

Installing and Using PIM Backup on Trimble TSC2 / Survey Controller

This Technical Tip provides instructions for installing and using the free PIM Backup program on a Trimble TSC2 data collector running Trimble Survey Controller software to automatically backup all survey-data files to a removable flash memory card.

There have been many instances where users of Trimble TSC2 / Survey Controller data collectors have accidentally deleted data files. Unfortunately, as of this writing there is no way to recover those deleted files – once a file is deleted from the TSC2's internal memory it is gone forever. Also, some TSC2s have failed in service before critical data was downloaded. Recovering data from the surface-mount memory modules soldered onto the processor printed-circuit board is impossible for all practical purposes. A backup on removable media is very cheap insurance for your valuable survey data.

The TSC2 has slots for both Secure Digital (SD) and CompactFlash (CF) memory cards. Which type of card you use depends on whether you are using the CF slots for other devices and what you may have on hand. SD cards are very common because they are used in many digital cameras; we see 2-GB SD memory cards for sale in grocery stores these days for around \$12. The SanDisk brand has always been a safe choice for memory cards, but the others should be OK as well. We have not seen a published specification from Trimble, but a couple of experiments we did back in 2007 make us suspect that SD cards larger than 2 GB will not work in the TSC2. It is believed that 2 GB is the limit of the standard-capacity SD (SDSC) card, so this makes sense. There is probably a similar size limit for CF cards but we have no idea of what that may be. Please advise Inland GPS of anything you learn on this subject and we will incorporate that information into future revisions of this document.

PIM Backup is intended for backing up and restoring personal information (including contacts, appointments, tasks, messages, and call logs) stored on mobile phones using the Microsoft Windows Mobile operating system. These instructions will not cover that aspect of PIM Backup's capabilities but will instead concentrate on backing up the contents of the **\Trimble Data** folder where Survey Controller stores its data files. These instructions are based on PIM Backup Ver 2.8, which was the latest version as of this writing.

Users of other surveying data collectors running the Windows Mobile operating system can probably adapt these instructions for those devices. Obviously those users will need to determine where the application software on their device stores its data files and configure PIM Backup to backup those folders.

The following instructions are based on the following assumptions –

- The user has basic Windows skills such as using a Web browser, extracting (unzipping) archived files, using Windows Explorer to navigate computer folders and manipulate files, using a computer mouse or pointer, etc.
- The Trimble TSC2 is running the Windows Mobile 5 operating system, which is used with Survey Controller Ver 11.21 and later. See note on last page of this document.
- There is communication between the computer and the Trimble TSC2; either by ActiveSync for computers running the Microsoft Windows XP operating system or by Windows Mobile Device Center for computers running the Microsoft Windows Vista or Microsoft Windows 7 operating systems.
- There is a formatted SD or CF memory card in the TSC2 and that the memory card is recognized by both Windows Explorer on the computer and File Explorer on the TSC2.

The steps to having PIM Backup make automatic backups of the survey data on your Trimble TSC2 / Survey Controller data collector are -

1. Downloading the PIM Backup program and documentation

Using your web browser, navigate to the Dotfred web page at www.dotfred.net. If the "PIM Backup application" page does not open by default, click the [PIM Backup 2.8](#) hyperlink on the left side of the page.

Click the [Download PIM Backup v2.8 for WM5 & WM6](#) hyperlink to download the file named **PPCPimBackupV2.8_wm2005.zip**. Save the file to an appropriate location on your computer.


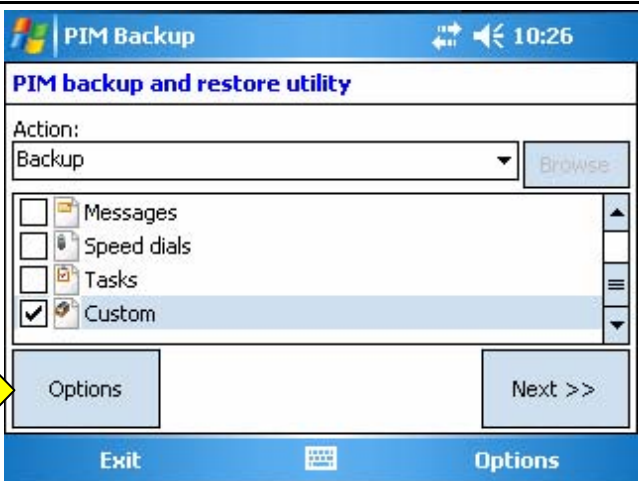
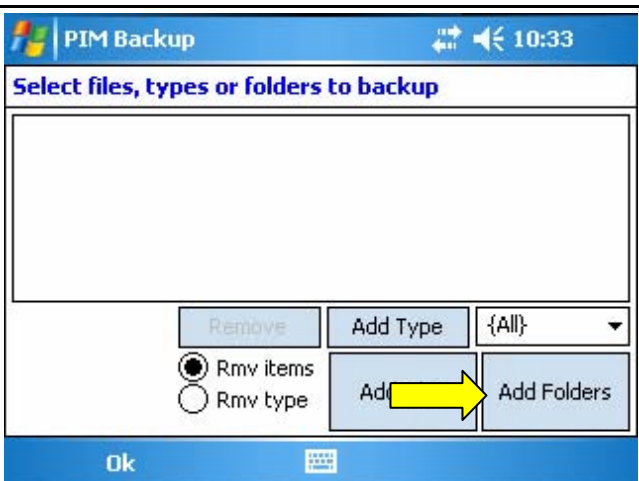
Click the [PIM Backup quick user guide](#) hyperlink to open the quick user guide. This is a PDF, so you can save a copy to an appropriate location on your computer. Most of the information in that document pertains to mobile phones, but it is better to have information you don't need than need information you don't have.

2. Installing and configuring PIM Backup on the Trimble TSC2

Extract the contents of the zipped **PPCPimBackupV2.8_wm2005.zip** file to an appropriate location, most likely a new folder within the folder holding the zipped file. You will find a single file named **PPCPimBackup.exe**.

The PIM Backup application page contains a use notice that states: “The exe contained in the zip file, should be copied and launched on the pocket pc, and not on a pc.”

Following that guidance, use Windows Explorer (or the Explore function in ActiveSync) to copy **PPCPimBackup.exe** to the **\Program Files** folder on the TSC2. (There is no installer associated with PIM Backup, so if you ever need to remove the program you will simply delete **PPCPimBackup.exe** along with any associated shortcut.)

<p>On the TSC2, launch File Explorer and navigate to the \Program Files folder.</p> <p>Tap on PPCPimBackup to launch PIM Backup.</p> <p>(Note that File Explorer does not show the .exe extension.)</p>	 <p>The screenshot shows the File Explorer interface on a TSC2. The address bar displays 'Program Files'. The file list includes 'Connections', 'Survey Controller', 'Windows Media Player', and 'PPCPimBackup'. The 'PPCPimBackup' file is selected, and its details (4/2/11, 206K) are visible. A yellow arrow points from the text to the file name.</p>
<p>Make sure the Action field shows Backup.</p> <p>Uncheck all items except Custom.</p> <p>Tap on Custom to select that item. The Custom line will be highlighted.</p> <p>Note that the Options button toward the lower left is now active.</p> <p>Tap the Options button toward the lower left (not the one toward the lower right).</p>	 <p>The screenshot shows the 'PIM Backup' application. The 'Action' dropdown is set to 'Backup'. A list of items to backup includes 'Messages', 'Speed dials', 'Tasks', and 'Custom'. The 'Custom' item is checked. The 'Options' button is highlighted, and a yellow arrow points to it from the text.</p>
<p>Now we will select the folder we want to backup, specifically the \Trimble Data folder.</p> <p>Tap the Add Folders button.</p>	 <p>The screenshot shows the 'Select files, types or folders to backup' screen. At the bottom, there are radio buttons for 'Rmv items' (selected) and 'Rmv type'. There are also buttons for 'Remove', 'Add Type', and 'Add Folders'. A yellow arrow points to the 'Add Folders' button.</p>

Highlight the name of the **\Trimble Data** folder, and then tap the **Done** button.

(As mentioned previously, if you are using these instructions with something other than the Trimble TSC2 / Survey Controller data collector you will need to select the correct folder(s) to backup. Inland GPS cannot help you with that detail.)

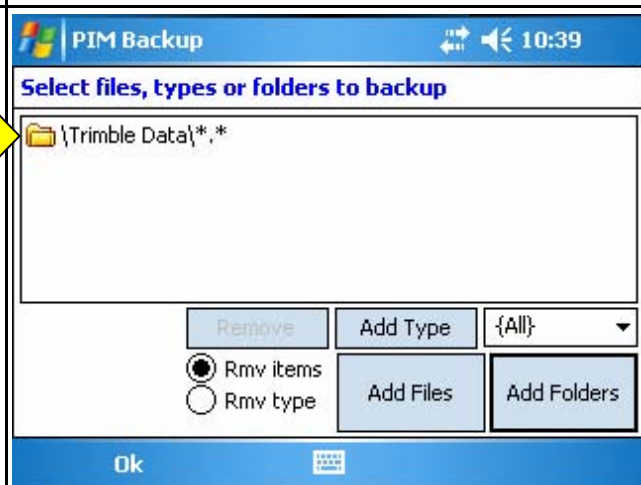


The screen at right shows that PIM Backup will backup all files in the **\Trimble Data** folder.

Tap the **OK** button at the lower left of the screen.

You will be back to the screen showing the highlighted **Custom** item.

Tap the **Next** button.



Now we tell PIM Backup what to name and where to write the backups.

The default filename is fine. The last eight characters indicate the date of the backup file in YYYYMMDD format and will change to match the date.

Here we used Windows Explorer to create a folder named **Backups** on the Storage Card (a 2-GB SD card in this example), and then we used the **Browse** button to select that folder for the backups.

Check all the items in this dialog. (This recommendation may change with experience – let us know if you encounter any problems.)



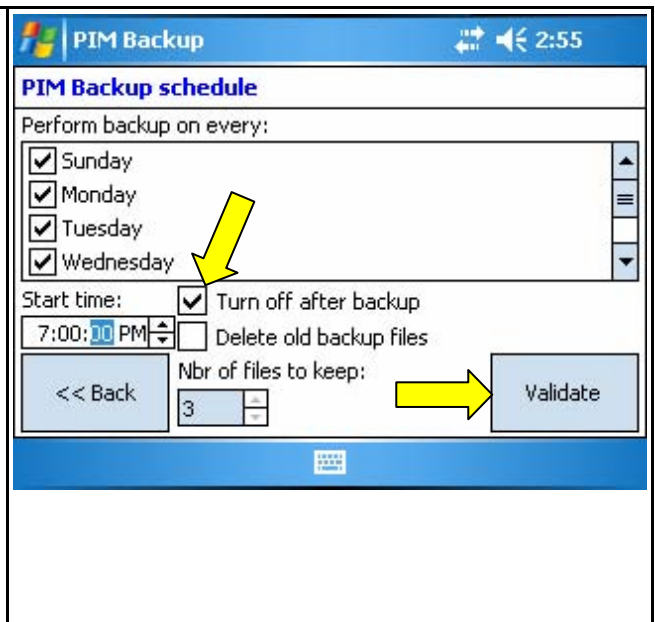
Tap the **Schedule** button to set up automatic backups.

In the dialog at right PIM Backup is set to make a backup every day at 1900 hrs. You may elect to do this only on weekdays if that fits your schedule, simply uncheck the weekend days.

Turn off after backup is checked – the Windows Mobile scheduler can perform tasks even if the TSC2 is turned off. Checking this option will turn off the TSC2 when the automatic backup is complete. (No backups will be made if the TSC2 is in Shutdown mode.)

You can elect to delete old backup files, but if you do the maximum number of retained files is ten.

Tap the **Validate** button to update the backup schedule; you should then see a message box confirming this has been achieved. Acknowledge that message.

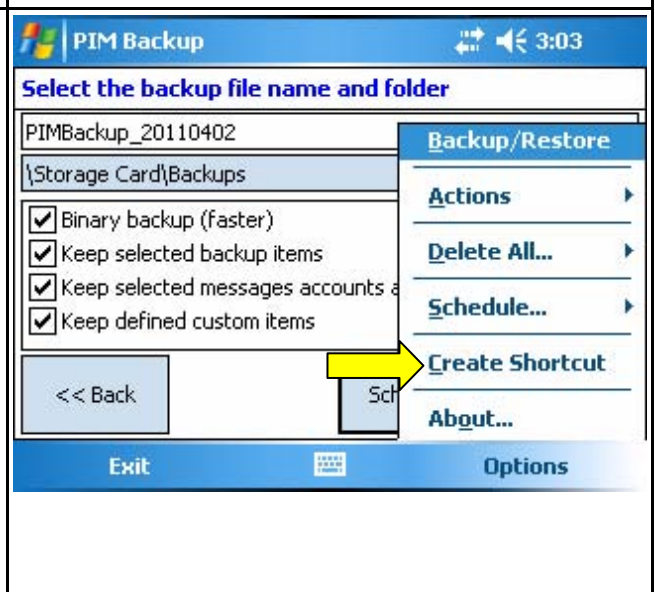


Sometimes PIM Backup makes a shortcut for itself, but this writer cannot guarantee that always works as expected.

It is believed that the following procedure will usually create a shortcut for PIM Backup in the **Programs** folder under the **Start** menu.

Tap the **Options** button at the lower right, and then tap **Create Shortcut** in the menu that appears. Sometimes that creates a shortcut; sometimes it does not.

(If that does not work you can create a shortcut via the brute-force method – navigate to and select the **.exe** file, execute the **Copy** command, then navigate to **\Windows\Start Menu\Programs** and use the **Paste Shortcut** command to place a shortcut in that folder. Finally, use the **Rename** command to change the shortcut name to **PIM Backup**.)



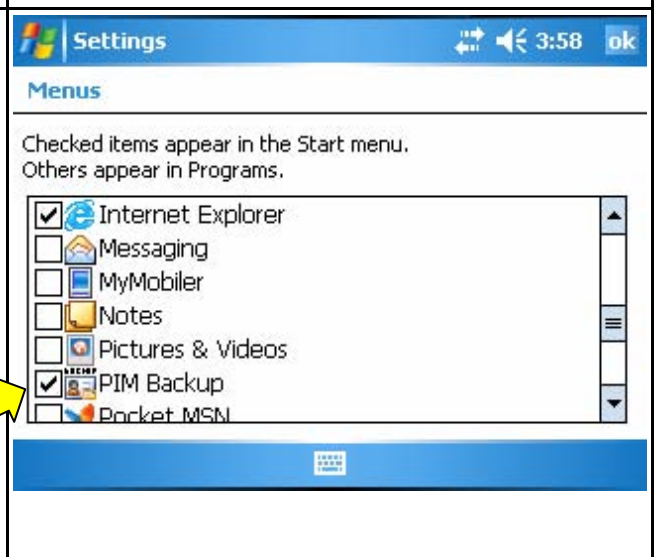
The primary reason for the shortcut for PIM Backup is to make unscheduled backups as simple and easy as possible.

To save a tap or two, we can set the TSC2 so the shortcut that launches PIM Backup is on the **Start** menu.

Under the **Start** menu, tap **Settings**, then select the **Personal** tab, and finally tap the **Menus** icon to bring up the dialog at right where you can select the programs that appear under the **Start** menu.

Check the box for **PIM Backup** and tap **OK** to save this selection.

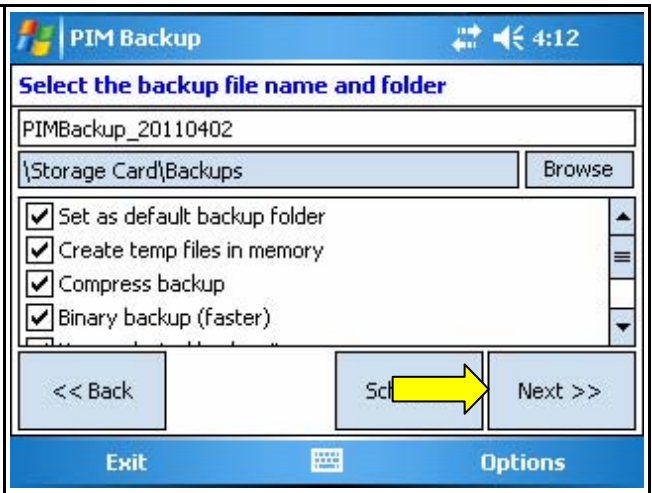
Note that only seven programs are allowed in the **Start** menu. We removed **Messaging** from the **Start** menu (there by default) so **PIM Backup** could be on the **Start** menu.



Now back to PIM Backup –

Tap the **Next** button and PIM Backup will begin its first-run backup process.

A couple of progress bars will appear, along with a log of the events in the backup process.



When the backup process is finished you will see a screen like the one at right.

The last log entry shows PIM Backup took 1 minute 24 seconds to complete the backup task.

Tap the **Exit** button to close PIM Backup.

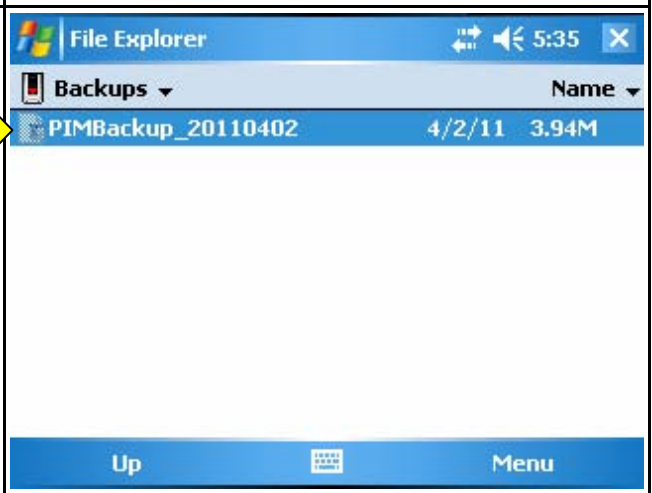
PIM Backup will make additional backups according to the schedule you specified earlier.



To confirm (especially the first time you run PIM Backup) that the backup was actually made, start File Explorer and navigate to the folder on the memory card we selected to contain the backups.

The screen at right shows the backup created in the previous step.

As mentioned above, File Explorer does not display file extensions. If we viewed the folder at right with Windows Explorer we would see the backup file has a **.pib** extension.



3. Making an unscheduled (manual) backup

It is easy to imagine various situations where it would be foolish not to make an immediate backup instead of waiting for the scheduled automatic backup. Perhaps it would be very costly to return to the site (think of a job site accessible only by helicopter) or it may be impossible to make the necessary measurements again in the future (say they're closing the dam on a new reservoir and the water will soon permanently inundate the work area). Putting aside the extreme examples, in any real-world instance it is less expensive and much easier to make a backup than to redo the field work.

Assuming you created a shortcut to PIM Backup in the **Start** menu as described above –

Create an unscheduled backup as follows:

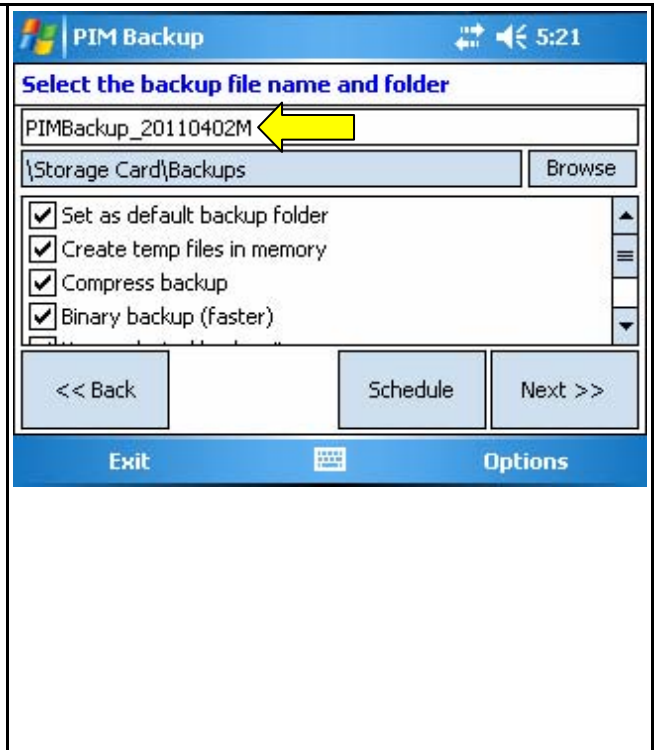
Under the **Start** menu, tap **PIM Backup**, and then the **Next** button to get to the dialog at right. All settings are as we left them before.

To avoid a possible conflict problem with the scheduled backup creating a **.pib** file with the default filename, we suggest appending one or more characters to the end of the default filename. Here we added **M** for manual. You can use any system that works for you.

Tap the **Next** button to start the backup process.

When the backup process is finished tap the **Exit** button to close PIM Backup.

The total effort is three taps, add one letter to the filename, and two more taps. Not a lot of work to safeguard your valuable data.



4. Using the backup file

PIM Backup includes a Restore function and the user guide provides some general information on how to use PIM Backup to replace files directly from a **.pib** file to the Windows Mobile device.

This objective of this document is to show how to recover data for use in the user's computer, which is generally the most urgent consideration, as simply as possible.

As stated in the PIM Backup quick user guide, the **.pib** files on the removable memory card are actually zipped archive files.

If the TSC2 is working you can use ActiveSync and Windows Explorer to copy the **.pib** file(s) from the TSC2 to the computer. If the TSC2 is not operable (or if this method is more convenient), remove the memory card containing the backup(s) from the TSC2 and insert it in an appropriate memory-card reader from which the **.pib** file(s) can be copied to the computer.

Now use Windows Explorer to change the extension(s) of the **.pib** file(s) to **.zip**, and extract the zipped archive file to an appropriate location on the computer. Then you can work with the recovered file(s) as per your normal procedure.

5. Determining the best backup strategy for your organization

Users should evaluate the options and establish backup procedures that will work best for them and their organizations.

With a little discipline, some organizations may be able to adopt a procedure of making backups during pauses in the work and at the end of the day's field activities. In such a situation it may make sense to simply overwrite the backup made earlier in the day. Another option would be to append an incrementing character to the end of the default filename for each backup made during the course of the day.

In other cases where it is not deemed advisable to rely on the operator to always initiate manual backups, an automatic backup every day (or every working day) at say 1900 hrs may be a better solution.

Or consider using a combination of manual and automatic backups.

You could also establish a policy of archiving all **.pib** files on a weekly or monthly cycle.

Some organizations may want to establish a policy of always making a backup immediately before deleting any files from the data collector. It seems most lost-data problems arise when someone starts deleting files.

The options are endless. Always remember the memory cards are very cheap in comparison to the value of your survey data. And do not forget to test any recovery strategy to make sure it will work when it is needed.

6. Showing your appreciation for this valuable program

Don't forget to point your web browser back www.dotfred.net and make a donation to Dotfred to let him know you appreciate his efforts in providing and maintaining PIM Backup.

Other considerations –

Trimble TSC2s running Windows Mobile 2003?

The Dotfred web page at www.dotfred.net includes a [Download PIM Backup v2.8 for WM2003SE](#) hyperlink.

That version of PIM Backup may work on a TSC2 running the Windows Mobile 2003 operating system, but we do not have any way to test it and do not even know what “SE” stands for.

The Trimble TSC2 started shipping in July 2005. The earliest production used the Windows Mobile 2003 operating system. The TSC2 has used the Windows Mobile 5 operating system since the advent of Survey Controller Ver 11.21 in February 2006.

Trimble provided Windows Mobile 5 product keys and upgrade kits for all of the data collectors that shipped with Windows Mobile 2003 at no cost to the end users. There is no reason anyone should be running the Windows Mobile 2003 operating system on a TSC2 today.

Additional support resources for PIM Backup?

Additional support for PIM Backup is available on a long (150 pages at the time of this writing) forum thread at <http://forum.xda-developers.com/showthread.php?t=299705>. As one would expect, most (if not all) the posts have to do with mobile phones, but there may be useful information and ideas there.

What happens when the memory card is full?

Inland GPS will conduct an experiment to see what happens when the scheduled backup encounters a full memory card and will revise this document to reflect those results.

Alternative backup programs?

SPB Backup is a good and reasonably priced (not free) backup program for Windows Mobile devices. You can learn more at <http://spb.com/products/backup>.

More frequent backups?

There is a certain “window of vulnerability” here where data can sit on the TSC2 for several hours before the next automatic backup. If you devise or discover a way to automatically create backups without having to wait for the once-a-day scheduled backup please let us know.

What about the Trimble TSC3?

Since Inland GPS is no longer a Trimble dealer we do not know anything about this newer-model data collector other than what we can read on the datasheets. Apparently the TSC3 uses the Windows Mobile 6.5 Professional operating system and has a slot for a Secure Digital High Capacity (SDHC) memory card, so we expect PIM Backup will work fine on that platform. If you try it please advise of your experience and we will include that information on future revisions of this document.