

Instruction Sheet

USB Backup and Restore

This document explains how to back up and restore tools on the SmartPAC 2 and SmartPAC PRO controls using the USB Backup and Restore utility. This utility enables you to backup and restore all tools and initialization settings using a USB disk from the USB port connector on the SmartPAC 2 Processor board or the SmartPAC PRO front panel.

The USB disk you use for backup must have at least 600 KB of free space per SmartPAC to store all tools and initialization parameters. If you plan to use the same USB drive for multiple SmartPACs, ensure that the disk has sufficient capacity.

For SmartPAC 2 controls with an operating system version of 4.01 or higher, the USB disk may be formatted as FAT, FAT32, or NTFS. To find the operating system version, go to the SmartPAC 2's initialization menu and select "INSTALLED OPTIONS", the operating system is labelled "XPe". SmartPAC2 systems with OS prior to 4.01 will only work with FAT or FAT32 USB disks. SmartPAC PRO will work with any formatting including the latest exFAT formatting.

To use USB Backup and Restore, your SmartPAC system must be loaded with the USB Disk Backup option as an installed option. The part number for the SmartPAC 2 is (9679619) and the part number for the SmartPAC PRO is (9688619).

This document is organized in the following sections:

- *Upgrading SmartPAC 2 Firmware, next*
- *Installing a USB Disk in SmartPAC 2, page 2.*
- *Backing Up Tools in SmartPAC 2, page 3.*
- *Restoring Tools in SmartPAC 2, page 5.*
- *Upgrading SmartPAC PRO Firmware, page 7.*
- *Installing a USB Disk in SmartPAC PRO, page 7.*
- *Backing Up Tools in SmartPAC PRO, page 9.*
- *Restoring Tools in SmartPAC PRO, page 13.*

Upgrading SmartPAC 2 Firmware

If your current SmartPAC 2 Software version is lower than V 4.59, you must perform a firmware upgrade before you can use USB Backup and Restore. Instructions for ordering and receiving updated firmware and installing the firmware on your SmartPAC 2 are provided in Appendix B of the SmartPAC 2 user manual or the *Upgrading SmartPAC 2 Firmware* instruction sheet, which accompanies all firmware upgrade orders.

Backing Up Tools in SmartPAC 2

Before beginning a backup, make sure that a USB disk with the necessary free space is installed in the USB connector on the SmartPAC 2 board. Depending on the number of tools programmed on the SmartPAC 2, a backup may require as much as 600 KB of storage space.

Since most USB disks will have considerably more storage capacity than this, you should have no trouble backing up one or even several SmartPACs on one device. However, if you are backing up many SmartPACs, you need to have a USB disk with large capacity or use multiple USB disks.

Backup files are written to folders named “Backupnnnnnnnn,” where *nnnnnnnn* is the serial number of the SmartPAC 2. Use of the serial number in the folder name allows SmartPAC 2—and you—to identify the backup information pertaining to a particular control. Within folders, there are at least two files, one for tool backups, named “nnnnnnnn-Tool,” the other for initialization backups, named “nnnnnnnn-Init.” Again, *nnnnnnnn* is the SmartPAC 2 serial number.

When two or more backups have been performed on the same SmartPAC 2, two additional files are maintained in the backup folder, named “nnnnnnnn-Tool.old” and “nnnnnnnn-Init.old.” These files contain the next-most-recent tool and initialization backups of the SmartPAC 2 with the specified serial number.

To back up tools on a SmartPAC 2, do the following:

1. Make sure a USB disk is installed in the USB connector on the SmartPAC 2 board (see *Installing a USB Disk in SmartPAC PRO*, page 7). Be sure to allow thirty seconds or so for the SmartPAC 2 to detect the USB disk.
2. On the Main Program Menu, press the **1** and **CLEAR** keys at the same time and hold them down for a few seconds until the Main Initialization Menu (see Figure 2) displays.

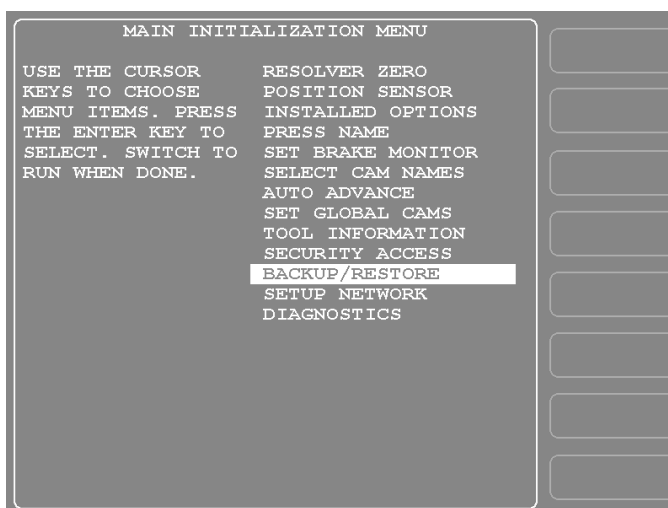


Figure 2. Main Initialization Menu with the BACKUP/RESTORE Item Highlighted

3. Move the highlight bar to the BACKUP/RESTORE menu item, and press *ENTER*. The Backup/Restore Control Menu displays with the message

Please wait

Checking SmartPAC 2 tools ...

appearing briefly at the top of the screen, followed by a message displaying the number of tools that have been programmed on that SmartPAC 2 (see Figure 3).

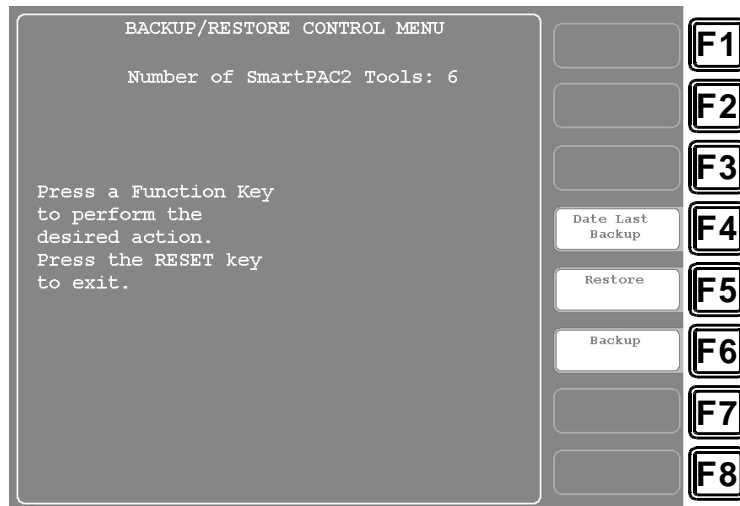


Figure 3. Backup/Restore Control Menu Showing Number of SmartPAC 2 Tools

NOTICE

You can view the date and time of the last backup by pressing the *F4 (Date Last Backup)* function key. The date and time display at the bottom of the screen.

4. To begin the backup process, press the *F6 (Backup)* function key.

The message

Please wait ...

appears briefly at the top of the screen, and the following message displays near the bottom

USB Disk Detected (nnn Meg free)

where *nnn* is the amount of disk space in megabytes available for storing backup information.

NOTICE

If the SmartPAC 2 detects that the USB disk does not have enough free space to store the tool and initialization backup information, a message like the following displays

*There is NOT enough space available
on USB Disk!*

*Please remove and free up approx
nnn.nK then try again*

Press RESET to clear this message

The variable *nnn.n* is the number of kilobytes (KB) of free space required for the backup.

Press RESET to clear the message, then remove the USB disk, install another USB disk with the required amount of free space, and press *F6 (Backup)* again.

If you want to re-use the original USB disk, you can insert it into a USB connector on your computer, delete the files necessary to free up the required amount of space, re-install it in the SmartPAC 2, and reinitiate the backup.

As the backup proceeds, messages like the following display at the top of the screen

Backing up SmartPAC2 data for Tool nnnnnn

where *nnnnnn* is the tool number, followed by messages like

Backing up SmartPAC2 data for Init Group nn

where *nn* is the Initialization group number. Then the message

Transferring files ...

displays briefly as backup files are written to the USB disk. When the backup is complete, the following message displays:

Backup Finished!

5. Press *RESET* to return to the Main Initialization Menu.

Restoring Tools in SmartPAC 2

NOTICE

You should only need to perform a restore if the SmartPAC tool and initialization programming has been corrupted or if the SmartPAC board has been replaced. The restore process overwrites programming for all the tools and initialization setups backed up in the previous backup procedure. In performing a restore, you may lose information that has taken you considerable time to input.

To restore backed-up tools to a SmartPAC 2, do the following:

1. With the USB disk onto which tools have been backed up inserted in the USB connector (see Figure 1) and the Backup/Restore Control Menu (see Figure 3) displayed, press the *F5 (Restore)* function key. A window opens, asking you to confirm that you really want to restore tools to the SmartPAC 2, as shown in Figure 4.

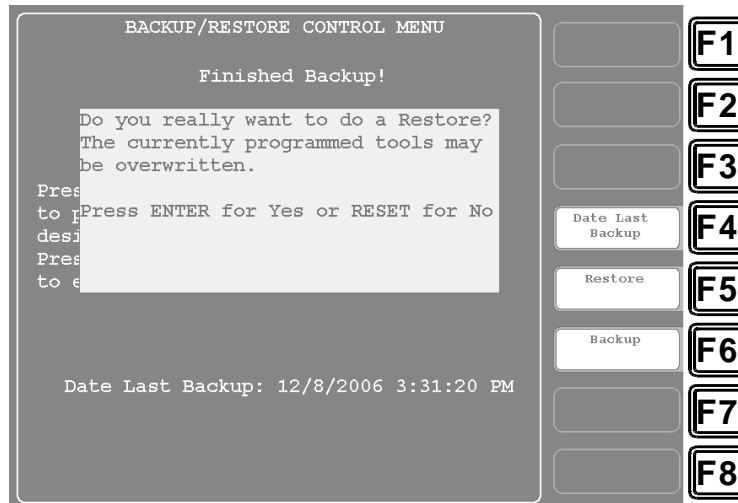


Figure 4. Backup/Restore Control Menu with Restore Confirmation Window Displayed

NOTICE

Make sure that you really want to restore the tool settings contained on the USB disk. During the restore process, current tool programming will be overwritten by the backed-up settings.

2. Press *ENTER* to continue with the restore.

The same sorts of messages display during the restore process as occurred during backup (see step 3 of the *Backing Up Tools* procedure, pages 4-5). When the restore is complete, the following message displays:

Finished Restore!

3. Press *RESET* to return to the Main Initialization Menu.

Upgrading SmartPAC PRO Firmware

To use USB Backup and Restore, you must be running SmartPAC PRO with the USB Disk Backup (part no. 9688619) as an installed option.

Instructions for ordering and receiving updated firmware and installing the firmware on your SmartPAC PRO are provided in Appendix B of the SmartPAC PRO user manual or the *Upgrading SmartPAC PRO Firmware* instruction sheet, which accompanies all firmware upgrade orders.

Installing a USB Disk in SmartPAC PRO

Before initiating a backup or restore, you must insert a USB disk into SmartPAC PRO's USB connector. To do so, follow these instructions:

1. Locate USB socket in the middle of the lower section of the SmartPAC PRO front panel (see Figure 5, below).

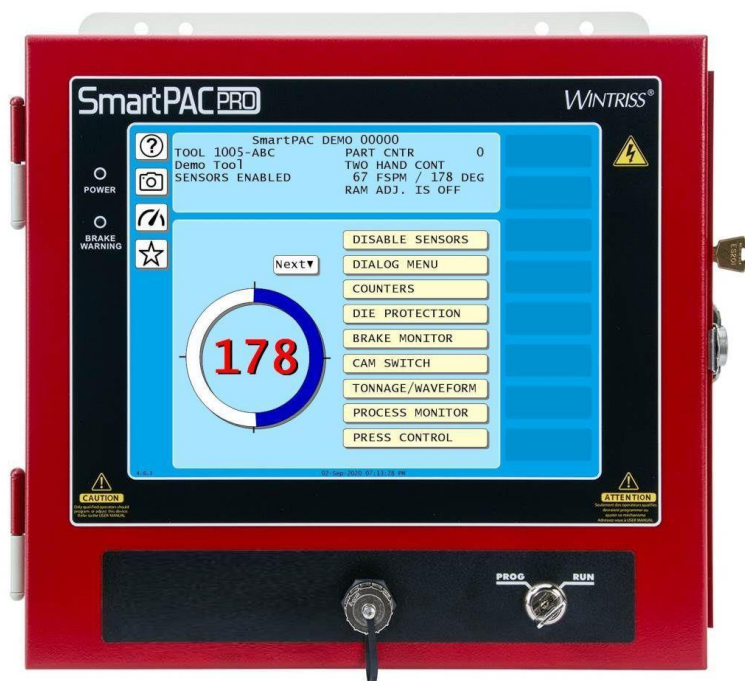


Figure 5. SmartPAC PRO Front Panel Showing USB Connector

2. Unscrew the cover and insert your USB disk into the connector. It can only be inserted one way.
3. Wait thirty seconds or so to give SmartPAC PRO time to detect the new device before attempting to use the touch panel displays.
4. A window opens labeled USB Disk Detected. Press Exit to close this window.

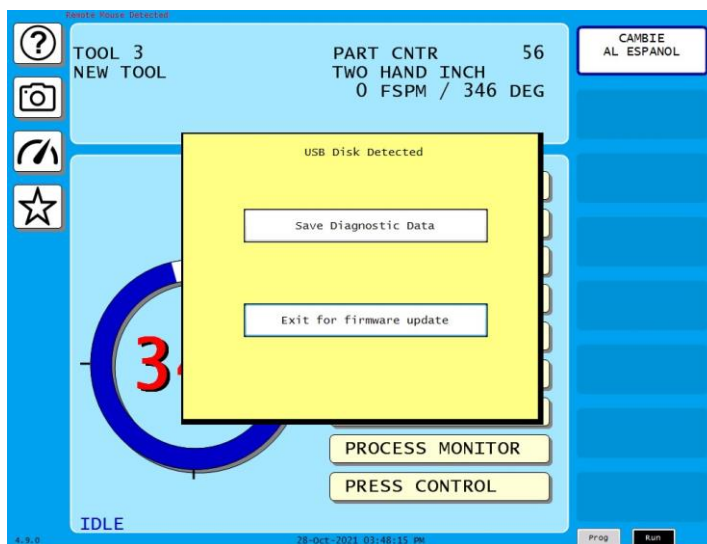


Figure 6. SmartPAC PRO Run Menu Showing USB Disk Detected

Backing Up Tools in SmartPAC PRO

Since most USB disks will have considerably more storage capacity than needed, you should have no trouble backing up one or even several SmartPACs on one device. However, if you are backing up many SmartPAC PROs, you may need to have a USB disk with large capacity or use multiple USB disks.

Backup files are written to folders named “Backupnnnnnnnn,” where *nnnnnnnn* is the serial number of the SmartPAC PRO. Use of the serial number in the folder name allows SmartPAC PRO—and you—to identify the backup information pertaining to a particular control. Within folders, there are at least two files, one for tool backups, named “nnnnnnnn-Tool,” the other for initialization backups, named “nnnnnnnn-Init.” Again, *nnnnnnnn* is the SmartPAC PRO serial number.

When two or more backups have been performed on the same SmartPAC PRO, two additional files are maintained in the backup folder, named “nnnnnnnn-Tool.old” and “nnnnnnnn-Init.old.” These files contain the next-most-recent tool and initialization backups of the SmartPAC PRO with the specified serial number.

To back up tools on a SmartPAC PRO, do the following:

1. Make sure a USB disk is installed in the USB socket on the SmartPAC PRO front panel (see *Installing a USB Disk in SmartPAC PRO*, page 7).
2. On the Main Program Menu, press the INITIALIZATION MENU button (Figure 7 below).



Figure 7. Main Program Menu with Initialization Menu button shown.

3. The Main Initialization Menu displays.

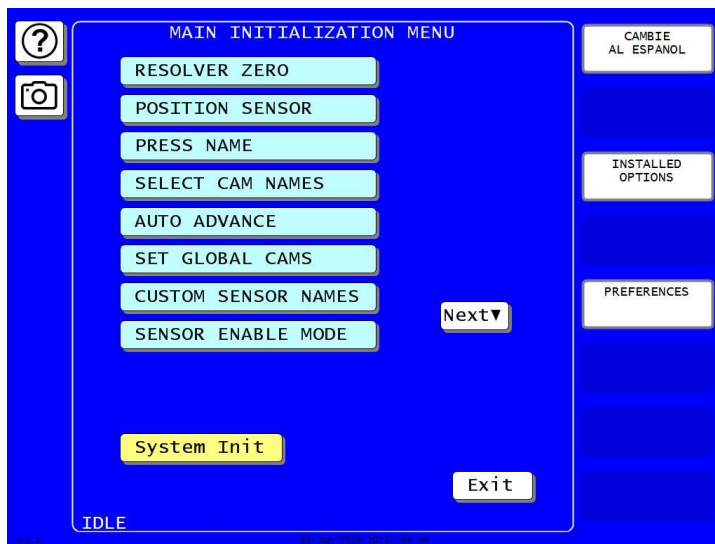


Figure 8. Main Initialization Menu

4. Select NEXT on the side of the Main Initialization Menu (see Figure 8).

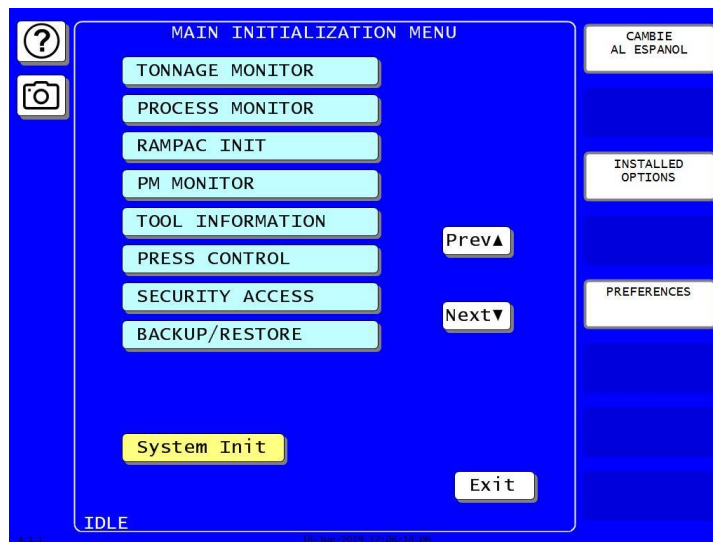


Figure 9. Main Initialization Menu with the BACKUP/RESTORE shown.

5. Select BACKUP/RESTORE from the Main Initialization Menu (see Figure 9).
6. The Backup and Restore Utility Menu displays with the message “USB Disk Present” appearing at the top of the screen, as well as displaying the date stamps of the last backup and the last restore of this SmartPAC PRO unit (see Figure 10).



Figure 10. Backup/Restore Control Menu Showing Last Backup/Restore Dates.

7. To begin the backup process, select the USB Disk radial button, then press the “Backup” button. The message “Backing Up, Please wait ...” appears briefly at the top of the screen, while the backup is being performed as shown below.



Figure 11. Backup/Restore Control Menu Showing Backup in Process.

NOTICE

If the SmartPAC PRO detects that the USB disk does not have enough free space to store the tool and initialization backup information, a message like the following displays

*There is NOT enough space available
on USB Disk!*

*Please remove and free up approx
nnn.nK then try again*

Press RESET to clear this message

The variable *nnn.n* is the number of kilobytes (KB) of free space required for the backup.

Press RESET to clear the message, then remove the USB disk, install another USB disk with the required amount of free space, and press “Backup” again.

If you want to re-use the original USB disk, you can insert it into a USB connector on your computer, delete the files necessary to free up the required amount of space, re-install it in the SmartPAC PRO, and reinitiate the backup.

8. When the backup is complete, the following message displays: “Backup Completed” as shown in Figure 12.

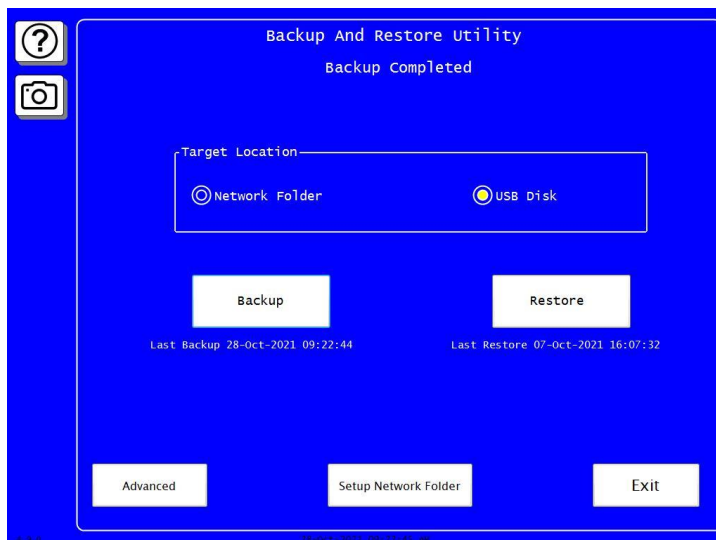


Figure 12. Backup/Restore Control Menu Showing Backup Completed.

9. Press EXIT button to return to the Main Initialization Menu.
10. Remove the USB stick from the USB socket and replace the socket cap.

Restoring Tools in SmartPAC PRO

NOTICE

You should only need to perform a restore if the SmartPAC tool and initialization programming has been corrupted or if the SmartPAC board has been replaced. The restore process overwrites programming for all the tools and initialization setups backed up in the previous backup procedure. In performing a restore, you may lose information that has taken you considerable time to input.

To restore backed-up tools to a SmartPAC PRO that were saved from a SmartPAC PRO, do the following:

1. With the USB disk, onto which tools have been backed up, inserted in the USB socket (see Figure 5) and the Backup/Restore Control Menu (see Figure 10) displayed, press the “Restore” button.

NOTICE

Make sure that you really want to restore the tool settings contained on the USB disk. During the restore process, current tool programming will be overwritten by the backed-up settings.

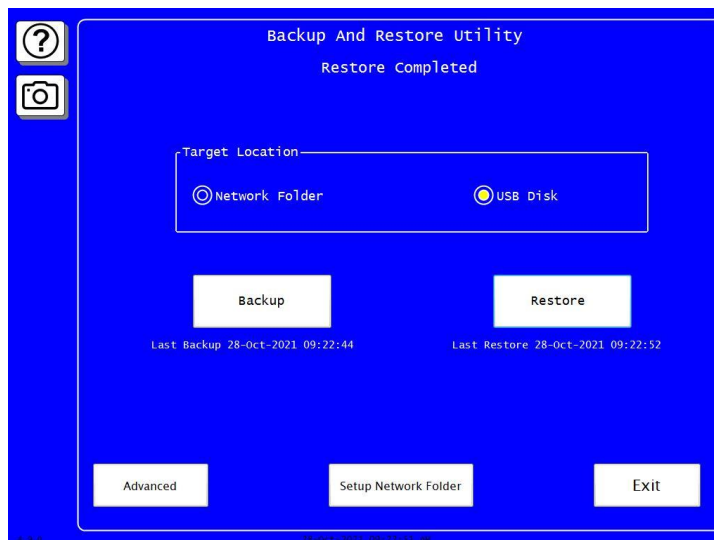


Figure 13. Backup/Restore Control Menu with Restore Completed Displayed

2. When the restore is complete, the following message displays: “Restore Completed”.
3. Press *EXIT* to return to the Main Initialization Menu.
4. Remove the USB stick from the USB socket and replace the socket cap.

To restore backed-up tools to a SmartPAC PRO that were saved from a SmartPAC 1 or SmartPAC2, do the following:

1. With the USB disk, onto which tools have been backed up, inserted in the USB socket (see Figure 5) and the Backup/Restore Control Menu (see Figure 10) displayed, press the “Advanced” button. An Advanced options menu will appear (see Figure 14).

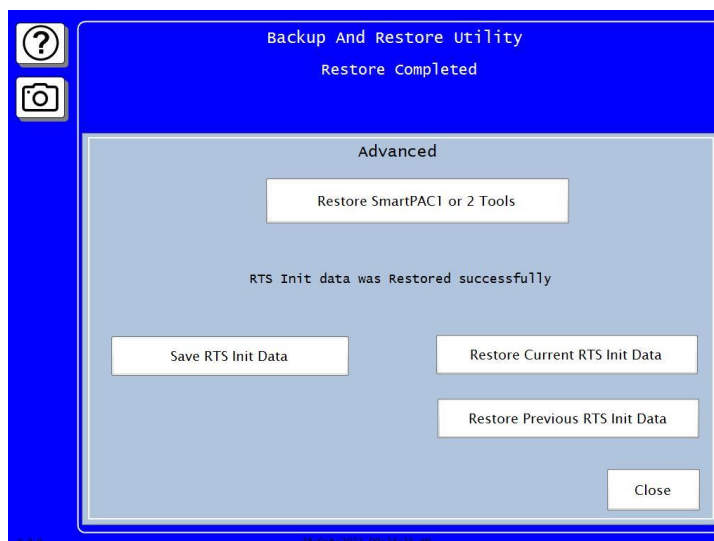


Figure 14. Backup/Restore Control - Advanced Menu

2. Press the “Restore SmartPAC1 or 2 Tools” button, a search for tool files window will open (see Figure 15).

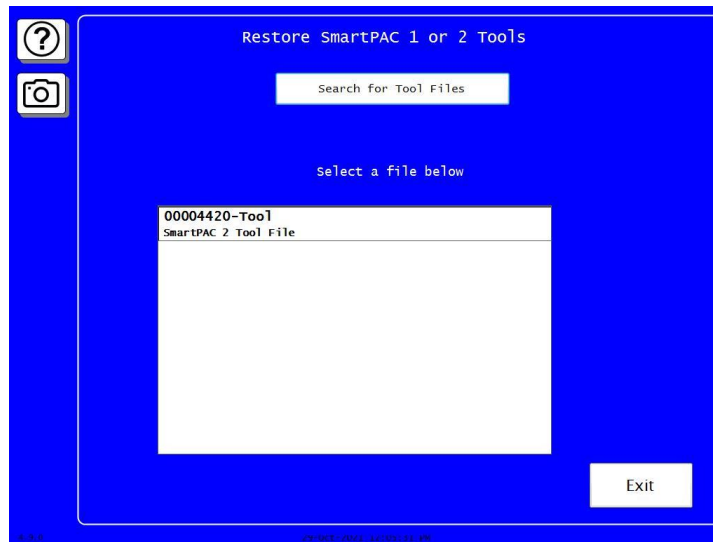


Figure 15. Restore SmartPAC 1 or 2 Tools Menu – Search for Tool Files

- Verify that the tool file shows up in the lower window and select the tool file by pressing on the line item in the window. If the file doesn't show in the window, then try pressing the "Search for Tool File" button above.

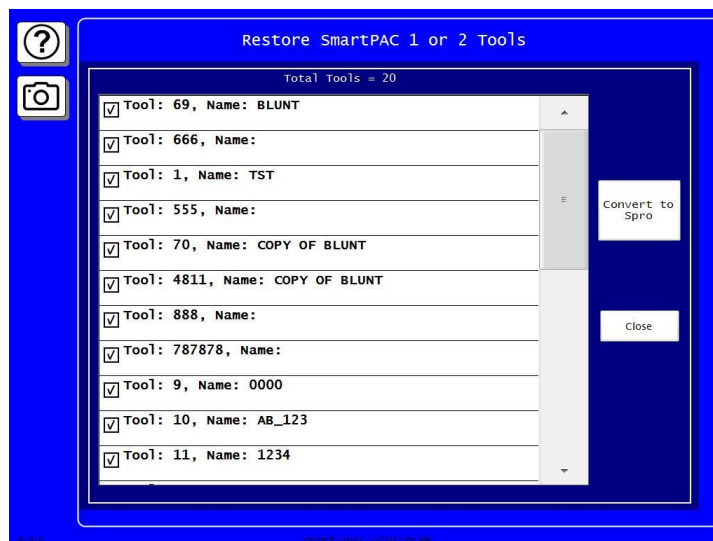


Figure 16. Restore SmartPAC 1 or 2 Tools Menu – Select Tools to Convert

- A screen will open that will allow you to select which tools are converted over to the SmartPAC PRO. Every tool will be selected by default, and you must click any tools to de-select them for them not to be converted. Once you have the tools chosen which will be converted then you press the "Convert to SPRO" button.

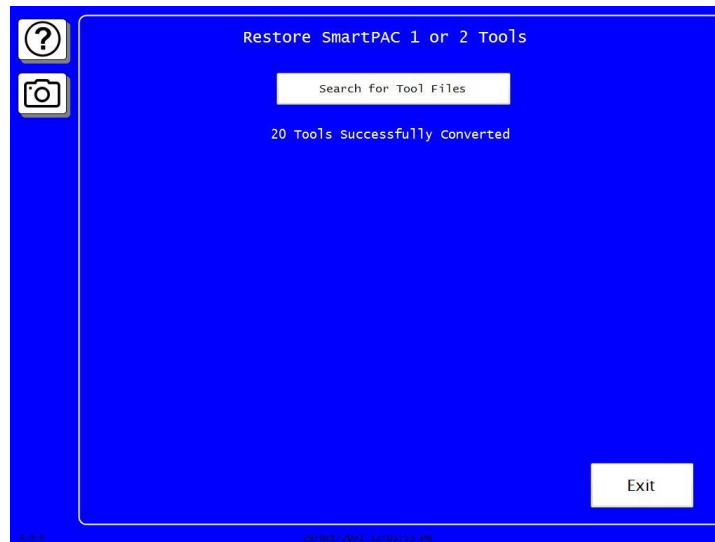


Figure 17. Restore SmartPAC 1 or 2 Tools Menu – Tools Successfully Converted

5. When the restore is complete, the following message displays: “## Tools Successfully Converted” (Shown in Figure 17).
6. Press *EXIT* to return to the Main Initialization Menu.
7. Remove the USB stick from the USB socket and replace the socket cap.