

IP RECEIVER

GRx 8-32

User's Guide



Canadian Manufacturer of
Geophysical Instruments Since 1976

INSTRUMENTATION GDD INC.

3700, boul. de la Chaudière, Québec (Québec) Canada G1X 4B7

Tel. : +1 (418) 877-4249 Fax : +1 (418) 877-4054

WWW.GDDINSTRUMENTATION.COM

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1 Introduction

The GDD IP Receiver is a new compact, low consumption unit designed for resistivity measurements. It features high capabilities allowing it to work on any field conditions. It can be configured in multi-pole or multi-dipole reception.

The receiver uses a PDA hand-held PC to process data acquisition. A VGA display allows to monitor the results live on the field. The operating system is Windows CE and the software can easily be updated via internet.

Characteristics:

- **Reception poles/dipoles:** 8 poles/dipoles, expandable to 32, for dipole-dipole, pole-dipole or pole-pole arrays.
- **Programmable windows:** The GRx8-32 offers twenty fully programmable windows for a higher flexibility in the definition of the IP decay curve.
- **User modes available:** Arithmetic, logarithmic, semi-logarithmic, Cole-Cole, IPR-12 and user define.
- **IP display:** Chargeability values, Resistivity and IP decay curves can be displayed in real time thanks to the VGA screen. Before data acquisition, the GRx8-32 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 up to 512 000 readings upon PDA model. 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.

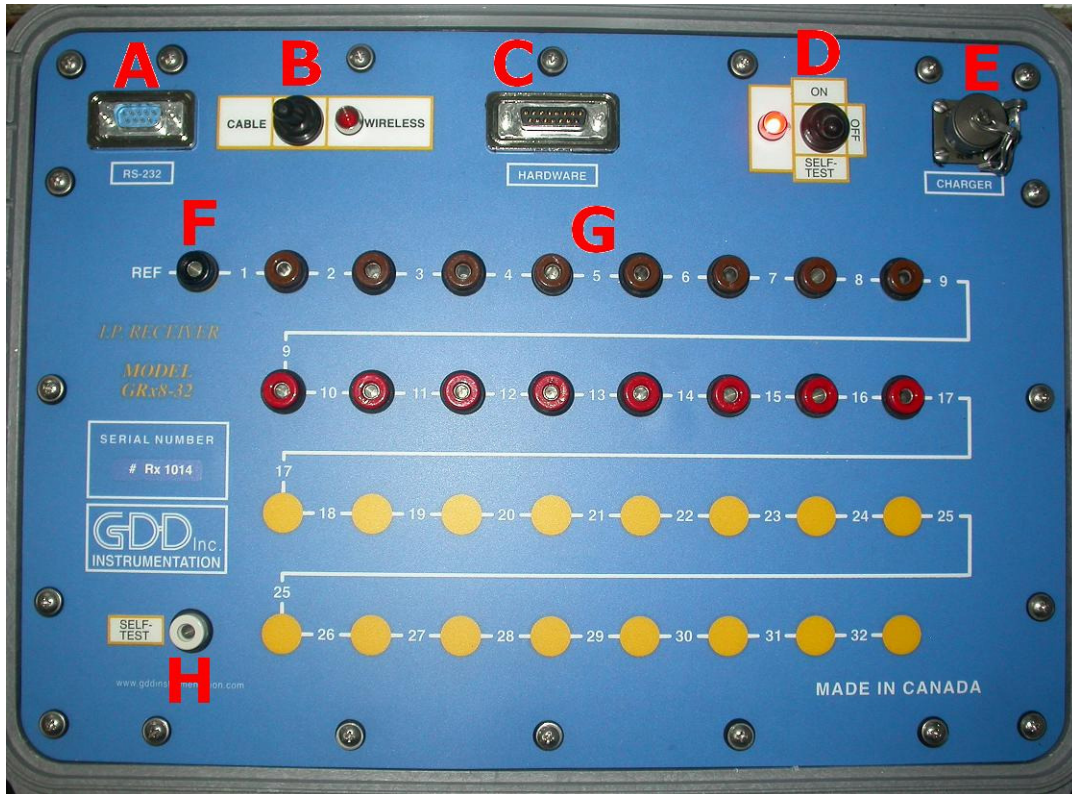
2 GRx8-32 accessories

A	1x	GRx8-32 IP receiver module
B	1x	Operation manual
C	1x	GRx8-32 IP receiver wall charger
D	10x	Red cable banana/alligator
E	2x	Black cable banana/alligator
F	1x	Allegro Cx field computer
G	1x	Allegro Cx wall charger
H	1x	Allegro Cx CE serial communication cable 9 pos. D-SUB female - 9 pos. D-SUB female
I	2x	Allegro Cx CE serial communication cable 9 pos. D-SUB female - 6 pos. Amphenol male
J	1x	Allegro Cx pen-style stylus
K	1x	Allegro Cx shoulder strap
L	1x	Allegro Cx hand strap
M	2x	Allegro Cx NIMH battery pack 3000mAh 3.6V
N	1x	Allegro Cx external NIMH 3000mAh 3.6V battery charger
O	1x	Allegro Cx utility CD
P	1x	Allegro Cx AA alkaline battery holder
Q	1x	Charger with 4 AA 2400mAh 1.2V NIMH batteries
R	1x	Allegro Cx USB power dock
S	1x	Allegro Cx USB cable for USB power dock



3 GRx8-32 components

The GRx8-32 components are described in this section.



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

This connector is used to connect the RS-232 cable between the Allegro Cx and the GRx8-32.

B - CABLE/WIRELESS switch

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

C - HARDWARE connector - 15 pin programming port

This connector is used to update the CPU and PLD software.

D - ON/OFF/SELF-TEST switch

This switch is used to turn the GRx8-32 ON or to perform a self-test. The red light indicates ON or SELF-TEST position.

E - CHARGER connector

This connector is used to charge the 12V receiver's battery.

F - REF terminal

This terminal is the infinite electrode in pole configuration. In dipole configuration, this terminal is the first electrode in differential with the second electrode.

G - NUMBERED terminals

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

H - SELF-TEST terminal

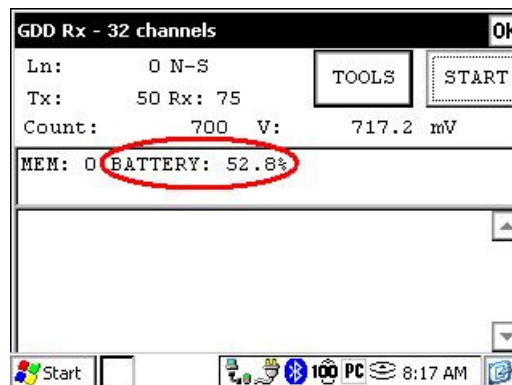
This terminal is used to perform a self test.

4 Power

GDD's GRx8-32 receiver is powered by rechargeable Nickel-Cadmium batteries. Here are a few pointers for using and storing the receiver.

Usage

- Using a different battery charger than the one supplied by GDD could damage the batteries hence damaging the receiver.
- The charger's LED is red when the batteries are charging. It changes to green once the batteries are fully powered up.
- Make sure the batteries are fully charged before using the receiver.
- The connector labelled CHARGER is used only to recharge the internal batteries or to use the External Battery Pack supplied by GDD. Connecting other external batteries using this connector could damage the batteries hence damaging the receiver.
- Do not replace the receiver internal batteries without the authorization and advice from GDD's technicians.
- The total operating time of the receiver will depend on the environmental conditions. Using the receiver in very cold weather (-20°C to -40°C) will lower the operating time.
- The power level of the batteries is indicated on the main screen of the Allegro Cx when using the GDD Rx program.



- It is recommended to recharge the batteries once their power level is below 20%.
- The receiver will turn itself off when the batteries reach a critical level. It is set between 0% and 10%.

Storage

- When storing the receiver for a few days or more, make sure the batteries are fully charged.
- Store the receiver in a cool and dry place.
- If stored for several months, recharge the batteries every 3 months.
- If the batteries haven't been recharged for a long time (over 3 months), it is possible that several attempts of charging and discharging (up to 3) are required before batteries can recover their full potential.

5 Quick start guide

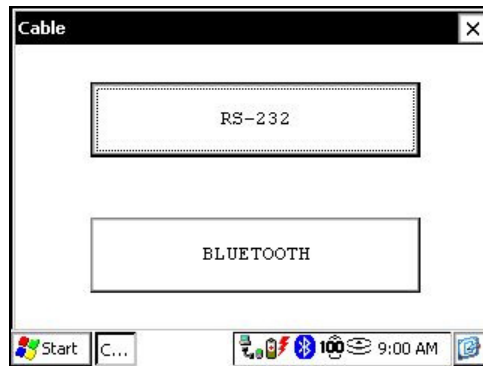
1. Connect electrodes into terminals.
2. Turn ON the IP receiver using the ON/OFF switch on the GRx8-32 panel.
3. Select the communication mode using the CABLE/WIRELESS switch on the GRx8-32 panel. **In CABLE mode, the red light will turn ON only when the GRx8-32 software is active.**
4. Connect the RS-232 cable between the Allegro Cx (COM1) and the GRx8-32 RS-232 connector (CABLE communication only).
5. Turn ON the Allegro Cx with the ON/OFF key.



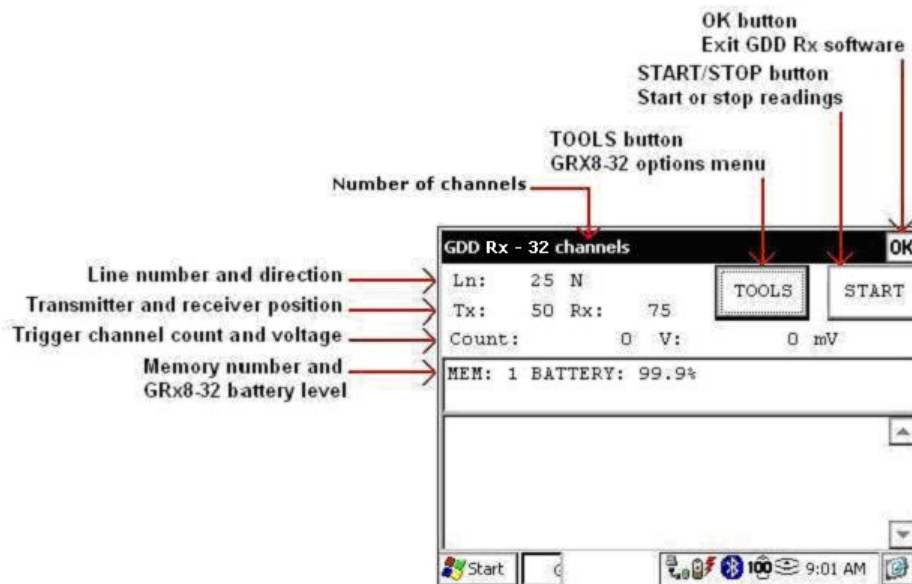
6. Click on the GDD RX icon.



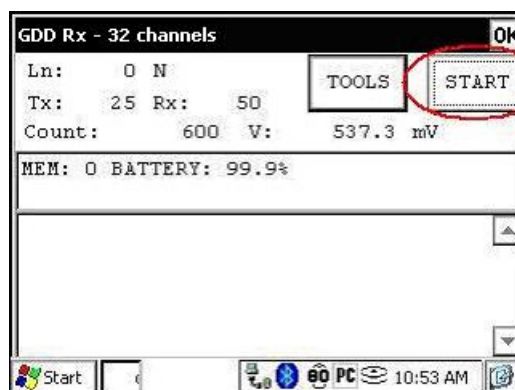
7. Select the communication mode: *RS-232* (CABLE) or *BLUETOOTH* (WIRELESS).



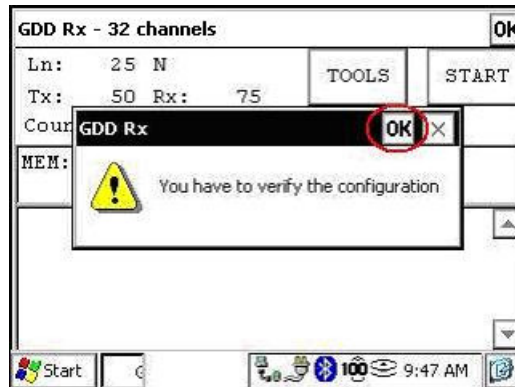
8. The following screen appears.



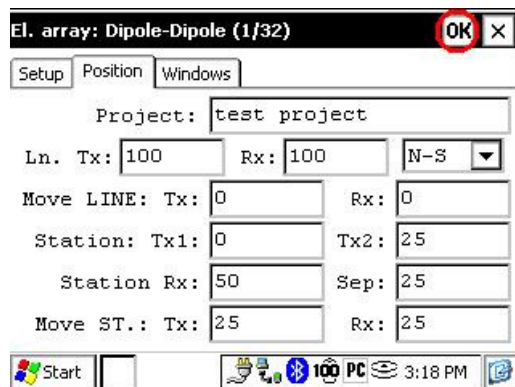
9. Click on the *START* button to begin the acquisition procedure.



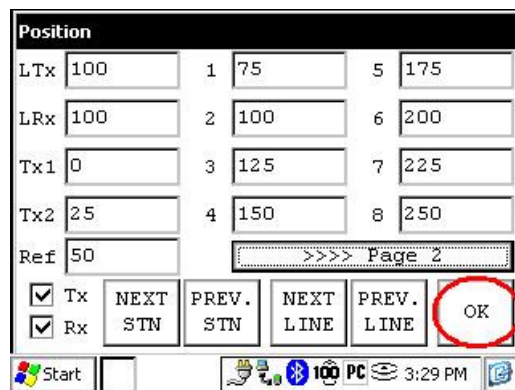
10. The following screen appears. Click on the OK button to continue.



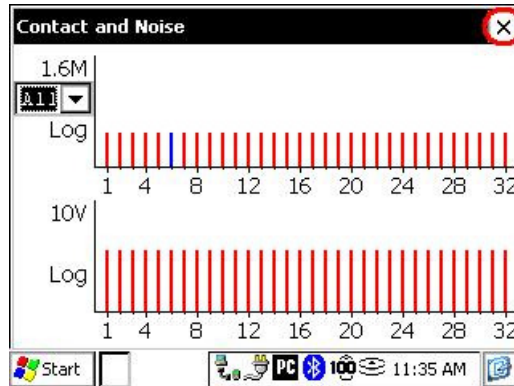
11. Enter the project, line, station, move displacement, etc. for Tx and Rx. Click on OK button to continue. If you are not on this window, click the position tab at the top of your screen,



12. Enter the transmitter and receiver position if they have to be changed and click on OK button to continue.

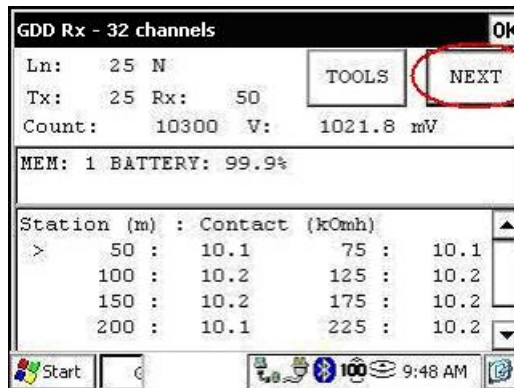


13. The Contact and Noise graph will be displayed next letting verify the contacts and the noise level. If the values displayed are nominal, press the X to close the window.

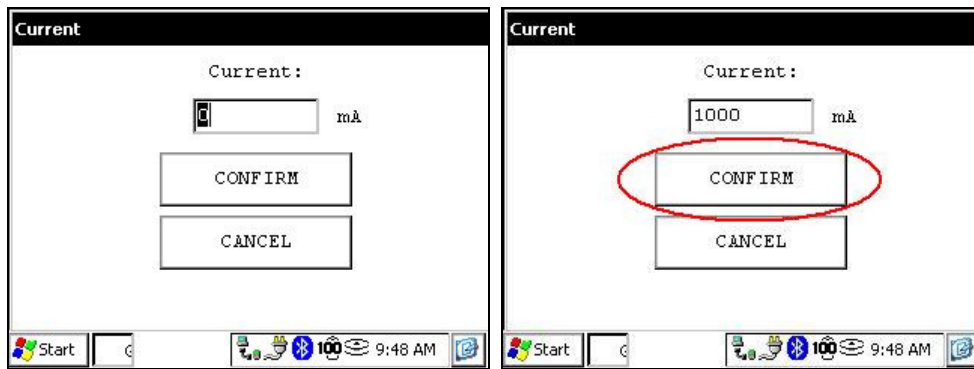


14. If the contacts are correct, click on the NEXT button to continue.

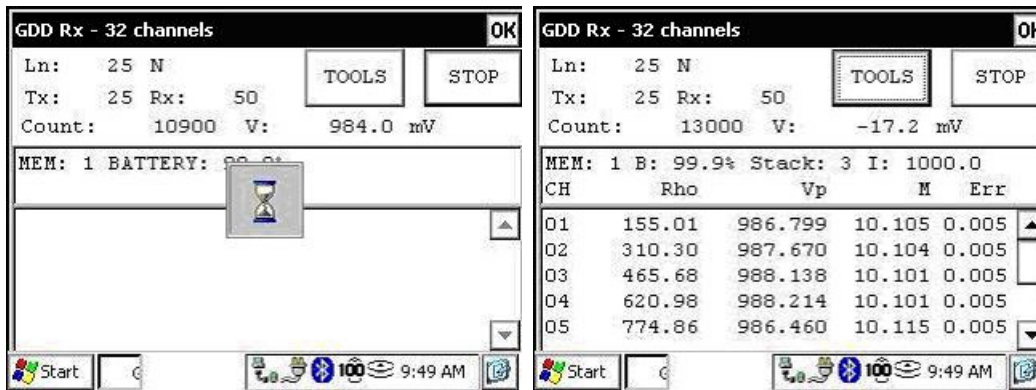
*Note: If all stations show an INFINITE contact, the reference electrode might be disconnected.



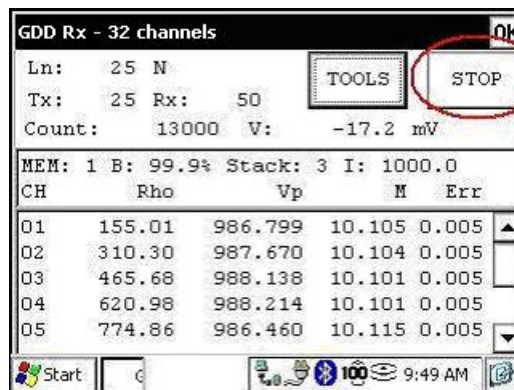
15. Enter the transmitter current and click on the CONFIRM button to start the readings or use the tab and enter key.



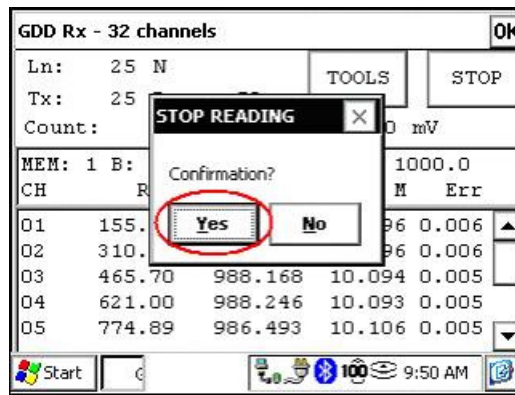
16. The following screens appear.



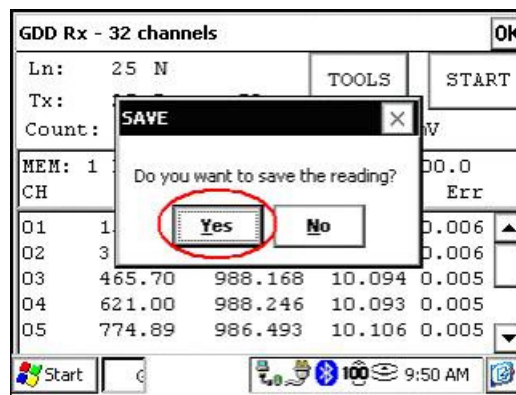
17. Click on STOP button or wait until the end of the acquisition (50 stacks) to stop the readings and save the data.



18. Click on YES button to confirm the operation.

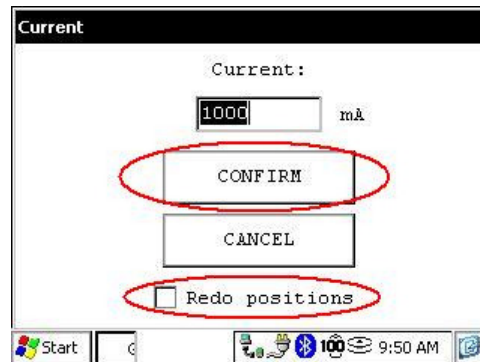


19. Click on YES button to save readings into the memory.



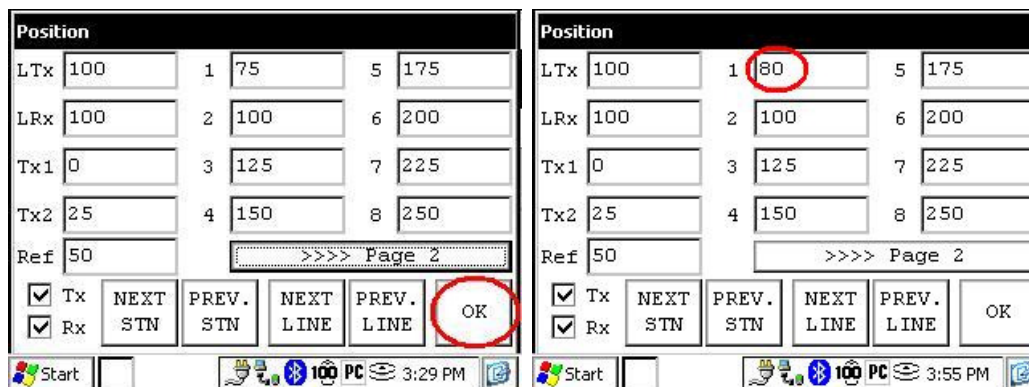
20. Check the REDO POSITIONS option to change the transmitter or receiver position.

Change the current value if it has changed and click on the CONFIRM button to save the current value.



- 20.1. If the REDO POSITIONS option is checked, enter the transmitter and receiver position and click the OK button.

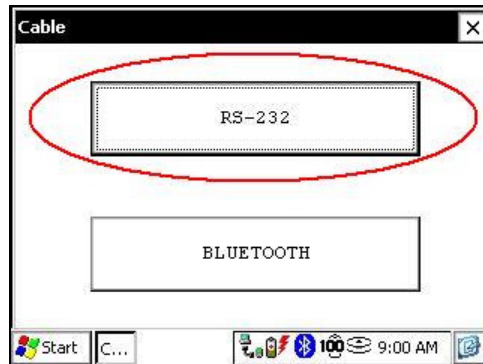
*Each position can be changed individually or moved by clicking Next or Prev.



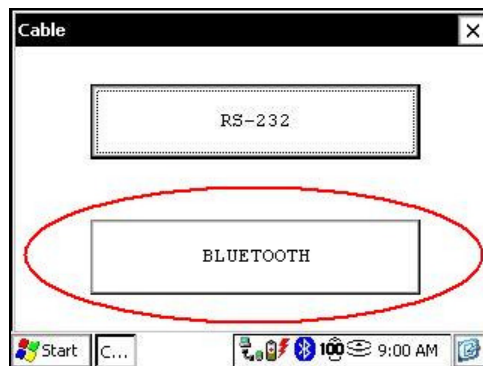
21. Repeat steps 9 through 19 to take another set of readings.

6 RS232/Bluetooth communication

1. Select the “RS-232” communication mode to use the GRx8-32 with a serial communication cable.



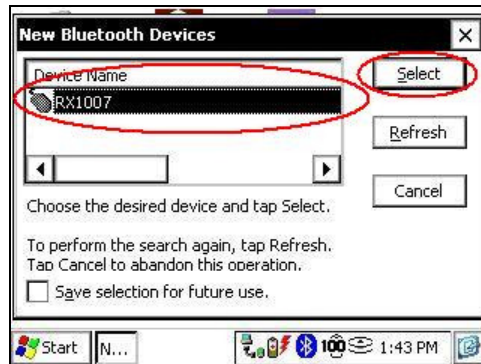
2. Select the “BLUETOOTH” communication mode to use the GRx8-32 with a wireless connection.



2.1 The Bluetooth Device Search begins.



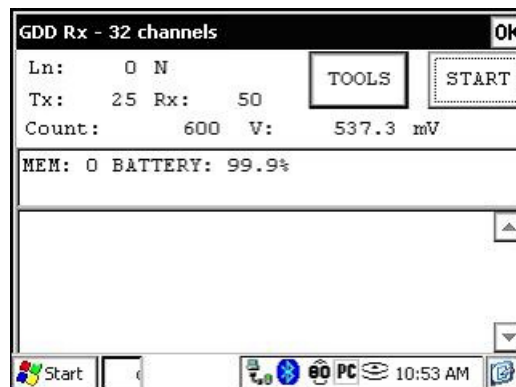
- 2.2 Select the Bluetooth device you want to use (the device name can be the GRx8-32 serial number or Brainboxes Adapter).



- 2.3 Select the "Serial 01" Service Name and click on SELECT button.

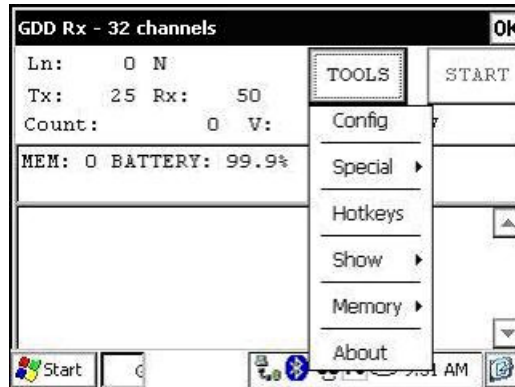


3. The following screen appears.



7 Tools menu

Click on TOOLS button to select one of the following options:



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

Special

Use the SPECIAL option to:

- Re-init the GRx8-32
- Test the GRx8-32 with the internal simulator

Hotkeys

Use the HOTKEYS option to display the shortcut keys menu

Show

Use the SHOW option to display:

- Signal graph
- Contact and Noise monitor graph
- Vp and Cycle synchronization graph
- Decay curve
- Windows chargeability
- SP (self potential)

Memory

Use the MEMORY option to:

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

About

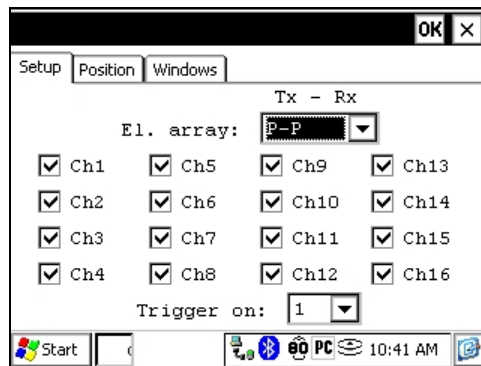
Use the ABOUT option to display GDD Rx software version number

7.1 Config option

7.1.1 Setup

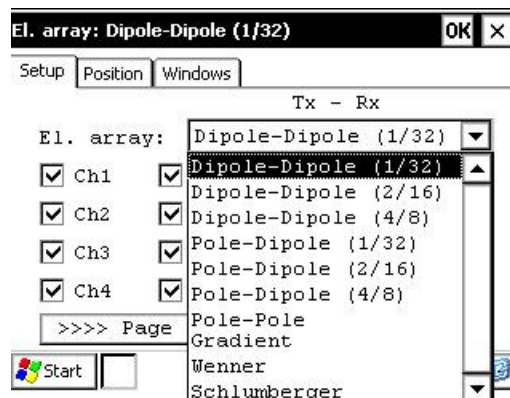
The SETUP option is used to set the electrode arrays, the active channel(s) and the trigger channel.

Select Tools | Config | Setup, the following window appears.

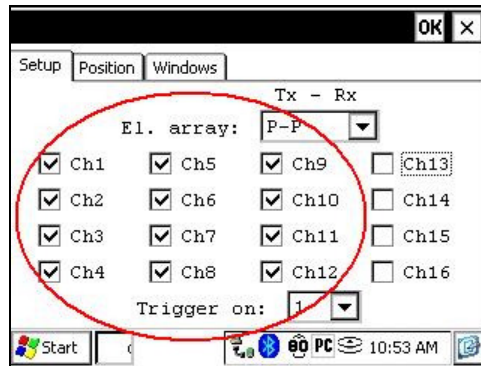


1. Select the electrode arrays configuration.

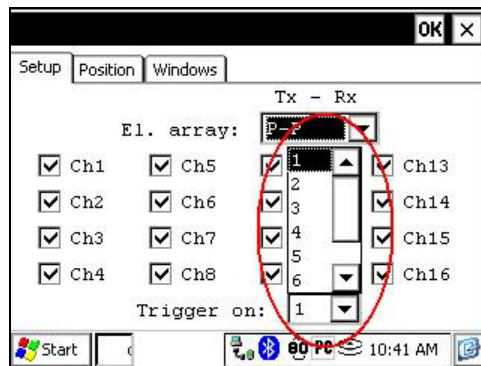
- Dipole-Dipole (1/32)
- Dipole-Dipole (2/16)
- Dipole-Dipole (4/8)
- Pole-Dipole (1/32)
- Pole-Dipole (2/16)
- Pole-Dipole (4/8)
- Pole-Pole
- Gradient
- Wenner
- Schlumberger



2. Check the active channel(s).



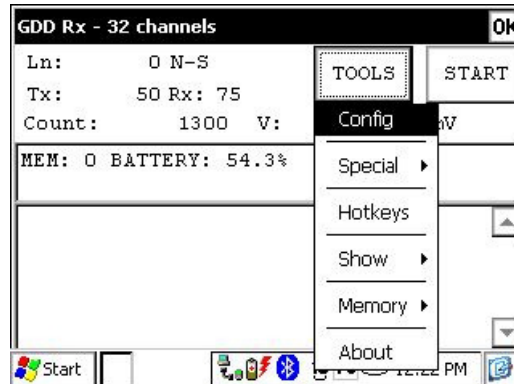
3. Select the trigger channel, this channel is used for the synchronization process.



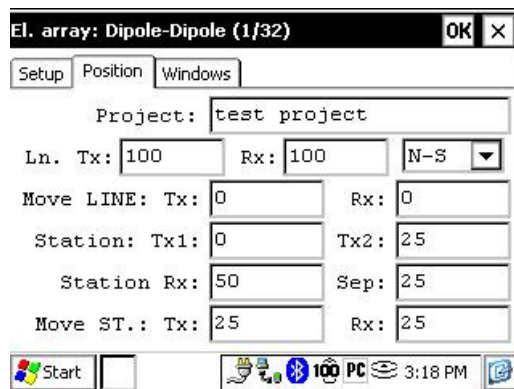
7.1.2 Position

The POSITION tab is used to set these 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 receiver movement offset.

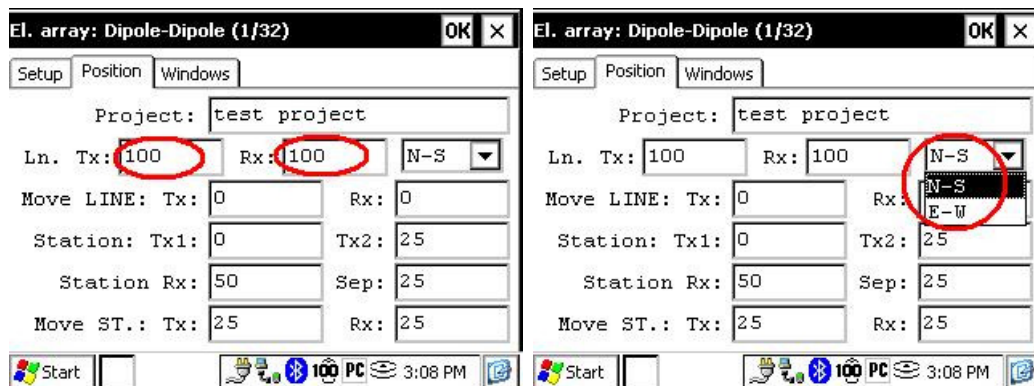
1. Select Tools | Config | Position



2. The following screen appears.



3. Enter line number and select line direction.



A negative number for the movement offset is used to go South or West.

Position					
LTx	100	1	75	5	175
LRx	100	2	100	6	200
Tx1	0	3	125	7	225
Tx2	25	4	150	8	250
Ref	50	>>>> Page 2			

Tx NEXT PREV. NEXT PREV. OK
 Rx STN STN LINE LINE

When this menu appears, change the transmitter and receiver position if they have to be modified and click on OK button to continue.

Position					
LTx	100	1	75	5	175
LRx	100	2	100	6	200
Tx1	0	3	125	7	225
Tx2	25	4	150	8	250
Ref	50	>>>> Page 2			

Tx NEXT PREV. NEXT PREV. OK
 Rx STN STN LINE LINE

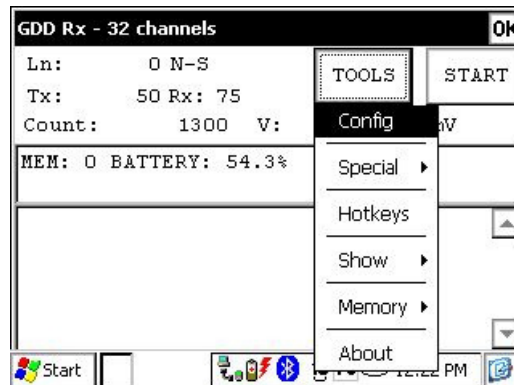
If the Tx or Rx box are checked, the displacement will be enabled.

To go to next station click NEXT. If the movement offset is negative the displacement will go South or West otherwise it will go North or East. If you need to redo your previous station click PREV and all positions will go back to the previous values. The same rule applies to the line displacement.

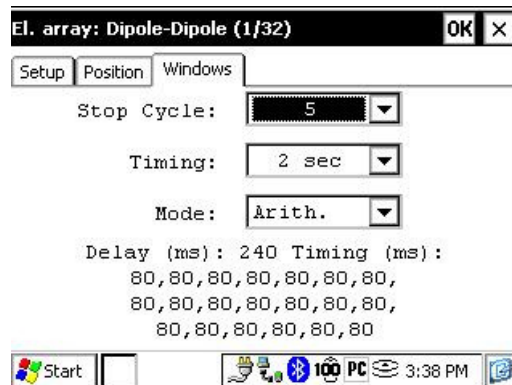
7.1.3 Windows

The WINDOWS option is used to set the signal timing and the mode.

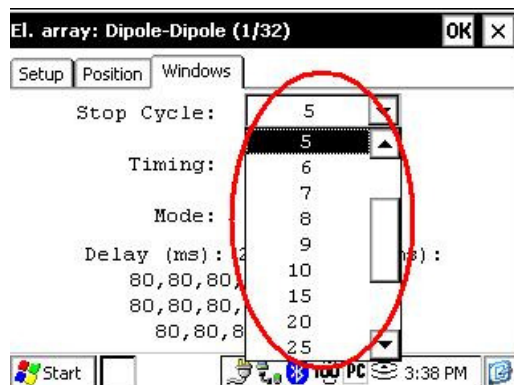
1. Select Tools | Config | Windows



2. The following screen appears.



3. Select the maximum number of stacks.



- 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

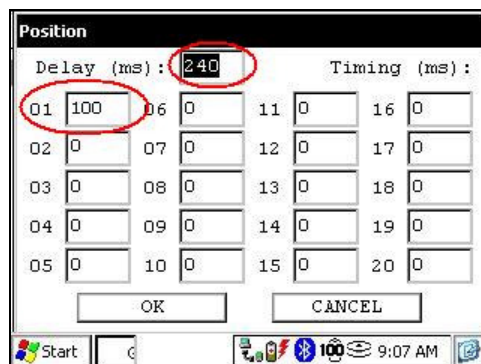
- IPR-12

Windows: 11
 Delay (ms): 50
 Timing (ms): 2000
 20, 40, 40, 80, 80, 140, 140, 230, 230, 360, 360

- User defined

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

If the USER mode is selected, you have to enter the delay and window(s) width.

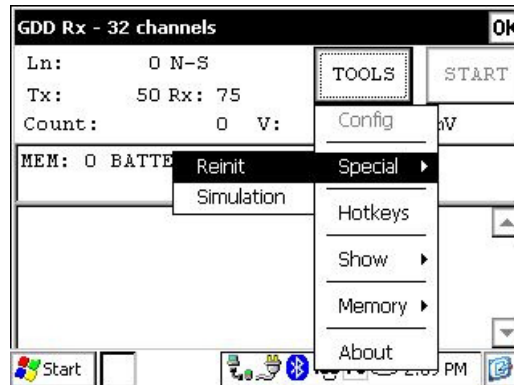


7.2 Special option

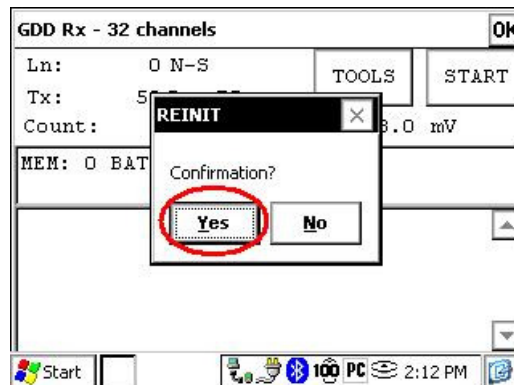
7.2.1 Reinit

The REINIT option is used to reset GRx8-32 configurations and communication with the Allegro Cx.

1. Select Tools | Special | Reinit



2. Click on YES button to reinit the GRx8-32.



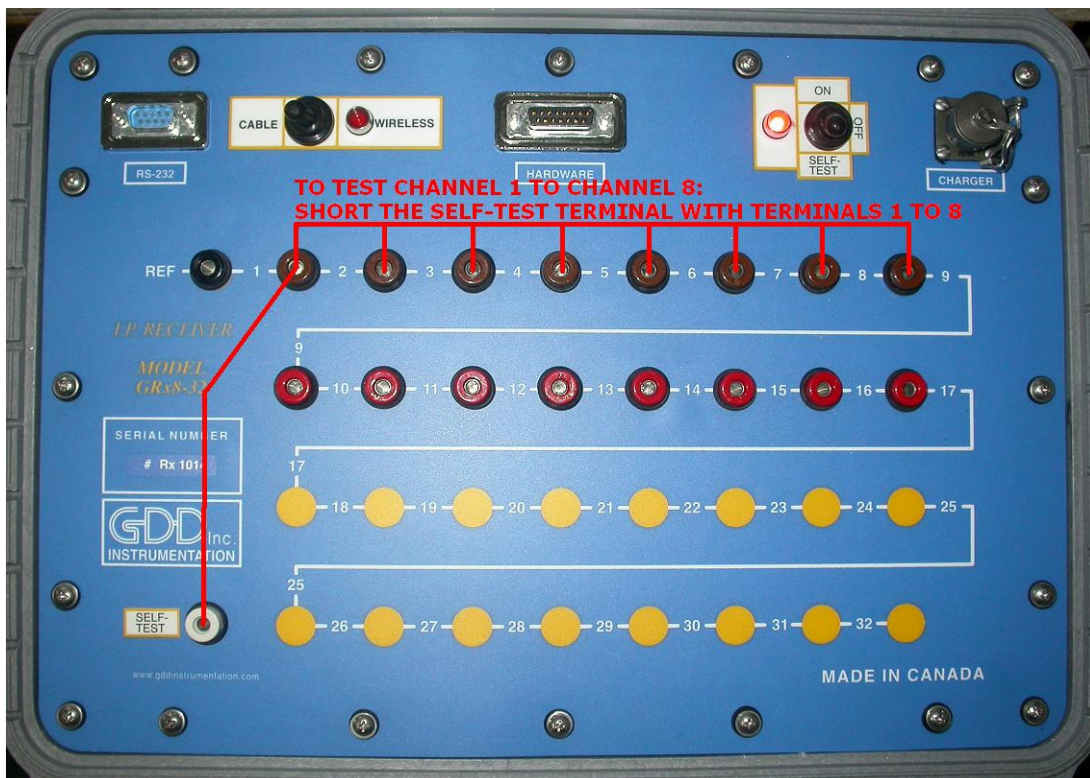
7.2.2 Simulation

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).

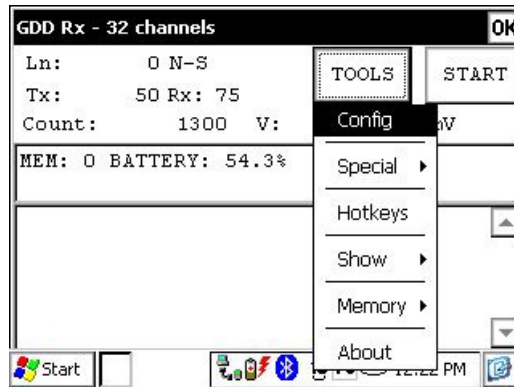
1. Select the SELF-TEST mode with the ON/OFF/SELF-TEST switch.



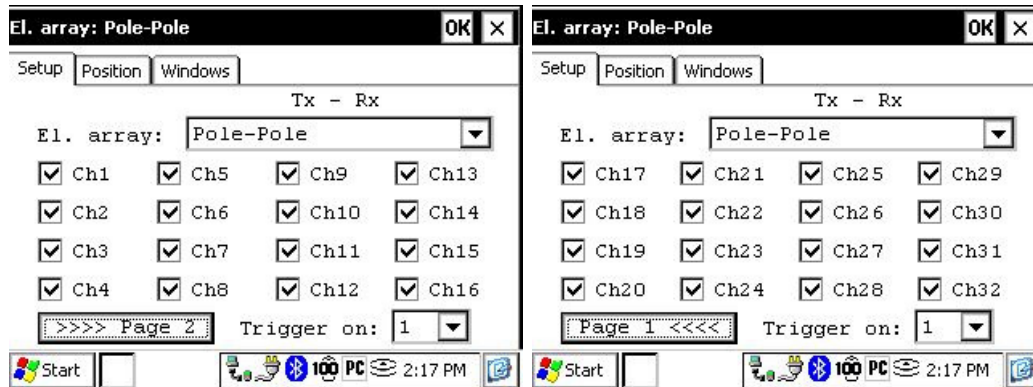
2. Short the SELF-TEST terminal with the channel(s) you want to test.



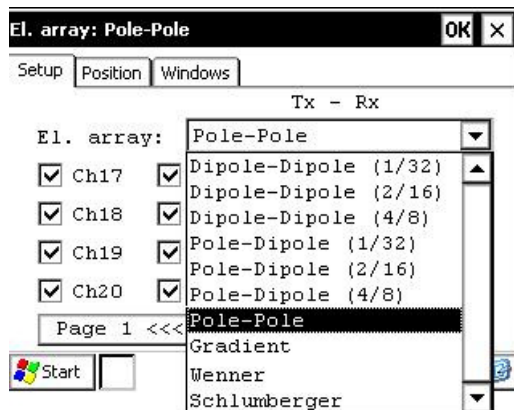
3. Select Tools | Config | Setup



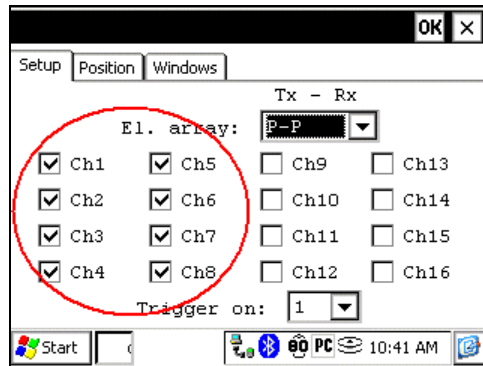
4. The following screens appear.



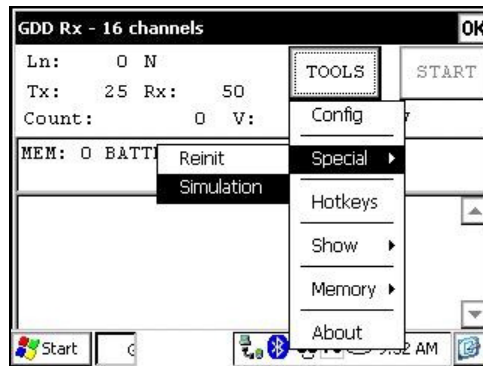
5. Select the Pole-Pole array configuration.



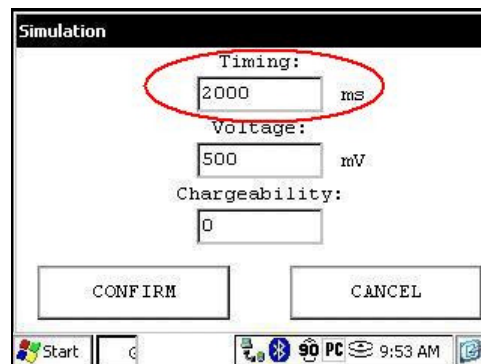
6. Check the channel(s) you want to test.



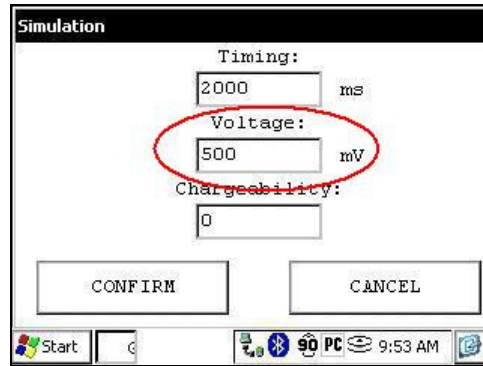
7. Select Tools | Special | Simulation



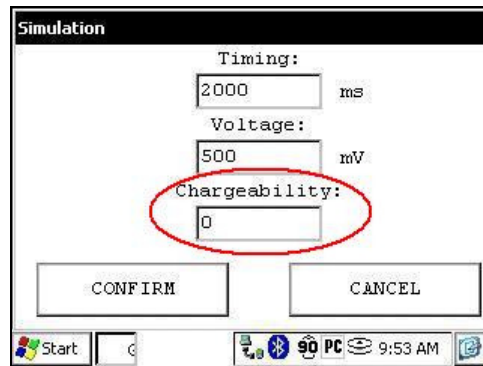
8. Enter the waveform timing (default = 2000ms).



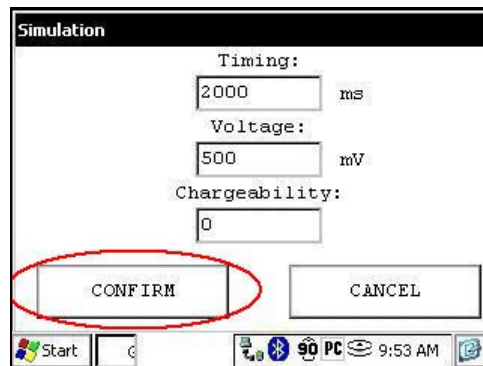
9. Enter the primary voltage (default = 500mV).



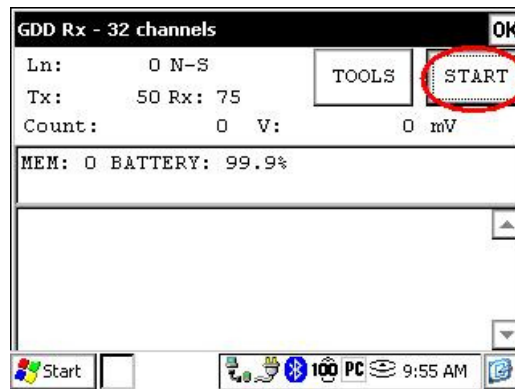
10. Enter the chargeability (default = 0).



11. Click on CONFIRM button.



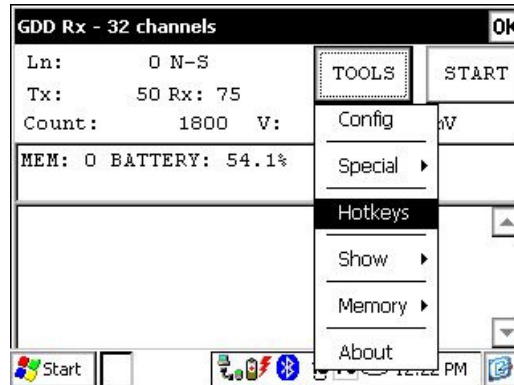
12. Click on START button to begin the acquisition process.



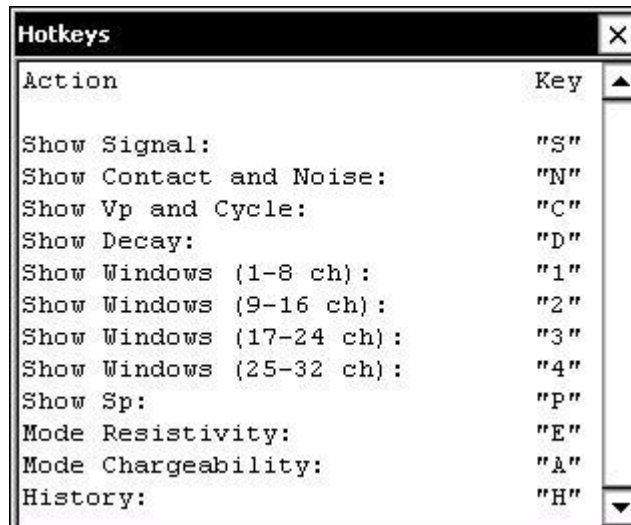
7.3 Hotkeys

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

1. Select Tools | Hotkeys



2. The following screen appears.



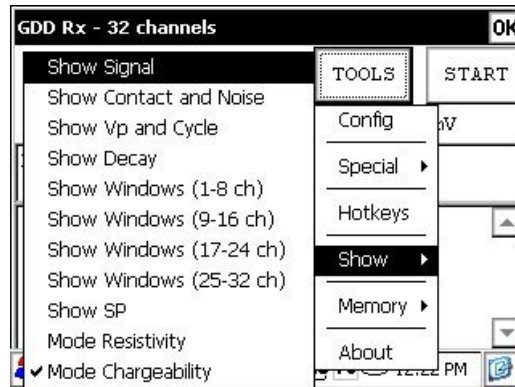
Use the shortcut keys to navigate quickly between the different options.

7.4 Show option

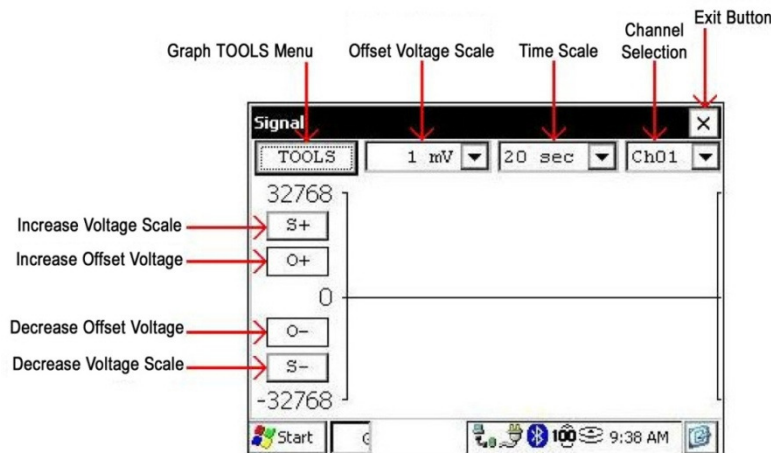
7.4.1 Signal

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

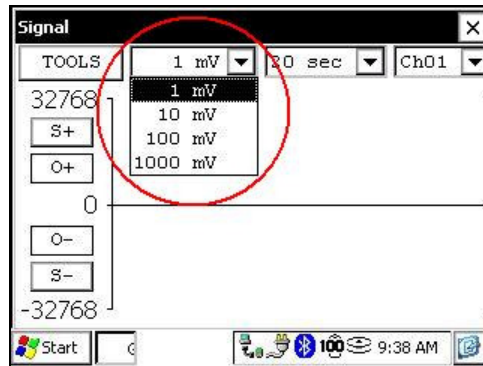
1. Select Tools | Show | Show Signal



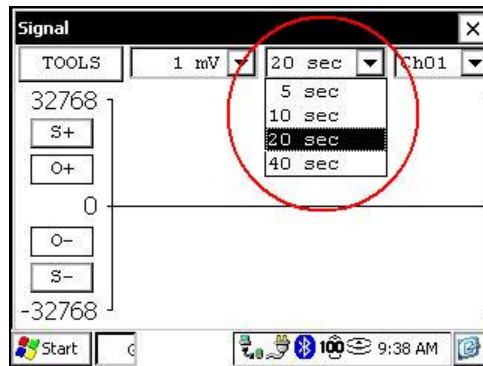
2. The following screen appears.



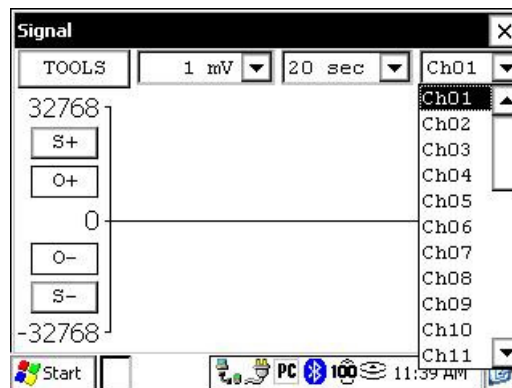
3. Select offset voltage scale.



4. Select time scale.



5. Select display channel

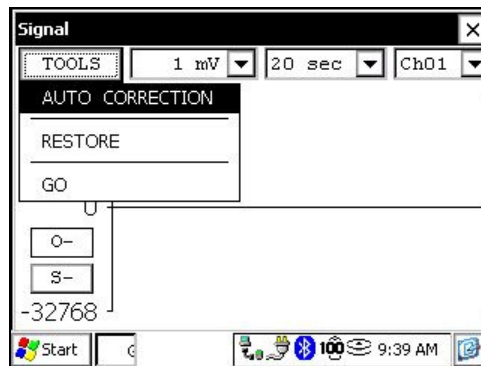


7.4.1.1 Tools menu

7.4.1.1.1 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).

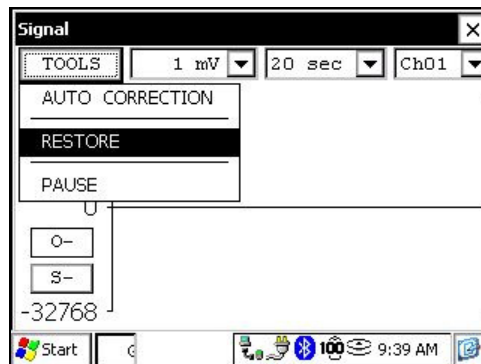
1. Select Tools | Auto Correction



7.4.1.1.2 Restore

The RESTORE option is used to reset the default setting.

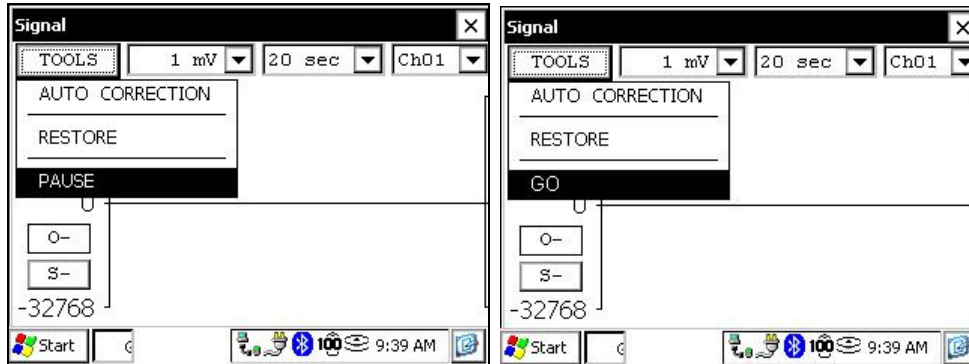
1. Select Tools | Auto Correction



7.4.1.1.3 PAUSE/GO

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

1. Select Tools | Pause or Tools | Go

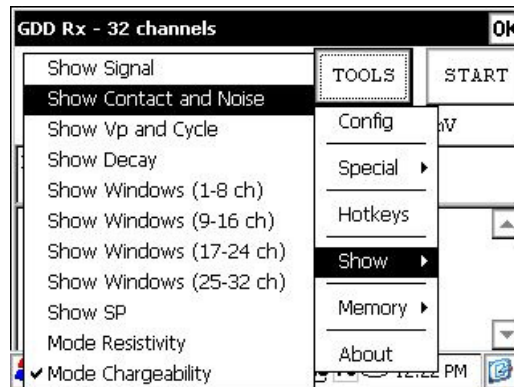


7.4.2 Contact and Noise

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

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

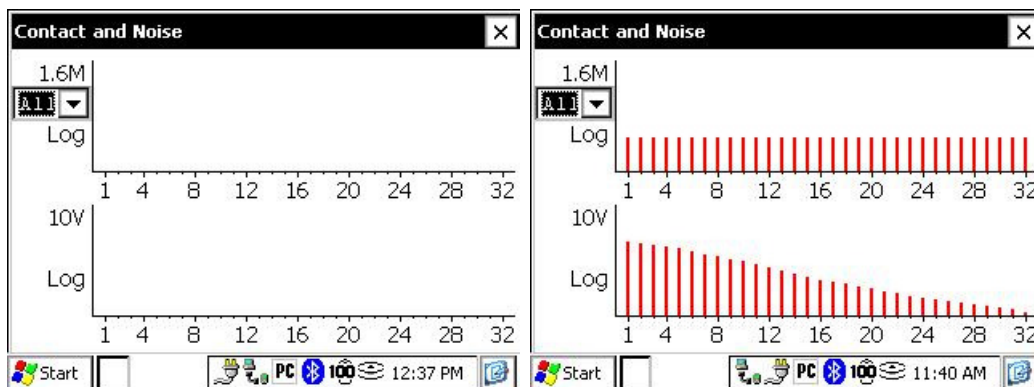
1. Select Tools | Show | Show Noise



2. The following screen appears.

Transmitter is **not** sending current

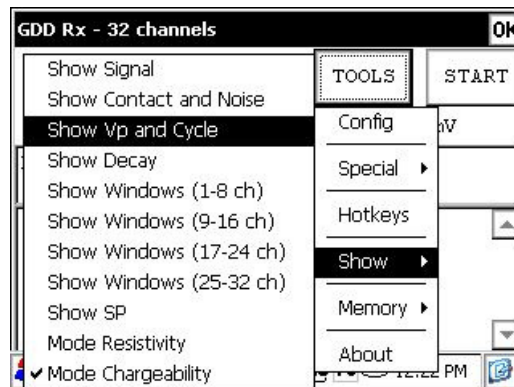
Transmitter is sending current



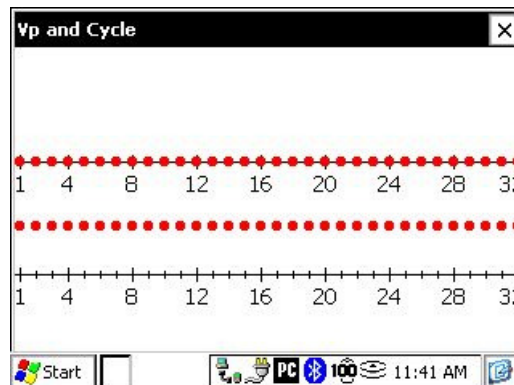
7.4.3 Vp and Cycle

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

1. Select Tools | Show | Show Cycle



2. The following screen appears.

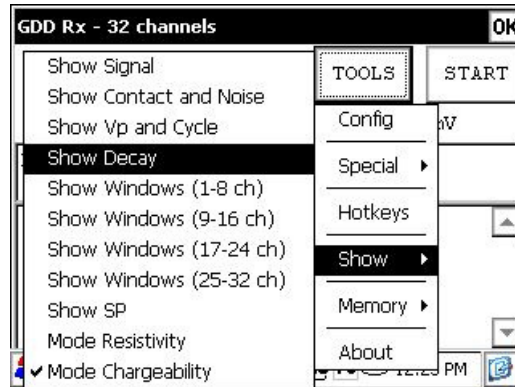


- Red dots indicate that the GRx8-32 is not synchronized.
- Green dots indicate that the GRx8-32 is synchronized.
- If the GRx8-32 is synchronized and the green dots are not moving in the same direction, check the electrodes position on the GRx8-32 front panel.

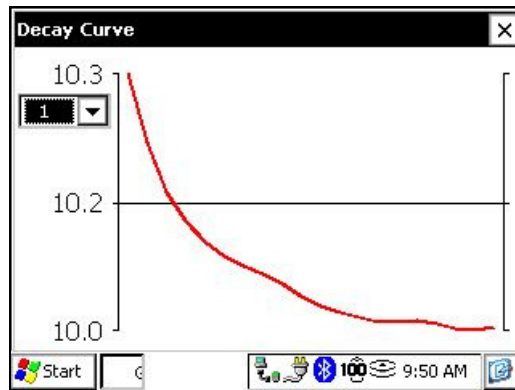
7.4.4 Decay Curve

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

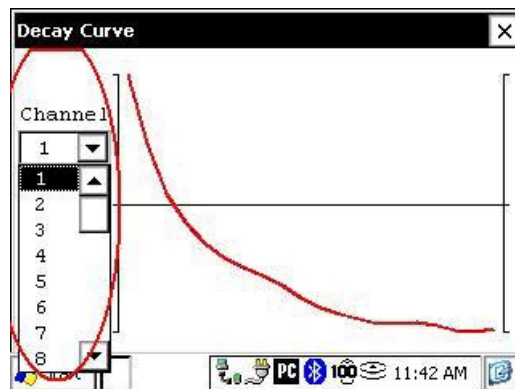
1. Select Tools | Show | Show Decay



2. The following screen appears.



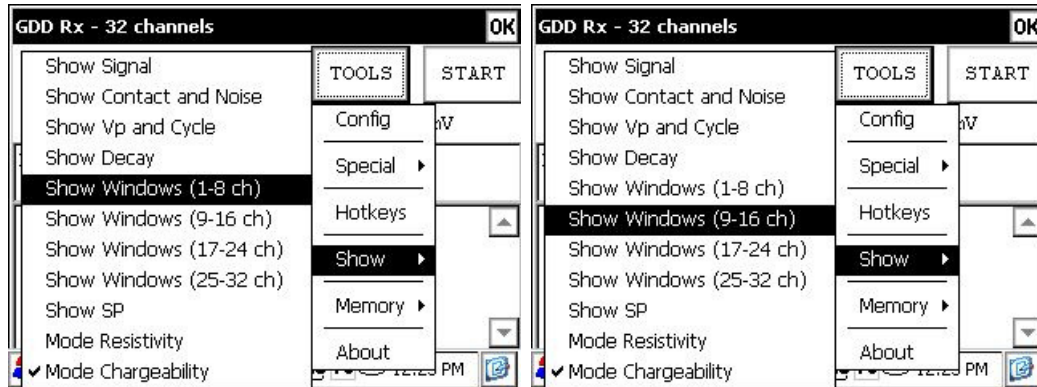
3. Select the display channel.



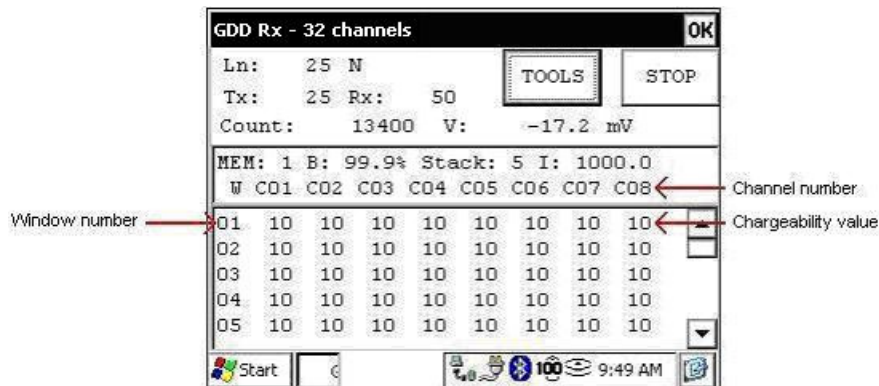
7.4.5 Show Windows (1-8 ch or 9-16 ch)

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

1. Select Tools | Show | Show Windows (1-8 ch) or Show Windows (9-16 ch)



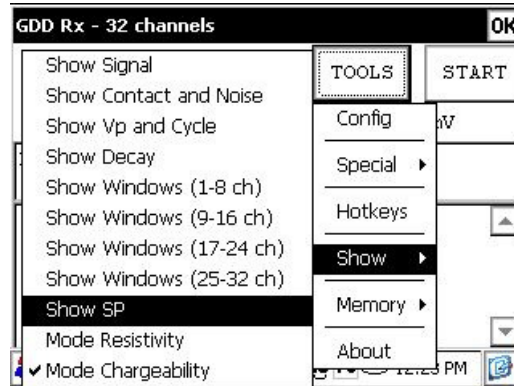
2. The following screen appears.



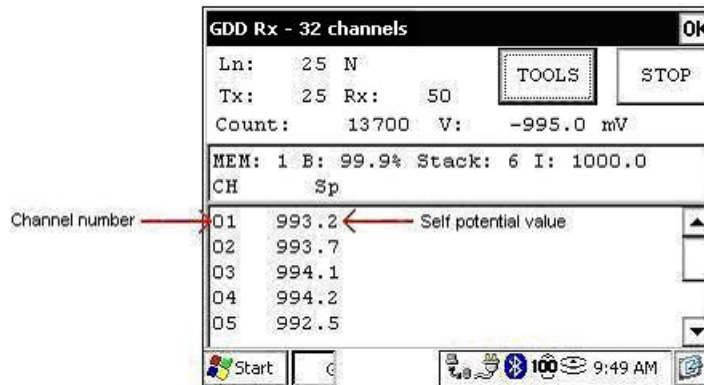
7.4.6 Show Sp

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

1. Select Tools | Show | Show SP



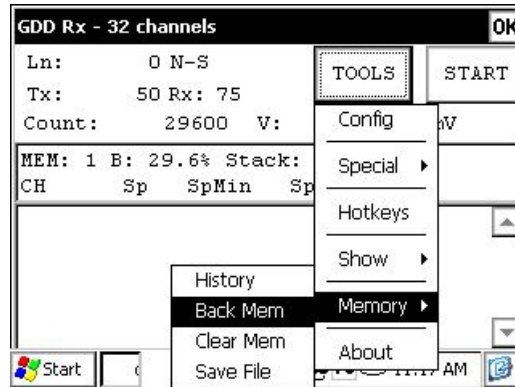
2. The following screen appears.



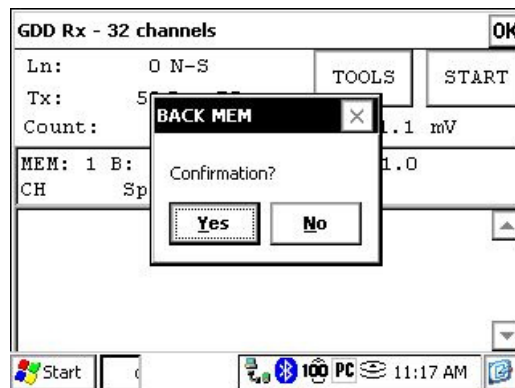
7.5.2 Back Mem

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

1. Select Tools | Memory | Back Mem



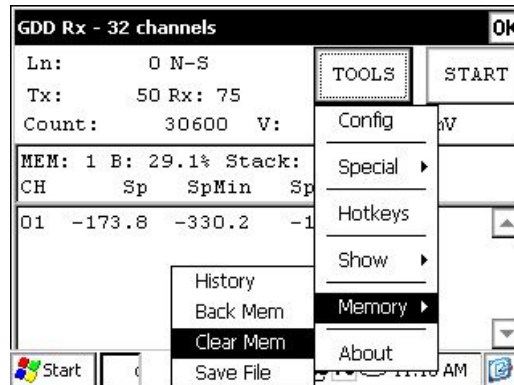
2. Click on the Yes button to clear the last readings.



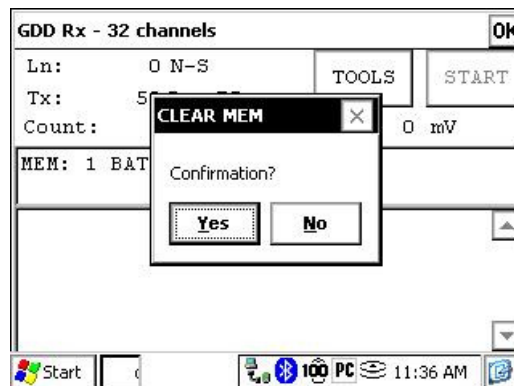
7.5.3 Clear Mem

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

1. Select Tools | Memory | Clear Mem



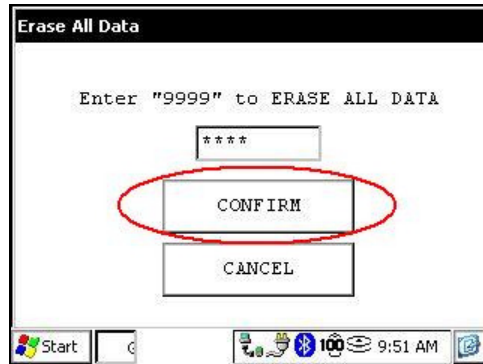
2. Click on the Yes button to confirm the operation.



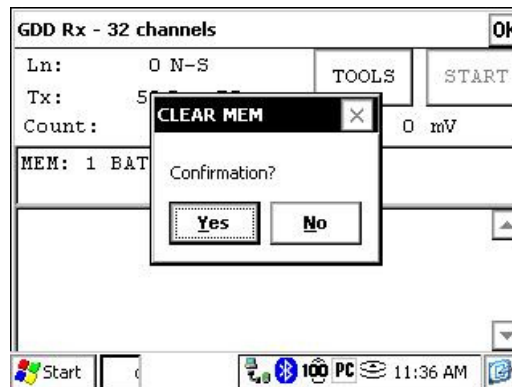
3. Enter 9999 in the text box.



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



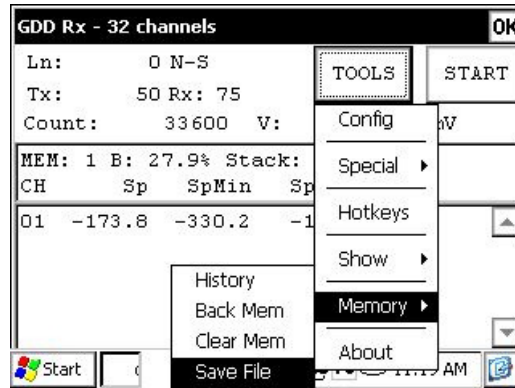
5. A message will follow to confirm your operation.



7.5.4 Save File

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

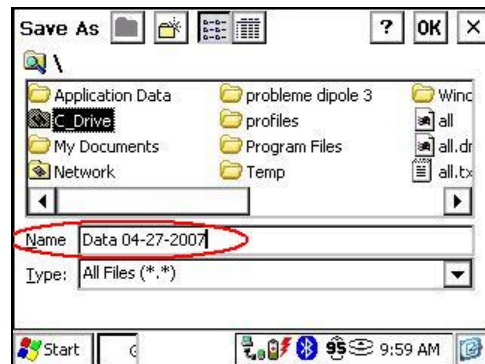
1. Select Tools | Memory | Save File



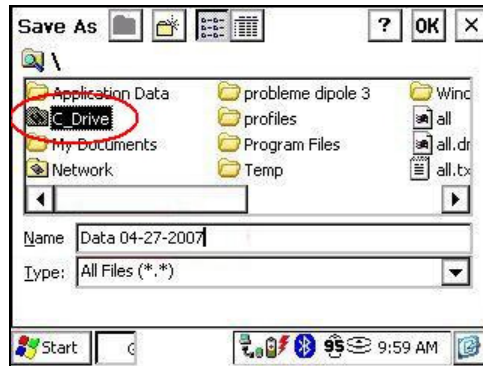
2. Select the file format.



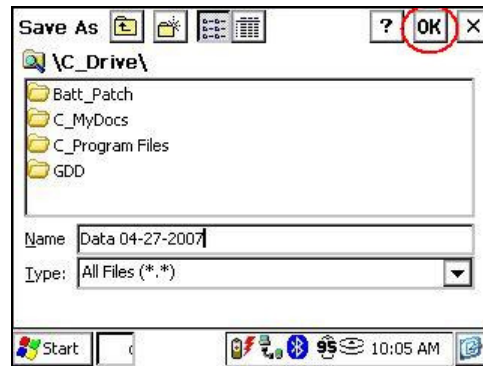
3. Enter the file name.



4. Double click on the C_Drive folder.



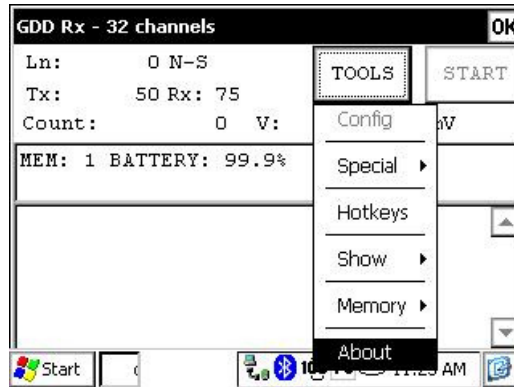
5. Click on the *OK* button.



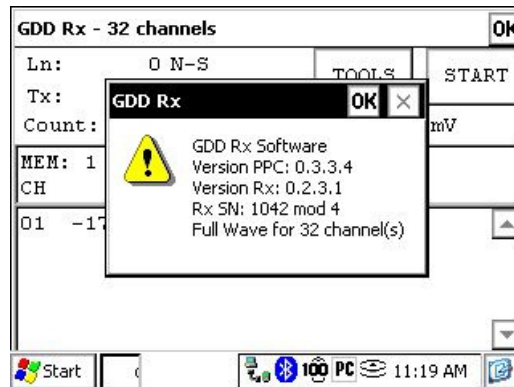
7.6 About option

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

1. Select Tools | About



2. The following screen appears.



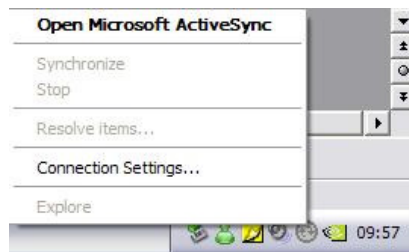
8 Transferring data

8.1 ActiveSync installation and settings

1. To establish communication between the Allegro and a desktop PC, you need to install the ActiveSync software, which is available on the CD supplied by GDD.
2. Once ActiveSync is installed, a gray icon will appear in the bottom right corner of your desktop PC screen.



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



4. Check *Allow USB connection with this desktop computer.*



8.2 Connecting the Allegro Cx with a desktop PC

1. Turn *ON* the PDA



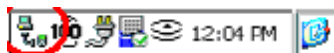
2. Insert the Allegro Cx in the USB power dock



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



4. A small *PCLink* icon appears on the Allegro Cx taskbar.

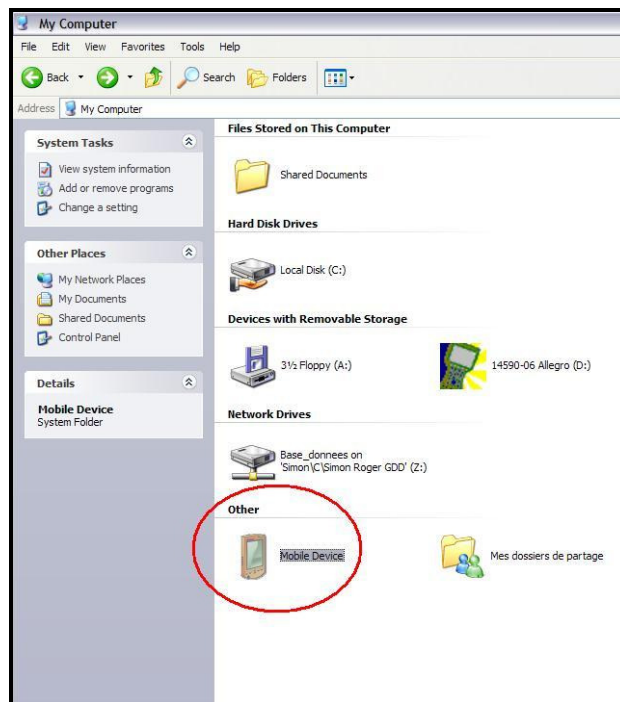


8.3 Transferring file(s) from the Allegro Cx to a desktop PC

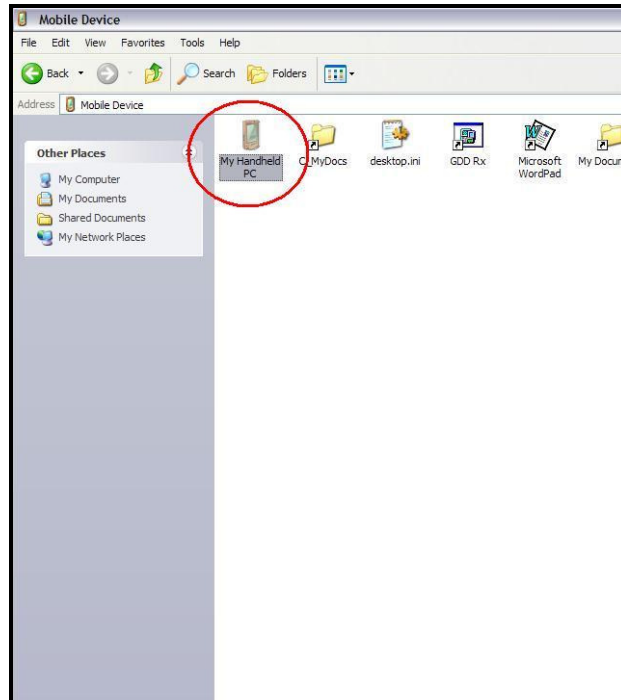
1. Double click on the *My Computer* icon on your desktop PC.



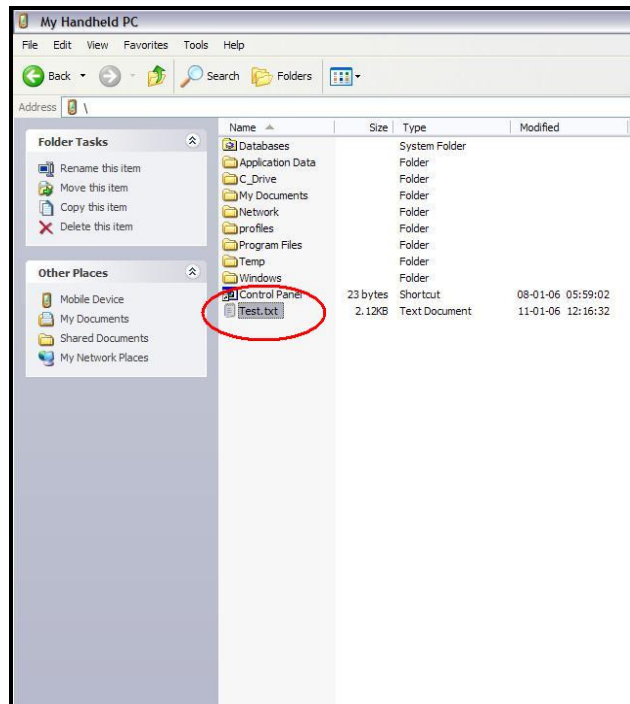
2. Double click on the *Mobile Device* icon.



3. Double click on the *My Handheld PC* icon.



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



9 Bluetooth configuration

1. Turn on the GRx8-32 receiver.



2. Select the *Wireless* option with the *Cable / Wireless* switch.



3. Insert the *Bluetooth reset key* into the *Hardware* connector, wait 10 seconds **AND REMOVE IT**.



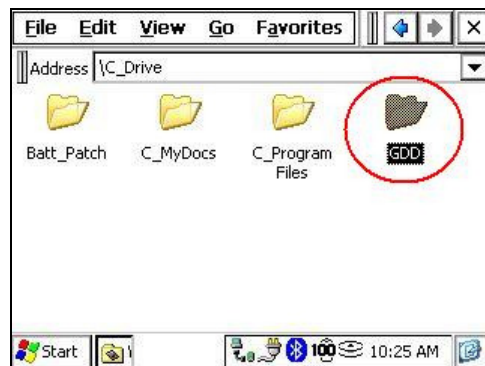
4. On the PDA, double click on the *My Computer* icon.



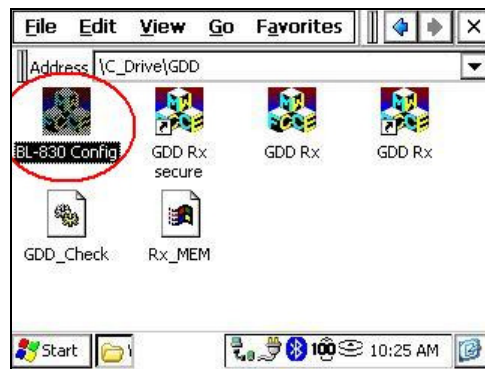
5. Double click on the *C_Drive* folder.



6. Double click on the *GDD* folder.



7. Double click on the *BL-830 Config* icon.



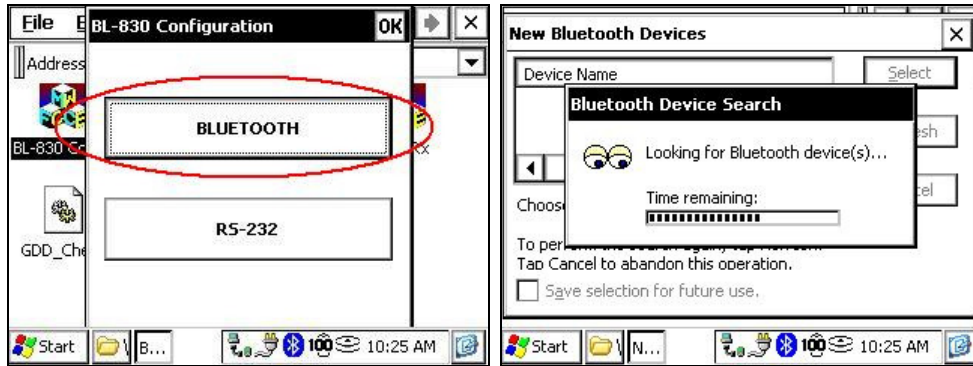
8. Click on the *Yes* button to confirm the operation.



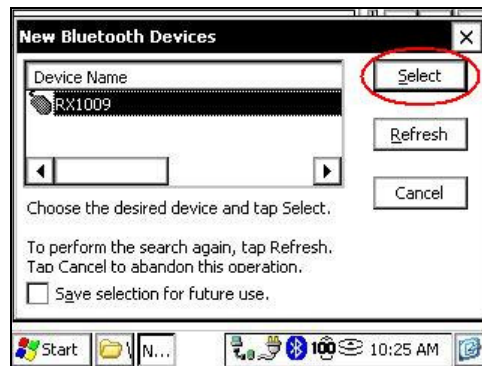
9. On the taskbar, click on the *BL-830 Config* icon.



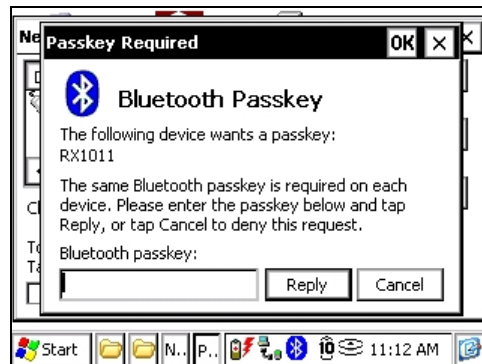
10. Click on the *Bluetooth* button to begin the Bluetooth Device Search.



11. Select the Bluetooth device you want to config (the device name can be the GRx8-32 serial number or Brainboxes Adapter).



12. The following screen appears.



13. Enter the Bluetooth Passkey (the Passkey is 1234) and click on the *Reply* button.



14. The following screen appears.



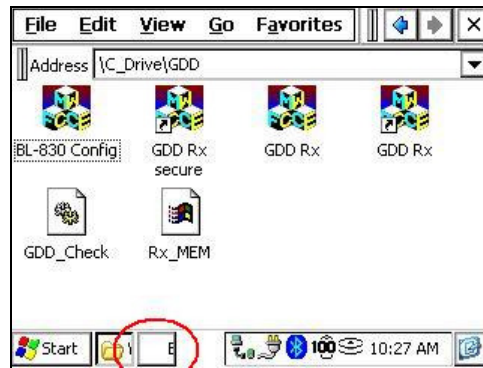
15. Click on the *Yes* button to confirm the operation.



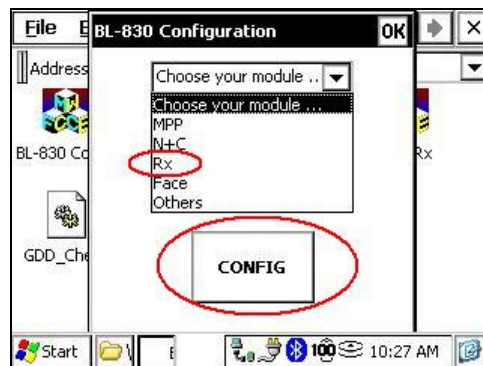
16. Select the *Remote Config* option and click on the *Select* button.



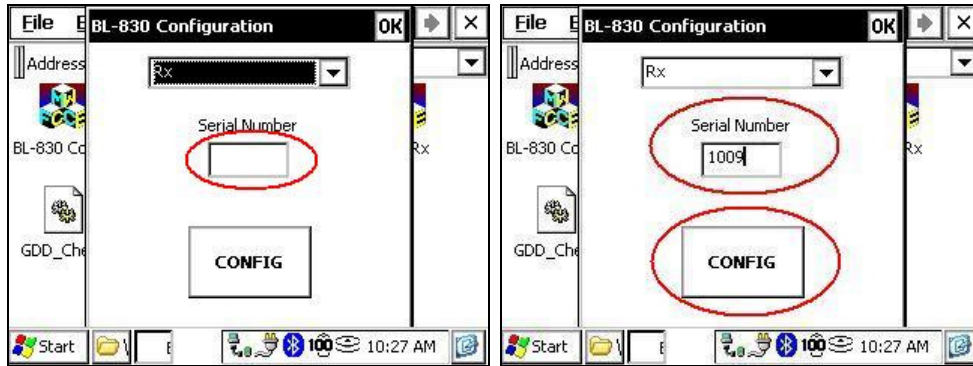
17. On the taskbar, click on the *BL-830 Config* icon.



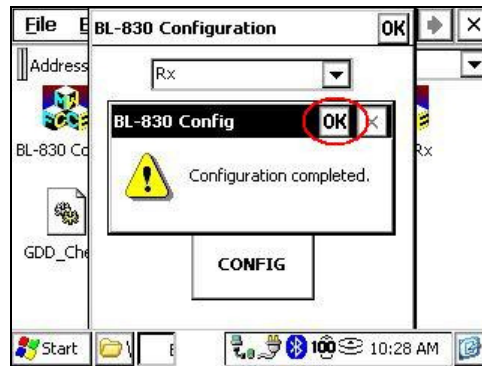
18. Select your module (Rx for Grx8-32 receiver).



19. Enter your GRx8-32 serial number and click on the *Config* button.



20. When the configuration is completed, the following screen appears. Click on the *Ok* button to close the window.



21. Click on the *X* button to close the window.



10 GDD Rx software update

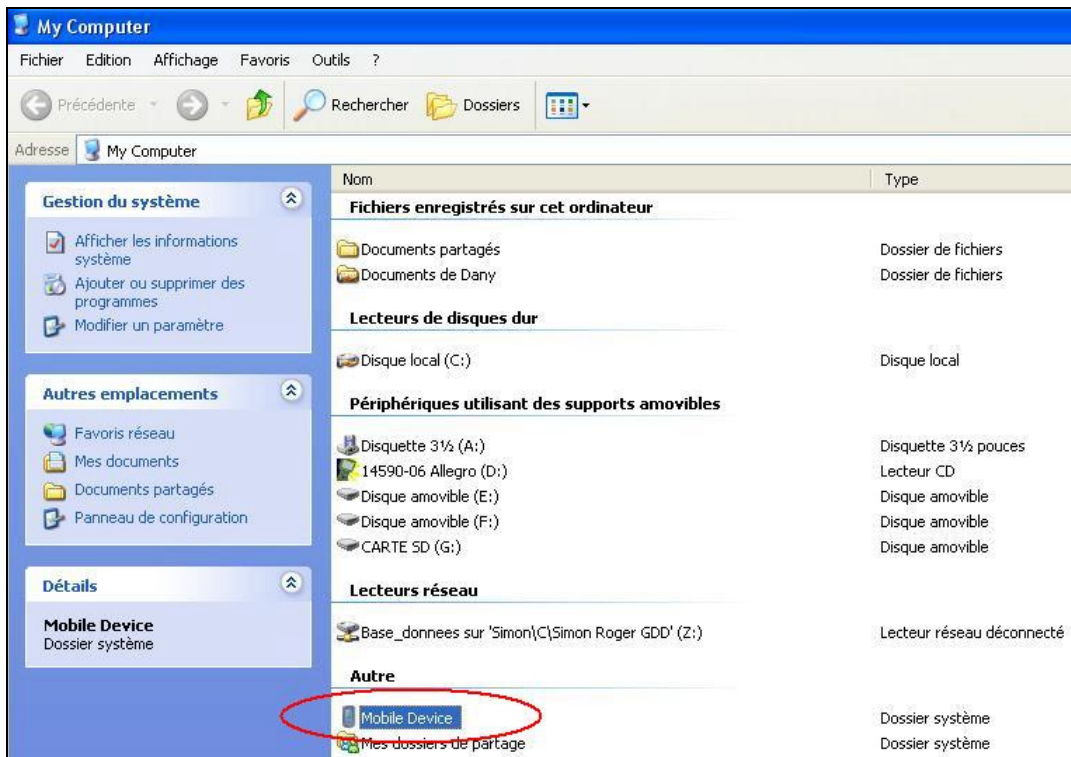
1. Place the Allegro into the USB/Power Dock. The Allegro automatically turns on.



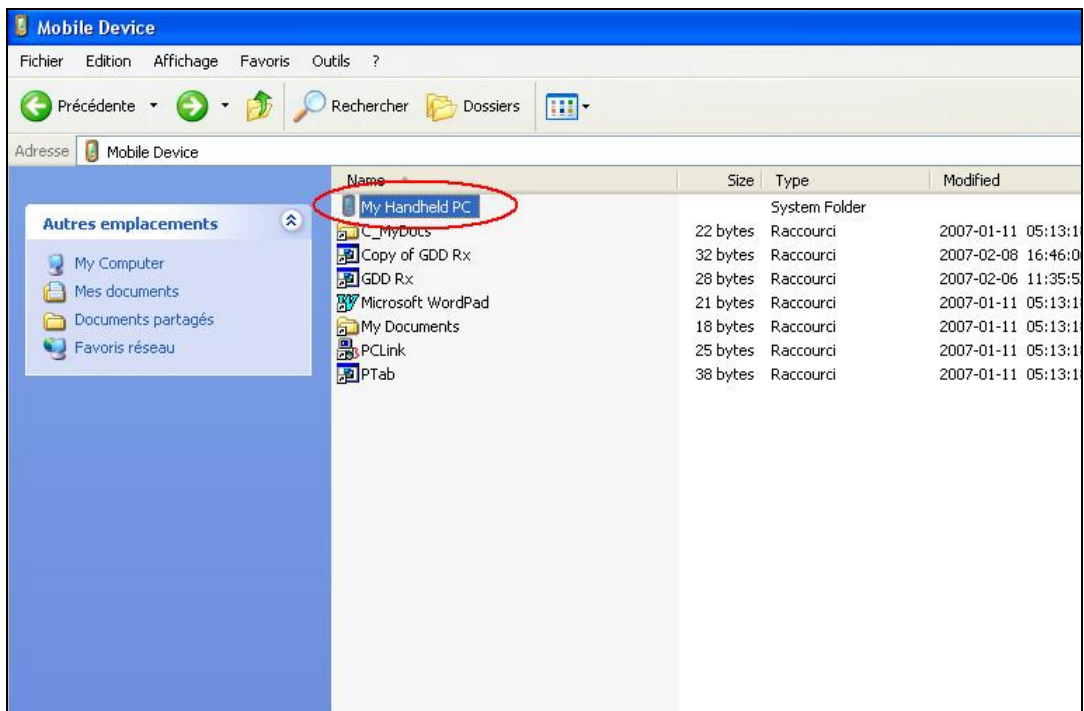
2. Double click on the *My Computer* icon on the desktop of your PC.



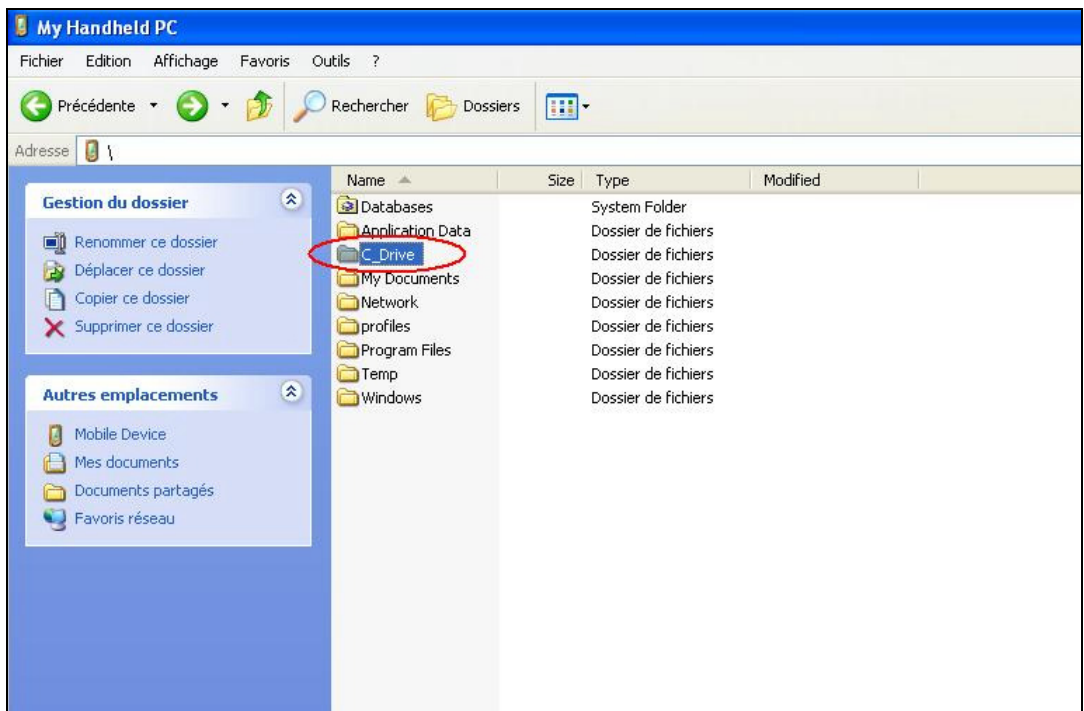
3. Double click on the Mobile Device icon.



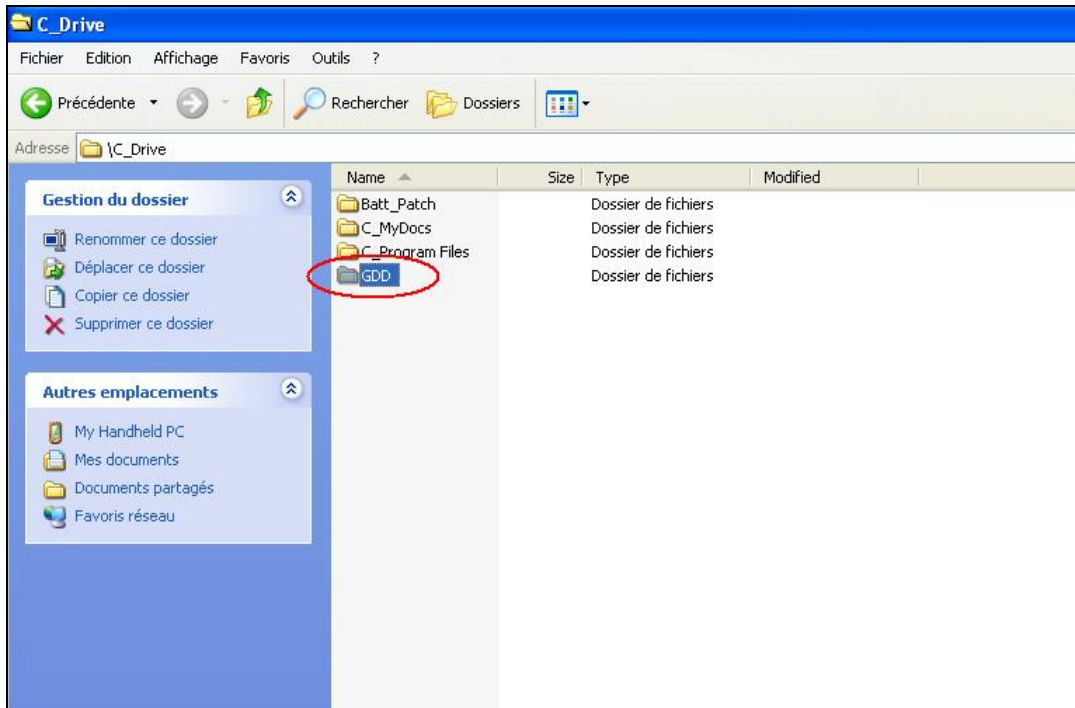
4. Double click on the MyHandheld PC icon.



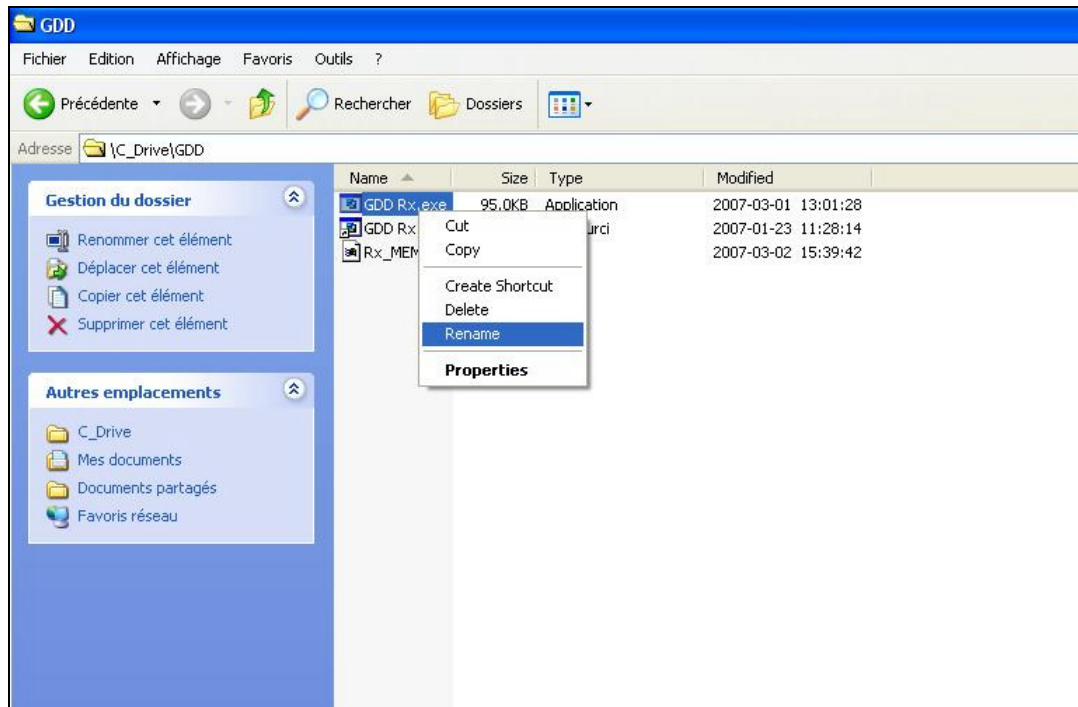
5. Double click on the C_Drive icon.



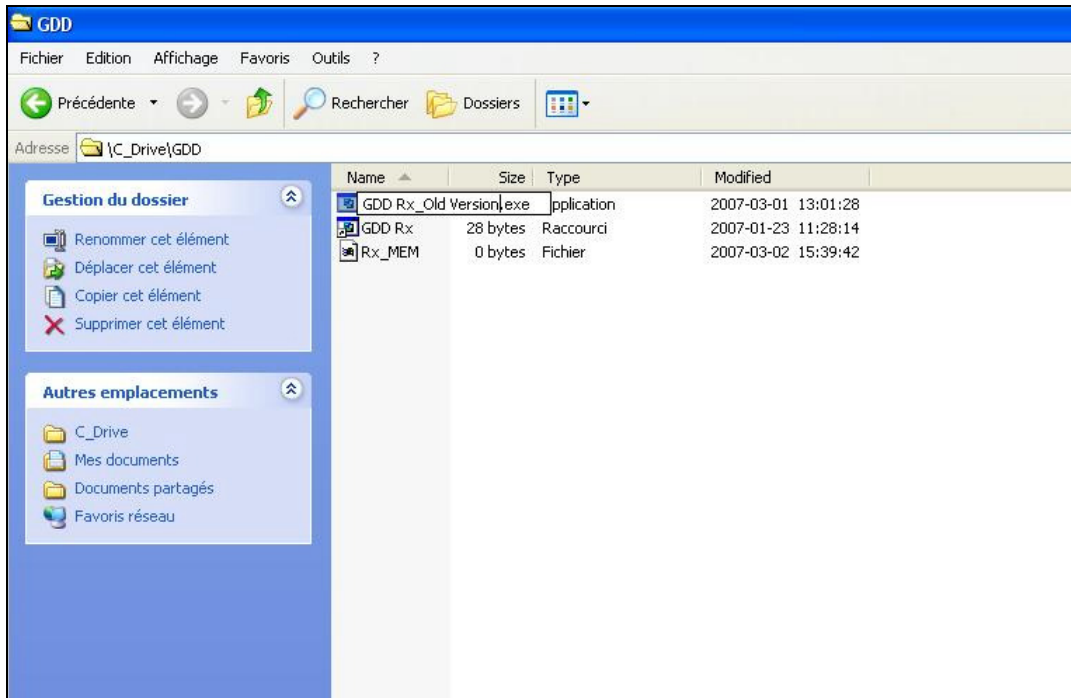
6. Double click on the GDD icon.



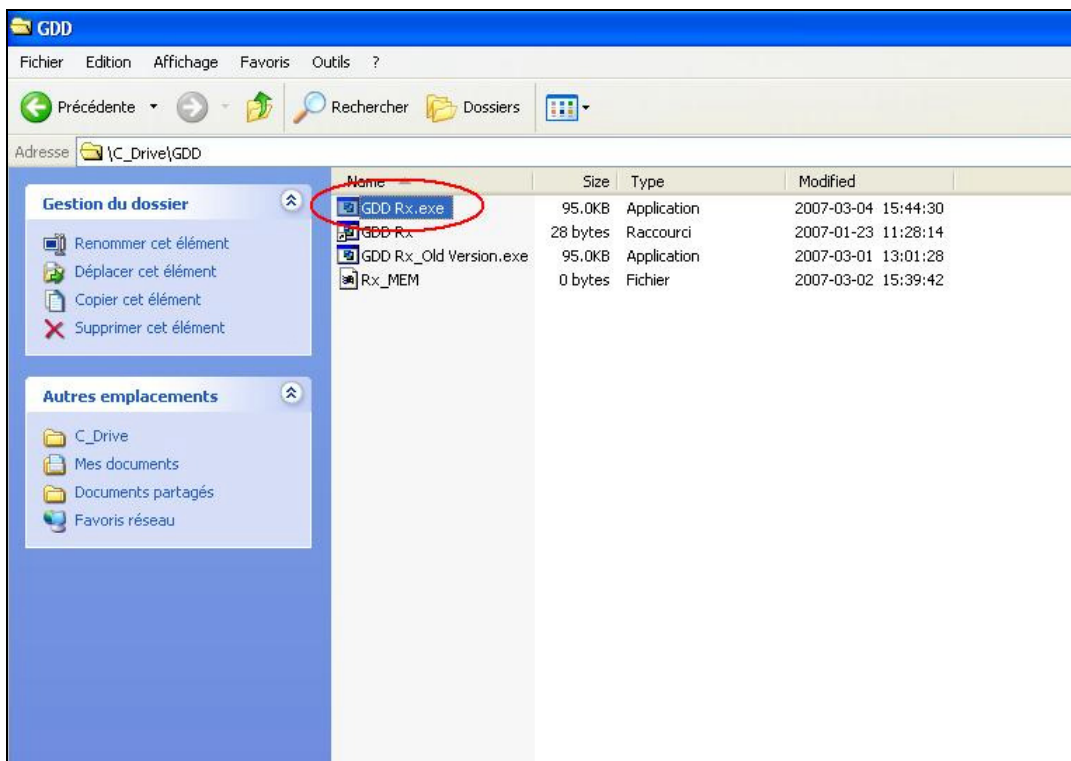
7. Rename the old version of the software to keep a backup on your Allegro Cx. Right click on the GDD Rx.exe icon and click on the Rename option.



8. Rename the software (example: GDD_Rx_Old Version.exe)

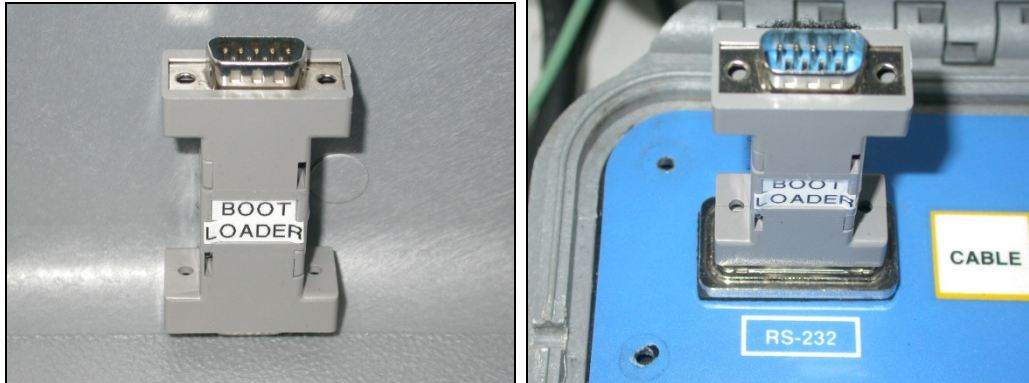


9. Use the drag and drop or the copy and paste functions to update the GDD Rx.exe software.



11 GRx8-32 CPU update

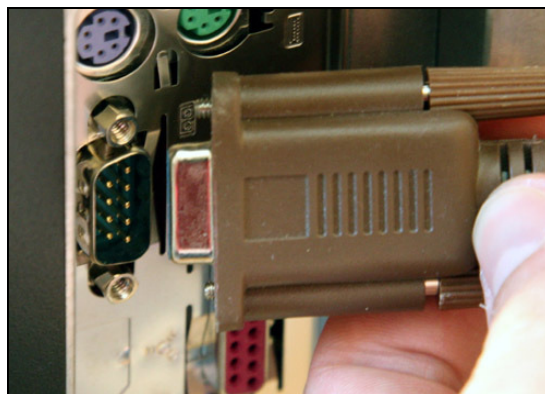
1. Insert the *Bootloader* key into the *RS-232* connector.



2. Connect one end of the serial communication cable to the *Bootloader* key.



3. Connect the other end of the serial communication cable to the COM 1 or 2 port on your desktop PC.



4. Select the *Cable* option with the *Cable / Wireless* switch.



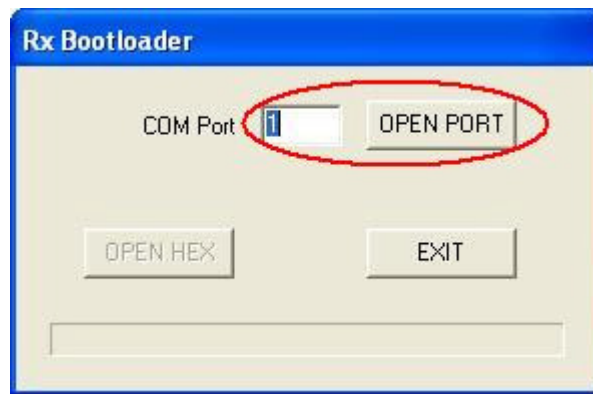
5. Select the SELF-TEST mode with the ON/OFF/SELF-TEST switch.



6. Double click on the *Rx HEX_Decoder* icon on the desktop of your PC.



7. Enter the serial port number and click on the *Open Port* button.



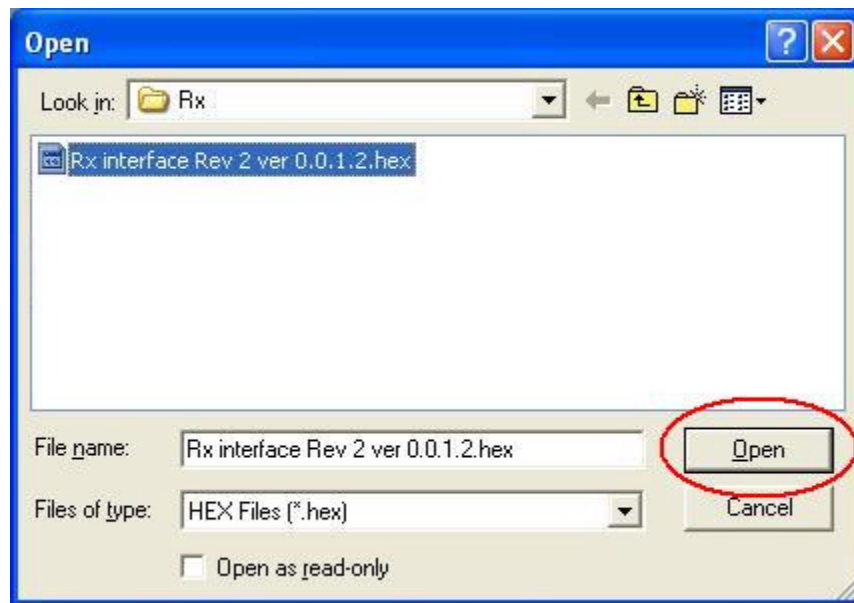
8. The following screen appears.



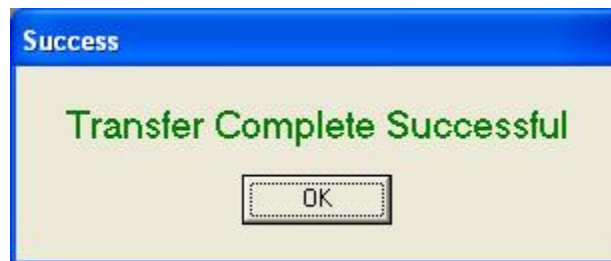
9. Click on the *Open Hex* button.



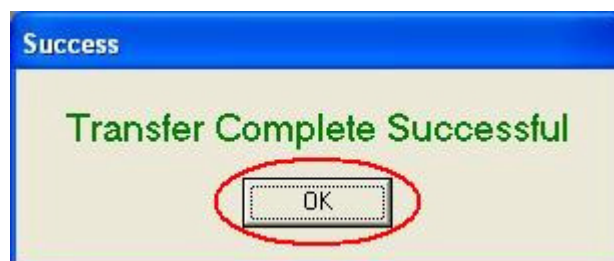
10. Select the new version of the CPU software (.hex file) and click on the *Open* button.



11. At the end of the transfer, the following screen appears.



12. Click on the Ok button to close the window.



12 Troubleshooting

This section explains some problems that could occur when using the GDD Rx8-32 as well as proposed solutions.

For any issues regarding the Allegro Cx pocket PC other than these related to the GDD program, please refer to the user manual of the Allegro Cx available on the Allegro Cx CD sent by GDD.

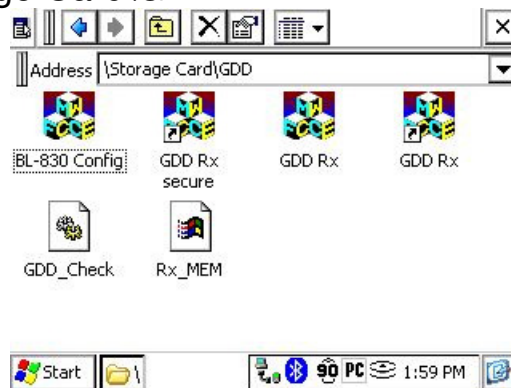
➤ Problem :

The GDD Rx program's shortcut has disappeared from the main screen of the Allegro Cx pocket PC.

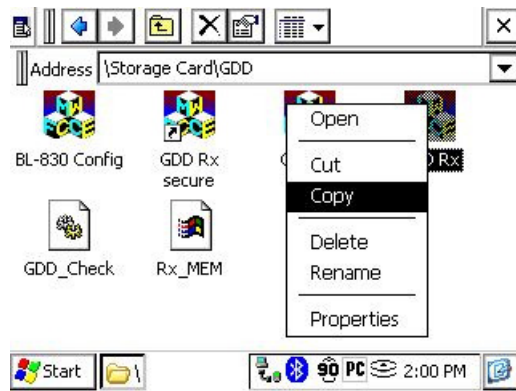
✓ Solution:

This might happen if the Allegro Cx main battery has been completely discharged. You can recreate the shortcut on the desktop by following these steps:

- 1- Double-click on My Computer.
- 2- Open Storage Card\GDD



- 3- Click and hold your pencil on the GDD Rx icon with a small arrow until the pop-up menu appears.
- 4- Select Copy.



5- Close the window.

6- Click and hold your pencil on a unoccupied spot on the desktop until the pop-up menu appears.

7- Select Paste.



➤ Problem :

The receiver isn't online when the On-Off switch is at 'On'.

✓ Answer :

- In Cable mode, the receiver will only be online when the GDD Rx program will be active on the pocket PC.

- If the receiver's batteries power rating is below the critical threshold, the receiver will not come online. (See the Power section for more details.)

➤ Problem :

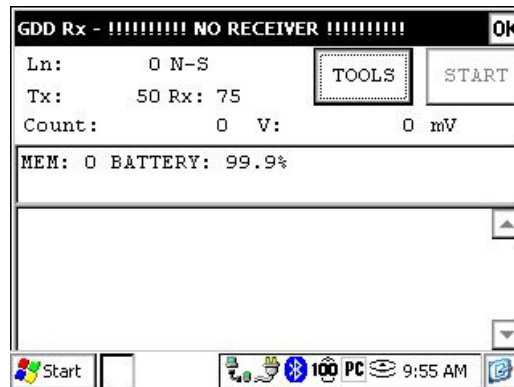
The charger's LED is not 'on' when it is plugged in the CHARGER connector of the receiver.

✓ Answer :

- Verify that the 120V or 240V (black) charger's cable is plugged in the charger and the charger is connected to a power source.
- Verify that the connector is properly inserted in the CHARGER connector.
- Verify that the charger is working properly: unplug the charger from the receiver and his power source. Plug it again in the power source. The LED should be red then turn green and finally it will turn off.

➤ Problem :

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 Allegro Cx is connected to the receiver.



✓ Answer

- 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 on the receiver and on the Allegro Cx pocket PC. If you are using the D-SUB 9 to D-SUB 9 cable, try replacing this cable by 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 Allegro Cx pocket PC.

- In Bluetooth mode, close the GDD Rx program and try be restarting the GDD Rx again.

➤ Problem :

In Bluetooth mode, you are asked to enter a password to communicate with the receiver.

✓ Answer :

The receiver's Bluetooth adaptor must be reconfigured. To do so, follow the steps in the section 'Bluetooth Configuration' of this manual.

13 Technical help

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

Tel.: (418) 877-4249
Fax: (418) 877-4054
Toll free line: 1 877 977-4249
e-mail: gdd@gddinstrumentation.com

Emergency out of business hours:

Pierre Gaucher:	Home phone:	(418) 657-5870
	Cell phone:	(418) 261-5552
Régis Desbiens:	Home phone:	(418) 658-8539
	Cell phone:	(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.

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 enter				Maximum number of dipoles
Dipole-Dipole	Tx1	Tx2	Rx	Sep	16
Pole-Pole		Tx2	Rx	Sep	16
Pole-Dipole		Tx2	Rx	Sep	16
Gradient	Tx1	Tx2	Rx	Sep	16
Wenner	Tx1	Tx2			1
Schlumberger	Tx1	Tx2		Sep	1

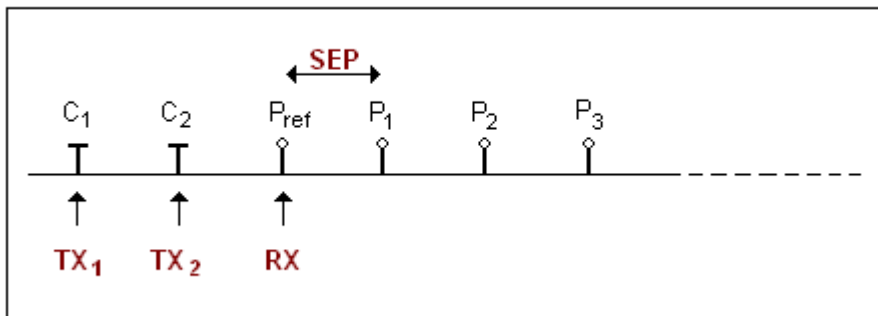
Tx1: Transmitter first electrode position

Tx2: Transmitter second electrode position

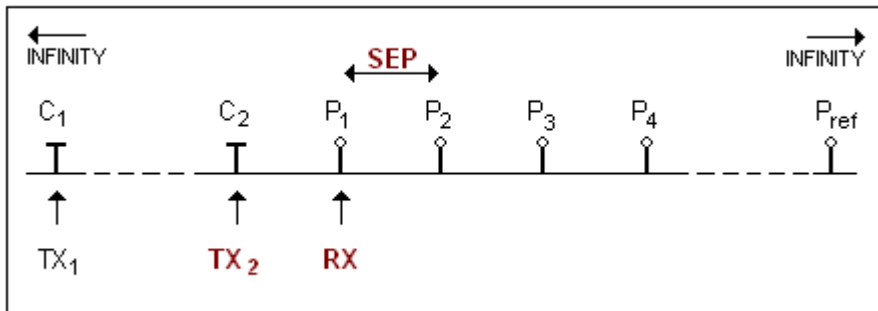
Rx: Receiver first electrode position

Sep: Separation between two receiver electrodes

Dipole-Dipole

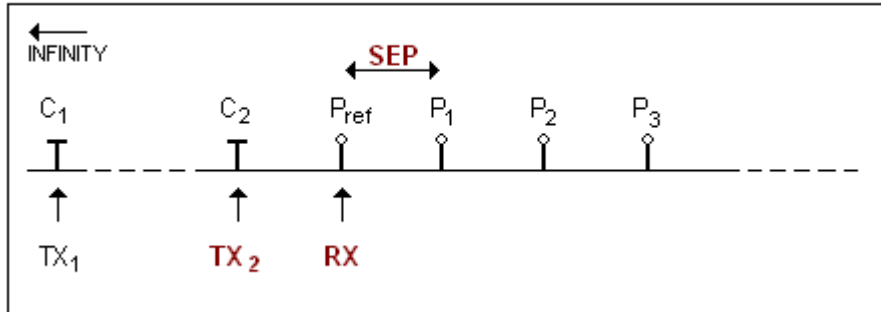


Pole-Pole



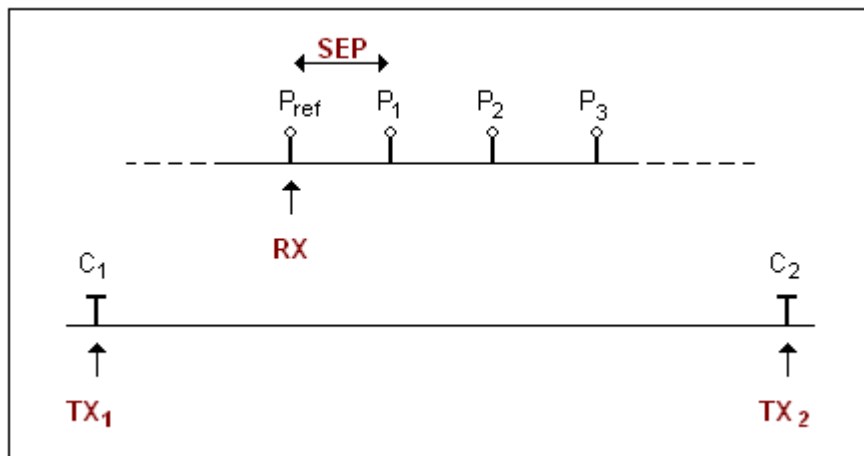
The electrodes C₁ and P_{ref} have to be set far from C₂ and P₁, generally 10 times the maximum distance between C₂ and P₁.

Pole-Dipole



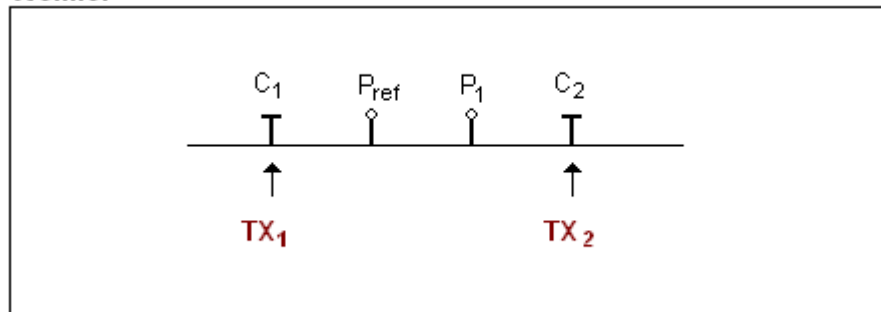
The electrodes C₁ has to be set far from the other electrodes, generally 5 times the maximum distance between C₂ and P₁.

Gradient



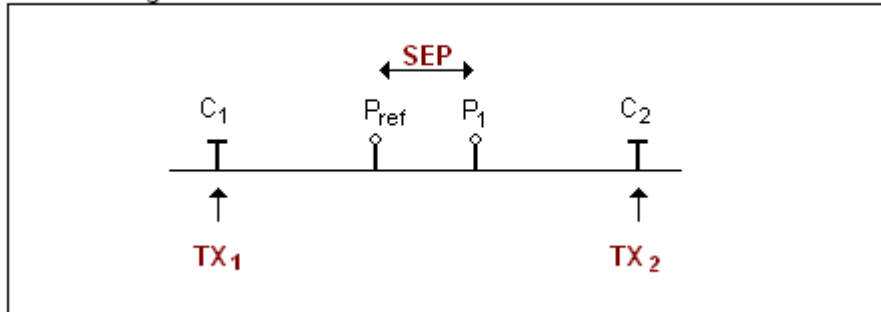
The electrodes C₁, C₂ are fixed and the electrodes P are moved parallel to C inside a zone located in the central part of C₁, C₂.

Wenner



The electrodes C₁, P_{ref}, P₁ and C₂ are equidistant.

Schlumberger



The electrodes P_{ref} and P₁ are located at the middle point of electrodes C₁ and C₂.