig	mV
MEM: 5	BATT	ERY: 81.7	ş	MEM: 5	BATTER	Y: Special →	
	•		\sim			Snow >	\uparrow
					Check	GPS Data	
					-		
			\sim		Stop re	cording bry +	
			\cap		\frown	About	
	C)	ОК				K)

The extension of the file created with your raw data is '.bdf'. This binary format file can be imported and visualized using GDD's IP Post-Processing software.

8.5 Memory Option

8.5.1 Display Reading

The Display Reading option displays a particular reading on the field PC as the operator would see it in the field even if no receiver is connected to the field PC.

Select Memory | Display Reading

GDD Rx - 3	2 channels	8 # 7 € @ 11:16	GDD Rx - 32 channels	🕅 🛟 🏹 📢 🎟 11:16
Ln:	100 N-S	TOOLS START	Ln: 100 N-S	TOOLS START
Tx:	50 Rx: 75	Canfia	Tx: 50 Rx: 7	
Count:	136800	mV mV	Count: 137200	
MEM: 5	BATTERY	Special →	MEM: 5	Display Reading
		Show	ŀ	listory
		Raw Data ►	E	ack Mem Data 🕨
		Memory V		lear Mem
		About DK	s s	ave File t

The following window will appear. The number in the *Reading Number* field is always the Memory number of the latest reading taken. Enter the number of the reading you want to see. Click on CONFIRM.



Select the Windows of chargeability. Click on CONFIRM.

GDD Rx - 3	2 channels	*	# 7⁄2 €€	@ 11:17	GDD R	k - 32 channel	s	* ₹	🔆 🎟 11	:17
V 01	02	V 03	• 04	• 05	Ln: Tx:	100 N- 50 Rx	·S : 75	TOOLS	STAF	۲۲
06	• 07	V 08	• 09	V 10	Coun	t: 139	000	V:	-96.6	mV
V 11	↓ 12	✓ 13	∨ 14	✓ 15	MEM: CH	4 B: 81.5 Rho	5% Stack: Vp	12 I: 1 M	000.0 ErrM	
∨ 16	✓ 17	✓ 18	✓ 19	2 0	01 02	15.72 62.90	100.078 200.219	3.926 3.923	0.005	
С	ONFIRM		CANCE	L	03 04 05	141.26 251.60 393.40	299.765 400.433 500.889	3.922 3.925 3.925	0.001 0.001 0.001	
	-		-	ОК	Ð			_	0	ж) Х

Instrumentation GDD Inc.

Use Left and Right arrow buttons to compare your current data with that of your previous acquisitions. Use the Up and Down arrows to see all the channels.

EM: 3 B: 85.7% Stack: 5 I: 1000.0 H Rho Vp M ErrM 1 15.72 100.066 3.929 0.011 2 62.89 200.176 3.926 0.005 3 141.27 299.772 3.928 0.004 4 251.60 400.423 3.925 0.005	D Rx - 32 channels n: 100 N-S x: 50 Rx: 75 punt: 25200	Image: Non-State Image: Non-State	GDD Rx - 32 channel Ln: 100 N- Tx: 50 Rx Count: 139	s 3 ⇔ x s Tools : 75 V:
2 62.89 200.176 3.926 0.005 02 62.90 200.219 3.923 3 141.27 299.772 3.928 0.004 03 141.26 299.765 3.922 4 251.60 400.423 3.925 0.005 04 251.60 400.433 3.925	M: 3 B: 85.7% Stack Rho V	k: 5 I: 1000.0 Vp M ErrM	MEM: 4 B: 81.5 CH Rho 01 15.72	5% Stack: 12 I: 2 Vp M 100.078 3.926
	62.89 200.17 141.27 299.77 251.60 400.42	76 3.926 0.005 72 3.928 0.004 23 3.925 0.005	02 62.90 03 141.26 04 251.60	200.219 3.923 299.765 3.922 400.433 3.925

Keep in mind that there is no indication of which reading is monitored on the field PC display. At this point, it is possible to use the Hotkeys or the Show menu to display graphs or channel values.

8.5.2 History

The History option is used to display all the data accumulated in memory.

GDD Rx - 32 chann	nels 🛛 🔀 🗱 🏹 🕂 🎟	II 11:22 GDD Rx	- 32 channels 🛛 👔	🕈 🏹 📢 🎟 12:13
Ln: 100 M	V-S TOOLS S	TART First	: Prev 1 - 1	Next Last
Tx: 50 F	Ex: 75 Config	Mem	Date / Time	El-Arra
Count: 15	3300	_ ^{mv} Projec	et Test pro	**
MEM: 2 B: 81	Display Reading al	►	Windows: 20	Setting 🕮
CH Rho		- 1	04/05/2016 11:32:	:47 DP-D
01 19.65	History	\rightarrow 1	04/05/2016 11:32:	:47 DP-D:
02 79 61		1	04/05/2016 11:32:	:47 DP-D
03 176 62	Back Mem Data	a) 🔤 🕺 1	04/05/2016 11:32:	:47 DP-D:
04 314 54		- 1	04/05/2016 11:32:	:47 DP-D
05 491.65	Clear Mem ory		04/05/2016 11:32:	:47 DP-D
~	Cava Fila			>
	Save rile	ж) 🔒		ОК

You will have to use the scroll bar to see all the information available. Click Next to go to the next page. The three following slides show all the information displayed by the history.

History				
Version PPC: 0.3.3.4 Version Rx: 0.2.3.1 F Project: Tests GRx8-32 Windows: 20 Setting: Arith. Delay (ms): 24 Mem Date / Time El-array Line 1 20/03/2008 11:11:41 P-P 0.	x SN: 1042 10 Timing (ms): 80, 8 17x LineRx Dir 00 0.00 N-S 999	30, 80, 80, 80, 80, 80, Tx Tx 9999.00 50.00 75	80, 80, 80, 80, 80, 80 Rx Rx Contact .00 999999.00 INFINI	, 80, 80, Rho 6.20
History				
80, 80, 80, 80, 80 Sp SpMin SpMax Vp ErrVp Sym(% -173.8 -330.2 -17.4 0.039 99.999 5) M ErrM In 8 -727.92 99.99 1.0	Time DC Stack M01 2000 50 1 999.99	NO2 NO3 NO 815.34 786.02 606.63	4 MO5 2 139.14
History				
M06 M07 M08 M09 M10 -894.78 -104.95 -437.02 -803.81 -684.56 -95	M11 M12 M13 1.07 -944.17 -999.99	N14 N15 N16 -999.99 -999.99 -999.99	5 M17 M18 M1 -999.99 -999.99 -999.9	l9 M2C 99 -999.95
Instrumentation GDD Inc.	2018-04-06		Pa	age 66

8.5.3 Back Mem

The Back Mem option is used to clear the last readings of the memory one by one.

- GDD Rx 32 channels GDD Rx - 32 channels 🕅 🗮 🏹 📢 🎟 11:16 Ln: Ln: 100 N-S TOOLS START Tx: 50 Rx: 75 Tx: Config 136800 Count: Count: mV MEM: 5 MEM: 2 BATTERY Special . Show . Raw Data > Memory About (H)69
- 1. Select Tools | Memory | Back Mem





🖹 🗮 🏹 📢 🏛 3:33

ial

TOOLS

Display Reading

History

Back Mem

Clear Mem Save File

Config

START

.

•

Data 🕨

mV

100 N-S

50 Rx: 75

2400

8.5.4 Clear Mem

The *Clear Mem* option is used to clear all the readings of the memory.

- GDD Rx 32 channels GDD Rx - 32 channels ∦ 🖨 🏹 € 🎟 11:16 * 印 7 🕂 🗰 3:36 100 N-S Ln: 100 N-S Ln: START START TOOLS TOOLS 50 Rx: 75 50 Rx: 75 Tx: Tx: Config Config 136800 mV 8700 Count: Count: mV MEM: 5 BATTERY MEM: 2 Special ial • **Display Reading**) Show • History) Raw Data Data) **Back Mem** Memory **Clear Mem Save File** About H HH
- 1. Select Tools | Memory | Clear Mem

2. Click Yes to confirm the operation.



3. Enter 9999 in the text box.



4. Click *Confirm* to clear all the readings of the memory.



5. A message will follow to confirm your operation.



8.5.5 Save File

The Save File option is used to save the readings to a file.

1. Select Tools | Memory | Save File



2. Select the output file format available according to your electrode configuration (only one output file format could be available). A GDD Generic file is always created even if you choose another format.



3. Check the *FULLWAVE* check box if you want to create the ascii format fullwave file, and click CONFIRM.

GDD Rx - 32 channels	🕅 🛟 🏹 📢 🕮 4:12
GDD Generic (.gdd) GDD GPS Time (.gp:	5)
Geosoft (.dat) – (Amira (.dat) – ex Prosys (.csv) – ex	except 3D-survey cept 3D-survey kcept 3D-survey
FULLW	AVE
CONFIRM	CANCEL
	ОК

Saving the FULLWAVE file will take significant time. We recommend to copy the .mem file from the PDA to you computer and to create this file using the IP Post-Processing software or the File Export PC utility to speed up the process.

4. Select the file location.

It is recommended to save your files in the SD Card folder to make sure that you will have enough disk space. Do not save the data in the My Documents folder.

	GDD Rx - 32	channels	*	⅀℄⅏	4:13
	Name:				^
	Folder:	None			**
	Туре:	Text Files (*.gps)			
<	Location:	SD Card		>	
		Save	Cancel		

5. Enter the file name and click **Save** (the saving operation can take several minutes).

GDD Rx - 32	channels 🚯 🗱 🏹 帐 🎟 4:14
Name:	Test1
Folder:	None
Туре:	Text Files (*.gps)
Location:	SD Card
	Save

6. One of the following screens appears; click **OK** to close the pop up dialog box.



The *.mem* file, as the *.gdd* file, is automatically created by the system. The *.mem* file has a specific format required to be used with the new GDD IP Post Process software. Contact GDD for more information about this new software.

If using the GDD-RTE01 communication boxes, an *ascii* file (gdd_rte.log) will be created at the same location than your IP data. This gdd_rte.log file contains the output current and power values broadcasted by the GDD IP transmitter (model Tx4).

*** WARNING ***

The Allegro² field PC sometimes does not detect the memory card and records the GDD_RX_MEM data file somewhere else in the field PC. If a part of the memories has been acquired without detecting the SD card and another part with detecting the SD card, the Rx software creates auxiliary files with **_aux** at the end of their name. These auxiliary files contain the part of the data that was not saved directly to the compact flash card. You must transfer all these output files from your Allegro² field PC to your computer to prevent loss of data.


8.6 About Option

The *About* option is used to display the software version number.

1. Select Tools | About

GDD R	x - 32 channels	5	*	# 7 €	(III 1	0:58
Ln:	100 N-	S		TOOLS	STA	RТ
Tx: Coun	50 Rx t: 847	: 75 700	4	Config		mV
MEM: CH	3 B: 83.5 Rho	% Stack: Vp	L()	Special	•	
01	15.72	100.066		Show	•	
02 03	62.89 141.27	200.176 299.772		Raw Da	ta 🕨	
04 05	251.60 393.35	400.423 500.819		Memory	<i>(</i> +	
æ				About		ж

2. The following screen appears.

GDD Rx - 32	channels		a a T _x •	ŧ	@ 1):58
Ln:	100 N-3	5	TOOLS		STAI	R
Tx:	EA Du	76	TOOTO		0 11 11	
Count:	GDD Rx		ok	10	03.5	mV
MEM: 3 B		GDD Rx Soft	ware	00	.0	
CH		Version PPC:	0.4.2.41		ErrM	
01 1		Version RX: I Pv SN · 1277	J.2.5.9	0	.011	
02 63		Battery Type	e: Li-Ion	0	.005	
03 14				0	.004	
04 25:	1.00	100.120	0.020	0	.005	
05 39:	3.35	500.819	3.926	0	.002	
(H)	_		_			ж)
S		\bigcirc				

*See Section 8.2.4 for more information about Battery Type.

9. Transferring data

To establish communication between the Allegro² and a desktop PC, you need to install the appropriate synchronisation software.

Windows 7, 8 or Vista 64 bits users will require Windows Mobile 64 bits while Windows 7, 8 or Vista 32 bits users will need to install Windows Mobile 32 bits. Refer to the "Sync PDA on Windows 10.pdf" document located on the CD-ROM/USB Stick if your experience problems using Windows 10.

All three programs are available on the CD/USB Stick supplied by GDD.

Another way of transferring data between your Allegro² and your PC is to set the PDA device as a USB connection. Refer to the detailed sections below.

9.1 ActiveSync

9.1.1 Installation and settings

1. Once ActiveSync is installed, a gray icon will appear in the bottom right corner of your desktop PC screen.



2. Right click on the *ActiveSync* icon to open the following menu and select *Connection Settings...*

Synchronize	
Stop	
Resolve items	- ·
Connection Settings	
Explore	

3. Check Allow USB connection with this desktop computer.

onnection Settings	
Click Get Connected to connect your n	nobile device to this
Status: Waiting for device to connect	Get Connected
Allow serial cable or infrared connection to t	nis COM port:
COM1	v
Status: COM port is not available	
Allow USB connection with this desktop con Statum, USB is switchla.	nputer.
Status: USB is available	
 Allow network (Ethernet) and Remote Access server connection with this desktop compute 	es Service (RAS) er.
Status: Network is available	
Status icon	
🔽 Show status icon in Taskbar.	

9.1.2 Establishing connection with a desktop PC

1. Turn the PDA ON



2. Connect the micro USB communication cable between the Allegro² and the desktop PC.



3. The desktop *ActiveSync* icon is now green.



4. A small *PCLink* icon appears on the Allegro² title bar.



- 9.1.3 Transferring file(s) from the Allegro² to a desktop PC
- 1. Double click on the *My Computer* icon on your desktop PC.



2. Double click on the *Mobile Device* icon.



3. Double click on the SD Card folder (if that is where you saved your files).



4. Use the drag and drop; or cut, copy and paste functions to move file(s) from your Allegro² to your desktop PC.

The GDD Generic data file is named: File_Name.gdd The GDD binary file is named: File_Name.mem If created, the fullwave file is named: File_Name.fullwave

 \ast See Section 8.5.5 -SAVE FILE for more information about alternate output formats and creating a FULLWAVE file.

•	Nom	Туре	Taille	Modifié le	Créé le	
	\rm GDD	Dossier de fichiers		2016-05-03 20:23	2016-05-03 20:23	
=	📄 fullw.RDF	Fichier RDF	485 Ko	2016-05-04 15:16	2016-05-04 15:16	
	Test1.fullwave	Fichier FULLWAVE	1 163 Ko	2016-05-06 20:14	2016-05-04 15:38	
	Test1.gdd	Fichier GDD	13 Ko	2016-05-06 20:14	2016-05-04 15:38	
	Test1.gps	Fichier GPS	13 Ko	2016-05-06 20:14	2016-05-04 15:38	
	Test1.mem	Fichier MEM	303 Ko	2016-05-06 20:14	2016-05-04 15:38	
-						

5. Open the saved files with Notepad or Excel.

9.2 Windows Mobile Device Center

9.2.1 Installation and settings

1. Once Windows Mobile Device Center 32 or 64 bits is installed, click the Windows Start Menu icon and then click *All Programs* to display all installed programs. Click *Windows mobile Device Center* to launch the application.



2. Under the *Mobile Device Settings* option, click on *Connection settings*.



3. Check Allow USB connections.

Seconnection Settings	? <mark>×</mark>
Waiting for device to connect	
Allow USB connections	
Allow connections to one of the following:	
Bluetooth	
This computer is connected to:	
Automatic 🔹	
Allow automatic device authentication	
Allow data connections on device when connected to PC	
ОК	Cancel

9.2.2 Establishing connection with a desktop PC

1. Connect the micro USB cable between the Allegro² and the desktop PC.



2. Turn the PDA ON.



3. The Windows Mobile Device Center application will connect with the PDA.



4. A small *PCLink* icon appears on the Allegro² title bar.



- 9.2.3 Transferring file(s) from the Allegro² to a desktop PC
- 1. From the Windows Mobile Device Center, click *Connect without setting up your device*.



2. Click Browse the content of your device under the File Management section.



3. Double click on the SD Card (if that is where you saved your files).



4. Use the drag and drop; or cut, copy and paste functions to move file(s) from your Allegro² to your desktop PC.

The GDD Generic data file is named: File_Name.gdd The GDD binary file is named: File_Name.mem If created, the fullwave file is named: File_Name.fullwave

* See Section 8.5.5 (SAVE FILE) for more information about alternate output formats and creation of the FULLWAVE file.

lom	Туре	Taille	Modifié le	Créé le
📙 GDD	Dossier de fichiers		2016-05-03 20:23	2016-05-03 20:23
🛋 fullw.RDF	Fichier RDF	485 Ko	2016-05-04 15:16	2016-05-04 15:16
Test1.fullwave	Fichier FULLWAVE	1 163 Ko	2016-05-06 20:14	2016-05-04 15:38
Test1.gdd	Fichier GDD	13 Ko	2016-05-06 20:14	2016-05-04 15:38
Test1.gps	Fichier GPS	13 Ko	2016-05-06 20:14	2016-05-04 15:38
Test1.mem	Fichier MEM	303 Ko	2016-05-06 20:14	2016-05-04 15:38

5. Open the saved files with Notepad or Excel.

9.3 USB connection

1. In the main screen of the Allegro², go in the Settings menu.



2. Go in the "connections" folder and then select the "USB to PC option".



3. Select "SD Card - Use as external drive (Mass Storage)"



4. The Allegro² can now be accessed from the Windows File Explorer:



10. Bluetooth configuration

1. In the main screen of the Allegro², click on the Bluetooth icon to turn it on.



2. Tap on the Title bar at the top of the screen to display the pop-up icons and click on the Bluetooth icon.



3. Click on *Add new device*. Your GDD IP receiver must be on and in wireless mode.



4. Select your device (the serial number of your receiver), and click Next.

Bluetooth 🛛 🔀 🛱 🏹 📢 🎟 11:55	Bluetooth 🛛 🔛 🗮 🦕 📢 💷 11:59
Select a Bluetooth Device	Select a Bluetooth Device
Select a device to connect with and tap Next.	Select a device to connect with and tap Next.
Rx1277	ℜ Rx1277
Archer2_166620	Archer2_166620
Refresh	Refresh
Cancel III Next	Cancel (Next

5. Enter the passkey 1234, and click Next. The Device Added window appears for a few seconds. Click on Advanced and go to step 8.



6. Or, click on your device (the serial number of your receiver) to modify its settings.



7. Check Serial Port and click Save.

Bluetooth	N 🗱 🏹	(€ @ 12:01
Partnership Settings		
Display Name:	Rx1277	
Select services to use fro	m this device.	
Serial Port		
		Refresh
Cancel	Save	

8. Click on the COM Ports tab and select New Outgoing Port.



9. Select your device (the serial number of your receiver) and click Next.

Bluetooth	🖹 🗮 🏹 📢 🎟 12:01
Add a Device	
Select the device you want to add	
Rx1277	
Cancel (Next

10. Select COM9 and check Secure Connection. Click Finish.



11. Click OK to close the Bluetooth settings.



11. GDD Rx software update

1. Connect the micro USB cable between the Allegro² and the desktop PC.



2. Double click on the *My Computer* icon on your PC's desktop.



3. Double click on the Mobile Device icon. Pictures could be different depending on your computer's operating.



4. Double click on the main directory. (Could be *My Handheld PC* on another operating system).



5. Double click on the Program Files folder.



6. Double click on the GDD folder.



7. Delete the old files. Use the drag and drop, or the copy and paste functions to move the new GDD Rx software files from your computer to your Allegro².

atl80.dll	FireFly Config.exe 2016-05-03 16:12 17,0 Ko	GDD Rx.exe 2016-05-03 16:12 396 Ko
MFC80U.dll	msvcr80.dll	

12. Troubleshooting

This section suggests problems that could occur while using the GRx8*mini* and their solutions.

For any issues regarding the Allegro² field PC other than those related to the GDD program, please refer to the Allegro² user manual available on the CD-ROM/USB Stick provided by GDD.

➢ <u>Problem</u>:

The receiver is not ON when the On-Off switch is at 'On'.

✓ <u>Answer</u>:

- In Cable mode, the receiver will only be ON when the GDD Rx program is active on the pocket PC.
- If the receiver's battery power rating is below the critical threshold, the receiver will not turn on. (See Section 4 – Power for more details.)
- Open the fuse holder with a flat screwdriver (or another flat tool) and remove the fuse.
 Verify if the fuse is burnt or if the thin wire inside the fuse is broken.



If you have an ohmmeter, you can also probe both ends of the fuse. If there is an electrical continuity (0 ohm), the fuse works properly. If the fuse is damaged, replace it by a fast action 5x20mm 6A 125V fuse.

➢ <u>Problem</u>:

The LED *CHARGE* on the receiver panel does not light when the power supply is connected to the receiver.

✓ <u>Answer</u>:

- Verify that the 120V or 240V (black) power cable is plugged into the power supply and that it is connected to a power source.
- Verify that the connector is properly inserted into the power supply connector.

- Verify that the power supply is working properly: unplug the power supply from the receiver and from its power source. Plug it into the power source again and the green light should turn on.
- ➢ <u>Problem</u>:

The message: 'GDD Rx - No Receiver' is shown in the program bar of the GDD Rx program. It stays on the bar even if the Allegro² is connected to the receiver.

GDD Rx - ! Ln:	<mark>II NO RECEIVE</mark> 100 N-S	R 111 👔	₩ \ 4	(12:08
Tx:	50 Rx: 7	5	TOOLS	START
Count:	0	V	:	0 mV
MEM: 1]	BATTERY:	99.9%	
				\sim
				\sim
				OK

✓ <u>Answer:</u>

- Check that the receiver's On-Off switch is at On and that the LED is on.
- Verify that the receiver's batteries are powered enough and not within the critical threshold limit.
- In Cable mode, verify that the cable is plugged correctly into the receiver and into the Allegro² field PC. If you are using the D-SUB 9 to D-SUB 9 cable, try replacing the cable to a D-SUB 9 to Amphenol 6 cable (or the opposite if you were using a D-SUB 9 to Amphenol 6 as your primary cable).
- In Cable mode, make sure your cable is connected to the COM1 port of the Allegro² field PC.
- In Bluetooth mode, this can happen if the Bluetooth module of the field PC did not close its virtual communication port properly. Close the GDD Rx program and turn off the receiver. Wait for about 10 seconds and then, turn on the receiver and try to restart the GDD Rx program in Bluetooth mode.
- If the program still not detects the receiver in Bluetooth mode, open the program in RS232 mode and save all your data. When your data is saved, push and hold the ON button of the Allegro to reset it.
- Problem:

In Bluetooth mode, the following message appears.



✓ <u>Answer</u>:

- Make sure that the Cable / Wireless switch is in the Wireless position and that the receiver is turned on.
- Verify that your Allegro²'s Bluetooth is ON. If the Bluetooth is Off, see Section 10.1 to turn it on.



- See Section 10.1 to find out how to verify if a partnership has been established between your receiver and your Allegro².
- Reset your Allegro² by pressing and holding the Power button. The following message appears. Select Reset.



Problem:

A synchronization error message appears while synchronizing with the receiver.



✓ <u>Answer:</u>

 Make sure that the Timing and Duty Cycle of the receiver corresponds to the Time base and Duty Cycle of the transmitter.



 Check if the signal (Vp > 2) of the trigger channel is high enough. Otherwise, try to synchronize with another channel. You should select the channel that receives the higher signal as the trigger channel.

GDD R	x - 32 cl	nannels	× 🛱 🕅	Ƴx �€ @ 10:39
			El. array:	Tx - Rx
🖌 Al	LL 🗌	ALL Pol	e-Pole (1/3	32) 💌
	Ch1	✔ Ch5	✔ Ch9	✔ Ch13
	Ch2	🖌 Ch6	✔ Ch10	C h14
	Ch3	Ch7	✔ Ch11	✔ Ch15
	Ch4	✔ Ch8	🗸 Ch12	🖌 Ch16
>:	>>> Pa	age 2	Trigger on:	: 1
Setup	Position	Windows	Synchronization	
)	_		ОК)

• Check if the transmitter works properly. If the transmitted signal is asymmetrical, the receiver may not synchronize.

Problem:

A warning red rectangle appears in the main window during the acquisition process. If you click on the red rectangle, a saturation message appears.

GDD Rx Ln:	- 32 chann 100 N	els I-S) 1636 D	GDD Rx - Ln:	32 channe 100 N-	s >		ا ا ا ا	10:33
Tx: Count	25 R	x: 50 1700 <mark>???</mark>	V: -	-125.1	r mV	Tx: Count:	25 Rx 11	: 50 700	V:	-125.1	mV
MEM: (CH) B: 86. Rho	.3% Stack: Vp	2 I: 10 M	00.0 ErrM		MEM: 0 CH	B: GDD	R× SATURATIO	ok 10 1	000.0 M ErrM	1
01 02 03	19.65 78.61 176.59	17125.095 12250.236 9374.739	7.945 7.946 7.947	0.005 0.001 0.001		01 02 03	19 78 176.59	Channel(s): 1	4947	5 0.005 6 0.001 7 0.001	5 🔨
04 05	314.54 491.66	7500.602 5625.995	7.954 7.949	0.002		04 05	314.54 491.66	7500.602 5625.995	7.95. 7.94	1 0.002 9 0.000	
	-		_	0	ж					(ок

✓ <u>Answer:</u>

If this message appears, it means that the signal on some of the channels is higher than 15 volts. The channels of the receiver are protected against voltage up do 500V but they can read a Vp of up to 15V only. To prevent the voltage saturation, you can try to reduce the transmitted current at the transmitter.

> <u>Problem</u>:

Creating files or transferring files takes too much time.

- ✓ <u>Answer:</u>
- The size of the fullwave file explains the export time on the field PC. We have developed a small File Export PC utility specifically for our clients exporting large fullwave files on a regular basis. We would recommend using this tool to generate the fullwave files instead of doing it on the field PC. It will speed up the export process.

You will find the software and the instructions on the CD-ROM/USB Stick provided by GDD. Or contact GDD technical support for more information.



> <u>Problem</u>:

It is not possible to start Windows Mobile Device Center and transfer the IP data from the Allegro for computer operating under *Windows 10*.

- ✓ <u>Answer</u>:
- Refer to the "Sync PDA on Windows 10.pdf" document located on the CD-ROM/USB Stick provided by GDD.

\triangleright

After carrying out a Reinit, the MEM number indicates 0 even though a certain number of acquisitions have already been made.

GDD Rx	- 32 channe	als	*	Y _* ◀	(m 1):33
Ln:	100 N	-S	тос	J.S.	STO	P
Tx:	25 R	x: 50	100	20	010	-
Count	: 11	L700	V:	-1	L25.1	mV
MEM: CH	0 B: 86. Rho	3% Stack: Vx	2 I:	100 M	0.0 ErrM	
01 02 03 04	19.65 78.61 176.59 314.54	17125.095 12250.236 9374.739 7500.602	7. 7. 7. 7.	945 (946 (947 (954 (0.005 0.001 0.001 0.002	 1
05	491.66	5625.995	7.	949 (0.000 (C	ж)

✓ <u>Answer</u>:

 On rare occasions, the Allegro² does not detect the SD card after reinitialization (or when starting the GDD_Rx software very shortly after turning the PDA ON) and this is why the MEM number is back to 0.

When this happens, you need to exit the GDD_Rx software, wait 15 seconds and start the application again. The MEM should be back to its original count.

Newer versions of the GDD_Rx software (4.2.43) include an automatic detection and the MEM count should be back to its expected value within a minute or so. A ! sign will appear in front of the MEM number if the SD card is not detected.

GDD Rx	- !!! NO REC	EIVER !!!	[ጋ 🛱 🕹	x 4 € @ !	9:49
Ln:	0 N	-S		TOOLS	STAI	RТ
Tx:	0 R2	<: O	l	10010	U I I I	
Count	:	0		V:	0	mV
!MEM: CH	1 B: 99 Rho	.9% St	ack: Vp	10 I: ErrVp	0.0 Sym(%)	
01 02 03 04 05	29.52 88.54 177.15 295.33 442.97	234. -234. 234. -235. 235.	882 847 953 019 001	0.015 0.013 0.017 0.014 0.014	100 100 100 100 100	
	_	(1		_	(0	ж)

13. Specifications

13.1 General specifications

Instrumentation GDD Inc.	2018-04-06
Input impedance:	5 G Ω at 0.125 Hz and 130 M Ω at 7 Hz
Time base:	0.5, 1, 2, 4, 8 and 16 seconds
Signal waveform:	Time domain (ON+, OFF, ON-, OFF)
Ground Resistance:	Up to 1.5 MΩ
Computation:	Apparent resistivity, chargeability, standard deviation, and % of symmetrical Vp
Noise reduction:	Automatic stacking number
Synchronization:	Automatic re-synchronization Process on primary voltage Signal GPS time synchronization
Twenty chargeability windows:	Arithmetic, logarithmic, semi-logarithmic, Cole-Cole and user defined
Survey capabilities:	Resistivity and Time domain IP
13.2 Technical specifications	
Humidity range:	Waterproof
Temperature range:	-40 to +60°C (-49 to +140°F)
Power supply:	14.4V 6Ah rechargeable Lithium-Ion internal battery
Communication options:	RS-232 (serial) and Bluetooth to communicate with a field PC USB for data download
Enclosure:	Heavy-duty Pelican case, environmentally sealed
Weight (receiver only):	3.1 kg (7 lbs)
Size (receiver only):	27 x 24.6 x 12.4 cm (10.62 x 9.68 x 4.87 in)
Number of channels:	8

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Primary voltage range:	±10 uV to ±15 V for any channel
Input Common-Mode Voltage Range with respect to reference in dipole-dipole configuration:	±15 V
Protection:	500V (on each channel)
Input:	True differential for common-mode rejection in dipole configuration
(Vp) Voltage measurement:	Resolution 1µV Accuracy ≤ 0.15%
(M) Chargeability measurement:	Resolution 1µV/V Accuracy ≤ 0.4%
SP offset adjustment:	Automatic compensation through linear drift correction per steps of 150μ, with resolution of 1μV
Filter:	Eight-pole Bessel low-pass 15 Hz, notch filter 50 Hz and 60 Hz
Reads up to 8 ch. simultaneously in poles	or dipoles
PDA menu-driven software / simple to us	Se la
8 channels configuration allows 3D Surve 2 lines X 4 channels 1 line X 8 channels	у:

Real-time data and automatic data stacking

Screen-graphics: decay curves, apparent resistivity, chargeability, Vp, pseudosection

20 programmable chargeability windows

One 24 bit A/D converter per channel

Internal test generator (Self-test mode)

For more details about the Allegro² rugged field PC specifications, refer to the Allegro² manual.

14. Technical help

If you encounter a problem not described in this manual, do not hesitate to contact **Instrumentation GDD Inc.** for assistance at:

Tel.:	+1 (418) 877-4249
Fax:	+ 1 (418) 877-4054
Toll free line:	1-877-977-4249 (in Canada)
E-mail:	support-technique@gdd.ca

Emergency out of business hours:

Pierre Gaucher:	Home phone: Cell phone:	+ 1 (418) 657-5870 +1 (418) 261-5552
Régis Desbiens:	Home phone: Cell phone:	+1 (418) 658-8539 +1 (418) 570-3408

Any GDD IP Receiver that breaks down while under warranty or service will be replaced free of charge upon request for the duration of repairs, except for shipping fees. This service is subject to instrument availability but we have been able to honour this commitment up to now.

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Annex 1 – Geometrical parameters

This annex explains how to configure your receiver according to the selection of the electrode array.

Electrode array	Geometrical parameters to				Maximum number of dipoles
	enter				
Dipole-Dipole	Tx1	Tx2	Rx	Sep	32
Pole-Dipole		Tx2	Rx	Sep	32
Pole-Pole		Tx2	Rx	Sep	32
Gradient	Tx1	Tx2	Rx	Sep	32
Wenner	Tx1	Tx2			1
Schlumberger	Tx1	Tx2		Sep	1

Tx1: Transmitter first electrode position

- Tx2: Transmitter second electrode position
- Rx: Receiver first electrode position
- Sep: Separation between two receiver electrodes

Note: For all electrode arrays, the Tx line and the RX line(s) can be different.













Pole-Dipole (2/16)





The electrode C1 has to be set far from the other electrodes, usually 5 times the maximum distance between C2 and Pref.



The electrodes C1 and Pref have to be set far from C2 and P1, usually 10 times the maximum distance between C2 and P1.









The electrodes C1 and C2 are fixed. The electrode P is moved parallel to C inside a zone located in the central part of C1, C2.



The electrodes C1, Pref, P1 and C2 are equidistant.



The electrodes Pref and P1 are located at the middle point of electrodes C1 and C2.

Annex 2 – 3D Survey

1. Receiver Dipole (1/32)



Electrode number	Electrode position on the	Electrode color on the	Electrode line number
(software parameter)	receiver	receiver	(software parameter)
PR1	1 st row – 1 st hole	Black	Line Rx
P1	1 st row – 2 nd hole	Brown	Line Rx
P2	1 st row – 3 rd hole	Brown	Line Rx
P3	1^{st} row – 4^{th} hole	Brown	Line Rx
P4	1 st row – 5 th hole	Brown	Line Rx
P5	1 st row – 6 th hole	Brown	Line Rx
P6	1 st row – 7 th hole	Brown	Line Rx
P7	1 st row – 8 th hole	Brown	Line Rx
P8	1 st row – 9 th hole	Brown	Line Rx
Р9	2 nd row – 2 nd hole	Red	Line Rx
P10	2 nd row – 3 rd hole	Red	Line Rx
P11	2 nd row – 4 th hole	Red	Line Rx
P12	2 nd row – 5 th hole	Red	Line Rx
P13	2 nd row – 6 th hole	Red	Line Rx
P14	2 nd row – 7 th hole	Red	Line Rx
P15	2^{nd} row – 8^{th} hole	Red	Line Rx
P16	2 nd row – 9 th hole	Red	Line Rx
P17	3 rd row – 2 nd hole	Orange	Line Rx
P18	3 rd row – 3 rd hole	Orange	Line Rx
P19	3^{rd} row – 4^{th} hole	Orange	Line Rx
P20	3 rd row – 5 th hole	Orange	Line Rx
P21	3 rd row – 6 th hole	Orange	Line Rx
P22	3 rd row – 7 th hole	Orange	Line Rx
P23	3 rd row – 8 th hole	Orange	Line Rx
P24	3 rd row – 9 th hole	Orange	Line Rx
P25	4 th row – 3 rd hole	Yellow	Line Rx
P26	4^{th} row – 4^{th} hole	Yellow	Line Rx
P27	4^{th} row – 5^{th} hole	Yellow	Line Rx
P28	4^{th} row – 6^{th} hole	Yellow	Line Rx
P29	4 th row – 7 th hole	Yellow	Line Rx
P30	4 th row – 8 th hole	Yellow	Line Rx
P31	4^{th} row – 9^{th} hole	Yellow	Line Rx
P32	4^{th} row – 10^{th} hole	Yellow	Line Rx

Dipole number	Dipole description
D1	P1-PR1
D2	P2-P1
D3	P3-P2
D4	P4-P3
D5	P5-P4
D6	P6-P5
D7	P7-P6
D8	P8-P7
D9	P9-P8
D10	P10-P9
D11	P11-P10
D12	P12-P11
D13	P13-P12
D14	P14-P13
D15	P15-P14
D16	P16-P15
D17	P17-P16
D18	P18-P17
D19	P19-P18
D20	P20-P19
D21	P21-P20
D22	P22-P21
D23	P23-P22
D24	P24-P23
D25	P25-P24
D26	P26-P25
D27	P27-P26
D28	P28-P27
D29	P29-P28
D30	P30-P29
D31	P31-P30
D32	P32-P31

Position

LTx Line Tx





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lrx Line Rx	10 P10	14 P14
Tx1 C1	11 P11	15 P15
Tx2 C2	12 P12	16 P16
Ref PR1	>>>>>	> Page 3
TX NEXT Rx STN	PREV. NEXT STN LINE	PREV. LINE OK
	Z., 🔊 💽 🚷 100	PC 😌 6:26 AM [
GDD softwar	e – Position parame	eters – Page 4

GDD software – Position parameters – Page 2

9 P9

13 P13

GDD soltwar	e – Position parame	elers – Page 4		
Position				
ltx Line Tx	25 P25	29 P29		
LRX Line RX	26 P26	30 P30		
Tx1 C1	27 P27	31 P31		
Tx2 C2	28 P28	32 P32		
Ref PR1	>>>>>	> Page 1		
Tx NEXT Rx STN	PREV. NEXT STN LINE	PREV. LINE OK		
🂦 Start	t, 🗯 🔊 🚯 100	PC 🕾 6:26 AM [

Pole-L	Dipole (1/3	<u>32)</u>					
	◄						
Line Tx	<u></u>	C2					
Line Rx			PR1	P1	P2	P3	 P32

Dipole-Dipole (1/32)

Line Tx	C1	C2					
			PR1	P1	P2	Р3	P32
Line Rx							

<u>Gradient (1/32)</u>

Line	C1						C2
Tx _							
		PR1	P1	P2	P3	P32	
Line					<u> </u>		
- Rx		<u>.</u>					

*The transmitter and the receiver can be on the same line.
2. Receiver Dipole (2/16)



Electrode number	Electrode position on the	Electrode color on the	Electrode line number
(software parameter)	receiver	receiver	(software parameter)
PR1	1 st row – 1 st hole	Black	Line Rx1
P1	1 st row – 2 nd hole	Brown	Line Rx1
P2	1 st row – 3 rd hole	Brown	Line Rx1
P3	1 st row – 4 th hole	Brown	Line Rx1
P4	1 st row – 5 th hole	Brown	Line Rx1
P5	1 st row – 6 th hole	Brown	Line Rx1
P6	1 st row – 7 th hole	Brown	Line Rx1
P7	1 st row – 8 th hole	Brown	Line Rx1
P8	1 st row – 9 th hole	Brown	Line Rx1
P9	2 nd row – 2 nd hole	Red	Line Rx1
P10	2 nd row – 3 rd hole	Red	Line Rx1
P11	2 nd row – 4 th hole	Red	Line Rx1
P12	2 nd row – 5 th hole	Red	Line Rx1
P13	2 nd row – 6 th hole	Red	Line Rx1
P14	2 nd row – 7 th hole	Red	Line Rx1
P15	2 nd row – 8 th hole	Red	Line Rx1
P16	2 nd row – 9 th hole	Red	Line Rx1
DP2	2^{rd} row - 1 st hole	Grov	Lino By2
FN3	3^{rd} row -3^{rd} hole	Orango	
P17	3^{rd} row -2^{rd} hole	Orange	
P10	3^{rd} row -3^{th} hole	Orange	
P20	3^{rd} row 5^{th} hole	Orange	
P20	3^{rd} row 6^{th} hole	Orange	
P21	3^{rd} row -7^{th} hole	Orange	
P22	3^{rd} row -8^{th} hole	Orange	
P24	3^{rd} row -8^{th} hole	Orange	
P24	4 th row 2 rd hole	Vallow	
P26	$4^{\text{th}} \text{row} - 4^{\text{th}} \text{hole}$	Yellow	
P20	$4^{\text{th}} \text{ row} = 5^{\text{th}} \text{ hole}$	Vellow	
P28	4^{th} row -6^{th} hole	Yellow	Line Ry2
P29	$4^{\text{th}} \text{row} - 7^{\text{th}} \text{hole}$	Yellow	Line By2
P30	$4^{\text{th}} \text{row} - 8^{\text{th}} \text{hole}$	Yellow	Line Ry2
P31	$4^{\text{th}} \text{row} - 9^{\text{th}} \text{hole}$	Yellow	Line By2
P32	$4^{\text{th}} \text{ row} - 10^{\text{th}} \text{ hole}$	Yellow	Line Rx2

Dipole number	Dipole description
D1	P1-PR1
D2	P2-P1
D3	P3-P2
D4	P4-P3
D5	P5-P4
D6	P6-P5
D7	P7-P6
D8	P8-P7
D9	P9-P8
D10	P10-P9
D11	P11-P10
D12	P12-P11
D13	P13-P12
D14	P14-P13
D15	P15-P14
D16	P16-P15
D17	D17 DD2
D17	P17-PN3
D18	P18-P1/
D19	P 19-P 18
D20	P20-P13
D21	P21-P20
D22	P22-P21
D23	P23-P22
D24	P24-P23
D25	P25-P24
D26	P26-P25
D2/	Y27-Y26
D28	P28-P2/
D29	P29-P28
D30	P30-P29
D31	P31-P30
D32	P32-P31

Position



20 P20

PREV.

STN

24 P24

>>>> Page 4

NEXT

LINE

🗞 👮 🂽 🚯 100 PC 😌 6:27 AM

PREV.

LINE

OK

C

LTx Line Tx	9 P 9	13 P13
LR1 Line Rx1	10 P10	14 P14
Tx1 C1	11 P11	15 P15
Tx2 C2	12 P12	16 P16
Rf1 PR1		> Page 3
TX NEXT Rx STN	PREV. NEXT STN LINE	PREV. LINE OK
🍂 Start	🔁 a 🍠 💽 😵 100	PC 🗢 6:27 AM [
GDD softwar	e – Position param	eters – Page 4
Position		
Position LTx Line Tx	25 P25	29 P29
Position LTx Line Tx LR2 Line Rx2	25 P25 26 P26	29 P29 30 P30
Position LTx Line Tx LR2 Line Rx2 Tx1 C1	25 P25 26 P26 27 P27	29 P29 30 P30 31 P31
Position LTX Line TX LR2 Line RX2 Tx1 C1 Tx2 C2	 25 P25 26 P26 27 P27 28 P28 	29 P29 30 P30 31 P31 32 P32
Position LTx Line Tx LR2 Line Rx2 Tx1 C1 Tx2 C2 Rf3 PR3	25 P25 26 P26 27 P27 28 P28	29 P29 30 P30 31 P31 32 P32 > Page 1
Position LTx Line Tx LR2 Line Rx2 Tx1 C1 Tx2 C2 Rf3 PR3 V Tx NEXT V Rx STN	25 P25 26 P26 27 P27 28 P28 [>>> PREV. NEXT STN LINE	29 P29 30 P30 31 P31 32 P32 > Page 1 PREV. LINE OK

GDD software – Position parameters – Page 2

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NEXT

STN

Tx2 C2

Rf3 PR3

🔽 Tx

🔽 Rx

💦 Start

Pole-L	Dipole (2/1	. <u>6)</u>					
	↓ INFINITY						
Line Tx	<u>C1</u>	C2					
Line			PR1	P1	P2	P3	P16
Rx1 Line			PR3	P17	P18	P19	P32
Rx2							

Dipole-Dipole (2/16)

 C2					
	PR1	P1	P2	P3	Р
	PR3	P17	P18	P19	Р
					—
	•	•		· · ·	

<u>Gradient (2/16)</u>

C1					
	PR1	P1	P2	Р3	P16
				\top	
	PR3	P17	P18	P19	P32
			<u> </u>		
		-	-		

*The transmitter and the receiver can be on the same line.

3. Receiver Dipole (4/8)



Electrode number (software	Electrode position on the	Electrode color on the	Electrode line number
parameter)	receiver	receiver	(software parameter)
PR1	1 st row – 1 st hole	Black	Line Rx1
P1	1 st row – 2 nd hole	Brown	Line Rx1
P2	1 st row – 3 rd hole	Brown	Line Rx1
P3	1 st row – 4 th hole	Brown	Line Rx1
P4	1 st row – 5 th hole	Brown	Line Rx1
P5	1 st row – 6 th hole	Brown	Line Rx1
P6	1 st row – 7 th hole	Brown	Line Rx1
P7	1 st row – 8 th hole	Brown	Line Rx1
P8	1 st row – 9 th hole	Brown	Line Rx1
PR2	2 nd row – 1 st hole	Grey	Line Rx2
Р9	2 nd row – 2 nd hole	Red	Line Rx2
P10	2 nd row – 3 rd hole	Red	Line Rx2
P11	2 nd row – 4 th hole	Red	Line Rx2
P12	2 nd row – 5 th hole	Red	Line Rx2
P13	2 nd row – 6 th hole	Red	Line Rx2
P14	2 nd row – 7 th hole	Red	Line Rx2
P15	2 nd row – 8 th hole	Red	Line Rx2
P16	2 nd row – 9 th hole	Red	Line Rx2
PR3	3^{rd} row – 1^{st} hole	Grev	Line Bx3
P17	3^{rd} row – 2^{nd} hole	Orange	Line Rx3
P18	3 rd row – 3 rd hole	Orange	Line Rx3
P19	3^{rd} row – 4^{th} hole	Orange	Line Rx3
P20	3^{rd} row – 5^{th} hole	Orange	Line Rx3
P21	3^{rd} row – 6^{th} hole	Orange	Line Rx3
P22	3^{rd} row – 7^{th} hole	Orange	Line Rx3
P23	3^{rd} row – 8^{th} hole	Orange	Line Rx3
P24	3 rd row – 9 th hole	Orange	Line Rx3
PR4	4^{th} row – 2^{nd} hole	Grey	Line Rx4
P25	4 th row – 3 rd hole	Yellow	Line Rx4
P26	4 th row – 4 th hole	Yellow	Line Rx4
P27	4 th row – 5 th hole	Yellow	Line Rx4
P28	4 th row – 6 th hole	Yellow	Line Rx4
P29	4 th row – 7 th hole	Yellow	Line Rx4
P30	4 th row – 8 th hole	Yellow	Line Rx4
P31	4 th row – 9 th hole	Yellow	Line Rx4
P32	4 th row – 10 th hole	Yellow	Line Rx4

Dipole number	Dipole description
D1	P1-PR1
D2	P2-P1
D3	P3-P2
D4	P4-P3
D5	P5-P4
D6	P6-P5
D7	P7-P6
D8	P8-P7
D9	P9-PR2
D10	P10-P9
D11	P11-P10
D12	P12-P11
D13	P13-P12
D14	P14-P13
D15	P15-P14
D16	P16-P15
D17	D17 DD2
D18	P17-FK5
D19	P19-P18
D20	P20-P19
D21	P21-P20
D22	P22-P21
D23	P23-P22
D24	P24-P23
D25	P25-PR4
D26	P26-P25
D27	P27-P26
D28	P28-P27
D29	P29-P28
D30	P30-P29
D31	P31-P30
D32	P32-P31

GDD software – Position parameters – Page 1

Position		
ltx Line Tx	1 P1	5 P5
LR1 Line Rx1	2 P2	6 P6
Tx1 C1	3 P3	7 P7
Tx2 C2	4 P4	8 P8
Rf1 PR1	>>>>	> Page 2
▼ T× NEXT ▼ Rx STN	PREV. NEXT STN LINE	PREV. LINE OK
🂦 Start	to 😵 📓 👘	PC 🕾 6:27 AM [

GDD softwar	e – Position parame	eters – Page 3
Position		
ltx Line Tx	17 P17	21 P21
LR3 Line Rx3	18 P18	22 P22
Tx1 C1	19 P1 9	23 P23
Tx2 C2	20 P20	24 P24
Rf3 PR3	SSS	> Page 4
TX NEXT Rx STN	PREV. NEXT STN LINE	PREV. LINE OK
🂦 Start	to 😵 📓 😓	PC 😌 6:28 AM 🛛 👔

GDD software – Position parameters – Page 2

Position		
ltx Line Tx	9 P 9	13 P13
LR2 Line Rx2	10 P10	14 P14
Tx1 C1	11 P11	15 P15
Tx2 C2	12 P12	16 P16
Rf2 PR2	>>>>>	> Page 3
▼ Tx NEXT ▼ Rx STN	PREV. NEXT STN LINE	PREV. LINE OK
🂦 Start	to 😵 📓 🖏	PC 🗢 6:28 AM 🛛 🞯

GDD software – Position parameters – Page 4				
Position				
ltx Line Tx	25 P25	29 P29		
LR4 Line Rx4	26 P26	30 P30		
Tx1 C1	27 P27	31 P31		
Tx2 C2	28 P28	32 P32		
Rf4 PR4	[> Page 1		
TX NEXT Rx STN	PREV. NEXT STN LINE	PREV. LINE OK		
	7, 🗳 💽 🚷 100	PC 😌 6:28 AM 🛛 😰		

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Pole-Dipole (4/8)

←	
INFINITY	

Line	C1	C2

PR1	P1	P2	P3	
			<u> </u>	
PR2	P9	P10	P11	
			<u> </u>	
PR3	P17	P18	P19	
			<u> </u>	
PR4	P25	P26	P27	

Dipole-Dipole (4/8)

Line Ty	C1	C2					
		ľ	PR1	P1	P2	P3	P8
Line						<u> </u>	<u></u>
Rx1							
			PR2	P9	P10	P11	P16
Line							
Rx2							
			PR3	P17	P18	P19	P24
Line							
Rx3							
			PR4	P25	P26	P27	P32
Line						<u> </u>	<u> </u>
Rx4							

<u>Gradient (4/8)</u>

Line Tx						C2
Line Rx1	 PR1	P1	P2	P3	P8	
Line Rx2	 PR2	P9 	P10	P11	P16	
Line Rx3	 PR3	P17	P18	P19	<u>P24</u>	
Line Rx4	 PR4	P25	P26	P27	P32	

*The transmitter and the receiver can be on the same line.

4. Receiver Dipole (2/4) – For GRx8*mini* only



Electrode number (software parameter)	Electrode position on the receiver	Electrode color on the receiver	Electrode line number (software parameter)
PR1	1 st row – 1 st hole	Black	Line Rx1
P1	1 st row – 2 nd hole	Brown	Line Rx1
P2	1 st row – 3 rd hole	Brown	Line Rx1
P3	1 st row – 4 th hole	Brown	Line Rx1
P4	1 st row – 5 th hole	Brown	Line Rx1
PR2	2 nd row – 1 st hole	Grey	Line Rx2
P5	2 nd row – 2 nd hole	Red	Line Rx2
P6	2 nd row – 3 rd hole	Red	Line Rx2
P7	2^{nd} row – 4^{th} hole	Red	Line Rx2
P8	2 nd row – 5 th hole	Red	Line Rx2

Dipole number	Dipole description
D1	P1-PR1
D2	P2-P1
D3	P3-P2
D4	P4-P3
D5	P5-PR2
D6	P6-P5
D7	P7-P6
D8	P8-P7



GDD software – Position parameters – Page 2							
🐴 GDD Rx - 8 cl	hannels	# 4 € 1:41 ok					
LTX Line Tx	5 P5						
LR2 Line Rx2	6 P6]					
Tx1 C1	7 P7]					
Tx2 C2	8 <mark>P8</mark>]					
Rf2 PR2	>>>	-> Page 3					
Tx PREV Rx ST F1	NEXT PREV ST F2 LN F3	NEXT LN F4 OK					
	2						

Pole-Dipole (2/4)



Dipole-Dipole (2/4)

Line Tx	 C2					
Line		PR1	P1	P2	P3	P4
Rx1		I]
Line		PR2	P5	P6	P7	P8
Rx2						

<u>Gradient (2/4)</u>

PR1	P1	P2	Р3	 Р4
				<u>T</u>
PR2	P5	P6	P7	P8
<u> </u>			<u> </u>	
	•			

*The transmitter and the receiver can be on the same line.

Annex 3 – Field survey setup

Survey setup

Line infor	mation						
3300N • • •	■ 4000E	4200E	4400E		4800E	€2000E	
				•••••		• • • • • • • • •	∎•••• 3200N
3100N • • •	• • • • •			• • • • • • • • •		• · · · • • · · ·	• • • • •
				•••••		• • • • • • • • •	•••• 3000N
2900N • • •	• • • • •					• • • • • • • • •	• • • • •
• •						• · · · • • · · ·	∎ • • • • 2800N
2700N * *							
						• · · · • • · · ·	••••2600N
2500N • • •	_						■ · · · · · · · · · · · · · · · · · · ·
	_				_		•••••2400N
23UUN* * '		4100E	4300E	4500E	4700E	49006	5100E

This survey consists of 11 lines, each separated by 100m. Each line is 1.3 km long. The examples below will begin at position 3300N-3900E.





For this pole-pole setup, 8 electrodes of the GDD-Rx will be used.

1) Select Pole-Pole in the setup page.



2) Enter the positions corresponding to your survey parameters.

El. array: Pole-Pole			ок	×			
Setup Position Window	vs						
Project: GDD Test							
Ln. Tx: 3300	Rx: 330	E-W 🔻	-				
Move LINE: Tx:	-100	Rx:	-100				
Station: Tx1:	N/A	Tx2:	3900				
Station Rx:	3925	Sep:	25				
Move ST.: Tx:	25	Rx:	25				
🂦 Start	🔁 😵 💓 1	ÎÕ PC 🕾	2:54 PM	3			

3) If all the values are correct, click the Ok button to continue and take a reading. If something is incorrect, you can modify it on this page.



4) When the reading is done, click the NEXT STN button to increment the positions.

Posit	ion					
LTx	3300	1	3950	5	4050	
LRx	3300	2	3975	6	4075	
Tx1	9999999	3	4000	7	4100	
Tx2	3925	4	4025	8	4125	
Ref	99999999		>>>>	> Pa	ge 2	
N	TX NEXT RX STN	PRE ST	V. NEXT N LINE	PRE LIN	V. JE OK	
💦 Sta	🐉 Start 🛛 🛛 🖏 😵 💓 🗓 🖻 😂 2:56 PM 📝					



For this pole-dipole setup, 8 electrodes of the GDD-Rx will be used.

1) Select Pole-Dipole (1/32) in the setup page. The Pole-Dipole (2/16) and Pole-Dipole (4/8) options are explained in the 3D survey section at the end of this document.

El. array: Pol	El. array: Pole-Dipole (1/32) OK 🗙							
Setup Position Windows								
	E	l. array:	Tx – Rx					
▼ ALL Pole-Dipole (1/32) ▼								
🔽 Chi	🔽 Ch5	🗌 Ch9	🗌 Ch13					
🔽 Ch2	🔽 Ch6	🗌 Ch10	🗌 Ch14					
🗹 Ch3	🔽 Ch7	🗌 Ch11	🗌 Ch15					
🔽 Ch4	🔽 Ch8	🗌 Ch12	🗌 Ch16					
>>>> Page 2 Trigger on: 1 💌								
🂦 Start		🛞 😻 🔞 PC 9	Ҽ 3:04 РМ [🎯					

2) Enter the positions corresponding to your survey parameters.

El. array: Pole-Dipole (ок 🗙						
Setup Position Windows							
Project: GDD Test							
Ln. Tx: 3300	Rx: 330)0	E-W 🔻				
Move LINE: Tx:	-100	Rx:	-100				
Station: Tx1:	N/A	Tx2:	3900				
Station Rx: 3	925	Sep:	25				
Move ST.: Tx: 2	:5	Rx:	25				
🂦 Start	🗄 😵 💓 1	ÎÕ PC 🕾	3:04 PM [

3) If all the values are correct, click the Ok button to continue and take a reading. If something is incorrect, you can modify it on this page.



4) When the reading is done, click the NEXT STN button to increment the positions.

Posit	Position					
LTx	3300	1	3975	5	4075	
LRx	3300	2	4000	6	4100	
Tx1	99999999	3	4025	7	4125	
Tx2	3925	4	4050	8	4150	
Ref	3950		>>>>	> Paq	ge 2	
Tx NEXT P Rx STN			V. NEXT N LINE	PRE LIN	V. IE OK	
🐉 Start 📔 🛛 🖏 😵 😰 🔞 PC 😂 3:05 PM 💋						



For this dipole-dipole setup, 8 electrodes of the GDD-Rx will be used.

1) Select Dipole-Dipole (1/32) in the setup page.

El. array: Dipole-Dipole (1/32) OK 🔀							
Setup Positio	n Windows						
	E	l. array:	Tx – Rx				
🔽 ALL	ALL Dipo	le-Dipole	(1/32) 🔻				
🔽 Chi	🗹 Ch5	🗌 Ch9	🗌 Ch13				
🔽 Ch2	🗹 Ch6	🗌 Ch10	🗌 Ch14				
🔽 Ch3	🔽 Ch7	🗌 Ch11	🗌 Ch15				
🔽 Ch4	🔽 Ch8	🗌 Ch12	🗌 Ch16				
>>>> P	age 2 T	rigger on:	1 🔻				
	2.0	🛞 💽 🔞 PC 9	🖻 3:11 PM 🛛 🞯				

2) Enter the positions corresponding to your survey parameters.

El. array: Dipole-Dipole (1/32) OK							
Setup Position Windows							
Project: GDD Test							
Ln. Tx: 3300	Rx: 330	0	E-W 💌				
Move LINE: Tx:	-100	Rx:	-100				
Station: Tx1:	3900	Tx2:	3925				
Station Rx:	3950	Sep:	25				
Move ST.: Tx:	25	Rx:	25				
🎝 Start 🚺 🕄 🚷 🔝 🔞 PC 😂 3:11 PM							

3) If all the values are correct, click the Ok button to continue and take a reading. If something is incorrect, you can modify it on this page.



4) When the reading is done, click the NEXT STN button to increment the positions.

Posit	ion					
LTx	3300	1	4000	5	4100	
LRx	3300	2	4025	6	4125	
Tx 1	3925	з	4050	7	4150	
Tx2	3950	4	4075	8	4175	
Ref	3975		>>>>	> Pa	ge 2	
V	TX NEXT RX STN	PRE ST	V. NEXT N LINE	PRE LIN	V. JE OK	
籺 Sta	🐉 Start 🛛 🕄 🗞 😵 💓 🗓 PC 😂 3:11 PM 🕼					



For this Gradient setup, 8 electrodes of the GDD-Rx will be used.

1) Select Gradient (1/32) in the setup page.

El. array: Gradient (1/32) OK 🗙							
Setup Position	n Windows						
	E	l. array:	Tx – Rx				
🔽 ALL	ALL Grad	lient (1/32					
🔽 Ch1	🔽 Ch5	🗌 Ch9	🗌 Ch13				
🔽 Ch2	🔽 Ch6	🗌 Ch10	🗌 Ch14				
🔽 Ch3	🔽 Ch7	🗌 Ch11	🗌 Ch15				
🔽 Ch4	🔽 Ch8	🗌 Ch12	🗌 Ch16				
>>>> P	age 2 T	rigger on:	1 🔻				
🐉 Start 📄	2	, , 😵 🔅 PC 😌	10:50 AM [

2) Enter the positions corresponding to your survey parameters.



3) If all the values are correct, click the Ok button to continue and take a reading. If something is incorrect, you can modify it on this page. Uncheck the Tx box so that only the Receiver electrodes position will change.

Positi	ion				
LTx	3300	1	4025	5	4125
LRx	3200	2	4050	6	4150
Tx1	3900	3	4075	7	4175
Tx2	4900	4	4100	8	4200
Ref	4000		>>>>	> Pa	ge 2
	TX NEXT RX STN	PRE ST	V. NEXT N LINE	PRE LII	NE OK
🂦 Sta	ırt 🗌	•	t. 🛞 💓 🔞	PC 🕾	3:17 PM [

When the reading is done, make sure that the Tx box is unchecked, click the NEXT STN button to increment the positions. Only the Receiver electrodes position changes.
 In this example, you will need to click the NEXT STN button 8 times to be at the position indicated on the next screen.

Posit	ion								
LTx	330	10	1	42	25		5	43:	25
LRx	320	0	2	42	50		6	43	50
Tx1	390	10	3 4275		7	43'	75		
Tx2	490	10	4 4300			8	440	00	
Ref	420	10				> Pa	ge	2	
\square	Tx Rx	NEXT STN	PREV. STN		I I	NEXT LINE	PRE LII	V. VE	ок
ಶ St	🐉 Start 🗁 📄 🗐 🗞 😵 🥸 🖭 😂 11:00 AM 🕼								

5) Your next setup on the field should be like this.



Wenner



A Wenner setup uses only two electrodes, the Reference R1 and the electrode 1 of the GDD Rx.

1) Select Wenner in the setup page and check only one channel.



2) Enter the positions corresponding to your survey parameters.

El. array: Wenner			ок 🗙
Setup Position Windo	ows		
Project:	GDD Test		
Ln. Tx: O	Rx: 0		E-W 🔻
Move LINE: Tx:	0	Rx:	0
Station: Tx1:	-50	Tx2:	50
Station Rx:	N/A	Sep:	N/A
Move ST.: Tx:	0	Rx:	0
鸄 Start	रै. 🛞 💓	ÎÔ PC 🕾	3:21 PM 👔

3) If all the values are correct, click the Ok button to continue and take a reading. If something is incorrect, you can modify it on this page.

Posit	ion		
LTx	0	1 16	.66666 5
LRx	0	2	6
Tx1	-50	3	7
Tx2	50	4	8
Ref	-16.6666		>>>> Page 2
>	TX NEXT RX STN	PREV. STN	NEXT PREV. LINE LINE OK
ಶ Sta	art	2.	👂 💽 🔞 PC 😂 3:21 PM 🛛 🞯

4) For a Wenner survey, you will have to manually enter the parameters for each reading. To access the Position page, click the Tools button and select the Config option in the pop-up menu.

Schlumberger



A Schlumberger setup uses only the Reference R1 and the electrode 1 of the GDD Rx.

1) Select Schlumberger in the setup page.



2) Enter the positions corresponding to your survey parameters.

El. array: Schlumberg	jer		ок	×
Setup Position Windo	ows			
Project:	GDD Test			
Ln. Tx: O	Rx: 0		E-W	◄
Move LINE: Tx:	0	Rx:	0	
Station: Tx1:	-100	Tx2:	100	
Station Rx:	N/A	Sep:	10	
Move ST.: Tx:	O	Rx:	0	
🏞 Start	t. 🛞 💓	ÎÔ PC 오	3:26 PM	1

3) If all the values are correct, click the Ok button to continue and take a reading. If something is incorrect, you can modify it on this page.



4) For a Schlumberger survey, you will have to manually enter the parameters for each reading. To access the Position page, click the Tools button and select the Config option in the pop-up menu.

3D Survey: Pole-Dipole (2/16)



As shown on the images on the previous page, this setup is for 2 lines of 16 dipoles each using a GDD Rx-32. For the reference pins, R1 and R3 will be used; R2 and R4 will not be used since this is a 2 lines setup.



1) Select the Pole-Dipole 2/16 on the Setup tab.

El. array: Pole	e-Dipole (2/1	6)	ок 🗙
Setup Position	Windows		
	E	l. array:	Tx – Rx
🔽 ALL	ALL Pole	e-Dipole (2	2/16) 🔻
🔽 Chi	🔽 Ch5	🔽 Ch9	🗹 Ch13
🔽 Ch2	🔽 Ch6	🔽 Ch10	🗹 Ch14
🔽 Ch3	🔽 Ch7	🔽 Ch11	🔽 Ch15
🔽 Ch4	🔽 Ch8	🔽 Ch12	🔽 Ch16
>>>> Pa	age 2 T	rigger on:	1 🔻
💦 Start 📃	⊒ t ,9	🚯 💽 SÔ PC S	🖹 1:32 РМ 🛛 🞯

2) On the Position tab; enter the parameters of your survey.

El. array: Pole-Dipole (2/16) OK 🗙										
Setup Position Windows										
Project: GDD Test										
Ln. Tx: 100	Rx: 200)	E-W 🔻							
Move LINE: Tx:	200	Rx:	200							
Station: Tx1:	N/A	Tx2:	0							
Station Rx:	400	Sep:	50							
Move ST.: Tx:	100	Rx:	50							
🂦 Start	🗄 😵 💓 S	80 PC 🗨	2 1:25 PM 🔞							

3) Uncheck the Rx box so that only the Tx position will change when you click the NEXT STN and NEXT LINE buttons. Verify that the positions of the 32 electrodes are set properly. Hit the OK button to close this window. On the next screen, click Start to take readings.

Posit	ion							Posit	ion							
LTx	100	1	450)	5	650)	LTx	10	0	9	850)	13	10	50
LR1	200	2	500)	6	700)	LR1	20	0	10	900)	14	11	00
Tx1	99999999	3	550)	7	750)	Tx1	99	99999	11	950)	15	11	50
Tx2	o	4	600)	8	800)	Tx2 0		12 1000		0	16	12	00	
Rf1	400			>>>>	> Paq	ge ;	2	Rf1	40	0		<u> </u>	>>>>	> Pa	ge	3
P	TX NEXT RX STN	PRE' STI	V. N	NEXT LINE	PRE LIN	V. JE	ок		Tx Rx	NEXT STN	PRE ST	V. N	NEXT LINE	PRE LII	V. JE	ок
ಶ Sta	art	ł	t., () 🔊 🧐	PC 오	1:34	ŧ PM [ಶ St	art		,	t., () 🔊 🧐	PC 오	1:3	4 PM 👩

Posit	ion					Posil	ion				
LTx	100	17	450	21	650	LTx	100	25	850	29	1050
LR2	400	18	500	22	700	LR2	400	26	900	30	1100
Tx1	9999999	19	550	23	750	Tx1	99999999	27	950	31	1150
Tx2	o	20	600	24	800	Tx2	0	28	1000	32	1200
R£3	400		>>>>	> Pa	ge 4	Rf3	400]	>>>>	> Pa	ge 1
	TX NEXT RX STN	PRE ST	V. NEXT N LINE	PRE LIM	V. JE OK		TX NEXT RX STN	PRE ST	V. NEXT N LINE	PRE LIN	V. JE OK
💦 Sta	art	4	t. 😢 💓 🔨	PC 🕾	1:35 PM [🐉 St	art	[t. 😵 💓 🔨	PC 😌	1:34 PM [

4) After readings are taken and stored, click the Start button. Click the NEXT STN button and only the Tx2 station will be incremented by 100 since it was entered as the Tx spacing.

Posit	ion									
LTx	100	1	450	5 650						
LR1	1 200		500	6 700						
Tx1	Tx1 9999999		550	7 750						
Tx2	100 🔿	4	600	8 800						
Rf1	400		>>>>	> Page 2						
	▼ Tx NEXT PREV. NEXT PREV. Rx STN STN LINE LINE OK									
鸄 Sta	art	- T	t. 😢 💽 Ô	PC 오 1:36 F	м 😰					

5) When the Tx2 station position is at 400, you will have to modify the spacing from 100 to 50. Select Tools -> Config and the next screen will appear. Select the Position tab and change the Move St.: TX: to 50.

El. array: Pole-Dipole	(2/16)		ОК	×
Setup Position Windo	ws			
Project:	GDD Test			
Ln. Tx: 100	Rx: 200)	E-W	◄
Move LINE: Tx:	200	Rx:	200	
Station: Tx1:	N/A	Tx2:	400	
Station Rx:	400	Sep:	25	
Move ST.: Tx:	50	Rx:	25	
🍂 Start	🔁 😵 💓 4	ŧÔ PC 😌	21:39 PM	0

6) Continue the survey. When the Tx2 station position is at 1200, you will have to change the spacing back to 100.

El. array: Pole-Dipole (2/16)	ок 🗙									
Setup Position Windows										
Project: GDD Test										
Ln. Tx: 100 Rx: 20	0	E-W 🔻								
Move LINE: Tx: 200	Rx:	200								
Station: Tx1: N/A	Tx2:	1200								
Station Rx: 400	Sep:	50								
Move ST.: Tx:	Rx:	50								
🐉 Start 📃 🕄 🖏 🔊	40 PC 🕾	: 1:40 PM 🛛 🚱								

7) When the line is complete press NEXT LINE to increment the LTx.

Posit	Position										
LTx	300	1	450	5	650						
LR1	200	2	500	6	700						
Tx1	99999999	3	550	7	750						
Tx2	1600	4	600	8 800							
Rf1	400		>>>>	> Paç	ge 2						
Tx NEXT PREV. NEXT PREV. Rx STN STN LINE OK											
💦 Sta	🐉 Start 🛛 🕄 😵 💽 49 PC 🕾 1:41 PM 👔										

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8) When the line is done, change the Move ST.: TX: to -100 or the Tx2 position to 0 depending on where you are starting the next line.

El. array: Pole-Dipole (2		ок 🗙	
Setup Position Windows]		
Project: G	DD Test		
Ln. Tx: 300	Rx: 200)	E-W 🔻
Move LINE: Tx: 2	00	Rx:	200
Station: Tx1:	N/A	Tx2:	1600
Station Rx: 4	00	Sep:	50
Move ST.: Tx:🧲	100	Rx:	50
💦 Start	t. 🛞 💓 4	ÎQ PC ⊙	2:21 PM 🛛 🚱

3D survey: Gradient (4/8)







For this Gradient setup, 32 electrodes of the GDD-Rx will be used.

1) Select Gradient (4/8) in the setup page.



2) Enter the positions corresponding to your survey parameters.

El. array: Gradient (4/8)	ок ×
Setup Position Windows	
Project: GDD Test	
Ln. Tx: 3300 Rx: 320	DO E-8 ▼
Nove LINE: Tx: -100	Rx: -100
Station: Tx1: 3900	Tx2: 4900
Station Rx: 4000	Sep: 25
Move ST.: Tx: 0	Rx: 25
🎝 Start 🗁 📃 🗒 👸	PC 🕮 11:09 AM []

3) If all the values are correct, click the Ok button to continue and take a reading. If something is incorrect, you can modify it on these pages. Uncheck the Tx box so that only the Receiver electrodes position will change.

Posit	ion					Posit	ion					
LTx	3300	1	4025	5	4125	LTx	330	00	9	4025	13	4125
LRx	3200	2	4050	6	4150	LRx	310	00	10	4050	14	4150
Tx1	3900	з	4075	7	4175	Tx1	390	00	11	4075	15	4175
Tx2	4900	4	4100	8	4200	Tx2	490	00	12	4100	16	4200
Ref	4000		>>>>	- Pa	ge 2	Ref	400	00		S>>>	> Pa	ge 3
UD	TX NEXT RX STN	PRE ST	V. NEXT N LINE	PRE LII	NE OK		Tx Rx	NEXT STN	PRE ST	V. NEXT N LINE	PRE LIM	V. JE OK
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Posit	ion					Pos	iti	on				
LTx	3300	17	4025	21	4125	LT	×	3300	25	4025	29	4125
LRx	3000	18	4050	22	4150	LR	x	2900	26	4050	30	4150
Tx1	3900	19	4075	23	4175	Тx	1	3900	27	4075	31	4175
Tx2	4900	20	4100	24	4200	Tx	2	4900	28	4100	32	4200
Ref	4000		>>>>	> Pa	ge 4	Re	£	4000		>>>>>	> Paq	je 1
	TX NEXT RX STN	PRE' STI	V. NEXT N LINE	PRE LIN	V. JE OK]]	TX NEXT RX STN	PRE ST	V. NEXT N LINE	PRE' LIN	V. IE OK
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4) When the reading is done, make sure that the Tx box is unchecked, click the NEXT STN button to increment the positions. Only the electrodes position on the Receiver will change.

In this example, you will need to click the NEXT STN button 8 times to be at the position indicated on the next screen.

Position						Pos	tion					
LTx 3300)	1	4225	5	4325	LTX	33	00	9	4225	13	4325
LRx 3200)	2	4250	6	4350	LRX	31	.00	10	4250	14	4350
Tx1 3900)	З	4275	7	4375	Tx 1	39	00	11	4275	15	4375
Tx2 4900)	4	4300	8	4400	Tx2	49	00	12	4300	16	4400
Ref 4200)		>>>>>	> Paç	je 2	Ref	42	00		[>>>>>	> Paç	ge 3
Tx Rx	NEXT STN	PRE' STI	V. NEXT N LINE	PRE' LIN	V. IE OK		Tx Rx	NEXT STN	PRE ST	V. NEXT N LINE	PRE' LIN	V. IE OK
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Position	Position
LTx 3300 17 4225 21 4325	LTx 3300 25 4225 29 4325
LRX 3000 18 4250 22 4350	LRx 2900 26 4250 30 4350
Tx1 3900 19 4275 23 4375	Tx1 3900 27 4275 31 4375
Tx2 4900 20 4300 24 4400	Tx2 4900 28 4300 32 4400
Ref 4200 >>>> Page 4	Ref 4200 >>>> Page 1
$\begin{tabular}{ c c c c c } \hline Tx & NEXT & PREV. \\ \hline V & Rx$ & STN & STN & LINE & LINE & OK \\ \hline \end{tabular}$	□ Tx NEXT PREV. NEXT PREV. ✓ Rx STN STN LINE LINE OK
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5) Your next setup on the field should be like this.

				4000E								4200E					10	00	m	4400E								4600E								4800E				-1
Tx1 3300N+		×	*	•		*	*	•	×	×	*	•	*	×	*	•	×	*	×	•	×	×	*	•	×	*	×	•	×	*	×	•	×	*	*	•	*	×	*	Tx2
3200N ×	н	¢	×	•	×	×	*	•	×	×	R ×	•	•	•	•	•	•	•	•	•		×	*	•	*	×	×	•	×	×	×	•	×	ĸ	×	•	×	×	,	100m
3100N ×	*	*	*	•	×	*	*	•	*	*	R.	•	•	•	•	•	•	•	•	•	*	×	*	•	*	*	*	•	*	*		•	*	×	*	•	×	*	×	100m
3000N ×	×	*	×	•	×	×	×	•	×	×	R ×	•	•	•	•	•	•	•	•	•	×	×	×	•	×	×		•	×	×	×	•	×	ĸ	×	•	×	×	×	100m
2900N×	*	×		•	×	*	×	•	*	*	R ×	•	•	•	•	•	•	•	•	•	*	×	*	•	*	*	*	•	*	*		•	*	×	*	•	*	*	*	100m
2800N ×	×	¢	к	•	×	×	ж		*		*		×	×	×	•	*	×	×	•		×	×	•	*	×	×	•	*	×	×	•	×	×	*	•	*	×	*	100m

GPS Positions



Setting GPS positions instead of nominal positions

Starting position: X – 320971.52 Easting Y – 5182578.35 Northing

El. array: Pole-Pole			ок 🗙
Setup Position Window	vs		
Project:	GDD		
Ln. Tx: 5182578	. Rx: 518	32578.	N-S 🔻
Move LINE: Tx:	-100	Rx:	-100
Station: Tx1:	N/A	Tx2:	320971.5
Station Rx:	320996.5	Sep:	25
Move ST.: Tx:	25	Rx:	25
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Instead of using a relative position system (the starting position being 0,0), you can enter a GPS position in meters in the Line TX, Line RX, Tx1, Tx2 and Station Rx cases. You can enter any number between -9999999 and 9999999.

Next Station	Next Line								
Position	Position								
LTx 5182578. 1 321021.5 5 321121.5	LTx 5182478. 1 320996.5 5 321096.5								
LRx 5182578. 2 321046.5 6 321146.5	LRX 5182478. 2 321021.5 6 321121.5								
Tx1 9999999 3 321071.5 7 321171.5	Tx1 9999999 3 321046.5 7 321146.5								
Tx2 320996.5 4 321096.5 8 321196.5	Tx2 320971.5 4 321071.5 8 321171.5								
Ref 9999999 >>>> Page 2	Ref 9999999 >>>> Page 2								
TxNEXTPREV.NEXTPREV.RxSTNSTNLINEOK	▼ Tx NEXT PREV. NEXT PREV. ▼ Rx STN STN LINE OK								
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Instrumentation GDD Inc.

Version PPC: 0.4.2.42 Version Rx: 8.1.0.1 Rx SN: 1309

Projec	t:																	
Windo	ws: 20 Sett	ting: Ar	th. De	elay (ms)	: 240 Tin	ning (ms): 80	, 80, 80	, 80, 80, 8	80, 80), 80, 8	0, 80,	80, 80, 8	0, 80	, 80, 8	30, 80	D, 80	, 80, 80
Mem	Date	Но	ur	Array	LineTx	LineRx	Dir	n	Tx1		Tx2	Rx1	Rx2		Cont	tact	Rhc)
1	06/11/202	13 08:	09:55	P-P	0.00	0.00	N-5	5 0.0	9999999	9.00	0.00	0.00	9999999	9.00	8.9		0.00	כ
1	06/11/202	13 08:	09:55	P-P	0.00	0.00	N-S	6 0.0	9999999	9.00	0.00	0.00	9999999	9.00	16.0	1	0.00	כ
1	06/11/202	13 08:	09:55	P-P	0.00	0.00	N-S	6 0.0	9999999	9.00	0.00	0.00	9999999	9.00	21.2		0.00	כ
1	06/11/202	13 08:	09:55	P-P	0.00	0.00	N-S	6 0.0	9999999	9.00	0.00	0.00	999999	9.00	24.2		0.00	כ
						_												
Sp	SpMin	SpMa	ix V	р	ErrVp	Sym(9	%)	М	ErrM	In		Tim	e DC	S	tack	M0	1	
0.4	0.4	0.4	12	25.112	0.001	100		7.947	0.009	100	00.000	200	0 50	1	0	7.9	74	
0.5	0.4	0.7	25	50.336	0.001	100		7.945	0.002	100	00.000	200	0 50	1	0	7.9	54	
0.7	0.7	0.8	37	75.726	0.002	100		7.947	0.002	100	00.000	200	0 50	1	0	7.9	61	
-0.0	-0.1	0.9	50	00.038	0.002	100		7.945	0.000	100	00.000	200	0 50	1	0	7.9	52	

First section - File header:

Version PPC:	Version of the Rx program on the PDA
Version Rx:	Version of the Rx firmware
Rx SN:	Serial number of the IP Receiver

Second section:

Project:	Name of your project
Third section:	
Windows:	Number of windows (depending on the selected mode)
Setting:	Selected mode (Arith., Semi, Log., Cole, User)
Delay (ms):	Delay in ms before the first window (depending on the selected mode)
Timing (ms):	Timing of each window (depending on the selected mode)

- The file is divided in 4 sections. The fourth one contains the data.
- Sections 2 and 3 will be repeated within the same file following a parameter change.
- Infinite values within Rho, TX1 and RX2 (in pole arrays) are represented by 9999999.00.
- Values in section 4 are delimited by one or more spaces. Therefore, the import software must treat consecutive delimiters as one.
- Each line in section 4 has a fix number of entries. If less than 20 windows are defined for a selected entry, the unused columns will be padded with 999.99
- The example file is truncated on the right side omitting column M02 to M20

Section 4 Column headers:

Mem	Memory number
Date	Date, format DD/MM/YYYY (date of the PDA when recording the reading)
Hour	Time, format HH:MM:SS (time of the PDA when recording the reading)
Array	Electrode Array; P-P, P-DP, DP-DP, WEN, GRAD
LineTx	Transmitter Line Label
LineRx	Receiver Line Label
Dir	Line Direction (N-S or E-W)
n	Number or Rank of dipole
Tx1	First electrode of the transmitter
Tx2	Second electrode of the transmitter
Rx1	First electrode of the dipole
Rx2	Second electrode of the dipole
Contact	Soil resistance in kOhm; XX.X, INFINI or (undefined)
Rho	Resistivity in Ohm*m
Sp	Self potential in mV
SpMin	Minimum value of SP in mV
SpMax	Maximum value of SP in mV
Vp	Primary voltage in mV
ErrVp	Error of Vp: standard deviation of the data set used to calculate the primary
	voltage
Sym(%)	Symmetry in %
Μ	Chargeability in mV/V
ErrM	Error of M: standard deviation of the data set used to calculate the
	changeability
In	Current in mA
Time	Transmitter timing in ms
DC	Duty Cycle in %
Stack	Number of stacks
M01 – M20	Windows of chargeability