



RST INSTRUMENTS LTD.

ThermArray+ System
Mobile Platform
Instruction Manual

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RST ThermArray+ System

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Instruction Manual – Mobile Platform

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1 GENERAL DESCRIPTION

RST's ThermArray+ System provides precision thermal gradient information in geotechnical, geothermal, and marine applications. The system consists of digital thermal data acquisition nodes distributed along one or more linear cable segments, typically spaced at uniform intervals.

ThermArray Node

Each node consists of a precise, individually addressed, and individually calibrated digital temperature sensor which is moulded directly onto the ThermArray cable.

ThermArray Cable

The ThermArray cable is a waterproof low-temperature cable which provides power and digital data access to the ThermArray nodes. It includes waterblock filling and high-strength anti-stretch Kevlar® for precise and durable positioning.

Digital Sensor Interface Adapter

The Digital Sensor Interface provides power and data isolation as well as transient protection.

Data Collection, data display and logging interface

Data setup and collection can be performed by a stationary datalogger system, a laptop or an Ultra-Rugged Field PC2™.

2 SYSTEM COMPONENTS

The following picture shows the main components of the RST ThermArray+ System when used in conjunction with Ultra-Rugged Field PC2™.



Figure 1 – ThermArray System Overview

1. ThermArray Node
2. Power/Communication Cable
3. RS485 Digital Sensor Interface
4. Thermistor String
5. Field PC2™

3 READOUT UNIT

The Ultra-Rugged Field PC2™ comes with a Rugged Case to protect the device in often demanding field conditions. All connections are conveniently located on the front of the case, after taking readings the cover should be always put back in place to protect connectors.



Figure 2 – Ultra-Rugged Field PC2™ Case

3.1 USING THE ULTRA-RUGGED FIELD PC2™

Once the Ultra-Rugged Field PC2™ is connected to the RS485 Digital Sensor Interface, turn on the power to the Ultra-Rugged Field PC2™ by pressing the power button (Figure 3).



Figure 3 – Overview of the Ultra-Rugged Field PC2™

Front Image

- | | |
|------------------------|-------------------------|
| 1. Elastomer overmold | 9. Microphone |
| 2. Touchscreen | 10. Keypad buttons |
| 3. Buttons Control | 11. LED Indicator |
| 4. Hold-to-Zoom | 12. Power button |
| 5. Pictures and Videos | 13. Enter button |
| 6. Tab button | 14. Backspace |
| 7. Home Screen | 15. Context Menu Button |
| 8. Shift Function | 16. Right Soft Key |

Back Image

- | |
|-------------------|
| 17. Speaker |
| 18. Battery Door |
| 19. Hand Strap |
| 20. Stylus |
| 21. Stylus Tether |

Bottom Image

- 22. USB client (micro USB)
- 23. Microphone/Headphones jack
- 24. 12V DC jack
- 25. USB host (full size USB)
- 26. 9-pin serial port

Note

Depending on the version, the Ultra-Rugged Field PC2™ may vary slightly from the model shown in Figure 3.

FieldPC2 has many other features. For complete list of all FieldPC2 features and detailed instructions, please refer to FieldPC2 manual in PDF format Archer-2-Manual.pdf or available for download:

<http://www.junipersys.com/content/download/12916/197827/version/2/file/Archer-2-Manual.pdf>

4 SOFTWARE USER INTERFACE

Use the stylus to navigate through the operating environment. If you are unfamiliar with the *Windows Mobile* operating environment, please refer to the “*Getting Started Guide*” which is supplied on CD-ROM with the Ultra-Rugged Field PC2™.

From the *Start* menu, choose: *ThermArray+* to launch the RST ThermArray+ Software. Upon start-up, the program will automatically begin searching for the Digital Sensor Interface. Be sure the interface is connected to a thermistor array. The status will be displayed at the bottom of the screen (Figure 4 illustrates a successful connection). If a connection cannot be made, the connection settings will have to be changed (section 4.3).

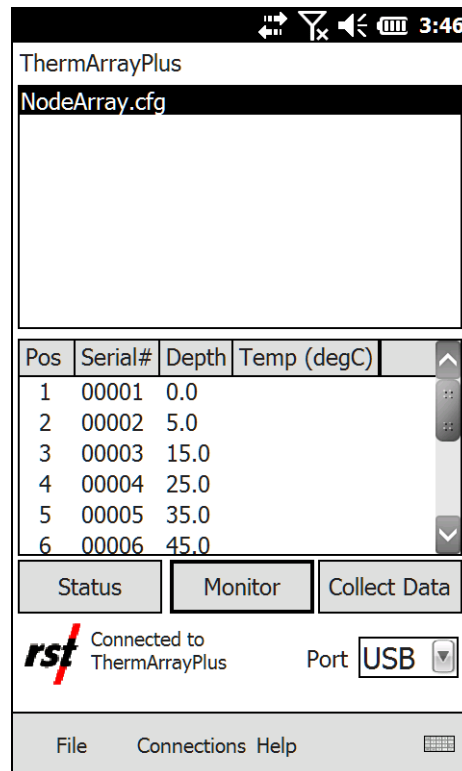


Figure 4 – RST ThermArray+ Software Main Menu

The *Main Menu* screen (Figure 4) displays the current list of thermistor arrays. Thermistor arrays are identified by configuration files (*.cfg). Once a configuration is selected, the details of the number of thermistor points and depths are given in the next window. For information on creating a new configuration file, please refer to section 6. Figure 4 shows thermistor array 3416.cfg and its details.

4.1 MENU ITEMS

4.1.1 FILE MENU

The *File* menu (Figure 5) allows the user to view and graph collected data files (Section 5) and backup the current files to the Field PC2™ to other memory location. Use Exit to close the ThermArray program.

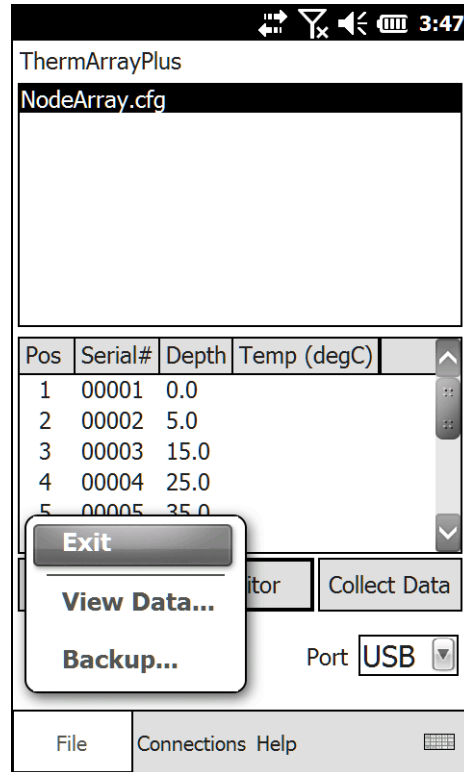


Figure 5 – ThermArray+ File Menu

The *Connections* menu (Figure 6) allows the user to disconnect and reconnect to RS485 Digital Adapter interface manually.

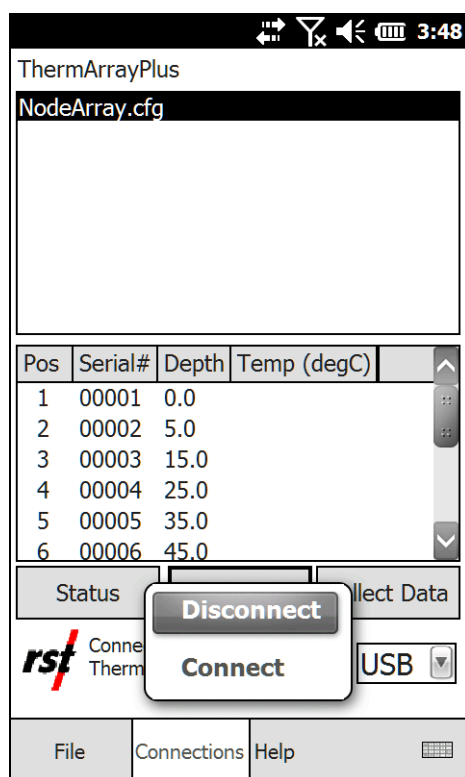


Figure 6 – ThermArray+ Connections Menu

4.1.2 STATUS SCREEN

Navigate to the *Status Screen* by pressing the *Status* button on the main menu. The following screen will appear:

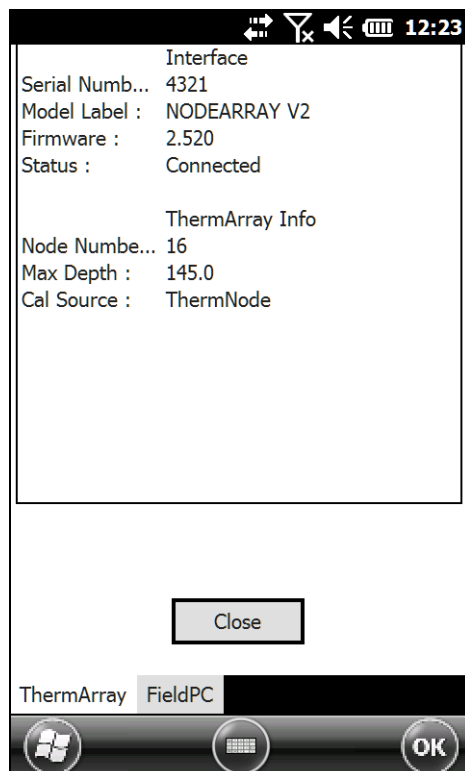


Figure 7 – ThermArray+ Status Screen

If the ThermArray has successfully connected to the RS485 Digital Sensor Interface, information will appear in the appropriate areas. If there is no connection the information fields will be blank and the status will read *not connected*. Vital information for the ThermArray is displayed in two sections: *Interface*, and *ThermArray Info*, (Figure 7).

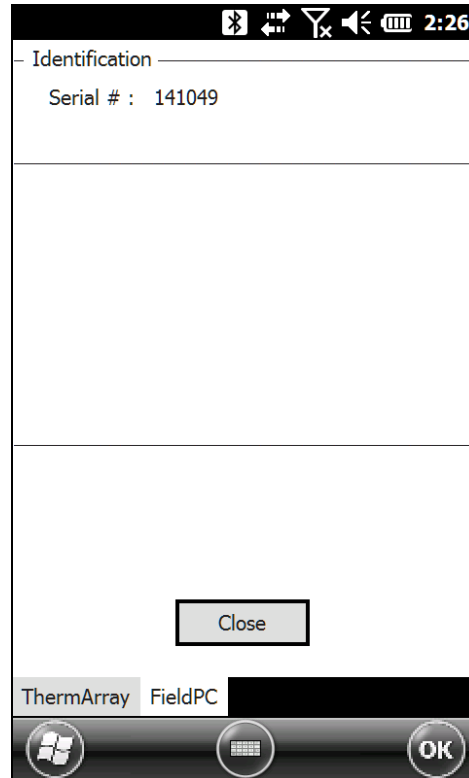


Figure 8 – Field PC2™ Status Screen

Pressing the *Field PC2™* tab brings up specific information about the Ultra-Rugged Field PC2™ serial # as shown in the above screen.

4.1.3 MONITOR

Once you have connected to the RS485 Digital Sensor Interface and the appropriate Thermistor Array (i.e. physical connection and corresponding *.cfg file is chosen), click on any thermistor node in *Node List* to view the current temperature of the selected thermistor node on the string.

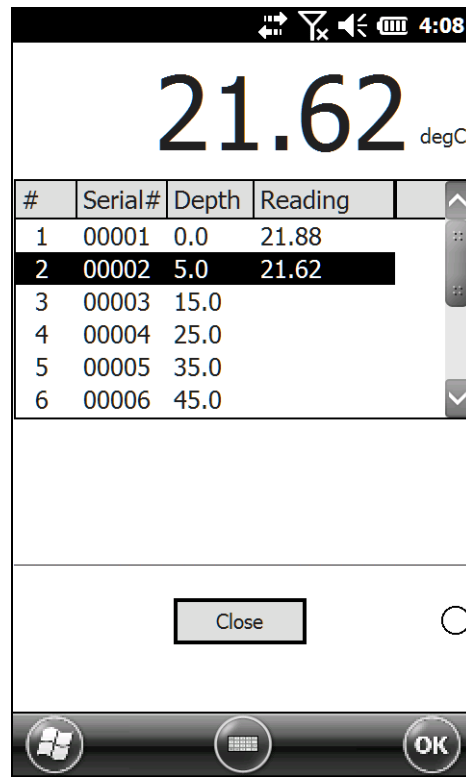


Figure 9 – Monitor Screen

Individual nodes can be selected from the list and the corresponding temperature will be displayed at the top of the screen. Use the scroll bar to scroll to the node of interest.

4.2 COLLECTING DATA

Launch the ThermArray program on your desktop PC. The unit will automatically connect to the Thermistor Interface and the most recent thermistor configuration file. If a new thermistor string is connected, choose the appropriate string configuration (*.cfg) from the list. On the bottom of the screen, you will be able to observe the connection to the string.

Press the *Collect Data* button from the *Main Menu* and the ThermArray program will automatically download the data from the current string in the following format:

<configuration file name>_<yymmddhhmm>.csv

The file will be automatically placed in the *DataFiles* Folder.

Once the download is complete the following will appear:

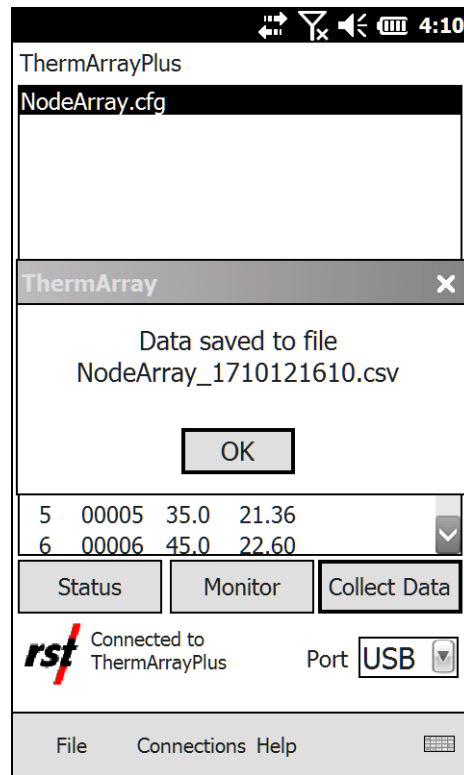


Figure 10 – Data Collection Complete

Press **OK** to confirm the file save. If there is an error in the data collection, a warning will appear as shown below:

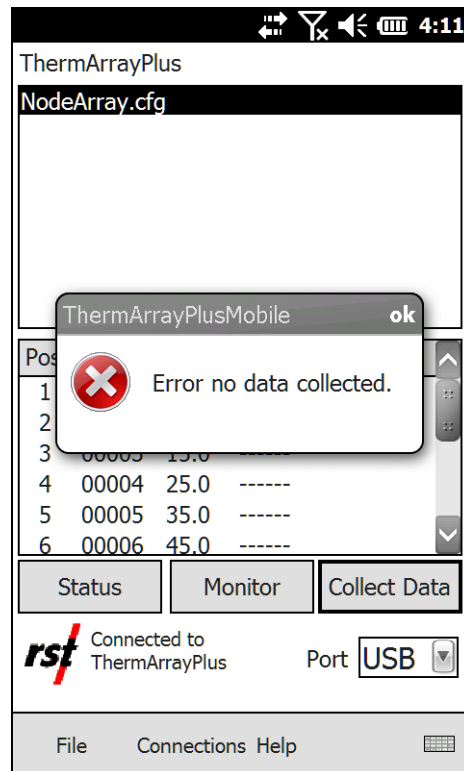


Figure 11 – Collection Error

If an error occurs, perform one of the following:

1. Check to make sure the selected *.cfg file matches the current thermistor string you are connected do.
2. Check the connection with the ThermArray Interface by pressing the *Status* button (section 4.1.2). If the device is not connected, check to make sure the interface is powered on.

4.3 CONNECTION SETTINGS

ThermArray+ software supports both RS232 serial port communication and new USB connection. The software will search for RS485 Digital Sensor Interface on USB port by default. If not found on USB port, RS232 port is used.

When using USB connection, ensure that the USB cable is connected to both Field PC2™ and RS485 Digital Sensor Adapter before starting ThermArray+ program.

5 VIEWING DATA FILES

From the *Main Screen*, tap the *View Data* (Figure 7). The following screen will appear:

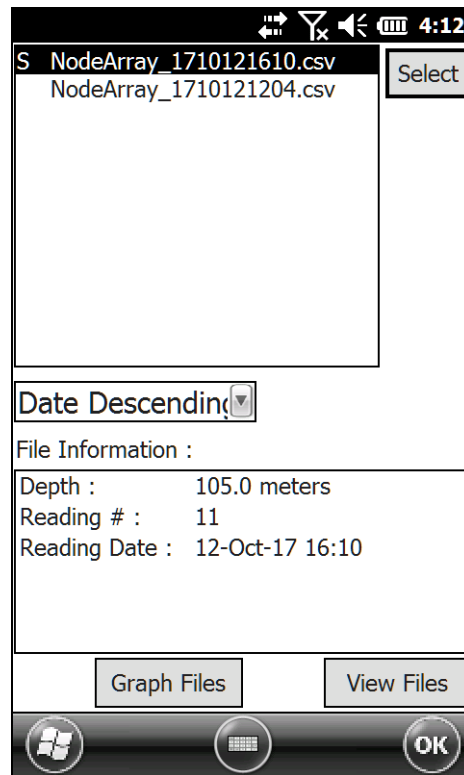
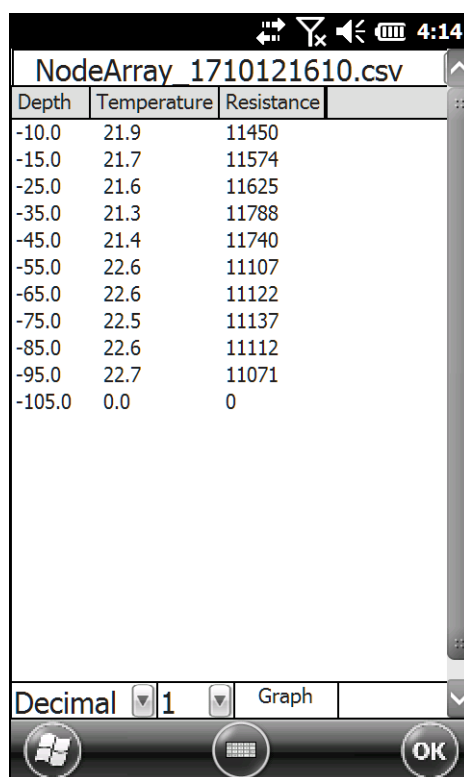


Figure 12 – Select Files Screen

A list will be populated in the *Data Files* section of the screen containing all the thermistor data files currently stored in the DataFiles folder. A small dropdown box allows the user to sort the files in ascending or descending order according to the name or the date of the file. The file summary includes the depth of the string, how many readings have been taken and the reading date. Double-click on any file in *Data Files* list (or select file and click *Select*). Click *View Files* to display recorded values in new window.



Depth	Temperature	Resistance
-10.0	21.9	11450
-15.0	21.7	11574
-25.0	21.6	11625
-35.0	21.3	11788
-45.0	21.4	11740
-55.0	22.6	11107
-65.0	22.6	11122
-75.0	22.5	11137
-85.0	22.6	11112
-95.0	22.7	11071
-105.0	0.0	0

Figure 13 – View Data Screen

Scroll down to see all ThermArray nodes in the string.

The drop-down menus at the top of the screen allow the user to change between which data set is being viewed.

The bottom portion of the screen has three menus which allow the user to display the data in either decimal or scientific notation, change the number of decimal places displayed, and a *graph* button which takes you to the graph data screen. At any time you may exit from this screen by pressing *OK* in the top right corner of the screen.

5.1 GRAPHING THE DATA

Files can be displayed in graphical form for visual comparison. Highlight the desired file from the file list as shown in Figure 12. Press the *Select* button to select the file. An "S" will appear next to the file name showing that it is selected. Press the *Graph Files* button and the following screen will appear:

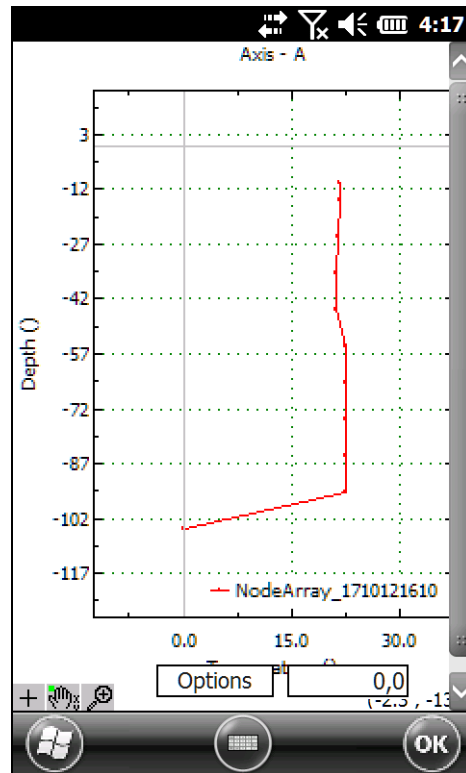


Figure 14 – Graph Data Screen

The temperature data will be plotted versus depth on the graph. If several data sets need to be plotted on the same graph, simply select several files from the list given in Figure 12. When the *Graph Files* button is pressed, all the data sets will appear in a single plot.

The *Options* button allows the user to manipulate the cursor, zoom, pan, change the scale, move the legend, or change the appearance of the graph. Three icons also appear in the bottom left of the screen which allow further manipulation of the graph. These are self-explanatory and the user is encouraged to explore these options if required. The default setting for all plots is *auto-scale*. To exit the graphical display, hit the *OK* button in the top right corner of the screen.

5.2 POST- PROCESSING THE DATA

The RST ThermArray+ System currently stores data in *.csv format. Once the data has been collected, it can be opened directly with most popular spreadsheet software such as Microsoft Excel™. If opened in MS Excel, the data will have a format similar to the one outlined below:

The screenshot shows a Microsoft Excel window with the file 'NodeArray_1710121204.csv' open. The ribbon includes Home, Insert, Page Layout, Formulas, Data, Review, View, Add-Ins, Command Expert, novaPDF, and a search icon. The data is organized as follows:

	A	B	C	D	E	F	G	H	I
1	RST ThermArrayPlus Data								
2	File Version	3							
3	ThermArrayPlus Config	NodeArray.cfg							
4	String Serial#	451							
5	Head Length	10							
6	Reading Date(m/d/y)	10/12/2017	12:04:52						
7	Maximum Depth	105							
8	Depth Units	meters							
9	Reading Number	11							
10	Cal Source	ThermNode							
11									
12	Pos	Address	Depth	Reading	Units	Node Seri	Raw Data		
13									
14	1	1	10	21.93	deg C	0451-1	11443		
15	2	2	15	21.68	deg C	0451-2	11572.8		
16	3	3	25	21.57	deg C	0451-3	11628.7		
17	4	4	35	21.11	deg C	0451-4	11875.2		
18	5	5	45	20.98	deg C	0451-5	11940.7		
19	6	6	55	22.32	deg C	0451-6	11246.9		
20	7	7	65	22.39	deg C	0451-7	11214		
21	8	8	75	22.31	deg C	0451-8	11251.1		
22	9	9	85	22.65	deg C	0451-9	11082		
23	10	10	95	22.95	deg C	0451-10	10935.6		
24	11	11	105	0	deg C	0451-11	0		
25									
26									

Figure 15 – Sample Data File

The top section of the file contains information about the file. The data is populated below with related headings. Plots can easily be made by highlighting the desired cells. Raw data is included for diagnostic purposes should any errors occur in the system.

6 CREATING A THERMISTOR CONFIGURATION FILE

Each individual node on the ThermArray contains its own unique preset calibration. Each thermistor string ordered from RST Instruments will be accompanied by the configuration file. If a configuration file is missing, please contact RST Instruments and one can be created and sent via e-mail. The ThermArray+ host software will read configuration files from the following folder:

My Documents/ThermArrayPlus/ConfigFiles

Place all thermistor string configuration files in the above folder before starting ThermArray+ host program.

7 DOWNLOADING DATA TO A DESKTOP PC

The software used to transfer data will depend on the version of Microsoft Windows installed on a desktop PC.

For Windows XP versions, ActiveSync™ is required. Windows Vista and Windows 7 have a build-in Mobile Device Center. It is highly recommended to download and install the newest updates from Microsoft website.

7.1 INSTALLING MICROSOFT ACTIVESYNC™ ON WINDOWS XP

In order to communicate between the Ultra-Rugged Field PC2™ and a desktop PC or laptop, Microsoft's ActiveSync™ software is required and is included with the ThermArray+ System. Communication between the two devices is achieved through an USB connection.

Note

Microsoft's ActiveSync™ software can be freely downloaded from Microsoft's website.

Important

Don't connect the USB cable before installing ActiveSync™ software. Doing so will result in installation of generic Windows USB drivers which will not work with Ultra-Rugged Field PC2™.

To install Microsoft ActiveSync™:

1. Insert the Ultra-Rugged Field PC2™ Companion CD into the CD-ROM drive. On most systems, Windows will automatically launch the setup program. Minimum system requirements are outlined in the jacket of the CD-ROM. Once the CD is up and running, a graphical window will open. Press the *play* icon on this window.
2. Click the link marked *Start Here*.
3. Click *Install ActiveSync*. Note: When prompted to download the file, select *Run this program from its current location*. Installing Microsoft Outlook is **not** necessary, for the ThermArray System to function. If you wish to use the Ultra-Rugged Field PC2™ for e-mail, install Outlook.
4. Follow the on-screen instructions until you reach the screen shown below, and then continue with Step 5.

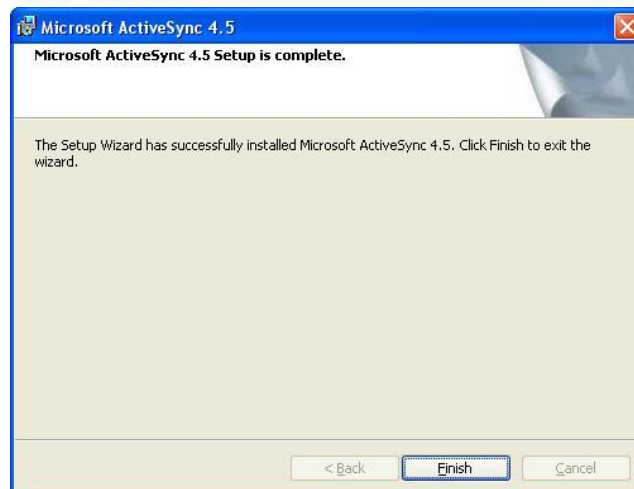


Figure 16 – ActiveSync Connection Screen

5. Click Finish button.

6. Insert the AC Adapter plug into an electrical outlet. Connect the AC connector barrel connection on the base of the Ultra-Rugged Field PC2™ (item 24, Figure 3).
7. If you have not already done so, connect the mini USB connector to the connector on the base of the rugged case and the USB connector to the USB port on either the front or back of your personal computer.

Note

ActiveSync will automatically detect the Ultra-Rugged Field PC2™ connection.

8. Continue to follow the ActiveSync instructions to establish a partnership. Eventually you will come to a screen like the one below:



Figure 17 – Setting Up a Partnership

In order to synchronize the data in real-time between the Ultra-Rugged Field PC2™ and the desktop PC, you must set up a *sync partnership*. If you do not wish to synchronize data and simply use Windows Explorer to copy files to and from the Ultra-Rugged Field PC2™, click Cancel to leave the connection as *Guest Partnership* and skip the remaining instructions.

1. To set up a *sync partnership*, press *Next*.
2. Uncheck the option for synchronizing with Microsoft Exchange Server, press *Next*.
3. Decide what type of information you would like synchronized with the desktop computer. If you are only using the Ultra-Rugged Field PC2™ for the purposes of transferring ThermArray information, uncheck all the options and place a check mark next to the *Files Folder* (see below).

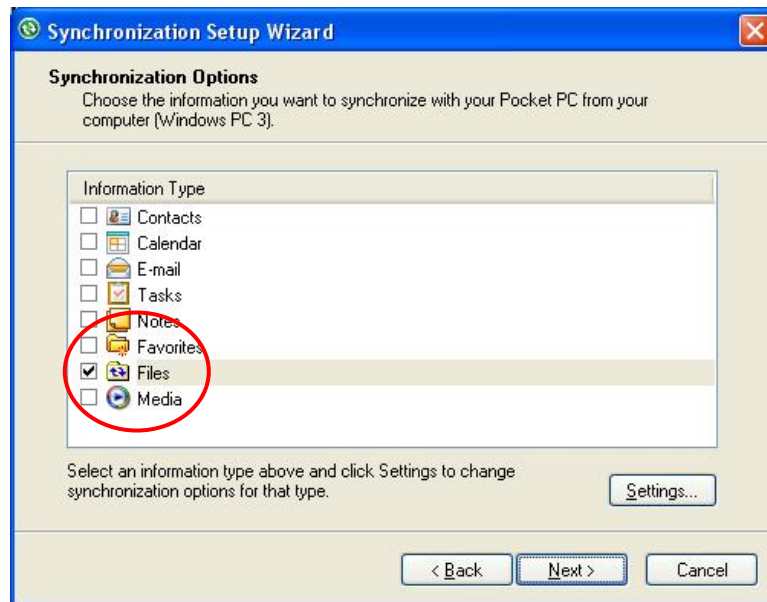


Figure 18 – Synchronization Settings

The software will notify you that it will create a folder on the desktop which links directly to the Ultra-Rugged Field PC2™ (press OK). Click Next, and then Next on following dialog, then Finish the installation. Once the partnership is established, the PC will recognize and automatically synchronize to the Ultra-Rugged Field PC2™ each time it is connected with the USB cable.

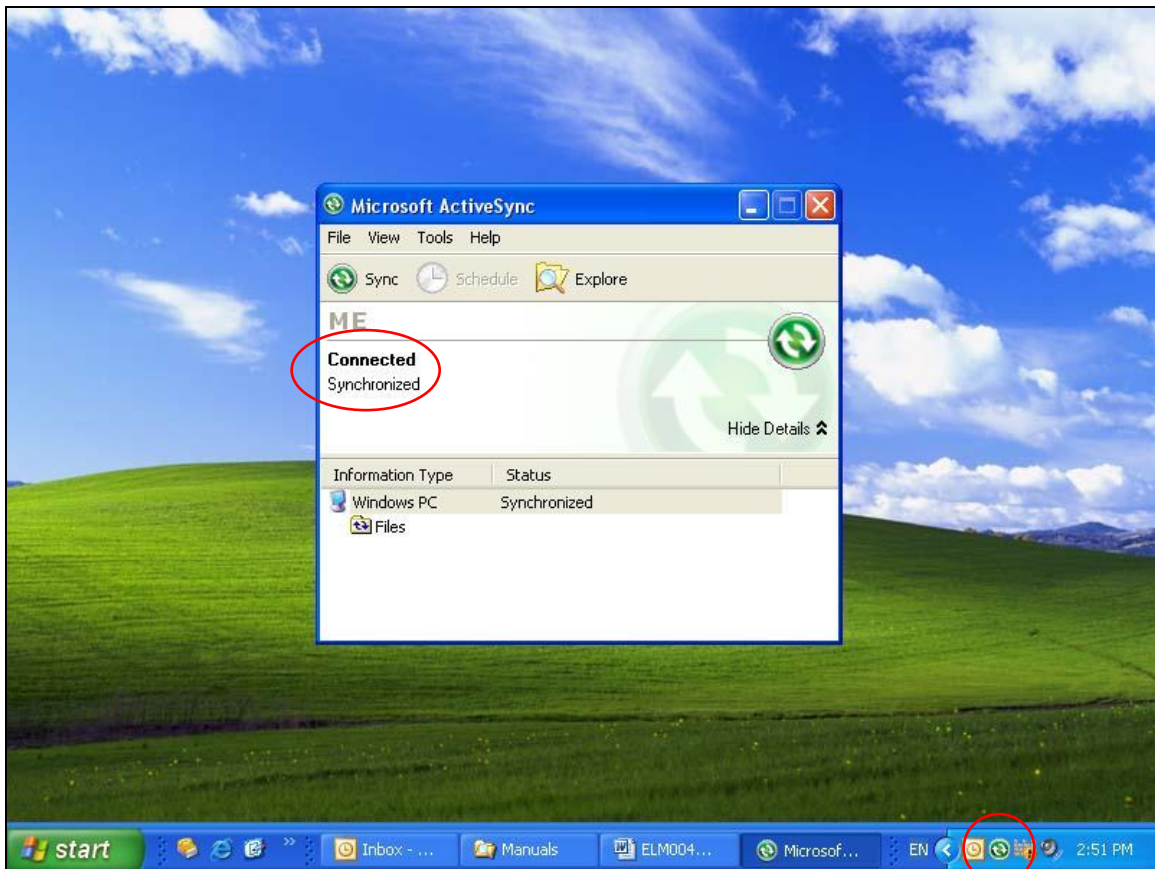


Figure 19 – ActiveSync Screen

Important

It is extremely important that the user realizes that the synchronized folder created on the desktop is an **active** link to the Ultra-Rugged Field PC2™. Any changes you make in that folder will be reflected on the Ultra-Rugged Field PC2™. For example, if you delete a file in the folder, the same file will be deleted on the Ultra-Rugged Field PC2™. If the Ultra-Rugged Field PC2™ happens to be disconnected at the time, as soon as it is re-connected it will automatically see the missing file in the folder and the file will be deleted during the connection. It is therefore important to exercise good data management. Once the data is synchronized to the PC, move the ThermArray files to a safe location (i.e. a network server or hard drive).

For further instructions regarding synchronizing data between a PC and the Ultra-Rugged Field PC2™, please refer to the supplied documentation and software which comes with the Ultra-Rugged Field PC2™ (CD-ROM).

7.2 SETTING UP MOBILE DEVICE CENTER ON WINDOWS VISTA, WINDOWS 7, 8.1 OR WINDOWS 10

Before connecting to Ultra-Rugged Field PC2™, it should be verified that desktop PC or laptop contains current version of Microsoft Mobile Device Center™. Communication between the two devices is achieved through an USB connection.

Note

Microsoft's Mobile Device Center™ software can be freely downloaded from Microsoft's website. Choose 32 bit or 64 bit version depending on Windows operating system.

After Mobile Device Center™ is installed, connect the Ultra-Rugged Field PC2™ to desktop or laptop computer using USB cable provided with the ThermArray+ System. Windows Vista™, Windows 7, 8.1 or Windows 10 should detect new connection and display following dialog box.



Figure 20 – Mobile device Center Screen

In order to synchronize the data in real-time between the Ultra-Rugged Field PC2™ and the desktop PC, you must click on *Set up your device*. If you do not wish to synchronize data and simply use Windows Explorer to copy files to and from the Ultra-Rugged Field PC2™, click *Connect without setting up your device*. Data files can be copied from Ultra-Rugged Field PC2™ using File Management, as shown on Figure 22.

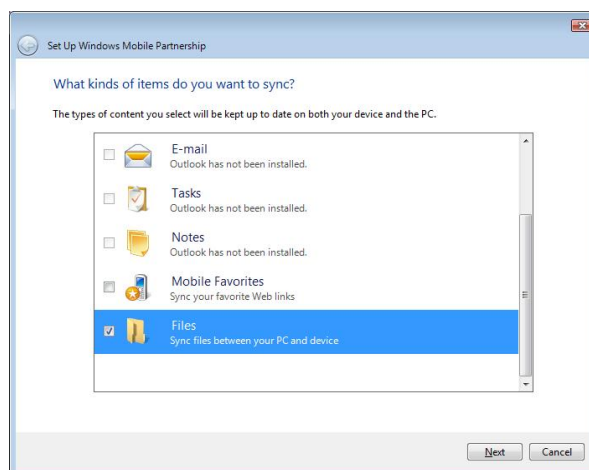


Figure 21 – Synchronization Settings on Windows Vista™, Windows 7, 8.1 or Windows 10

If synchronizing files, decide what type of information you would like synchronized with the desktop computer. If you are only using the Ultra-Rugged Field PC2™ for the purposes of transferring ThermArray information, uncheck all the options and place a check mark next to the *Files* (see above).



Figure 22 – Accessing Files on Windows Vista™, Windows 7, 8.1 or Windows 10

Important

It is extremely important that the user realizes that the synchronized folder created on the desktop is an **active** link to the Ultra-Rugged Field PC2™. Any changes you make in that folder will be reflected on the Ultra-Rugged Field PC2™. For example, if you delete a file in the folder, the same file will be deleted on the Ultra-Rugged Field PC2™. If the Ultra-Rugged Field PC2™ happens to be disconnected at the time, as soon as it is re-connected it will automatically see the missing file in the folder and the file will be deleted during the connection. It is therefore important to exercise good data management. Once the data is synchronized to the PC, move the ThermArray files to a safe location (i.e. a network server or hard drive).

For further instructions regarding synchronizing data between a PC and the Ultra-Rugged Field PC2™, please refer to the supplied documentation and software which comes with the Ultra-Rugged Field PC2™ (CD-ROM).

8 BACKING UP THE ULTRA-RUGGED FIELD PC2™ THERMARRAY DATA

Data file management between the Ultra-Rugged Field PC2™ and a computer is handled by the mobile device communication software. On Windows XP based computers, ActiveSync software is used (see section 7.1). Windows Vista or Windows 7 requires Mobile Device Center (section 7.2). Data files can be shared or mirrored on both the PC and the Ultra-Rugged Field PC2™. However, the normal synchronization process does not back up the data. An easy way to backup the data is to always copy synchronized information to a safe location on your desktop PC or network server.

The RST ThermArray software automatically backs up the most current data files upon returning to the main menu screen. Therefore, anytime the user returns to the main menu screen, the data will be automatically backed up to the non-volatile (Field PC2™) memory location. The Field PC2™ storage folder is accessible through Windows Explorer when the Ultra-Rugged Field PC2™ is connected to a peripheral computer

8.1 MANUAL BACKUPS

The RST ThermArray Software has provision for making manual backups of the data, in addition to automatic backups.

1. From the main menu of the ThermArray Software, under the *File* menu select *Backup...*

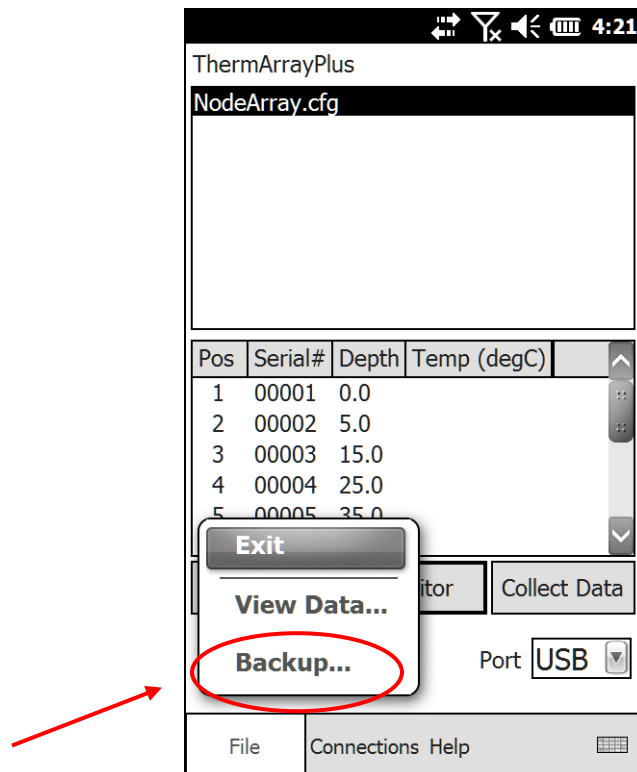


Figure 23 – File Backup

2. Once selected, the following screen will appear:

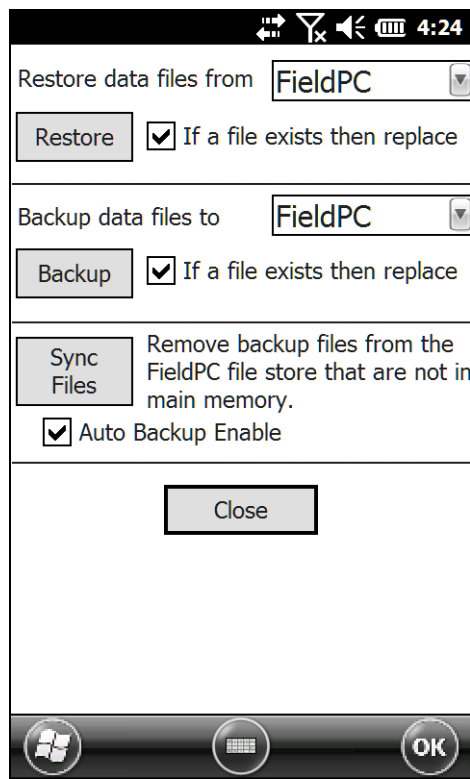


Figure 24 – File Backup Options

3. Using the drop-down box at the top of the screen, select the location in where you would like to backup the files. All Ultra-Rugged Field PC2™'s come with the Field PC2™ storage location however, optional Flash™ Storage Cards are additional and are available through RST.
4. Choose from the several options whether you would like to *Restore*, *Backup* or *Synchronize* the files. Check boxes allow the options of overwriting files if desired.
5. Press the desired button to initiate the function.
6. Press *Close* to exit this screen.

Note

Proper data management is very important. The Ultra-Rugged Field PC2™, in conjunction with its onboard and optional non-volatile memory storage areas, and its ability to synchronize with a desktop PC, allows several options for backing up the data. At the same time, with all these options, data files can be confused with each other if not managed properly. After taking readings in the field it is always a good idea to back the files up in a safe location (i.e. network server etc...) back at the office using the ActiveSync software. Additional copies of this information will always be stored in the Field PC2™ memory area should the main memory of the Ultra-Rugged Field PC2™ become erased. Be sure to clear the Field PC2™ memory of unneeded files on a regular basis to keep the files easily manageable.

Important

Because the Ultra-Rugged Field PC2™ uses some power to maintain files in RAM and the clock, you need to recharge the battery regularly. Keep the Ultra-Rugged Field PC2™ connected on AC or DC power while you are at your desk. The best policy is to keep the Ultra-Rugged Field PC2™ connected to your computer when working at your desk and carry your AC adapter and DC adapter plug with you when traveling. Your Ultra-Rugged Field PC2™ is shipped with a charge on the battery. You may want to ensure that it is fully

charged before synchronizing. The Ultra-Rugged Field PC2™ battery will provide approximately 20 hours of borehole survey time (when connected to the probe).

9 RESTORING FILES ON THE ULTRA-RUGGED FIELD PC2™

9.1 INSTALLATION THE RST THERMARRAY+ PROGRAM

Use the following steps to reinstall the RST ThermArray+ Host Program:

1. Establish a connection to the Ultra-Rugged Field PC2™ using Microsoft ActiveSync™.
2. Using Windows Explorer, copy the file “RST_ThermArrayPlusMobile_X.XX.CAB” to the folder on the Ultra-Rugged Field PC2™ (My Documents for example). The “X.XX” will mean the software version.
3. On Ultra-Rugged Field PC2™, select *Start* and then *File Explorer* from pull down menu.
4. Navigate to the folder where the file “RST_ThermArrayPlusMobile_X.XX.CAB” was copied to.
5. Click on the “RST_ThermArrayPlusMobile_X.XX.CAB” file to begin installation.
6. Run the program by choosing *ThermArray+* from *Start* menu.

Note

If an older version of the RST ThermArray+ Software is already present, uninstall the previous version by going to *Start*, then *Settings* and tapping on *Remove Programs* located in *System* tab. Highlight the program to be removed and tap *Remove*.
If the ThermArray entry is not present in the list, the program must be manually removed by deleting files in *Windows* directory and shortcut in *Start Menu*.

9.2 RESTORING THE THERMARRAY DATA FILES

The ThermArray data files are backed up to the Field PC2™ storage area of the Ultra-Rugged Field PC2™ on a regular basis, each time the user returns to the Main Menu Screen of the ThermArray+ program. In order to restore the files, the user may navigate to the Field PC2™ storage area using Windows Explorer. This is most easily accomplished when the Ultra-Rugged Field PC2™ is ActiveSync'ed to the desktop PC. The following text explains this procedure:

Using *Windows Explorer*, navigate to:

Mobile Device: My Pocket PC\Field PC2™ File Store\ThermArrayPlus

If you need to restore all the files, simply copy the entire folder named “ThermArray+” to the current directory.

The current folder resides in:

Mobile Device: My Pocket PC\My Documents

Else, you can copy the folder to the ActiveSync folder you created on your desktop. The files will automatically be sync'ed to the Ultra-Rugged Field PC2™.

Data file management between the Ultra-Rugged Field PC2™ and a computer is handled by the supplied ActiveSync software (see section 7.1). This allows the mirroring of information on both the PC and the Ultra-Rugged Field PC2™. It makes file sharing easy and efficient between the two platforms. However, the normal synchronization process does not back up the data, it only reflects the current programs found on the Ultra-Rugged Field PC2™. An easy way to backup the data is to always copy synchronized information to a safe location on your desktop PC or network server.

10 TROUBLESHOOTING

10.1 SOFTWARE STABILITY

The ThermArray+ real time readout relies on continuous data transmission over serial communication port. This transmission may be occasionally interrupted by other computer activity resulting with program freezing or displaying erroneous data. If this happens, ThermArray+ needs to be closed down and restarted. Always close software when disconnecting RS485 Digital Sensor Interface adapter or reconnecting serial communication cable.

10.2 CONNECTION PROBLEMS

The following list contains the frequently encountered problems and solutions.

- *RST USB to RS485 adaptor disconnected or drivers missing:*
Plug the mini-USB A plug into USB port A located in front of Field PC2™ unit. If a dialog pops-up, enter **ftdi_ser.dll** as a driver name.
- *Improper port selected:*
Ensure that USB port is selected on Main Menu screen (Figure 4).
- *Selected device doesn't exist on the bus:*
Selected configuration file and thermistor string don't match. Ensure that proper configuration file is installed and selected on Main Menu screen.
- *Connected device is in unknown state:*
Exit the ThermArray+ Host program and disconnect the USB cable from Field PC2™ to reset instrument state. Connect it back. Start ThermArray+ program.

The connection problems are most often caused by malfunctioning communication link.

10.3 SOFTWARE PROBLEMS

In certain situations, the ThermArray+ software might be erased from Field PC2™. This will happen during hardware malfunction or if the Clean Boot (set to factory defaults) was performed. The ThermArray+ Host software can be reinstalled from original installation media using procedure outlined in Section 9.1.

11 SPECIFICATIONS

ThermArray Node

Temperature Range	-20° to 50°C
Resolution	0.01°C
Accuracy	0.07°C
Address Range	1 - 250
Power Supply Voltage	7-18 VDC
Standby Current per Node	10 µA
Max Current per Node	280 µA
Acquisition Time	1 second
Node Length	90 mm
Node Diameter	19 mm

ThermArray Cable

Conductors	4
Diameter	7 mm
Breaking Strength	5 kN
Maximum Segment Length	500 m
Minimum Node Spacing	150 mm
Mechanical Terminal	6 mm x 1 mm threaded Or 3/8 UNC
Maximum Nodes	250

12 CONTACT US

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