

Table of Contents

1.0 Introduction	1
1.1 Copyright	1
1.2 Declaration of Conformity	2
1.3 How to use this Quick Reference Guide	3
2.0 Safety	3
3.0 Equipment.....	4
3.1 PTP® VP-8	4
3.1.1 PTP® TX	5
3.1.2 PTP® RX	6
3.1.3 Sensors	7
3.1.4 USB Computer Interface Cable	7
3.1.5 USB-Female Power Cable.....	7
4.0 Basics.....	8
4.1 Setup	8
4.1.1	8
4.1.2 Communications Setup.....	9
5.0 Software	18
6.0 Specifications	23

1.0 Introduction

1.1 Copyright



World Headquarters
Electronic Controls Design, Inc.

4287B S.E. International Way
Milwaukie, Oregon 97222-8825 U.S.A.
Telephone: +(1) 800.323.4548
 +(1) 503.659.6100
FAX: +(1) 503.659.4422
Email: ecd@ecd.com
Internet: <http://www.ecd.com>

Asia/China
ECD Asia/Pacific

Covent Garden Post Office
P.O. Box 093, Singapore 911634
Telephone: +(65) 9.692.6822
FAX: +(65) 6.241.9890
Email: ecd.asia@ecd.com

Europe
ECD

4287B S.E. International Way
Milwaukie, Oregon 97222-8825 U.S.A.
Telephone: +(1) 503.353.6250
FAX: +(1) 503.659.4422
Email: ecd.europe@ecd.com

©2007-2010 ECD. All Rights Reserved. Printed in USA. US Products of ECD are covered by foreign and US Patents and Patents Pending. Information in this publication supersedes all previously published information. This Publication may not be translated and/or reproduced or stored in data retrieval system, or transmitted in any form or by any means without the express written permission of ECD. Specification and price change privileges reserved.

The trapezoidal ECD logo®, MEGAM.O.L.E.®, V-M.O.L.E.®, SuperM.O.L.E.® Gold and M.O.L.E.® (Multi-Channel Occurrent Logger Evaluator) are registered trademarks of ECD. PTP® VP-8 is a registered trademark of globalPoint ICS GmbH. MS-DOS and Windows are registered trademarks of Microsoft Corporation. IBM, IBM PC and PS/2 are registered trademarks of International Business Machines Corporation. Bluetooth™ is a trademark of Bluetooth™ SIG, Inc,

While every precaution has been taken in the preparation of this document, ECD assumes no responsibility for errors or omissions, or for damages resulting from the use of information contained in this document or from the use of programs and source code that may accompany it. In no event shall ECD be liable for any loss of profit or any other commercial damage caused or alleged to have been caused directly or indirectly by this document.

1.2 Declaration of Conformity

globalPoint ICS GmbH

Tulendorp 14, 23774

Heiligenhafen, Germany

www.gp-ics.com

info@gp-ics.com

Declaration of Conformity

Product: PTP® VP-8

Part number: E50-8708-00

The product (RF-Bluetooth™ module and power supply) to which this declaration relates, conforms to the following product specifications:

R&TTE Directive 1999/5/EC

EN 300 328 V1.6.1 (2004-11)

EMC Directive: 89/336/EEC

EN 301 489-1 V1.4.1 (2002-08)

EN 301 489-17 V1.2.1 (2002-08)

EN 61000-6-2 (2001)

Safety Compliance

EN 60950-1:2001 and/or IEC 60950-1:2001 (1st Edition)

EN 60950-1/A11:2004 + Corrigendum:2004

Medical Electrical Equipment

IEC 60601-1-2 (2001)

1.3 How to use this Quick Reference Guide

This guide helps the user through the basic steps from equipment overview to reading real-time data. For detailed information please refer to the Help system provided with the M.O.L.E.® MAP software.

It is written for users of varied experience. If a section covers information you already know, feel free to skip to the next section.

- You do not need to be a computer expert to use this guide or the software.
- The guide assumes you are familiar with Microsoft® Windows® Operating Systems.



The software portions reflect version(s) 2.18g and higher.



The M.O.L.E.® MAP software is designed to be used with the ECD MEGAM.O.L.E.®, V-M.O.L.E.®, SuperM.O.L.E.® Gold and PTP® VP-8 Thermal Profilers.

2.0 Safety

RF-exposure Statement for the Bluetooth™ RF-Modules:

- This modular transmitter **MUST** have a separation distance of at least 20 cm between the antenna and the body of the user or nearby persons, excluding hands, wrists, feet, and ankles.
- This device complies with Part 15 of the FCC Rules.
- The FCC ID has to be readable on the device.

3.0 Equipment

3.1 PTP® VP-8

The PTP® VP-8 is a complete Vapor Phase profiling solution using the award winning and powerful M.O.L.E.® MAP software in combination with the German engineered PTP® Vapor Phase thermal profiler. This matchup provides all the power you will need to Characterize and Verify all key process parameters for your complex, disparate or high mass PCB assemblies.



The PTP® VP-8 System consists of the 8 channel thermocouple real-time RF temperature transmitter (PTP® TX) and receiver (PTP® RX). The transmitter is designed specifically to withstand the environments encountered in typical Vapor Phase soldering systems. Working together, the PTP® TX and PTP® RX send the measured temperatures to the M.O.L.E.® MAP Software for analysis and reporting.



RoHS: The PTP® VP-8 electronics are produced according to the RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment) directive.

Features/Functions:

- **PTP® TX:** This is the thermal profiler that transmits real-time data to the PTP® RX receiver.
- **PTP® RX:** This unit receives the transmitted data from the PTP® TX transmitter and sends it to the M.O.L.E.® MAP software.

3.1.1 PTP® TX

This is the thermal profiler that transmits real-time data to the PTP® RX receiver.



Features/Functions:

- **Thermocouple/Inputs:** Up to eight Type "K" Thermocouple sensors.
- **On/Off Power Connector:** This is a Female connector marked that with an "S" that allows the user to turn the unit ON and OFF when mated with the On/Off Male Plug connector.
- **Charging Port:** This port is a Male connector located the below the On/Off Power Switch that is marked with a "P". This is used to used to charge the battery using a USB-Female Power Cable. Any standard USB power source will work provided it sources up to 0.5 amp at 5 VDC.

3.1.2 PTP® RX

This unit receives the transmitted data from the PTP® TX transmitter and sends it to the M.O.L.E.® MAP software.



Features/Functions:

- **Antenna:** 2.402 –2.480 GHz.
- **USB Data Port:** Transfers data to the computer USB Interface Cable to the computer.
- **Status Indicator:** Indicates status of the PTP® RX.

State:	Action:	LED Color
Power "ON"	Indicates PTP® RX is "ON" and ready to receive data	Red (Solid)
Power "OFF"	Indicates PTP® RX is "OFF" and not receiving data	No illumination
Data Transfer	Indicates a transmission link has been established with the PTP® TX	Green (Flashing)
Power "ON" (No communication)	Indicates device drivers must be installed to communicate with the computer.	Orange (Solid)

3.1.3 Sensors

Up to eight thermocouple sensors can be attached to the PTP® VP-8 thermal profiler. Eight 0.010" K-Type PFA insulated thermocouple sensors are included in the standard Kit.

Plug the sensor connector into the desired channel. The M.O.L.E.® MAP software can keep a record of the channel number associated with the thermocouple location.



ECD also offers a wide selection of sensors and adaptors to meet the needs of many applications. For more information about optional sensors for specific applications, refer to topic [How to Get Additional Help](#) to contact ECD.

3.1.4 USB Computer Interface Cable

This is a USB cable that is included in the hardware package that connects the PTP® RX receiver to a computer USB port for setup and download.



3.1.5 USB-Female Power Cable

This is a USB cable that is included in the hardware package that connects the PTP® TX transmitter to a computer USB port for charging the internal Lithium Ion battery.



4.0 Basics

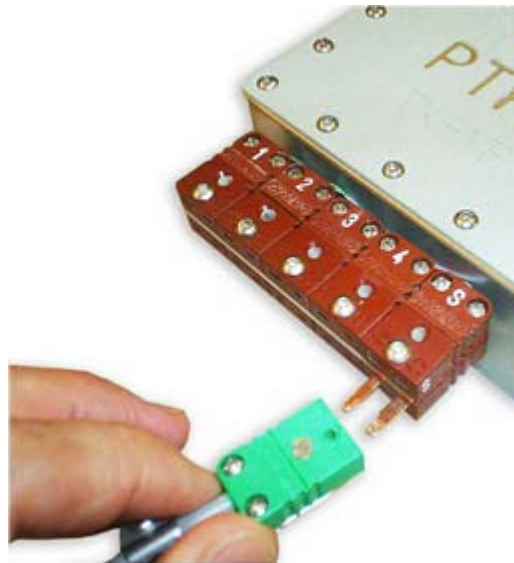
4.1 Setup

The Setup topic offers a brief description of the system hardware configuration.

4.1.1

To charge the battery:

- 1) Slide the female plug on the USB-Female Power cable into the Male Male connector located the below the On/Off Power Switch on the PTP® TX that is marked with a "P".
- 2) Plug the USB connector end into the USB jack on the computer. Any standard USB power source works provided it sources up to 0.5 amp at 5 VDC.



A completely discharged battery takes about 2 hours to be fully charged. Once charged the battery will last up to 4 hours of continuous data collection.



The battery can be charged continuously whenever the PTP® TX is not being used, however, if it is going to sit idle for five days or more, you may want to remove it from the charger.

4.1.2 Communications Setup

Prior to operation your PTP® RX must be configured to properly communicate with the M.O.L.E.® MAP Software.



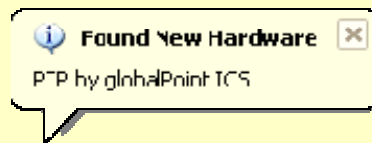
The M.O.L.E.® MAP software must be installed prior to communications setup. (Refer to [Software Installation](#) for more information).

To connect the PTP® RX:

- 1) Insert the USB computer interface cable into a computer USB port and the other end into the PTP® RX.



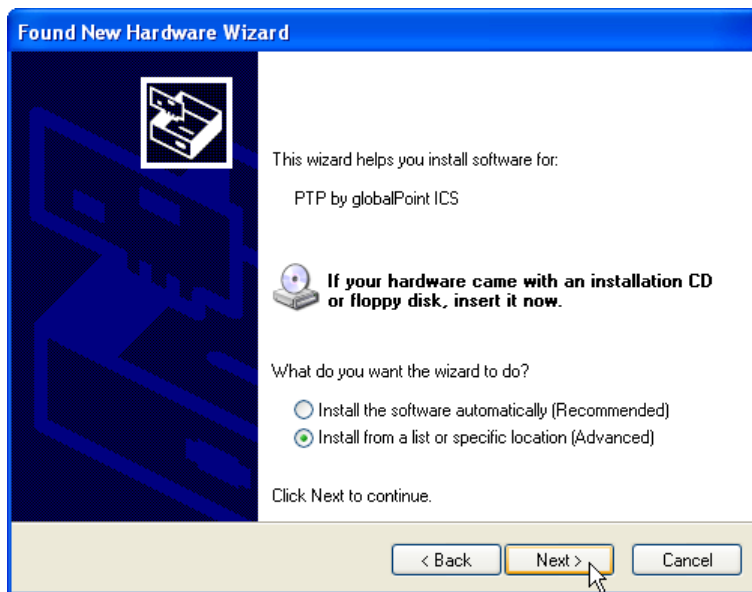
The first time a PTP® RX is connected to a computer the Status LED illuminates **Orange** indicating that it is not communicating with the computer and two drivers are required to be installed. One is a device driver for the PTP® RX and the other is for USB Serial Port communication. The operating system displays the installation status on the taskbar.



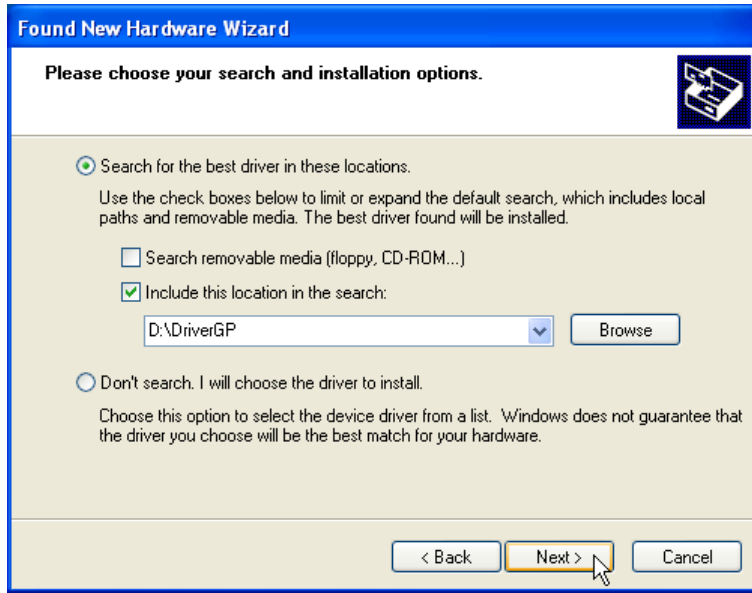
- 2) During installation of the PTP® RX device driver, when prompted to search for the location of the device driver, select **No, not at this time** and follow the remaining wizard instructions closely.




- 3) Select "**Install from a list or specific location (Advanced)**".



- 4) Make sure the **Search for the best driver in these locations** radio button is selected. Then unselect the **Search removable media (floppy, CD-ROM...)** checkbox, select the **Include this location in the search** checkbox and browse to the **DriverGP** folder on the M.O.L.E.® MAP Software installation CD.

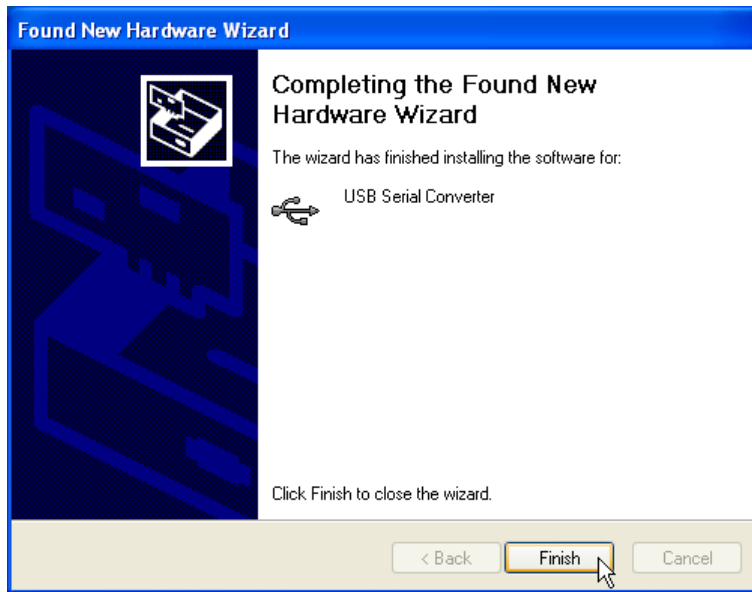


 The drive letter displayed in the illustration is **D:**. CD-ROM drive letters may be different depending on computer specific configurations.

- 5) Once the device drivers have been located, the wizard installs them.



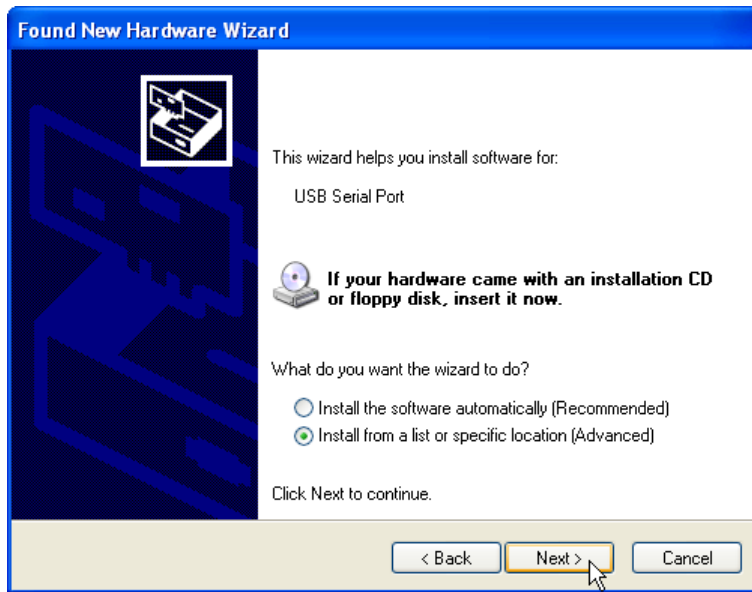
6) When the Installation has completed, select the **Finish** command button.



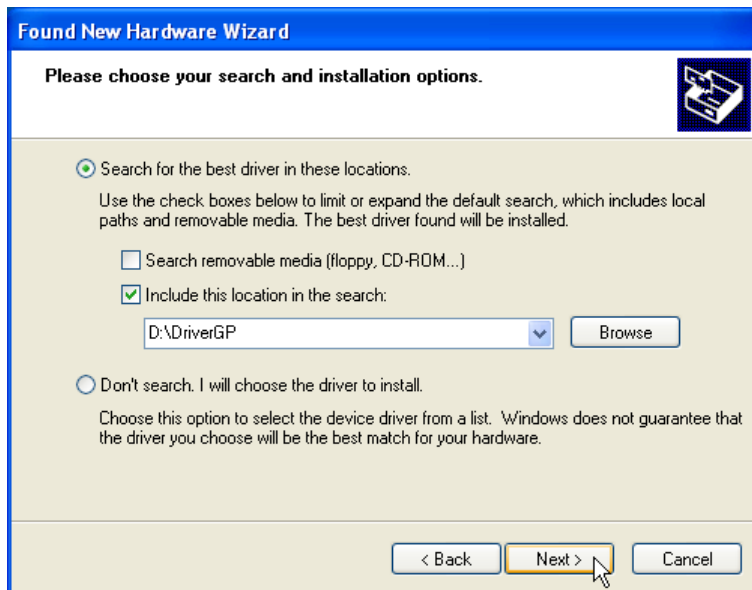
7) Once PTP® RX device driver installation is complete, a second driver installation wizard automatically begins that guides the user to install the USB Serial Port driver. When prompted to search for the location of the device driver, select **No, not at this time** and follow the remaining wizard instructions closely.




8) Select "**Install from a list or specific location (Advanced)**".

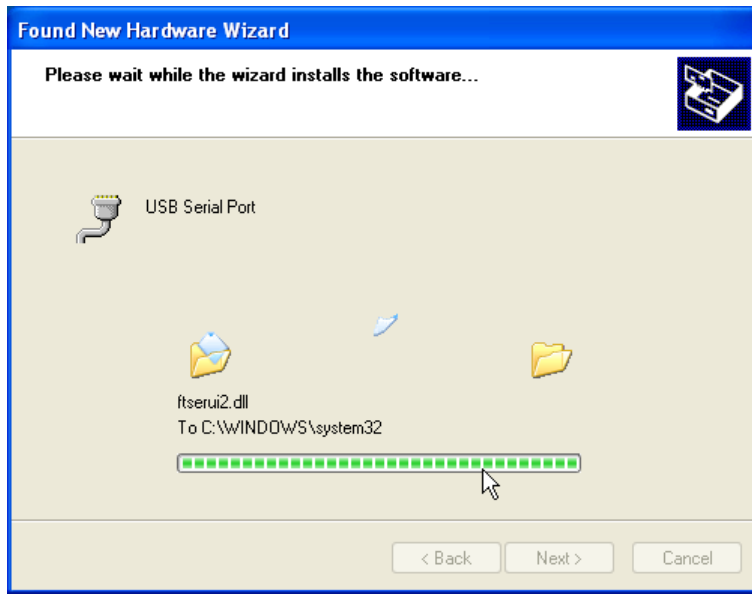


9) Make sure the **Search for the best driver in these locations** radio button is selected. Then unselect the **Search removable media (floppy, CD-ROM...)** checkbox, select the **Include this location in the search** checkbox and browse to the **DriverGP** folder on the M.O.L.E.® MAP Software CD.

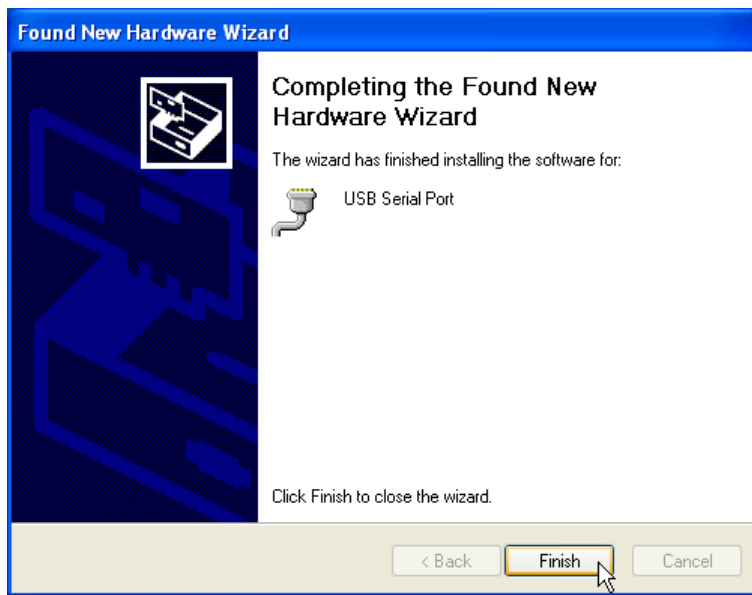


 The drive letter displayed in the illustration is **D:**. CD-ROM drive letters may be different depending on computer specific configurations.

10) Once the device drivers have been located, the wizard installs them.



11) When the Installation has completed, select the **Finish** command button.

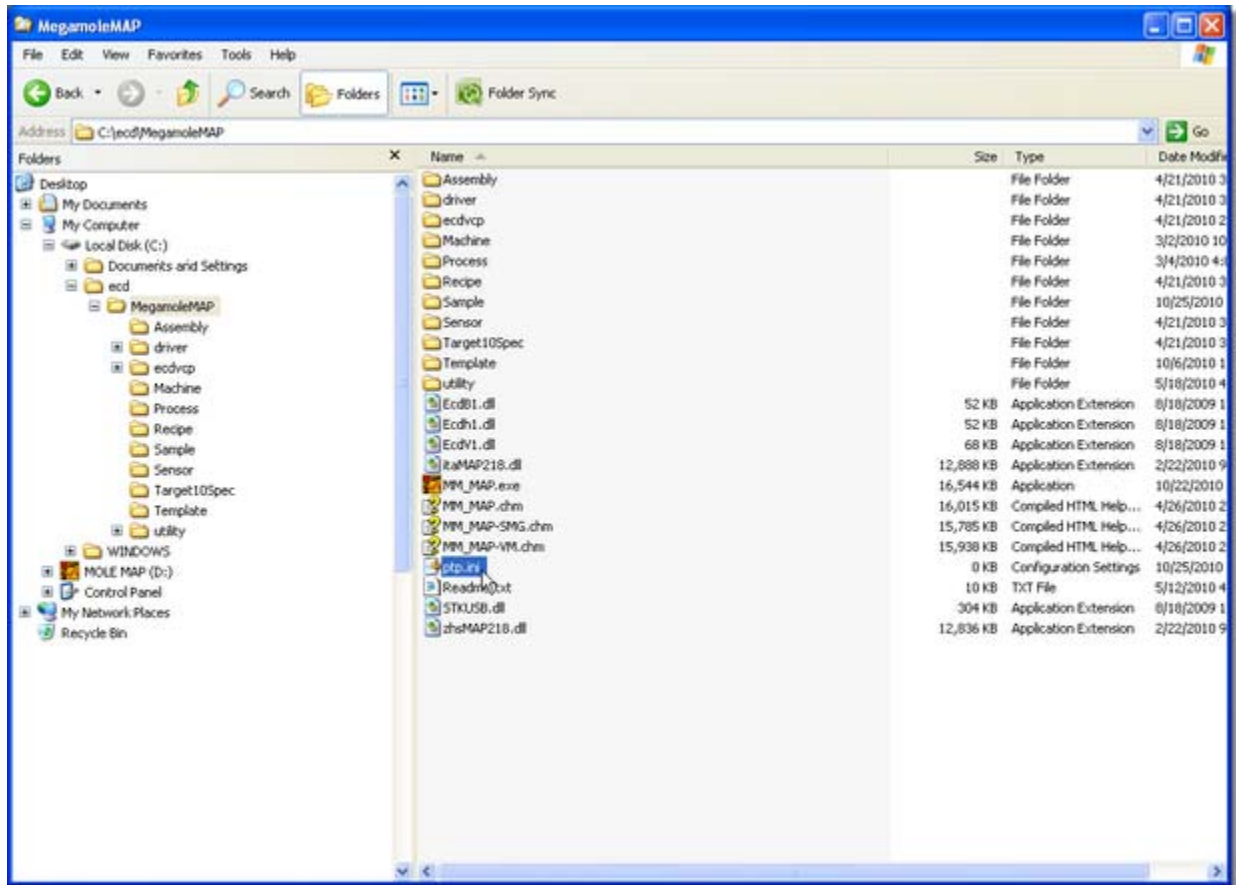


12) Now that both drivers are installed, the PTP® RX Status LED illuminates **Red**.

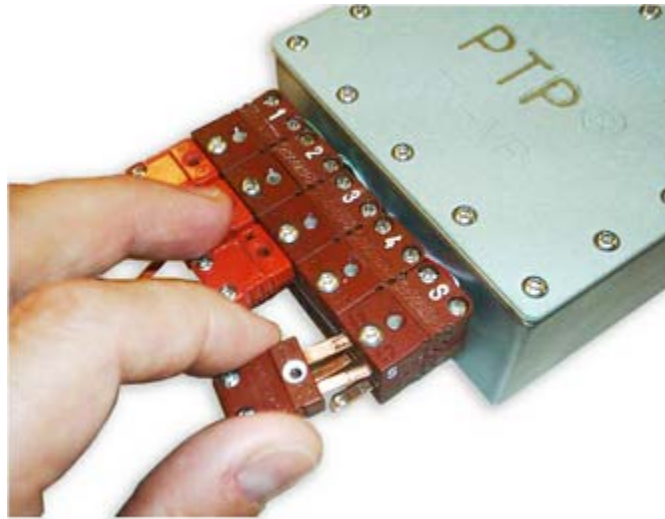


13) A PTP® VP-8 calibration file (**PTP.INI**) that is unique to the PTP® TX, must be copied to the M.O.L.E.® MAP software directory.

14) Insert the Flash memory drive included in the PTP® VP-8 Kit into a USB port. Copy the calibration file (**PTP.INI**) to the **C:\ecd\MegamoleMAP** directory.



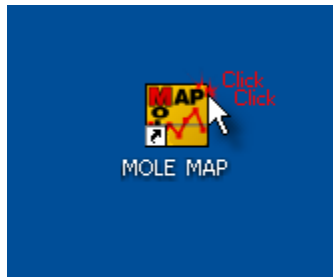
- 15) The Communication (COM) port must now be configured in the software to match the same COM port as the computer so they can communicate.
- 16) Insert the On/Off Male Plug connector into the Female On/Off Power connector on the PTP® TX. This Female power connector is marked that with an "S".



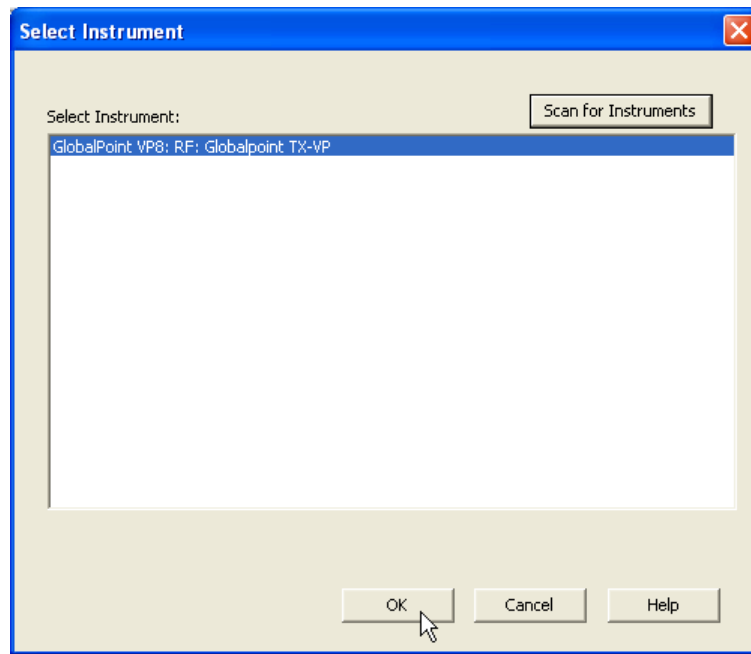
- 17) Once the PTP® TX has turned ON, the Status LED on the PTP® RX will illuminate **Green** which indicates the PTP® VP-8 System RF link has been established.



- 18) Start the software program by either double-clicking the M.O.L.E.® MAP software icon or selecting it from the ECD program sub-menu.



- 19) On the **M.O.L.E.** menu, click the **Select Instrument** command.
- 20) Select the desired instrument from the list box. If there are none listed, click the **Scan for Instruments** command button to detect all available instruments.



If the software does not detect a M.O.L.E. Profiler, connect it to the computer and click the **Scan for Instruments** command button to search again. M.O.L.E.® MAP software allows multiple instruments to be connected to a computer at one time. Selecting the **Scan for Instruments** command button will detect all instruments and display them in the list. If no instrument is detected, the default Demonstration MEGAM.O.L.E.® profiler is displayed.

- 21) Click the **OK** command button to accept or **Cancel** to quit the command without selecting the instrument.
- 22) Turn the PTP® TX power by removing the On/Off Male Plug connector from the Female On/Off Power connector.

5.0 Software

5.1 Read Instrument

The **Download Data** workflow is a wizard that starts logging wireless real-time data from the PTP® VP-8. Once the data run is saved, the user can then choose to apply Machine (Oven), Assembly (Board) and Process (Paste) information.



This is available in both Engineer & Verify Modes.

The Download Data workflow:

- 1) Connect the PTP® RX to the computer and turn the PTP TX power ON. Refer to topic [4.1.2 Communications Setup](#) for more information.
- 2) On the **M.O.L.E.** menu, click **Read Instrument**.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.



Current



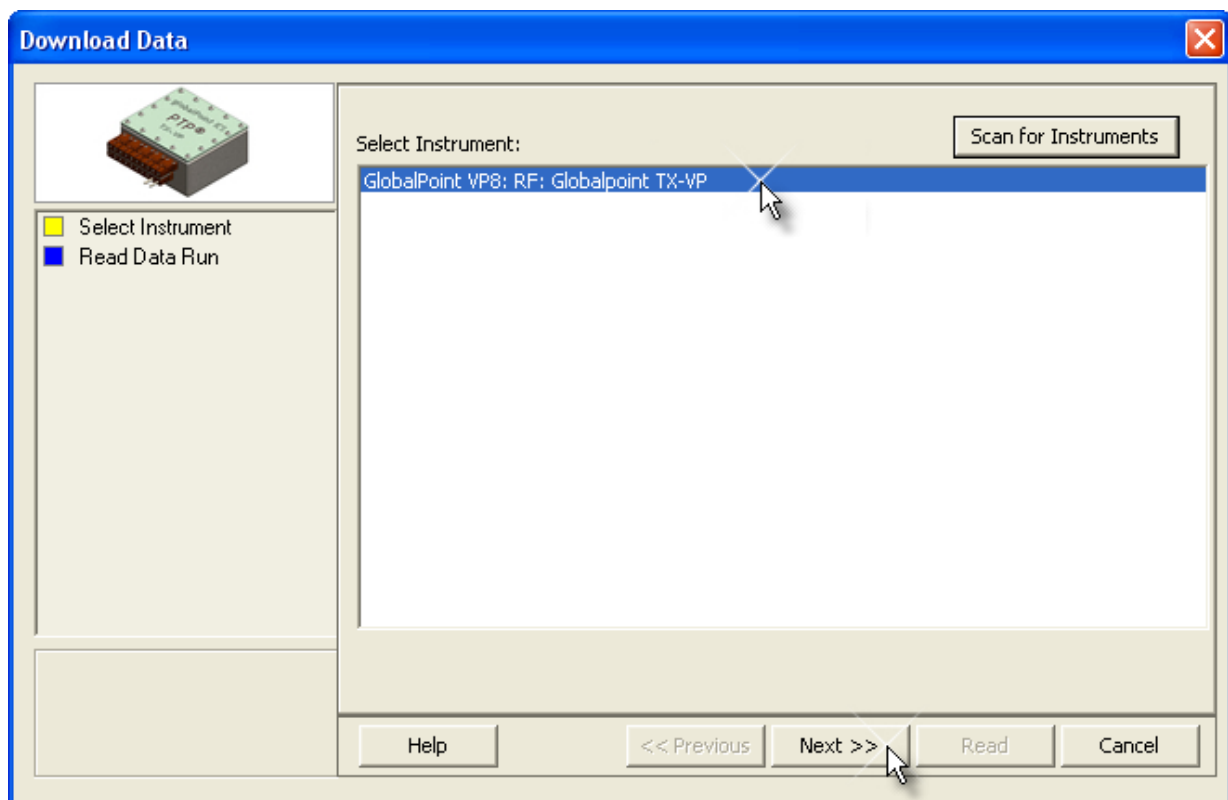
Completed



Remaining

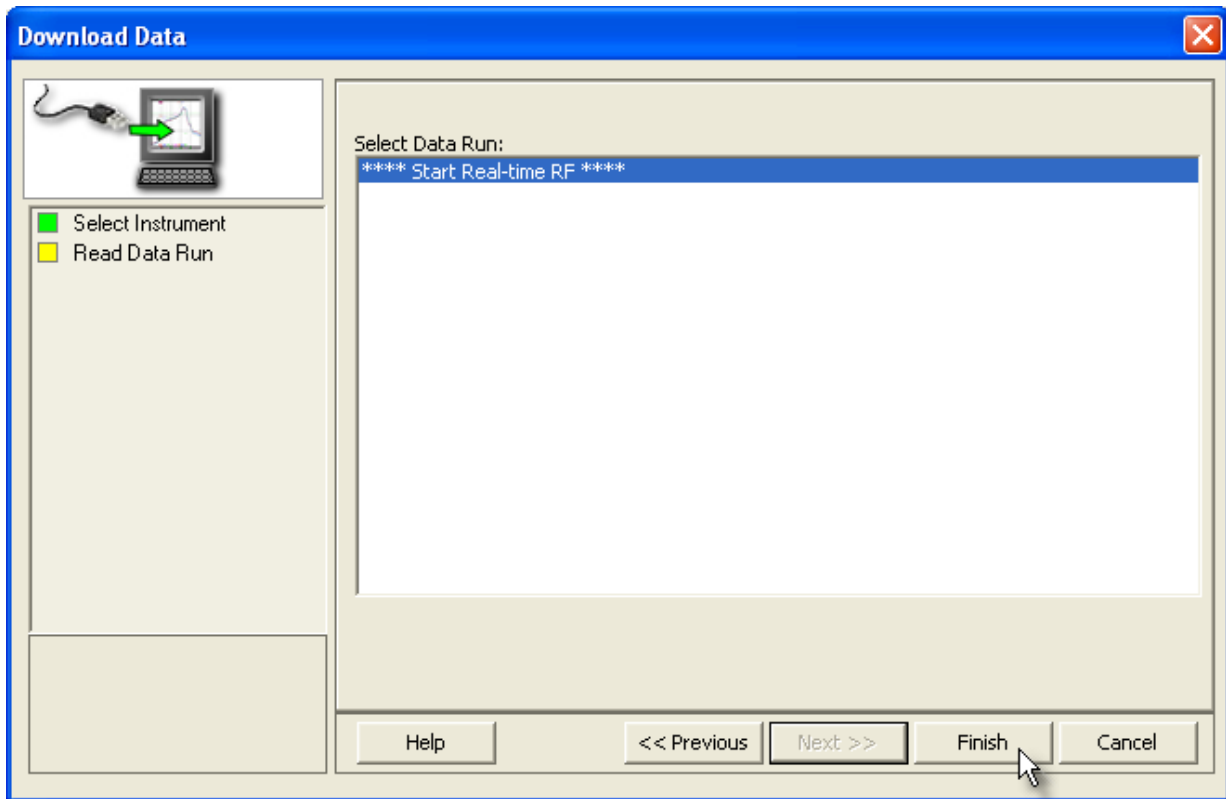
- 3) Select the desired instrument from the list box to make active. If a PTP® TX has already been selected during a different process, the software automatically selects the PTP® TX connected to the COM port previously used.

If the software does not detect a PTP® TX, make sure it is ON and/or the PTP® RX is connected to the computer and click the **Scan for Instruments** command button to search. M.O.L.E.® MAP software allows multiple instruments to be connected to a computer at one time. Selecting the **Scan for Instruments** command button will detect all instruments and display them in the list. If no instrument is detected, the software displays a warning message.

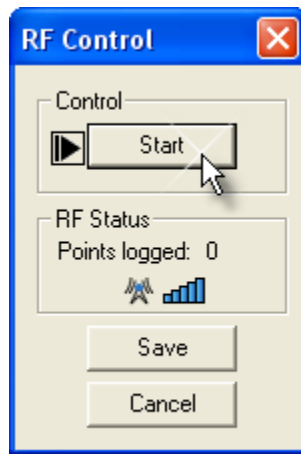


- 4) Click the **Next** command button.

- 5) Select **Start Real-time RF** on data run list then select the **Finish** command button to complete the wizard and display the **RF Control** dialog box.



- 6) Once the RF Control dialog is displayed, it includes the following command buttons and information:



Start/Stop:

- Starts logging real-time data which begins to display on the Data Graph.
- Once the Start command button is selected it automatically changes to a Stop command button which Stops the PTP® RX from transferring real-time data to the software.

RF Status:

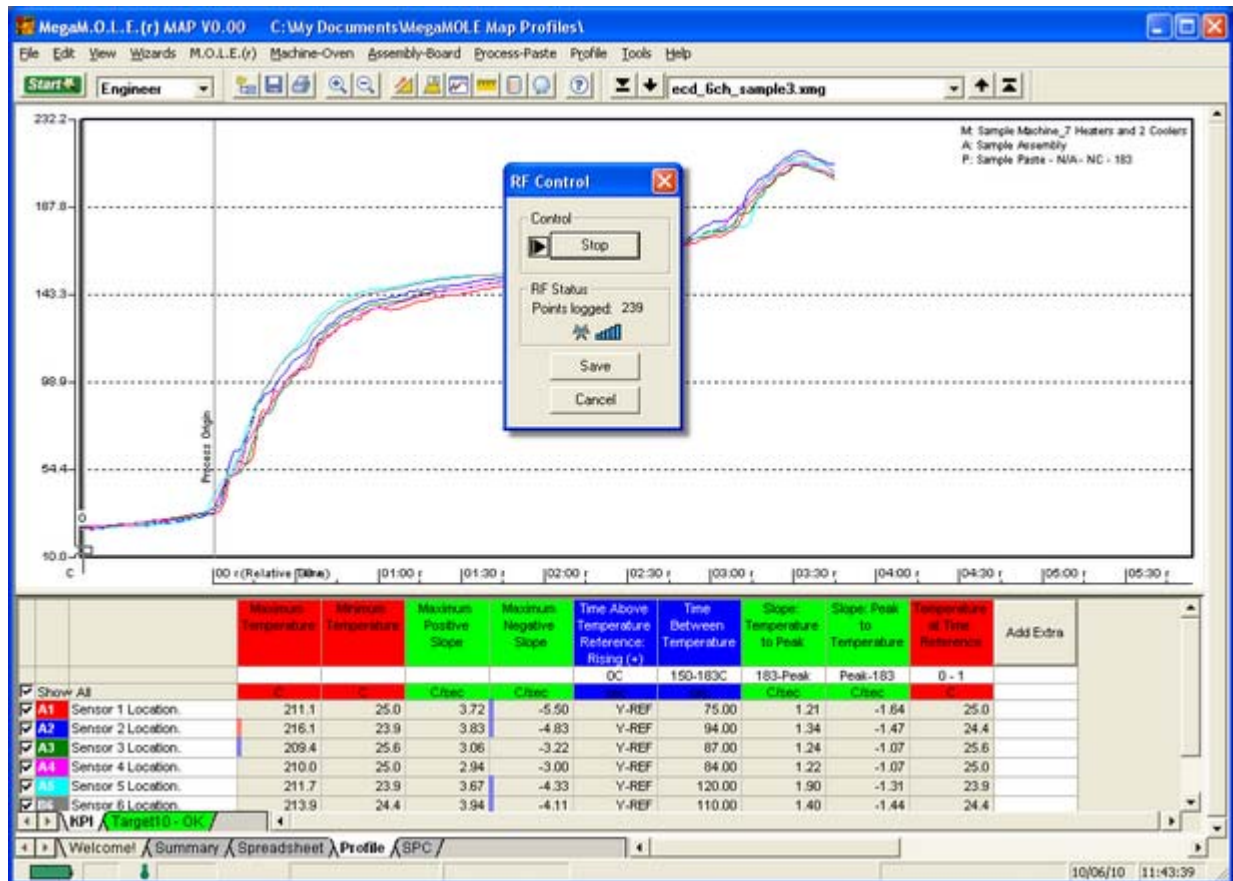
- Points logged indicates number of data points received.
- RF Status signal strength indicator with 5 bars indicating relative strength of the RF signal.

Save:

- Stops the PTP® RX from transferring real-time data to the software and allows the user to save that data. If there is not enough data recorded, the software displays a “Not enough data to profile” message, and it will cancel the data run.

Cancel:

- Stops the PTP® RX from transferring real-time data to the software and reverts back to the prior profile displayed on the Data Graph. This does not save any recorded real-time RF data.

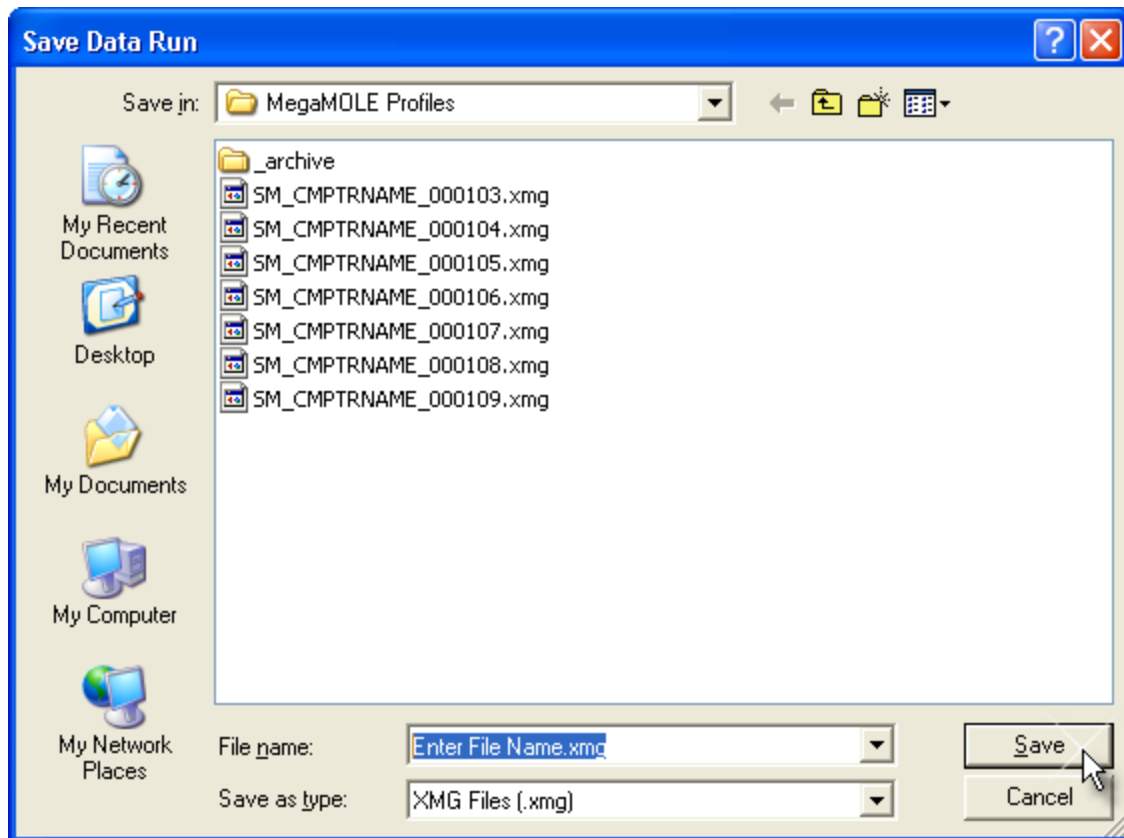


When real-time data logging has stopped, the software automatically processes the data. Depending on how long the data run is, it may take a few moments to complete.

- 7) Click the **Save** command to save the data run. The software prompts the user to specify a file name (*.XMG).




When saving a data run (*.XMG) to a different file directory other than the current Working directory, the software automatically sets the new file directory as the current Working Directory. This process does not delete any data run files in the previously set Working directory and can be quickly accessed using the **Recent Working Directory** command on the **File** menu.



- 8) When finished, click the **Save** command button to complete the process.
- 9) Turn the PTP® TX power by removing the On/Off Male Plug connector from the Female On/Off Power connector.

6.0 Specifications

PTP® VP-8:

INPUTS:	Up to 8 type K Mini-Thermocouples
PHYSICAL DIMENSIONS (PTP® TX):	Width: 90mm (3.54in) Length: 100mm (3.94in) Height: 50mm (1.97in)
PHYSICAL DIMENSIONS (PTP® RX):	Width: 64mm (2.52in) Length: 86mm (3.37in) Height: 25.4mm (1.0in)
TEMPERATURE MEASUREMENT RANGE:	0-300°C (-32 to 572°F)
INTERNAL OPERATING TEMPERATURE RANGE:	+60°C (140°F)*
	*WARNING: This is the Absolute Maximum Warranted Internal Temperature. Exceeding this temperature may permanently damage the equipment!
ACCURACY (at room temperature):	±0.5° C (0.9°F)
PROGRAMMABLE SAMPLING PERIOD:	0.1 seconds to 24 hours

Battery (PTP® TX):

CHARGE:	4 hours Typical
CHARGE TIME:	2 hours
EXPECTED POWER PACK LIFE:	500 charging cycles.

Wireless RF PTP® TX & RX:

Bluetooth™: is a transmitting standard for wireless connections. Bluetooth™ devices can take up contact completely independently and automatically with one another. The communicating devices change thereby repeatedly per second the frequency channel (frequency hopping) with a jump width of 1 MHz within the ISM range 2402-2480 MHz. The frequency jump procedure ensures a particularly safe transmission, since breakdown influence (Noise, Fading, spurious distortion signals, etc.) are avoided. The protocol, with which Bluetooth™ devices inform themselves with one another, contain further information (e.g. an ID) beside the data which they communicate. Pairing makes a safe communication between two Bluetooth™ devices possible. The connection between two or several paired Bluetooth™ devices is established as soon as an device comes into the range of another equipment. The Bluetooth™ radio devices integrated for data communication in the measuring system PTP® realize internally an asynchronous serial (point to point) connection and work in this connection like a direct cable connection. The software for the Bluetooth™ devices was factory-installed.

Because of pairing the PTP® RX and PTP® TX both devices are to be sent to the local service in the case that a calibration of the measuring system is needed.

RF-exposure Statement for the Bluetooth™ RF-Modules:

- This modular transmitter MUST have a separation distance of at least 20 cm between the antenna and the body of the user or nearby persons, excluding hands, wrists, feet, and ankles.
- This device complies with Part 15 of the FCC Rules.
- The FCC ID has to be readable on the device.

PTP® TX Transmitter:

Type:	Bluetooth™
Frequency:	2.402 –2.480 GHz
Power:	20dBm / 100mW maximum
Range:	5m (16.4ft)* minimum*

PTP® RX Receiver:

Type:	Bluetooth™
Antenna:	Internal fractal chip

*The range of the PTP® VP-8 system varies with the RF environment. Refer to topic [Basics>Setup>Communications Setup>PTP® VP-8](#)

Environmental Limitation Specifications:

PTP® VP-8 Profiler:

- Maximum relative humidity 80% RH from 0°C to 31°C, decreasing linearly to 17% RH at 50°C.
- Pollution Degree 2 (Normally only dry pollution, but with temporary conductivity caused by condensation)

NOTE: Tests have shown that because of the sensitive nature of the measurement and logic circuits, the following precautions must be observed:

- **Minimize exposure to ESD Events.** If the PTP® VP-8 or one of the thermocouples receives an 8kV electrostatic discharge during the data collection sequence, the PTP® VP-8 may switch itself “OFF”. To retrieve the data, simply upload the data that was recorded prior to the event. If a new data collection sequence is started without uploading first, the existing data stored in the PTP® VP-8 will be lost.
- **Keep strong electromagnetic fields away.** The thermocouple wires serve as an antenna for electromagnetic radiation. If field strength of 3 volts per meter is present (usually due to close proximity of radio transmitters) while the PTP® VP-8 is collecting data, the accuracy of the data may be compromised. This interference is compounded by using long thermocouple wires, as well as the effect of the thermocouple wires acting as a “tuned” antenna.