JSR Ultrasonics PRC50
Quick Start Guide – Version 1.0.0

Thank you for purchasing this JSR Ultrasonics PRC50 Pulser-Receiver card. This document will help you to quickly get the PRC50 installed and running in a PC.

We encourage you to let us know how your PRC50 is operating and what applications you are using it in. Feel free to send us your feedback via e-mail to sales@jsrultrasonics.com.

Do not install the PRC50 card until the JSR Control Panel software is installed. Note also that Administrator privileges are required to install the JSR Control Panel.

To install the PRC50 you will need:
- PC running Windows 2000 or Windows XP with an available PCI slot.
- Philips (Cross-point) Screwdriver suitable for your PC case.

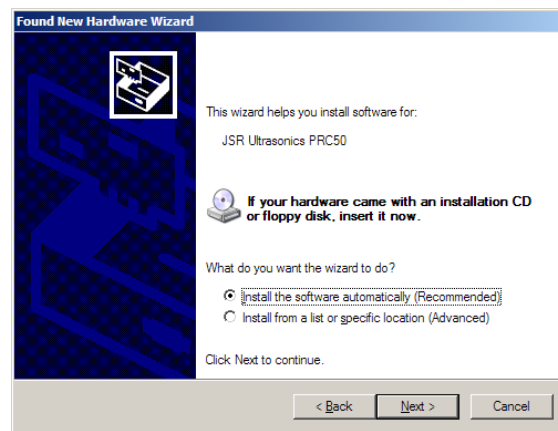Installing the JSR Control Panel software and PRC50 card
1. Close all open Windows 2000 or Windows XP applications.
2. Insert the JSR Control Panel software CD and follow the on-screen instructions.
   a. In the event that the setup program does not run automatically, the program can be run from Windows Explorer by browsing the CD-ROM contents and double-clicking the file 'JSR Control Panel Installer_3.1.10.EXE', or from the Start menu by selecting Start->Run->Browse and then browse the CD-ROM contents, selecting the file 'JSR Control Panel Installer_3.1.10.EXE'.
3. Remove the JSR Control Panel CD.
4. Disconnect the PC's power and remove the PC case cover.
5. Important: To avoid electrostatic discharge damage, wear a grounding strap or ground yourself by touching the computer's framework before you install any components or touch any parts inside the computer.
6. With the PC case cover removed, locate an empty PCI slot on the motherboard.
7. Remove the 'blank' slot cover from the back of the case by removing the mounting screw that holds the cover in place.
8. Align the PRC50 with the slot and gently push the card into the connector on the computer motherboard.
9. Once the PRC50 is seated firmly in place, replace and tighten the mounting screw.
10. Check to make sure no other PCI boards have been loosened or are in contact with the PRC50 card.
11. Replace the PC case cover.
12. Reconnect power and restart the PC.

Additional Instructions for Windows XP Users

After restarting the PC with the newly installed PRC50, it is possible that 'Found New Hardware Wizard' setup screens may appear similar to those shown below. If the screen shown at left appears click on the 'No, not this time' button and then click 'Next' to continue.
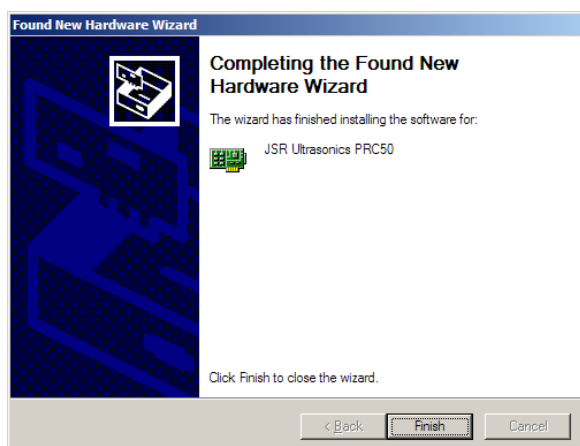
If the screen below appears, click on the 'Install the Software automatically' button and then click 'Next' to continue.

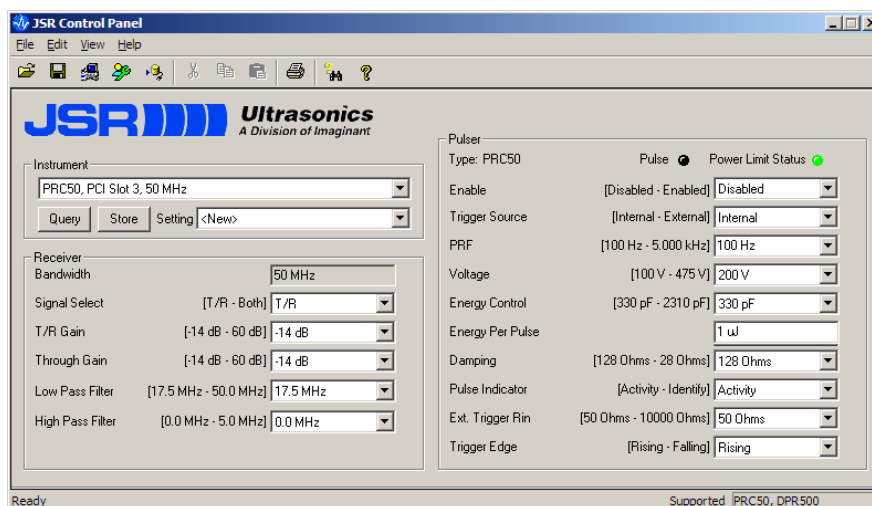**Additional Instructions for Windows XP Users (continued)**

Lastly, when the screen on the left appears click 'Finish' to complete the 'Found New Hardware Wizard' application.

You are now ready to operate the PRC50.

Using the PRC50

The following steps describe an introductory operating session with the PRC50.

1. Using 50Ω SMA to Microdot cables, connect a T/R transducer, or separate Through and T/R transducers, to the appropriate PRC50 card SMA connector(s).
2. Using a 50Ω SMA to BNC cable, connect the PRC50 card SMA connector labeled 'Output' to an oscilloscope or digitizer. The monitoring oscilloscope or digitizer should have a 50Ω input impedance. If the instrument has a high input impedance, then a shunt 50Ω terminator should be used at the input of the instrument.
3. Double click on the JSR Control Panel icon to launch the application. Once launched, it will appear as below.

4. Set the Trigger Source to 'Internal' or 'External' depending on your application.
   - Set the Trigger Source to Internal if the PRC50 pulser is to be triggered by the internal clock of the PRC50. In addition, connect the PRC50 Trig/Sync connector to the external trigger input of the monitoring oscilloscope using a 50Ω SMA to BNC cable.
   - Set the Trigger Source to 'External' if the PRC50 pulser is to be triggered from an external source such as a waveform digitizer. In addition, connect both the PRC50 Trig/Sync connector and the external trigger input of the oscilloscope to the source of the external trigger signal.
5. Select other PRC50 settings as desired. The LED located below the Trig/Sync connector illuminates red to indicate that the pulser is firing.
6. Adjust the T/R and/or Through Gain controls to obtain a signal level no greater than ± 1 Volts$_{pp}$ into 50Ω at the Output connector.
7. Adjust the High and Low Pass Filter cutoff frequencies as desired.

JSR Control Panel Guide

Using the JSR Control Panel software
The JSR Control Panel application enables a user to modify the following functions:
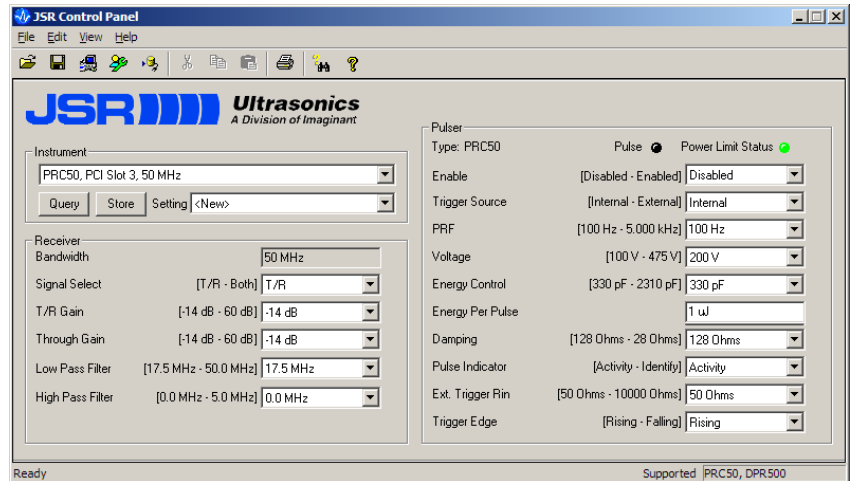
Instrument Settings
JSR Control Panel provides easy-to-use drop down menus for changing Receiver and Pulser settings as shown at right.

Store/Recall Instrument Settings
The JSR Control Panel can save instrument settings for future usage sessions.

Instrument settings can be saved under an individual name for use in initializing a future usage session.

To store the instrument settings, use the File 'Store/Recall Settings' menu option or use the 'File Save' icon on the tool bar. This will open the 'Store/Recall Settings' dialog screen. To save the current instrument settings, type in a name under which to save the settings and click on the 'Store' button. Note that Instrument settings are automatically saved after each change and do not require the user to invoke the File 'Save' menu option.

To recall settings while in the 'Store/Recall Settings' dialog screen, select the setting name from the list shown and click on the 'Recall' button.

An instrument Setting can be deleted while in the 'Store/Recall Settings' dialog screen by selecting the setting name and clicking on the 'Delete' button.

Settings File
The default name of the file into which instrument Settings are saved is 'Settings.ini'. The two commands 'File - Open' and 'File - Save As' allow you to change the Settings File that is used. By default, the file 'Settings.ini' is opened upon startup, so if a different Settings file is to be used, it must be selected when the application is started.

Preferences Dialog (Select 'Edit' Menu, then click on 'Preferences')
The 'Supported Model' Menu option allows a user to connect to the following instrument types.
    'Any'   Will connect to any available PRC50 or DPR500 Pulser-Receivers
    'PRC50'   Will connect only to a PRC50 Pulser-Receiver
    'DPR500'   Will connect only to a DPR500 Pulser-Receiver

The settings chosen on the Preferences Dialog are memory resident between sessions.

Select Simulation Mode or Actual Instrument Mode
To control the PRC50, select Actual Instrument Mode. The other mode, 'Simulation mode', simulates the presence of a Pulser-Receiver and is a function that is useful for software developers.

In Simulation Mode, the SDK underneath the JSR Control Panel application will operate without connection to a physical pulser/receiver instrument and will respond to control changes as though an instrument was present.

Final Note:
When you exit the JSR Control Panel application, it will leave the PRC50 operating. If you do not wish the PRC50 to continue functioning, go to the Enable drop down menu and click 'Disabled' before exiting the JSR Control Panel application.