

## Install and Operate USSLSX Cast Scanner

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The installation procedures are described in the 2<sup>nd</sup> part of this manual, since you only use it once for the installation so we put that part at the end of the manual. Please read that part carefully before you operate the scanner. Failing to do so may result in unnecessary trouble.

### Part I: Operation Instructions

If you got used to the previous models (LS and LSX), please do not toggle the On/Off switch to activate the scan on the new model (USBL SX). You need to press the “red scan button” (described later) to make scans.

To launch the scan program, go to Start, Programs, and click the ScanCast program. You can also set up an icon on your Desktop and launch the program from the Desktop. Once the program is launched, you should see a similar screen as shown in Figure 1. Note that each scanner has its own scan program (unique serial #).

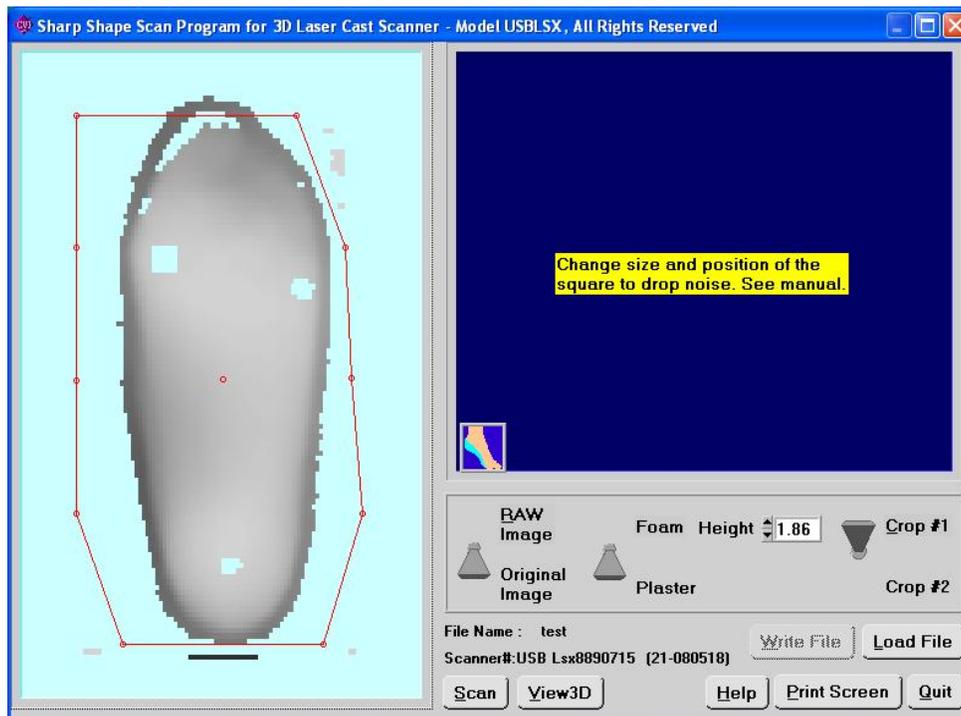


Figure 1

Once you have clicked the 'Scan' software button, the following menu will appear (on the left). After you have typed in the name and clicked "Begin Scan" button, the scan program waits for data (on the right).

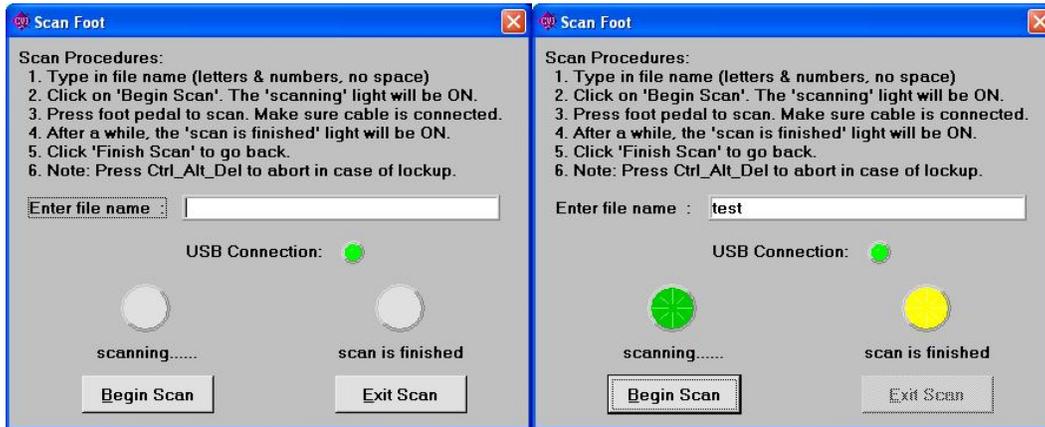


Figure 2

Now it is the time to prepare the cast. In order for the laser shine inside the cast and for the camera to see the inside of the cast, the cast needs to be trimmed to a proper height. Trim the plaster before it curls inward (before reaching vertical angle). Figure 3 illustrates a trimmed cast.

Some customers mark the 1st and 5th met heads on the cast with a black marker. These dots can be used as references for the cast correction. For large productions, many casts can be trimmed together as a batch.



Figure 3

Once the cast is prepared, you need to place the cast on the scanner wagon with the heel against the back fender. The centerline of the cast has to be lined up with the long axis of the cart. Some customers balance the cast with the heel bisection perpendicular to the wagon to catch forefoot deformities. You can use a dark foam wedge to post the forefoot of the cast. The forefoot varus or valgus will be captured. Figure 4 gives you a sense how to balance the cast. If you scan a foam box, you cannot balance the foam cast.



Figure 4

To activate the scan, press the “red scan button” (shown in Figure 5) on the upper-left hand corner on the scanner. Before pressing the scan button, make sure the scan program is in ‘wait’ status (refer to Figure 2). Leave at least 2 seconds between clicking the Scan software button and pushing the red button.



Figure 5

The wagon will move away from you. The scan takes place inside the cover. After scan, the wagon should return to the front. After a normal scan, you should see a screen like the one shown in Figure 1 above. Now you want to check the integrity of the image to determine whether to make a rescan if the image is not good, or to accept the image if the image is acceptable. If you accept the image, you need to process the image, as shown below.

First, set the switch location to the correct place, either Foam or Plaster. Refer to the red and green arrows in Figure 6. If you have scanned a plaster cast, leave the switch position to Plaster. If the switch is not at that location, just click it and it will toggle. If you have scanned a foam box, leave the switch position to Foam. If the switch is not at that location, just click it and it will toggle. Second, if you have scanned a foam box, you need to set the 'Height'. If you have scanned a plaster, this setting does not apply. As you know, only the foam box has a plateau (the top of the foam). This setting is used to trim the plateau, since it is not part of the foot. For details, please refer to the PDF document "Using the Cast Scanner to Scan Foam Impressions".



Figure 6

To prepare a RAW image, crop the image and eliminate noise. To do so, use the mouse to drag the moveable dots. There are two ways for cropping: Crop #1 and Crop #2. Crop #1 is used for quick cropping. Crop #2 is for more detailed cropping. You choose them depending on the image. To drag a point is to click on that point and hold the mouse button (don't release it) until you move the cursor to a desired location.

**Note that the maximum length of the cropping box is limited to 10 inches.** You want to catch the heel and 10 inches above the heel. The orthotics are made below the met. heads, so 10 inches should cover almost all of the devices that you want to make. Because of the 10-inch limit, sometimes you have to shorten one side before you stretch the other side.

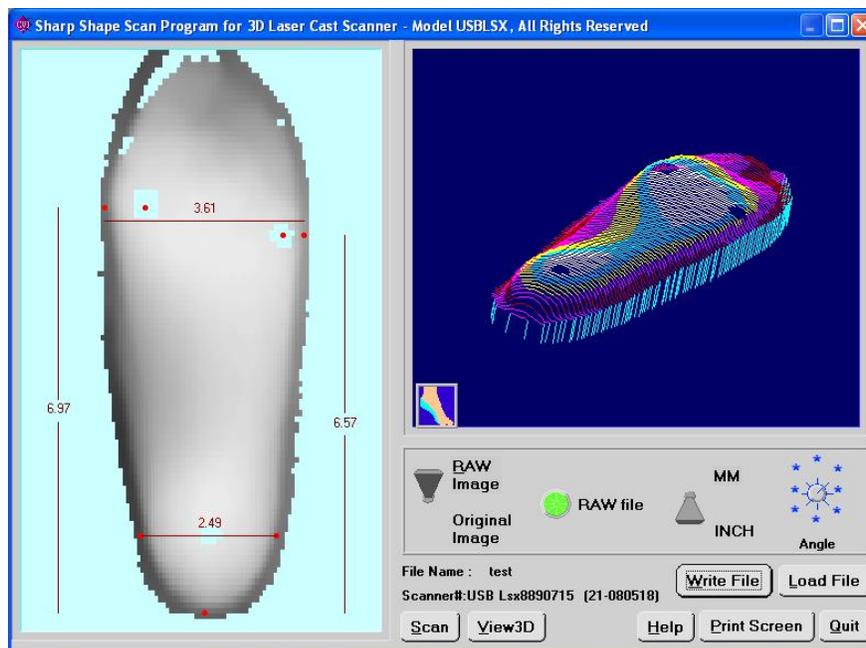


Figure 7

After cropping, the seven landmarks (red dots) on the foot will provide references for the cast correction software for the width, length of the device. Click on the red dots and drag them to the suitable places. The outer two dots on the forefoot define the width of the forefoot and the inner two dots on the forefoot define the locations of the 1<sup>st</sup> and 5<sup>th</sup> met. heads. Use common sense to locate them. Also locate the three dots on the heel to suitable locations. The measurements are shown on the screen. After you are done, click on 'Write File' to write the RAW file. Figure 7 shows an example of the locations of these dots.

One thing you have to prevent is the movement of the cast during scans. You can use two black head pushpins to nail cast on the 1st and 5th met heads, or you can use double sided tape to stick to the back of the cast. If movement happens during scan, you will see a distorted image, and will need to rescan.

If you scan a plaster cast, the black neoprene foam pad should be used on the wagon. If you scan a foam box, the black pad should be removed from the wagon. If you scan foam, you don't need to trim the top because the walls are vertical to the cart. In order to lineup the centerline of the cast, you need to use a butter knife to trim the outside of the foam footprint. If the foam is in dark color (blue, etc.), you need to spread some white powder (baby powder or regular plaster) inside the cast, so it can reflex the laser light for the camera to see. If the foam is in light color (pink, etc.), you don't have to do so. [Please ask for a separate document "ScanFoam.PDF" for details on foam scan.](#)

The scanned RAW files are located in the following folder:

C:\SCANCAST\RAWFILE

SCANCAST is the folder where you installed your scan program. You can access the files in this location, if you want to copy or email them to somewhere else.

Print Screen and View3D are two useful utilities that are not mandatory to the scan process. You can experiment with them.

[If you have finished a batch of scans, or if you have finished the work for the day, please exit the scan program and turn off the scanner. It will prolong the life span of the scanner.](#)

## **Part II: Installation Procedures**

After receiving the scanner package, you should find a scanner body, a power supply with cable, and a USB cable. If there are any variations in the contents, we will mention them in the packing list.

We use two parking screws to lock the scanner wagon from moving during shipping to prevent transportation damage. Take out the 2 parking screws (pointed by the two red arrows in Figure 9) before powering up the scanner. When you remove the screws, hold the wagon so it will not fall. After that, the wagon should be freed. Save the screw since you may need them if you want to ship the scanner. Note: Do not over tighten these screws. Over tightening the screws may cause damage to the wagon.

If you need to adjust the tension of the belt (pointed by the right hand in Figure 8), you need to loosen the setscrew first. Then you can adjust the tension with the front screw. Do not over tighten the belt that will shorten the belt lifetime.

We will email instructions and the scan program to you. The scan program comes with 3 files: SETUP.EXE, SCANCAST.001, and SCANCAST.002. To install the scan program, launch SETUP.

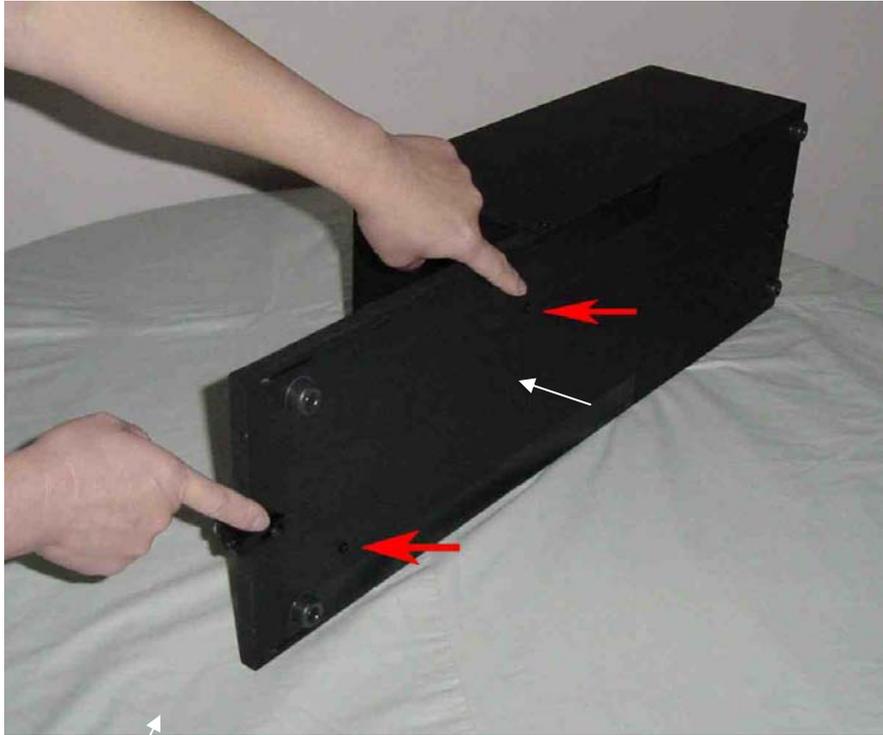


Figure 8

Connect the power supply to the back of the scanner. Then connect the USB cable to the back of the scanner. The USB port is shown by the red arrow in Figure 9 below. This is the major difference between this model and previous models.



Figure 9

Once the USB cable is plugged into the PC and the scanner power is on, Windows will ask you to install the USB device driver. **Don't let Windows automatically search for a driver online or**

on the computer. You want to lead the installation to the folder where the scan program is installed. If you've installed the program under C:\ScanCast, browse into that folder and click OK. Windows will install the correct driver, and it will show up in the Device Manager as 'Sharp Shape Cast Scanner' (refer to Figure 10). After the driver is installed, Windows will not ask for a driver the next time you plug in the scanner.

If Windows (most likely Vista) cannot load driver after you have browsed into the C:\ScanCast folder and you have clicked OK, you may need proper permission to access the Windows folder. Driver will be loaded into that folder. For testing, you may try to copy a file to the Windows folder. You can create a file say TEST.TXT with Notepad. If Windows doesn't allow you to copy the file to the Windows folder, you need to change the security settings. Find a computer technician if you have to.

To check the integrity of the scanner, go to Device Manager when the scanner is plugged in and powered on. You should find the "Sharp Shape Cast Scanner" as shown below in Figure 10. If it is not properly installed, you need to uninstall it and re-install the driver as instructed above. Sometimes, Windows is stubborn and it tends to go back to the old bad driver. You need a technician to solve that problem.

Before loading the scan program, if you accidentally plugged in the USB cable and Windows assigned a wrong driver for the scanner, go to the Device Manager to uninstall it. Then follow the above steps.

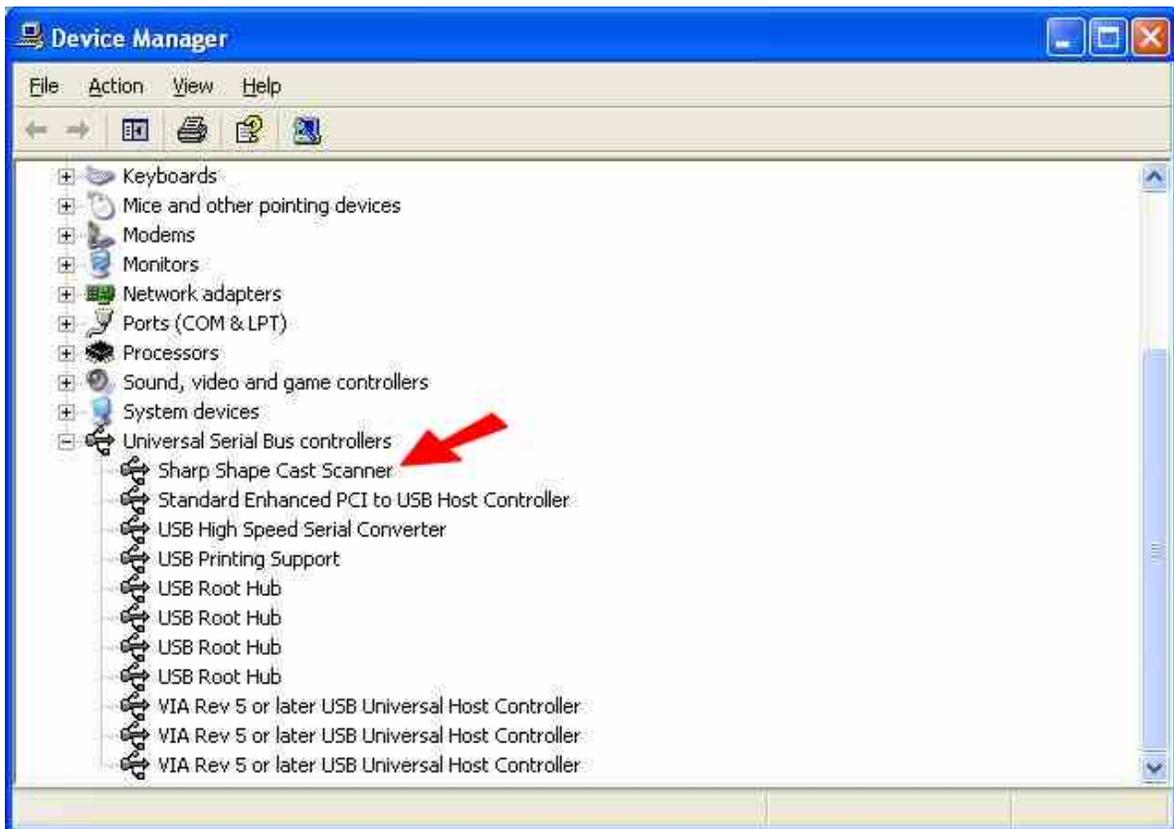


Figure 10

## Troubleshooting:

If you find something wrong with the scanner or image, please check the following:

1. Restart everything and try again. This includes restart the scanner, scan program and computer.
2. The cable needs to be well seated on both ends. Not all USB cables work the same. We will test and ship a USB cable with the scanner. If you need to find a different cable, you need to test it.
3. After the scanner is plugged in and powered on, check Device Manager to see whether you have Sharp Shape Cast Scanner in the list (see Figure 10). Treat problem if it is not listed, or it has yellow or red marks with it. If not working, maybe, it is listed as “other device”.
4. If you see a bad image (snowy, distorted or noisy), please check the direction that the scanner is facing. Shield unwanted lights, especially the direct light rays from a window, to reduce noise.
5. The scan program and the scanner have to be synchronized. The correct scan procedure is to turn on the scanner, and then launch the scan program. Do not turn off the scanner or unplug the USB cable while the program is running. If you turn off or unplug the scanner while the scan program is running, the scan program will lose synchronization. You will not get an image after that. You have to restart everything (see Step 1).
6. If you cannot figure out what is the cause of the problem, please contact us before you disassemble the scanner, or before you send it back to us.

If you have any questions or need support, please contact us at [sharpshape@comcast.net](mailto:sharpshape@comcast.net).

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