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**PowerPac™ Universal  
and PowerPac™ HV  
Power Supply  
Data Transfer Software  
Instruction Manual**

**Catalog Number  
164-5097**

**For Use with Catalog Numbers  
164-5070  
164-5056**



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## Section 1 Introduction

With the PowerPac data transfer software (DTS) and PowerPac remote software, the PowerPac Universal power supply and PowerPac HV power supply are capable of transmitting methods to and from a personal digital assistant (PDA), and transmitting run data to a personal computer (PC) or PDA through the infrared (IR) port located on the front of the power supply (Figure 1). The purpose of this instruction manual is to provide information regarding the installation of the software and guidelines for transferring run data and methods through the IR port.

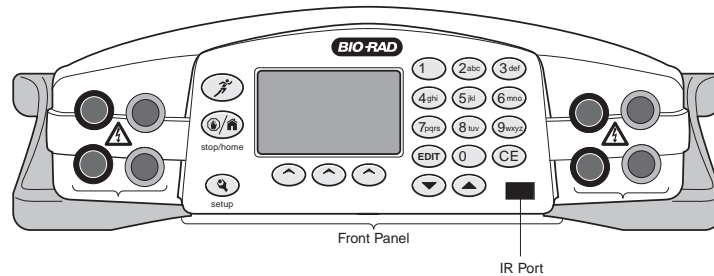


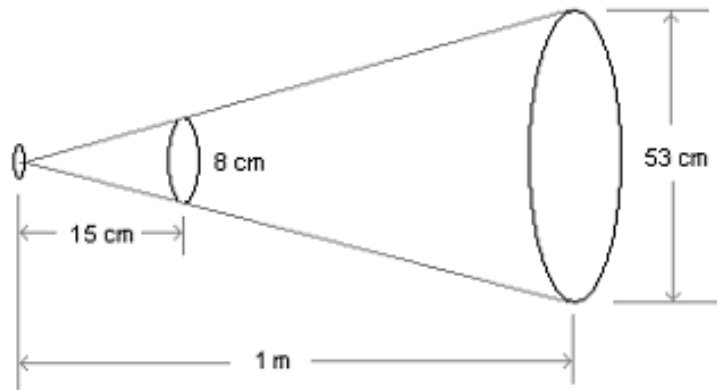
Fig. 1. Front view of the PowerPac Universal and PowerPac HV power supplies.

### 1.1 Overview

PDA's and many laptop PC's have Infrared Data Association (IrDA) transceivers built into them. Desktop PC's without built in transceivers can use an add-on IrDA adaptor, usually connected to a serial or USB port, to communicate.

IrDA is a trade association that defines and promotes standards dealing with two-way wireless communications using infrared emitters and detectors. The IrDA standard is applied in consumer and commercial products such as PDA's, mobile phones, and cameras. Many devices use IR emitters and detectors but do not conform to the IrDA standard. Use of these non-IrDA remotes in the vicinity of IrDA products can interfere with communications. PDA's have IrDA transceivers built in to them and PC's can use an add-on adaptor, usually connected either to a serial port or to a USB port, to communicate.

When an IrDA device is transmitting, it emits light from an infrared light emitting diode (IrLED) through a lens. This lens shapes the light into a cone whose center extends perpendicular to the lens covering the IR port on the front panel of the PowerPac Universal and the PowerPac HV power supplies (Figure 1). The half-angle of this cone is 15°. The recommended distance from the IR port on the power supply to the communication device is a minimum of 15 cm to a maximum of 1 m. At 15 cm, the cone's diameter is 8 cm, and at 1 m, the cones diameter is about 53 cm. For reliable communications, the communicating device should be within this zone (Figure 2).



**Fig. 2. Cone-shaped zone for infrared communication.**

For reliable, uninterrupted infrared communication when operating two or more PowerPac power supplies (Universal or HV) in close proximity, it is important to point the PDA or IrDA adaptor directly toward the designated power supply IR port. Other PowerPac power supplies containing an IR port must either 1) be kept outside of the communication zone, 2) be turned off, or 3) have the IR port disabled or blocked. The IR port in PowerPac HV can be disabled through the SETUP menu (see PowerPac HV power supply instruction manual).

## **1.2 System Requirements**

### **1.2.1 Minimum PC Specifications**

- Windows 2000 or XP operating system
- 400 MHz processor
- 256 MB RAM minimum, 512 MB recommended
- 1,024 x 768 minimum screen resolution with true-color mode (24 or 32 bits)
- 6 GB hard drive minimum
- CD-ROM drive
- IR port or adaptor

### **1.2.2 Minimum PDA Specifications**

- Palm OS version 4.0
- 8 MB memory

## **Section 2 Installation**

### **2.1 Installation of PowerPac Data Transfer Software Onto a PC**

#### **2.1.1 Upgrading From a Previous DTS Version**

Remove the previous version of DTS prior to installing new software:

1. Go to control panel and open the Add/Remove programs wizard
2. Select PowerPac data transfer software
3. Click on the Remove button
4. Follow instructions on the screen
5. Proceed with new installation

#### **2.1.2 New Installation**

Place CD in the CD drive. Installation will run automatically.

If installation does not run automatically:

1. Double-click on the My Computer desktop icon.
2. Double-click the CD drive.
3. Double-click on the file setup.exe.
4. Follow the instructions for PowerPac data transfer software installation.

### **2.2 Installation of PowerPac Remote Software Onto a PDA**

The PowerPac remote software file, PowerPacRemote.prc, is automatically copied onto the PC when PowerPac data transfer software is installed. With PowerPac data transfer software running, PowerPacRemote.prc can be beamed to the PDA from the File menu.

#### **2.2.1 Upgrading From a Previous DTS Version**

Before beaming the software to the PDA, see if an earlier version is present. Transfer all methods to the power supply and all data to the computer to save this information. Then delete all prior versions of the PowerPac remote software applications from the PDA. All stored methods and data on the PDA will be lost.

#### **2.2.2 New Installation**

To begin a new installation from the PC to the PDA:

1. Open PowerPac data transfer software
2. Select: File/Beam PowerPacRemote (to a PDA)
3. The PC and PDA will display dialog windows indicating the status of the transfer

Alternatively, if transfer does not start automatically or stalls:

1. Place CD in the CD drive of a computer with an infrared port. If installation starts automatically, cancel it.
2. Double-click on the My Computer desktop icon and open the CD drive.
3. Right-click on the CD drive to open or explore it.
4. Copy the file PowerPacRemote.prc to the PC hard drive. (Program files/BioRad Laboratories/PowerPac Data Transfer Software/PowerPac)

With the PowerPac data transfer software running, the PowerPacRemote.prc file can be beamed directly to the PDA from the File menu.

1. Open PowerPac data transfer software
2. Select: File/Beam PowerPacRemote (to a PDA)
3. The PC and PDA will display dialog windows indicating the status of the transfer

## **Section 3 Operation**

### **3.1 Operation With a PC**

Communication between a PowerPac Universal or PowerPac HV power supply and a PC requires that the PowerPac data transfer software (catalog #164-5097, also includes PowerPac remote software) be installed on a compatible PC. The PowerPac data transfer software for the PC is compatible with computers that run Windows 2000 or Windows XP operating systems and that include an IrDA port (IrDA adaptors that connect to USB or serial ports are available through outside vendors). The PowerPac data transfer software is used to transmit run data from the PowerPac Universal or PowerPac HV power supply or PDA to a PC. Additional PowerPac data transfer software instructions are contained in the online user manual and will not be discussed here. PowerPac data transfer software instructions are contained within the Help file of the software.

### **3.2 Operation With a PDA**

Communication between a PowerPac Universal or PowerPac HV power supply and a PDA requires that the PowerPac remote software (catalog #164-5097, also includes PC software) be installed on a compatible PDA. The PowerPac remote software is compatible with any PDA that runs Palm OS version 4.0 or above. With the PowerPac remote software, the PDA can perform the following functions:

- Transmit methods to and from the PowerPac Universal or PowerPac HV power supply
- Receive data from the PowerPac Universal or PowerPac HV power supply
- Transmit data to a PC or to another PDA
- Create and store up to 20 methods
- Store up to 20 data files
- Provide unique data file identification

Instructions for the PowerPac remote software for PDA operation are given in the following two sections.

### **3.3 Transfer of Run Data Files and Methods**

#### **3.3.1 Data Transfer Overview**

A run data file refers to the information generated by the PowerPac power supply during a run. This includes all running parameters, settings, data points, pause message, and error message information.

A run data file is stored in the temporary memory of the PowerPac power supply. The temporary memory only stores information for the last run while the power supply is powered. The run data file must be transferred to the PC or PDA before another run is started or before the power supply is shutdown. Starting a new run or shutting down the PowerPac power supply clears the temporary memory.

The PC data transfer software receives, stores, and processes the run data.

### 3.3.2 Direction of Transfer

1. Methods files can be transmitted between a PDA and the PowerPac power supply.
2. Run data files can be transmitted from the PowerPac power supplies directly to a PC or to a PDA.
3. Run data files can be transmitted from the PDA to a PC (Figure 3).

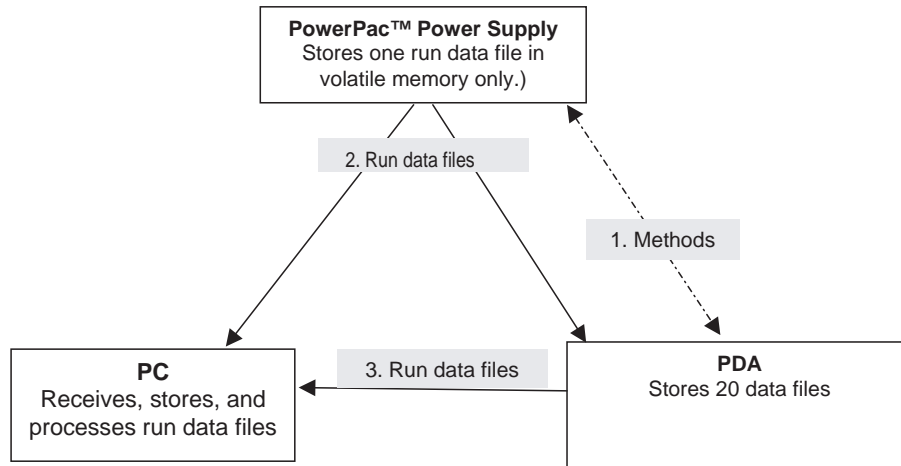



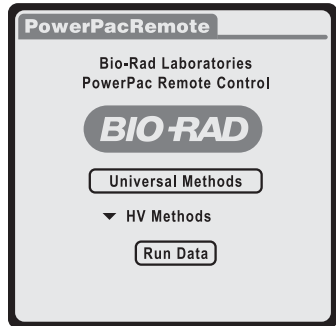
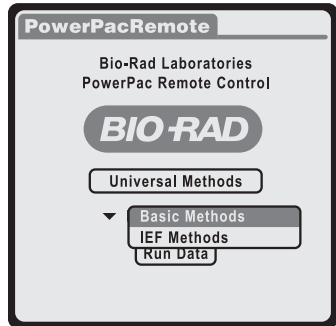
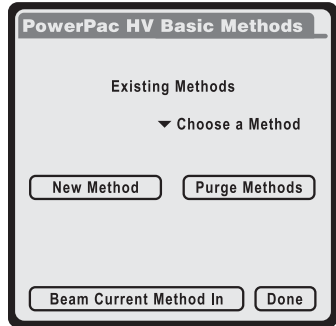
Fig. 3. Data files transfer pathway.

### 3.4 Introduction and Startup Screens

The PowerPac power supply will store and transfer methods and run stored data file in the temporary memory. The PDA will store and transfer 20 methods and 20 data run files. The PC will only receive run data files. All methods must be created on the PDA or power supply. Methods cannot be created on the PC. The PC allows the operator to store run data and methods (Figure 3).


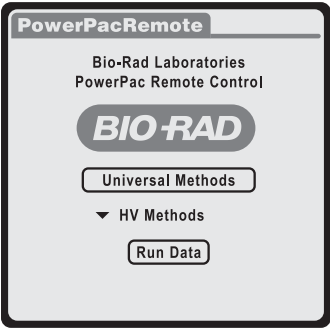
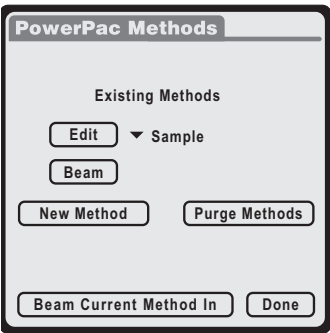
Step	Procedure	Description
1.	 PowerPac...	<b>Start the software-</b> <ul style="list-style-type: none"> <li>• Click the PowerPac icon on the PDA to begin.</li> </ul>



Step	Procedure	Description
2.		<p><b>PowerPacRemote software main screen.</b></p> <p>The main screen allows access to PowerPac power supplies methods lists and run data files:</p> <ul style="list-style-type: none"> <li>• <b>Universal Methods</b>—select this option to create and transceive PowerPac Universal power supply methods</li> <li>• <b>HV Methods</b>—select this option to create and transceive PowerPac HV power supply methods</li> <li>• <b>Run Data</b>—select this option to access and transceive the stored run data files</li> </ul>
		<p>The PowerPac Remote software manages three types of method lists: a Universal methods list for the PowerPac Universal, a Basic Methods list, and an IEF Methods list for the PowerPac HV.</p>
	HV Methods drop-down menu	<p><b>Universal Methods:</b></p> <ul style="list-style-type: none"> <li>• Timed, multi-step methods programmable for constant voltage, current, and power running modes</li> </ul> <p><b>HV Methods:</b></p> <ul style="list-style-type: none"> <li>• <b>Basic Methods</b>—timed, multi-step methods programmable for constant volt, current, and power running modes</li> <li>• <b>IEF Methods</b>—timed, multi-step methods programmable for constant voltage, voltage ramping, run delay</li> </ul>
		<p><b>Methods window</b></p> <ul style="list-style-type: none"> <li>• <b>Existing Methods/Choose a Method</b> choose a previously programmed method from the Choose a Method drop down-menu for editing, viewing, or transmitting.</li> <li>• <b>New Method</b>—access Edit Method window to program a new method</li> <li>• <b>Purge Methods</b>—click to delete all the methods from the designated methods list on the PDA</li> <li>• <b>Beam Current Method In</b>—receive a method from the PowerPac power supply and store it in the designated method list</li> <li>• <b>Done</b>—returns user to main screen</li> </ul>

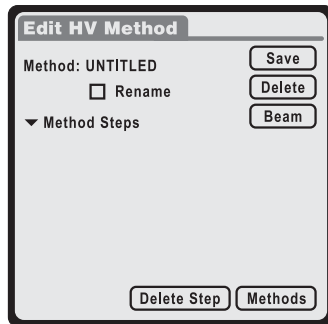
### 3.5 Creating, Editing, and Transmitting Methods with a PDA

The general steps are the same for creating or editing methods for both the PowerPac Universal and PowerPac HV. The variable parameters will change according to the method and power supply. To learn more about the parameters, refer to the power supply's instruction manual.

Step	Procedure	Description
1	 PowerPac...	<b>Start the software-</b> <ul style="list-style-type: none"> <li>Click the PowerPac icon on the PDA to begin.</li> </ul>
2.	Select power supply	PowerPac Remote software main screen Start the PowerPac remote software and select the Universal or HV methods.
		
3.	Open a method	There are three ways to access a method: <ol style="list-style-type: none"> <li>Press <b>New Method</b> to create and open a new method.</li> <li>Select an existing method from the drop-down method list and press <b>Edit</b>. <b>Note:</b> the <b>Edit</b> and <b>Beam</b> buttons appear only if a method from the method list has been selected.</li> <li>Press <b>Beam Current Method In</b> to retrieve a method from the PowerPac and store it in the method list. <b>Note:</b> the method in the PowerPac must be opened before transmission.</li> </ol>
		
<p><u>Other Buttons</u></p> <p><b>Purge Methods</b>—used to delete <b>all</b> methods stored on the PDA</p> <p><b>Beam</b>—transmits the currently selected method to the PowerPac power supply</p> <p><b>Done</b>—returns to the startup screen</p>		

Step	Procedure	Description
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4.



"Edit HV Method" screen

Enter name using the alphanumeric PDA pad

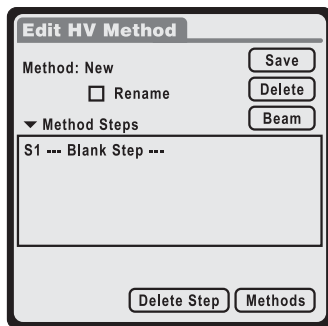
**Rename**—check "rename" to overwrite an existing method with the new name.

**Save**—saves the edited methods in the designated methods list

**Delete**—deletes the selected method.

**Beam**—beams the selected method to the targeted PowerPac power supply

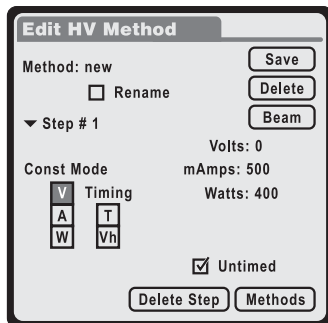
5. New Method steps



New Method:

Select "S1---Blank Step---" from the Method Steps drop down menu

Existing method steps:

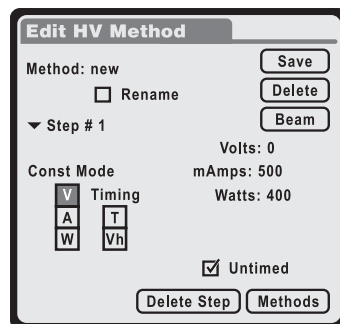


Existing / saved method:

Select a step to edit from the Method Steps drop-down menu

Click the down arrow in the lower right hand corner of the step list to access additional steps

6. **PowerPac HV Basic Method**



**PowerPac HV : Basic Method**

**Const Mode**—select voltage, current, or power as the constant parameter

**Parameter Values**—enter value for constant parameter and values for limit parameters.

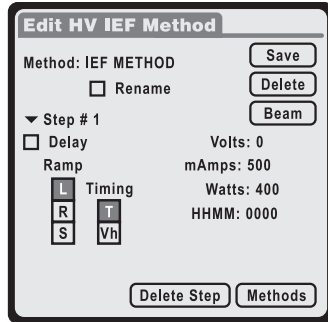
**Timing**—select time (HHMM), volt-hours, or untimed step option

**Rename**—you can rename the saved method, or duplicate the method by saving it under a new name (uncheck rename)

**Save**—select to save changes

Step	Procedure	Description
6. (Continued)		<p><b>Delete</b>—select to delete method</p> <p><b>Beam</b>—transmits saved method to PowerPac power supply</p> <p><b>Delete Step</b>—deletes the displayed step (no warning message)</p> <p><b>Methods</b>—returns to method screen</p>

7. **PowerPac HV IEF Method**



**PowerPac HV: IEF Method**  
IEF Methods are set to run at constant voltage with current and power as the limiting parameters. The maximum voltage value programmed can be reached via three different ramping algorithms: linear, rapid, or slow.

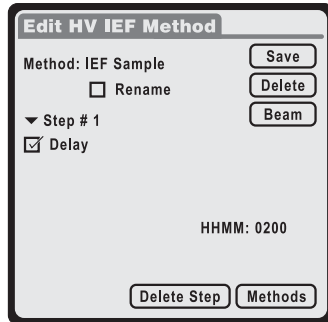
**Ramp**—select voltage ramping: L (linear), R (rapid), or S, (slow)

**Parameter Values**—enter values for constant voltage, current limit, and power limit

**Timing**—select time T (HHMM) or Vh (Volthours)

**Delay**—check delay to program a timed-delayed first step

**Delay option for Step 1**



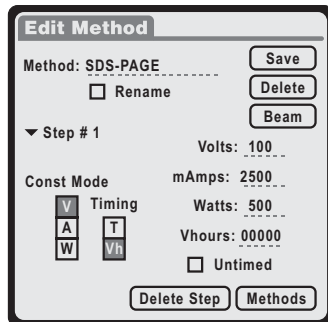
**Step 1 – Delay option.**

This option is available as the first step only for PowerPac HV IEF methods.

Check delay.

Enter time for the delay step (HHMM).

8. **PowerPac Universal Method**



**PowerPac Universal Method**

**Const Mode**—select voltage, current, or power as the constant parameter

**Parameter Values**—enter value for constant parameter, and values for limit parameters

**Timing**—select time (HHMM), Volt-hours




**Rename**—check Rename to rename the saved method, or uncheck Rename to duplicate the method by saving it under a new name

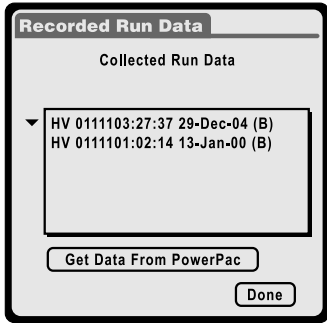

**Save**—select to save changes

Select another step to edit from the Step drop-down list and edit the step.

Step	Procedure	Description
9.	Transmit Method	<p>Press <b>Beam</b> to transmit the method to the PowerPac Universal or PowerPac HV power supply.</p> <p><b>Note:</b> If the receiving PowerPac power supply memory already contains nine methods, the new method will be transmitted to flash memory so it can be run, but it will not be saved to the method list of the PowerPac.</p> <p>The PowerPac remote software maintains three separate method lists:</p> <ol style="list-style-type: none"> <li>1) PowerPac Universal methods</li> <li>2) PowerPac HV Basic and IEF Methods</li> </ol>

### 3.6 Receiving and Transmitting Data

Step	Procedure	Description
1.	Start the software  PowerPac...	Start the PowerPac remote software on the PDA and press <b>Run Data</b> from the main screen.
2.		<p><b>Receive data from PowerPac HV or Universal. Run Data</b>—drop down menu displays the stored run data files</p> <p><b>Purge Data</b>—deleted all run data files stored on the PDA. A popup message asks for delete confirmation</p> <p><b>Get Data From PowerPac</b>—click to transmit the data file from the PowerPac to the PDA</p> <p><b>Note:</b> PowerPac power supplies have the run data file of the last run in the temporary memory. This data file is deleted as soon as a new run is started or the PowerPac is turned off</p> <p><b>Done</b>—returns to the startup screen</p>
3.		<p><b>Transmit run data files from PowerPac to PDA</b></p> <p>Click <b>Get Data From PowerPac</b> to transmit the data file from the PowerPac to the PDA.</p> <p>The screen will display the Searching message and a subsequent Data Received message.</p> <p><b>Get Data from PowerPac</b>—transmits data file to a PC.</p> <p><b>Delete</b>—deletes the currently selected data file</p>

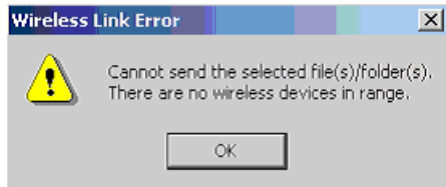
Step	Procedure	Description
4.		<p><b>Transmit run data files from PDA to a PC.</b> Select a data file from the drop-down Run Data list</p> <p><b>Note:</b> The prefix HV of the run data file indicates the PowerPac origin. The B at the end of the name indicates the run data file was beamed to a PC</p>
5.		<p>Press <b>Beam</b> to transmit the data to a PC. The warning "This data file has not been beamed to the PC" is displayed for all data files that have not been transmitted to a PC.</p> <p><b>Purge Data</b>—deletes all the run data files stored on the PDA</p> <p><b>Extract Method</b>—displays the method that was used for the run data file</p> <p><b>Get Data From PowerPac</b>—transmits run data file from PowerPac to PDA</p> <p><b>Delete</b>—deletes the currently selected data file</p> <p><b>Done</b>—returns to the start-up screen</p>

## Section 4 Troubleshooting

The PowerPac power supplies are stackable, so care should be taken when communicating with stacked power supplies using IrDA. A power supply is selected as the recipient or provider of data by pointing the PDA directly toward the IR port on the front of the targeted power supply. If two or more power supplies are able to "see" the PDA simultaneously, errors or unintended transfers of data may occur. Care should be taken to shield the IR ports of non-targeted power supplies to prevent errors or unintended transfers.

In all cases, once the problem and the cause have been identified and corrected, repeat the transmission.

Problem	Cause	Solution
Wireless communication cannot be established	1. PC IrDA adaptor not connected or disabled instructions.	1. Check IrDa adaptors manufacturers
	2. The power supplies IR port and the PCs IrDA adaptor is out of range	2. Align PowerPac Universal power supply and the IrDa adaptor or PDA according to Figure 2



<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Communication is initiated but not completed Files do not appear in the expected location	1. IR devices moved out of range during transmission	1. Align power supply and the IrDa adaptor or PDA according to Figure 2
	2. Multiple infrared devices within range	2. Remove, shield, or disable any other infrared devices near the PowerPac IR port (including stacked PowerPac power supplies)
	3. Receiving device memory is full	3. Delete files from PDA or PowerPac memory
Computer, power supply, or PDA freezes up	1. Multiple infrared devices within range	1. Remove, shield, or disable power supplies or any other infrared devices near the PowerPac IR port (including stacked power supplies). Once the additional IR devices have been removed or shielded, the targeted PowerPac will return to proper function momentarily. <b>Note:</b> Don't turn off power supply or the run data file will be lost  PDA may need to be reset, follow manufacturers instructions. For PC resetting, follow instructions below

**Note:** In all cases, once the problem and cause have been identified and corrected, repeat transmission.

To reset the PC:

On the PC, the IR-communication is done by utilizing the Microsoft Windows irftp.exe program:

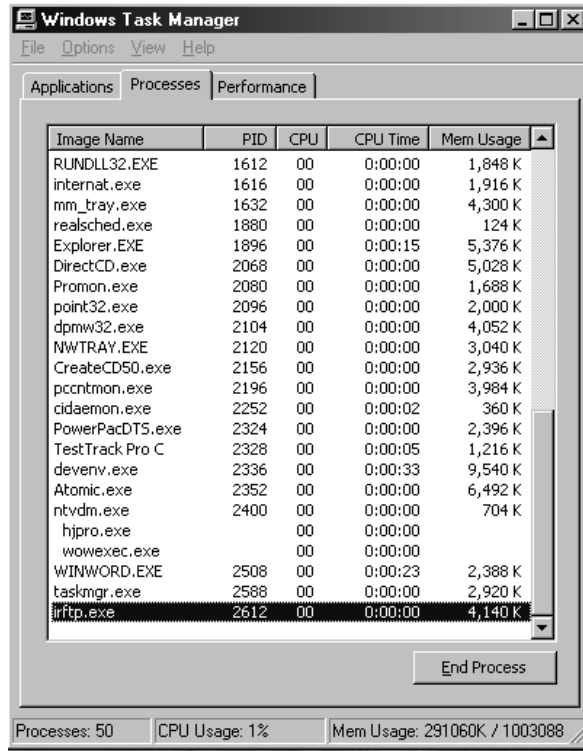
1. Separate the IR-device pair.
2. Check if multiple instances of the Windows irftp.exe program are running:
  1. Press the Ctrl + Alt + Del buttons at the same time
  2. Click on the Task List button that says:
  3. Select the Processes tab (see screenshot below)
  4. Look for irftp.exe

If you see multiple irftp.exe processes, end all but one:

Do this with care:

- Select each irftp.exe processes – one at a time – and click "End Process"

**Note:**Do this carefully; only select the irftp.exe processes.



**Fig. 4. Windows Task Manager dialog box.**

3. Realign the IR-device pair. Wait for the active devices to reestablish IR-communication.
4. Perform data transfer.



## Section 5 Warranty and Ordering Information

### 5.1 Warranty

The PowerPac data transfer software is warranted for 1 year against defects in materials. If any defects should occur during this warranty period, Bio-Rad Laboratories will replace the defective part without charge.

### 5.2 Ordering Information

<b>Catalog #</b>	<b>Description</b>
164-5070	<b>PowerPac Universal Power Supply</b> , 100–120/220–240 V
164-5056	<b>PowerPac HV Power Supply</b> , 100–120/220–240 V
164-5097	<b>PowerPac Data Transfer Software for PC and PDA</b>
164-5069	<b>PowerPac Universal IQ/OQ Protocols Binder and Test Box</b>
164-5068	<b>PowerPac Universal IQ/OQ Protocol Binder</b> , includes hard copies of the IQ and OQ protocols, electronic Microsoft Word files for the IQ and OQ protocols, and electronic Microsoft Excel file with formulas
164-5098	<b>PowerPac HV IQ/OQ Protocol Binder and Test Box</b>
164-5099	<b>PowerPac HV IQ/OQ Protocol Binder</b> , includes hard copies of the IQ and OQ protocols, electronic Microsoft Word files for the IQ and OQ protocols, and electronic Microsoft Excel file with formulas
900-7288	<b>Replacement Fuse for PowerPac Universal Power Supply</b> , 6.3 A, 250 VAC, 5 x 20 mm, Type T
900-8933	<b>Replacement Fuse for PowerPac HV Power Supply</b> , 8 A, 250 V, 5 x 20 mm, Type T







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