



Size Stream Model SS20 Body Scanner

Assembly and Operation Manual

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For Software v5.2.5



This manual describes the assembly process and operation of the Size Stream SS20 3D Body Scanner measurement software.

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Assembling the Size Stream Body Scanner

1. Unpack all components from the crate. Refer to the **Assembly Drawing and Parts List** to verify all parts are present.

Tools Needed: Phillips #2 and #3 Screwdrivers
7/16" wrench or Adjustable wrench or Pliers
Step Ladder

2. Unroll the CARPET and position it where the scanner is to be placed. Orient the carpet so the footprints point TO YOUR LEFT as you enter the scanner.
3. Using the ¼-20 x 6" Pan-Head Machine Screws provided, attach the FRONT SENSOR ASSEMBLY to the LOWER RIGHT CONNECTOR tube as shown on the assembly drawing. Do not tighten the screws at this time!
4. Using the ¼-20 x 6" Pan-Head Machine Screws provided, attach the FRONT SENSOR ASSEMBLY to the LOWER LEFT CONNECTOR tube as shown on the assembly drawing. Do not tighten the screws at this time!
5. Using the ¼-20 x 6" Pan-Head Machine Screws provided, attach the BACK SENSOR ASSEMBLY to the LOWER RIGHT CONNECTOR tube as shown on the assembly drawing. Do not tighten the screws at this time!
6. Using the ¼-20 x 6" Pan-Head Machine Screws provided, attach the FRONT and BACK SENSOR ASSEMBLIES to the UPPER LEFT CONNECTOR tube as shown on the assembly drawing.

Assembly tip: Install the screws in the lower holes only at this time to ease routing of the sensor cables. Once the sensor cables have been routed around the corner the two top screws can be installed.

Do not tighten the screws at this time!

7. Using the ¼-20 x 6" Pan-Head Machine Screws provided, attach the FRONT and BACK SENSOR ASSEMBLIES to the UPPER RIGHT CONNECTOR tube as shown on the assembly drawing.

Assembly tip: Install the screws in the lower holes only at this time to ease routing of the sensor cables. Once the sensor cables have been routed around the corner the two top screws can be installed.

Do not tighten the screws at this time!

8. Using the ¼-20 x 5/8" Pan-Head Machine Screws and washer nuts provided, attach the HANDHOLD BARS to the UPPER and LOWER Connector Arms as shown on the assembly drawing.

Tighten these screws now!

9. Tighten all the scanner frame screws. Use care when tightening the screws at each frame corner to keep the frame square.

10. The HANDHOLD SLIDER BARS are attached to the HANDHOLD BARS with the rubber bumpers. Remove the UPPER rubber bumper from each slider bar and slide the Left and Right HANDHOLD ASSEMBLIES onto the slider bars with the handles facing in the scanner. Re-Install and tighten the rubber bumpers.

Note: The handhold slider bars are attached at a nominal height so that the handhold travel will accommodate the greatest number of your clientele. The handhold assemblies can be repositioned to accommodate shorter or taller clientele as necessary.

11. Remove the Monitor Mounting Back Plate from the back of the monitor by removing the two small screws at the bottom of the plate. Using the ¼-20 x 5/8" Pan-Head Machine Screws and nuts provided, mount the BACK Plate to the two center holes in the pan attached to the FRONT SENSOR ASSEMBLY in the scanner.
12. Connect the monitor Power Cable, USB Cable, and HDMI Cable to the back of the monitor. This is a "touch-screen" monitor and does not require a keyboard or mouse.
13. Mount the Monitor on the Mounting Plate and secure it by reinserting the two small black screws in the bottom of the mounting plate. Route the monitor cables through the oval opening in the pan.
14. Using the four ¼-20 x 5/8" Pan-Head Machine Screws and black Panel nuts, mount the COMPUTER to the pan. The monitor cables must be routed up and over the top of the computer as shown below.



Computer Mounting Points

15. Remove the cover panel of the computer and route the SPEAKER cable through the opening at the top of the computer as shown below. Replace the computer cover.



Speaker cable extracted and Monitor Cables routed over the computer

16. Connect the Speaker cables and the Monitor HDMI cable to the computer as shown.



17. Route the Sensor USB cables from the FRONT and BACK Sensor Assemblies through the TOP side rails to the computer. CONNECT the 20 USB cables to the USB cards as shown.



18. Install the remaining screws in the UPPER Connector bars and tighten securely.

19. Connect AC power to the computer from the Power Harness as shown below. The Power Switch next to the AC port should be switched to the "ON" position.

20. Connect the Monitor USB cable to one of the USB ports as shown below.



21. Connect AC Power from the Power Harness to the Monitor Power pack as shown.



22. Connect the Network Cable to the Network port on the computer and to one of the BLACK ports on the WiFi Router as shown. DO NOT connect the Network cable to the BLUE port on the router! NOTE: This router is dedicated for the data transfer between the scanner and the cloud. This router is not a WiFi connection to the internet! An additional external WiFi connection should NOT be added to this computer as it will interfere with the operation of the dedicated router.



23. Connect AC Power from the Power Harness to the Router Power Pack as shown.



24. Install the Alignment Plane Storage studs in the two holes in the Top frame over the computer as shown.



Alignment Plane Storage Studs



Studs Installed



Alignment Plane Storage

25. Remove the plastic cover at the bottom of the sensor tower and extract the AC Power cable and connect to AC power.

NOTE 1: The AC power cable has a universal connector (see picture below). Attach a standard computer AC power cable available in your specific location to the connector and then to your AC power source.



Universal AC Power Connector



USA and Int'l. Computer Power Cables

NOTE 2: A surge protector should be used to avoid equipment damage or failure due to electrical surges or other power anomalies which are not covered under our warranty.

26. Turn on the computer by pressing the large power button on the bottom side of the computer.
27. Using the 8-18 x ½" Self-drilling screws provided, attach the SCANNER ALIGNMENT BAR to the top of the scanner frame as shown on the assembly drawing.
28. Using the 8-18 x 1 1/2" Self-drilling screws provided, attach the DRESSING ROOM CURTAIN TRACK to the top of the scanner frame as shown on the assembly drawing. There are extra holes in the scanner frame to allow for the dressing room curtain track to be attached forward or rearward as desired.
29. Attach the FRAME CURTAIN (with the hook-and-loop fastener tape) to the perimeter of the scanner frame. Start at the left side of the door frame and move around the frame.
30. Hang the DRESSING ROOM CURTAIN on the curtain carrier hooks.

This completes the assembly of your Size Stream 3D Body Scanner!
Proceed to **Aligning the Size Stream Body Scanner**

Aligning the Size Stream Body Scanner

The data coming from each of the 14 different sensors in the scanner must be aligned with the others so the finished 3D body image will be accurate. To do this, the scanner should be aligned daily to verify the operation of all the sensors and to ensure that the data coming from the sensors is accurate.

1. Unpack the scanner alignment object, being careful not to damage it!
2. Hang the alignment object in the cutouts on the alignment bar in the scanner. The front and back of the alignment object are different and are labeled as such to aid in orienting it in the scanner with the footprints pointing to the Front.
3. Attach the foam slider tube to one side of the alignment object. Dampen any swaying by lowering the foam slider to the floor once the alignment object is centered and vertical with the scanner frame.

NOTE: It is extremely important that the alignment object be **as still as possible** to get the best possible alignment of the sensors. This alignment directly affects the accuracy of the scan and extracted measurements so it should be done with care!

4. Launch the Size Stream software by pressing twice on the Size Stream Scanner icon on the monitor. The Scanner will initialize and display the Home Screen shown below.



Scanner Home Screen

5. Press the keyboard icon at the lower right to show the touchscreen keyboard.



6. Press CTL M to open the Options Menu and then press the **System Alignment** button. Press “Yes” if the alignment plane is in the scanner.

6. When system alignment is successfully completed, remove the alignment object and store it in a safe place for future uses.

You are now ready to begin scanning!

NOTE: If the system alignment **failed**, go to the Troubleshooting section of this manual for possible causes and solutions.

Proceed to **Scanning a Subject in the Size Stream Body Scanner**

Scanning a Subject in the Size Stream Body Scanner

The Size Stream 3D Body Scanner is a full-body, non-contact surface scanner that uses depth sensor technology to create a 3D computer image of the subject from which accurate measurements can be obtained.

Since it is a surface scanner, i.e., it can't see through clothes or any other object, the subject to be scanned must wear close-fitting garments, such as biking shorts, leotards or gym wear, to let the scanner's sensors see as close to the body as possible. Clothing color does not matter but loose-fitting clothing such as boxer shorts, baggy jeans, sweatshirts, etc. should not be worn. Long hair should be worn "up" in a bun and away from the neck.

The scan subject should remove their street clothing in the private dressing room and enter the scanning area. The subject should leave the clothes, bags, etc. in the dressing room area where they won't interfere with the scan!

The footprints show where the subject should stand with their feet approximately shoulder-width apart and toes pointed out to assure complete foot coverage. Grasp the adjustable handholds with both hands. The handholds will slide so the subject is standing upright in a normal relaxed posture while holding the handholds.

When ready, press the red "Start Scan" button.



When the scan is finished processing, the 3D image will appear on the monitor along with the measurement list and a QR Code. The QR Code can be scanned if the subject has previously installed the IOS or Android app on their smartphone.



Additional Scanner Functions:

Press CTL M on the touchscreen keyboard to open and close the Controls Menu.



Show License Information – Click to open the License information box.



The Licensing box shows the number of days remaining for the active Scanner software license and instructions on how to have the Scanner license activated or renewed.

This box will automatically pop up if the license has not been activated or when the license is down to 14 days or less remaining as a reminder to renew.

Align System – Initiates the process of aligning the 14 sensor views with respect to each other to render an accurate 3D image of the person being scanned. (See the System Alignment section).

Check Hardware – Click here to perform a system hardware check. The status box will show the progress. If a hardware problem is detected, the dialog box will have further instructions.

Manual Scan – Click this option to manually start the scanning sequence. In this mode, the audio instructions remain silent and scanning starts immediately. This option is useful for scanning objects or for test scanning.

This data is not saved automatically. Click **Save Raw Data** to manually save this data.

Save Raw Data – Click this option to save the raw sensor data in a different location than the default, for example, on a USB memory stick. The raw data can be saved in binary, XYZ, OBJ or WRL format.

Save Body Mesh Data - Click this option to save the body mesh data in a different location than the default, for example, on a USB memory stick. Data is saved in OBJ format only.

Save Avatar Data - Click this option to save the body mesh data in a different location than the default, for example, on a USB memory stick. Data is saved in OBJ format only.

Load Raw Data – Recalls a raw data file (binary, XYZ, OBJ or WRL format) from a saved location for onscreen examination. Processing to body mesh & measurements is available as a setting in the settings.ini file and is enabled by default.

Load Body Mesh Data - Recalls a body mesh file (.OBJ format) from a saved location for onscreen examination. Processing to measurements is available as a setting in the settings.ini file and is enabled by default.

Load Avatar Data – Recalls an avatar file (.OBJ format) from a saved location for onscreen examination. Measurements cannot be extracted from this data format.

Print – Opens the Print Preview window for the current scan image. See the **Printing** section for more details about print options.

Generate QR Code – Generates a QR Code onscreen containing the values of the Custom Measurement File measurements of the current scan image. See the **QR Code** section for more details.

Background Color Dropdown – The background color of the viewing window can be changed by choosing a color from this dropdown list.

Multi-Scan Mode

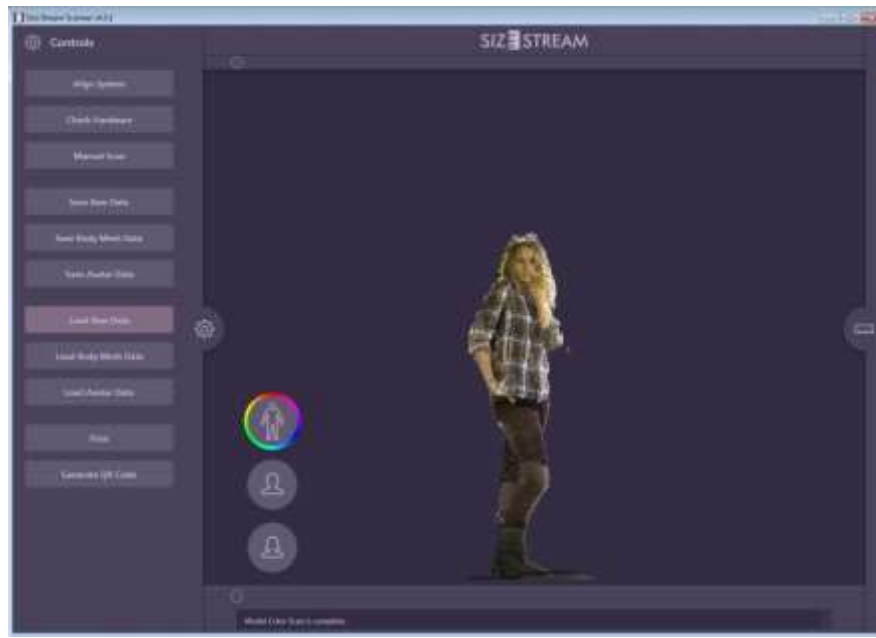
The Size Stream Scanner can be configured to take as many as 5 scans in one continuous sequence. This helps to minimize variations in extracted measurements due to posture changes and movement by the scan subject. The number of scans per sequence is set in the **settings.ini** file in the **Multi Scan** section.

Multi-scan mode produces a raw data image, a refined mesh and an extracted measurement list for each scan in the sequence and will be displayed onscreen as they are processed. In addition, a Composite list of measurements is also generated. If multi-scan is set to 3 or 5 scans, the composite value given for each measurement will be the median (middle value) of all the values for that measurement. If multi-scan is set to either 2 or 4, the composite value given will be the average of the two middle values. In multi-scan, the Custom Measurements will be calculated using the composite measurement values as described above and the landmarks from the final scan in the sequence

Pressing the **ESC key** will abort the processing of the multi-scan sequence. This saves time if the scan is determined to have errors so a rescan of the subject can occur immediately.

Color Scanning

The Size Stream scanner can capture the 3D data in color. The color data is only in the 3D raw data and will not be visible in the completed body mesh.



When the multi-scan mode is used, the color data will appear only on the last scan in the multi-scan sequence. The color data will be stored in the scan raw data file.

Color scanning is enabled in the “Enable Color” section of the Settings.ini file.

A new system alignment must also be performed when color scanning is activated. See the section “Aligning the Size Stream Body Scanner”.

When Color scanning is enabled the Toggle Button on the scanner screen will be shown in color.

The option to save out the color image from each sensor is available in the “EnableColorImageSave” option of the Settings.ini file.

Exporting Color Data – The color raw data in select formats can be exported to other 3D CAD programs:

Binary format – this is Size Stream proprietary format and can only be viewed using Size Stream Scanner or Studio software.

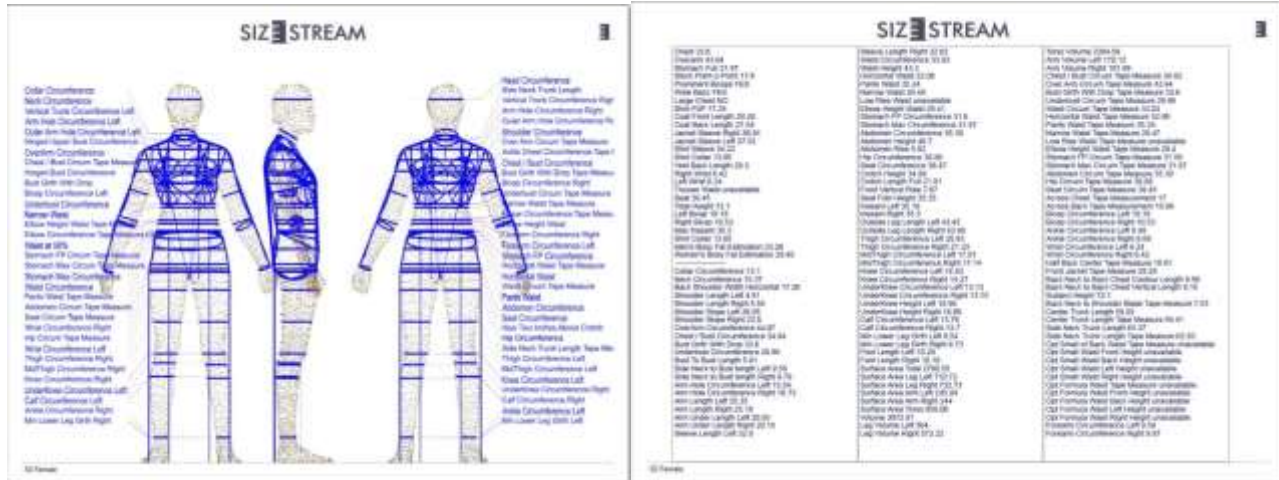
XYZ format – the color data can be exported into most CAD programs.

OBJ format – the color data cannot be exported.

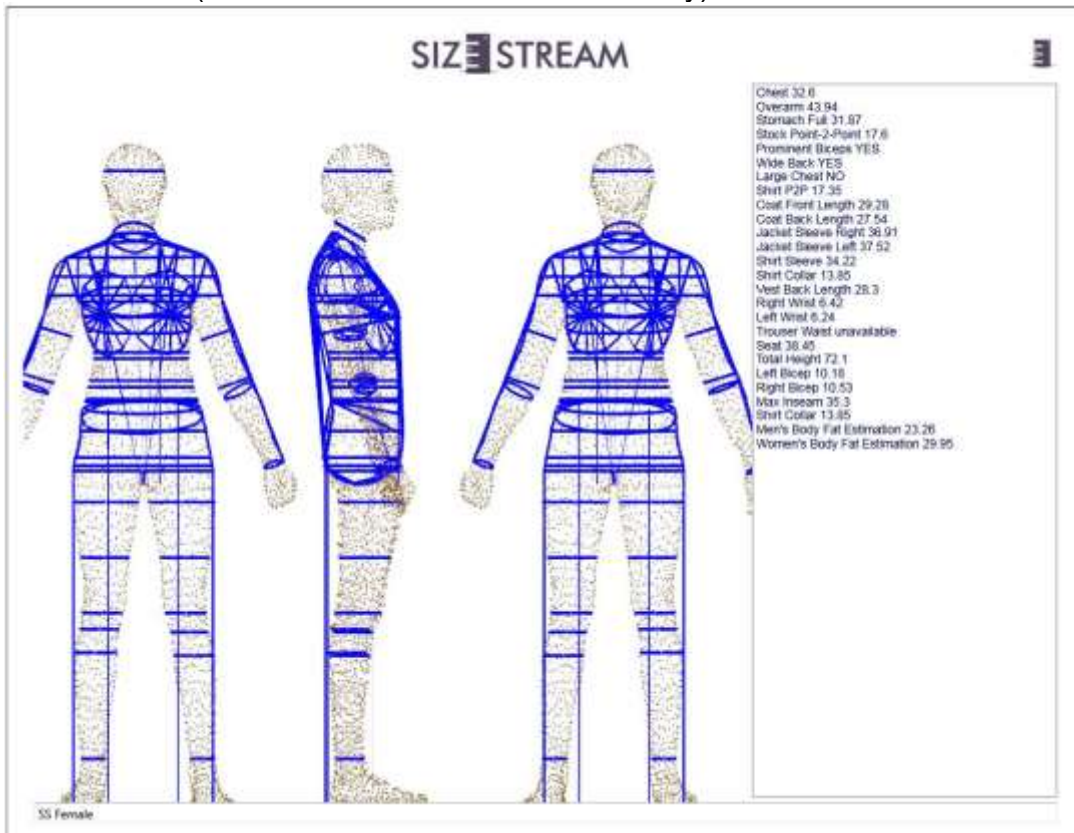
WRL format – the color data can be exported into most CAD programs. To save the raw data in this format, it must first be saved in binary format and then converted to WRL using the Batch Process function in Size Stream Studio. See the Studio manual for details.

Printing - A printout of the scan data being displayed can be generated in either of the two different formats shown and with the choice of either the standard or custom measurement list or both. The scan file name appears in the space at the bottom of the printout and can be edited by the user prior to printing. The output will appear in Print Preview for approval. The format is selected in the Settings.ini file.

Normal printout shown with Custom and Standard measurement lists:



Alternate printout shown (with Custom Measurement list only):



Additional Languages

The Size Stream scanner software can be viewed in other languages: Spanish, French, Japanese, Simplified and Traditional Chinese.

In order for the scanner software to properly display these languages, the computer must have the appropriate language set in the Windows Control Panel for the system locale:

Close the Scanner software.

Open the Windows Control Panel.

Go to the section "Clock, Language, Region" and select "Change Location"

Select the "Administrative" tab and select "Change System Locale..."

Choose the appropriate language/region and click "OK"

Windows will want to do a Restart. Click "Restart".

NOTE: The Windows "Restart" function may cause one or more of the scanner sensors to go to an unknown state. If you have any problems when you launch the Scanner software, SHUTDOWN the computer and start it again. This will reset the sensors to a known state and should restore normal scanner operation.

Next, the Size Stream Scanner software must be converted to the desired language:

Go to: c:\Size Stream \ Scanner \ Executables \ Languages folder.

COPY the desired language .XAML file and PASTE the file in the Executables folder.

In the Executables folder, Find and Delete the file Language_English.xaml

Close the folder. No restart is required.

This completes the language conversion process.

Size Stream Standard Measurement Definitions

Listed here are the measurements that are available to be automatically generated when a scan file is loaded in the Studio software. The identical list is also generated in the Size Stream Scanner software version.

Circumference measurements follow the contours of the body except where designated as a “tape” measurement in the output list.

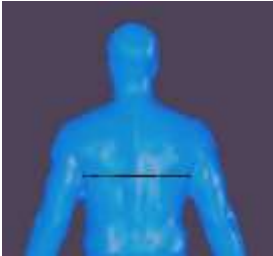
Length and Height measurements are straight line distances.

Heights are measured from the floor and are available as separate measurements for most circumferences. See the list of Size Stream Measurements in this section of the manual.

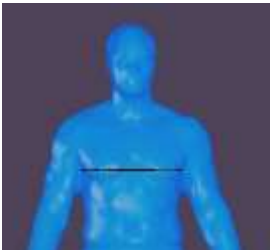
Abdomen Circumference – Horizontal circumference at the most forward point between the Front Waist Point and the Front Seat Point. **Abdomen Height** is measured from the floor. Circumference Front L&R and Back L&R quarter measurements are also available.

Abdomen Rise – Vertical distance from crotch level to Abdomen level.

Across Back – Horizontal distance across the back between the back armpit points.



Across Chest – Horizontal distance across the chest between the front armpit points.



(Actual) Ankle Circumference – Circumferences of the left and right ankle bones.

Ankle Circumference – Circumference taken at the averaged height of both ankle bones

Arm Hole Circumference – Girth under the Armpit and over the Shoulder (Armscye) is available as both vertical and tilted to the Shoulder Point as **ArmHole Outer Circumference**.



Armhole



Circumference Armhole Outer Circumference



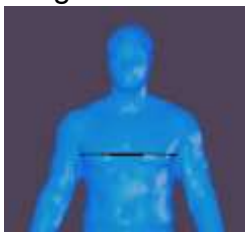
Arm Length – Straight distance from the shoulder point to the wrist.



Arm Under Length - Straight distance from the armpit point to the wrist.



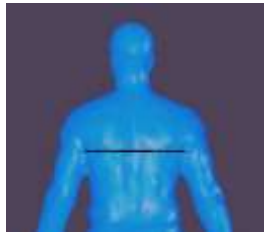
Axilla Chest Measurements – Circumference taken at Armpit level. Horizontal Full Circumference, Front Length and Back Length are available.



Front half view



Side view



Back view

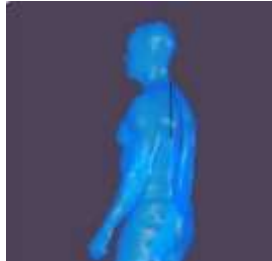


Side view

Back Neck to Back Chest – Distance from Back Neck point to back Chest level. Also taken as a vertical distance.



Contour measure

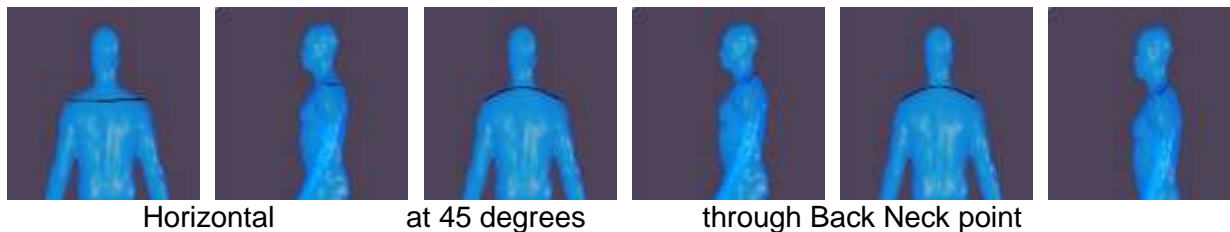


Vertical measure

Back Neck to Shoulder Blade – Distance from the Back Neck point to Shoulder Blade level.



Back Shoulder Width – Distance between the shoulder points. Can be taken on the horizontal, at 45 degrees, or through the Back Neck point.



Back Vertical Rise – Vertical distance from Crotch level to the Back Waist point level.

Bicep Circumference – Largest girth of the upper arm.

Body Fat Estimations – Shown in the sample custom measurement list, the formulas used are from the US Department of Defense and are found on page 13 of this document:

<http://www.dtic.mil/whs/directives/corres/pdf/130803p.pdf>

Bust Girth with Drop – Smallest Circumference fixed at the front bust level and allowing the back height to drop 3 cm.

Circumference Front L&R and Back L&R quarter measurements are also available.



Bust-to-Bust Length – Distance between the bust points.

Bust Prominence – Horizontal distance from the sternum across the bust to the side point.



Calf Circumference - Maximum leg girth above the ankle and below the knee.

Center Trunk Length – Distance from the Front Neck point down through the Crotch and back up to the Back Neck point.

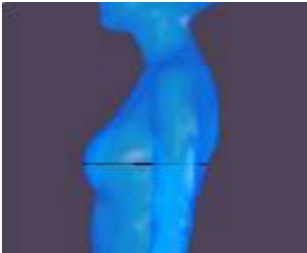


Cervicale to Bust Length – Length from Back Neck point down to Bust points L&R.



Chest / Bust Circumference – Horizontal circumference measured across the bust points, under the arm pits and around the back.

Circumference Front L&R and Back L&R quarter measurements are also available.



Chin Height – Height of the point of the chin.

Collar Circumference – Neck column circumference taken approximately at the larynx.



Crotch Height – Vertical distance from the floor to the Crotch point.

Crotch Length Full – Distance from the Front Waist level through the Crotch to the Back Waist level. **Front and Back Lengths** are also available.

Elbows – Girth at the Elbow joint and **Elbow Height** from the floor; Left and Right.

Elbow Height Waist – Horizontal circumference taken at elbow height.

Foot Length – Length from the back of the heel to the farthest toe tip.

Forearm Circumference – Largest girth of the lower arm.

Front Hip - Distance across the front of the Hips from side point to side point.

Front Jacket Length – Distance from Right Side Neck point over Stomach Front Point then vertically to Crotch point level.



Front Shoulder Width - Distance between the shoulder points across the front.



Front Vertical Rise – Vertical distance from Crotch level to the Front Waist point level.

Front Waist – Distance across the front of the Waist from side point to side point.

Half Back Center – Distance from Back Neck point to center Back Waist point.



Halter – Distance from Left UnderBust point around the neck to Right UnderBust point.

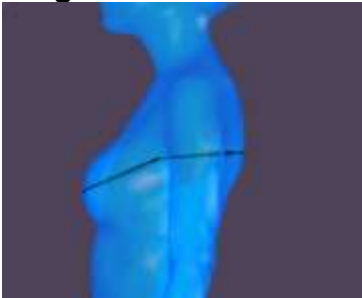


Head Circumference – Circumference above the eyes.

High Hip – Horizontal circumference at half the distance from the Crotch to the Left Point of the OPT Small of Back Waist. Requires OPT Waist enabled.

High Hip to SOB OPT Waist – Vertical distance from High Hip to the Left Point of the OPT Small of Back Waist. Requires OPT Waist enabled.

Hinged Bust Circumference – Front and Back portions move independently.



Hip Circumference – Maximum girth between the Back Waist Point and Crotch levels. Circumference Front L&R and Back L&R quarter measurements are also available.

Widest Hip Circumference – Girth measured at the widest point between the Back Waist Point and Crotch levels. Front L&R and Back L&R quarter measurements are also available.

Hips 2 inches Above the Crotch – Horizontal girth taken 2 inches above Crotch point level.

Hips 8 inches Down from SOB OPT Waist – Horizontal circumference taken 8 inches below the Back Point of the OPT Small of Back Waist Requires OPT Waist enabled.

Horizontal Waist - Horizontal circumference between small of back level and 4cm above it.

Horizontal Waist Height – Vertical distance from the floor to the Horizontal Waist Circumference.

Inseam – Length from the crotch point down the leg to the floor; Left or Right

Actual Knee Circumference – Circumferences taken over the left and right knee caps.

Knee Circumference – Circumference at the averaged height of both knee caps.

Lower Leg Min Circumference – Minimum leg girth above the ankle and below the knee. Height of measurements also available.

Low Hip – Maximum horizontal circumference between the Crotch and the Left Point of the OPT Small of Back Waist. Requires OPT Waist enabled.

Low Hip to SOB OPT Waist – Vertical distance from Low Hip to the Left Point of the OPT Small of Back Waist. Requires OPT Waist enabled.

Low Rise Waist – Discontinued. Shows as a 0.

Mid-Shoulder to Bust Length – Length measurement.



Mid-Shoulder to Waist Length – Length measurement. Requires OPT Waist enabled.

Mid-Shoulder Height – Height from floor of mid-shoulder points.

Mid-Thigh Circumference – taken at mid-point between the Knee and Thigh Circumference.

Narrow Waist – Horizontal circumference taken at the narrowest torso point between the chest and hips when viewed from the front.

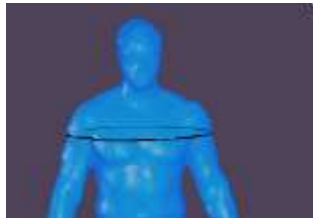
Neck Circumference – Circumference of the base of the neck where it meets the shoulders. Circumference Front L&R and Back L&R quarter measurements are also available.



OPT Waist – See the section “**Parameterized (Optimized) Waist Circumference**” for details on configuring a custom waist measurement.
Circumference Front L&R and Back L&R quarter measurements are also available.

Outside Leg Length – Distance from side waist level over the hip then vertical to the floor.

OverArm Circumference – Horizontal girth taken over the arms at the widest bicep point.



Pants Waist - Smallest circumference starting between the small of back level and 4cm above it and allowed to drop in the front up to 3 cm to follow the actual pant waist contour.

Seat Circumference – Horizontal circumference at the most prominent rear point between the waist and crotch.
Circumference Front L&R and Back L&R quarter measurements are also available.

Seat Fold Height – Vertical distance from the floor to where the buttocks meet the leg.

Side Back Waist to Floor – Vertical distance; Left or Right.

Side Neck to Bust Length L&R – Distance from the side neck points to the bust points.



Side Neck Trunk Length - Distance from the Right Side Neck point down through the Crotch and back up to the Right Side Neck point.



Shoulder Arc – Distance from Front Bust level through the Side Neck point to Back Bust level.



Shoulder Length – Distance from the side neck point to the shoulder point.



Shoulder Slope – Drop angle of the shoulder point from the neck base point in degrees.

Shoulder Circumference – Horizontal girth at approx. 65% of the vertical distance from the Bust points to Shoulder points.



Sleeve Length – Distance from back neck point over the shoulder point to the wrist.



Stomach Front Point Circumference – Horizontal circumference taken at most prominent front point below the bust and above the waist.

Circumference Front L&R and Back L&R quarter measurements are also available.

Stomach Max Circumference – Horizontal circumference taken at maximum girth below the bust and above the waist.

Circumference Front L&R and Back L&R quarter measurements are also available.

Subject Height – Height from floor to top of subject (hair is interpreted as a “surface” and is included in the measurement calculation).

Surface Area – Surface area of separate body parts plus L&R Bust in square units plus **Surface Area Total** are available.

Thigh Circumference – Leg girth measured 2 inches below the Crotch. **Thigh Height** of the circumference is available.

Underbust Circumference – Horizontal circumference taken below the bust. Circumference Front L&R and Back L&R quarter measurements are also available.

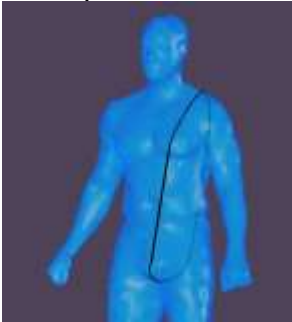


Under Knee Circumference – Circumference at bottom of the knee cap.

Under Knee Height – Height from the floor to the Under Knee Circumference.

Upper Bust Front Length – Distance between armpits across top of Bust.

Vertical Trunk Circumference – Distance from Mid-Shoulder point through the Crotch to Back Neck point.



Volume – Volume of separate body parts plus L&R Bust in cubic units plus total **Volume** are available.

Waist Circumference –Circumference taken at a 10 degree angle starting at the back point that is 80% of the distance from the Crotch level to the Small of Back point.
Circumference Front L&R and Back L&R quarter measurements are also available.

Waist at 50% - Horizontal circumference taken at half the distance from the Crotch to the Bust/Chest.

Waist Height – Height from the floor to the Waist Circumference Right Side Point.

Wrist Circumference – Circumference at the wrist joint below the bone. This measurement is dependent on the subject gripping the handholds during scanning.

Shoulder Point Location – There are two methods available for locating the Shoulder Points.

1. The software can determine the location of the Shoulder points automatically by projecting a point in space and determines the shortest distance to this point as being the Shoulder Point. This is the default setting.
2. An alternate method lets the user define the angle up from the Armpit point to where the Shoulder Point is desired, where 0 degrees is straight up from the armpit point to a maximum of 90 degrees.

Go to the settings.ini file section “Shoulder Method” to choose the alternate location method and then to the section “Shoulder Angle” to set the chosen angle.

Choosing a Waist Measurement

There are several measurements that are connected to, or may reference, the Waist. Two of those commonly used include the Crotch Length and Outside Leg Length. In addition, there are adjustable landmarks in the Waist that allow the user to manually adjust the Waist to suit their application. While there are a variety of different Waist measurements included in the Size Stream Standard Measurement list, there are only three of those to which these other measurements and movable landmarks can be connected:

Waist Circumference Tape Measure- also called “Natural Waist”, a fixed circumference starting at the Small of the Back point and descending at a fixed angle to the front point. The default setting is 10 degrees but can be changed in the settings.ini file from 0 (Horizontal) to 20 degrees of tilt.

OPT Small of Back Waist Tape Measure – a parameterized circumference starting at the Small of the Back point. See the section “**Parameterized (Optimized) Waist Circumference**” in this manual for details on how to use this measurement.

OPT Formula Waist Tape Measure - a parameterized circumference that uses a formula to determine the starting back point. See the section “**Parameterized (Optimized) Waist Circumference**” in this manual for details on how to use this measurement.

The default is the Waist Circumference Tape Measure. The “OPT Waists” are turned off by default and will show the value “Unavailable” in the measurement output list.

To switch to either of the other OPT Waist measurements:

1. Go to the Settings.ini file in the Executables folder.
2. Scroll to the section “Measurement Guidance File”
3. Delete the semi-colon (;) at the front of the instruction line at the end of the section.
4. Save and Close the settings file. Do not close the Executables folder!
5. Open the “OptimizedMeasurements.mg” in the Executables folder.
6. The default order is the Small of the Back method listed above the Formula method signified by a “1.0” in the Method of Execution line. This is the Waist that will now be connected to the other measurements and movable landmarks.
To have the Formula method as the preferred Waist, switch the Method of Execution numbers between the two Waist methods so “2.0” is the top method and “1.0” is the bottom method.
7. Save and Close the “OptimizedMeasurements.mg” file and Executables folder.

See the section “**Parameterized (Optimized) Waist Circumference**” in this manual for details on how to use this adjustable measurement.

To switch back to the default Waist Circumference Tape Measure:

1. Go to the Settings.ini file in the Executables folder.
2. Scroll to the section “Measurement Guidance File”
3. ADD a semi-colon (;) at the front of the instruction line at the end of the section.
4. Save and Close the settings file.

Custom Measurement Lists

The UPPER section of the scanner measurement output list contains a sample list of additional custom measurements that have been programmed by Size Stream from customer requests. If your application requires a measurement that is not in the standard list, you can write a custom measurement using the Custom Measurement Scripts application found in the Size Stream Executables folder.

See the section **Size Stream Custom Measurement Editor** in this manual for instructions on how to customize the standard measurement output list.

There is also a PDF tutorial on how to use the custom measurement tool in the Size Stream Scanner folder and/or in the Size Stream Installation Files folder or a PDF copy can be requested from Size Stream Support.

Questions and assistance requests should be directed to Size Stream Support. A diagram and description of each measurement requested should be included with your request.

The custom measurement section is displayed or hidden using the “Custom Measurements File Path” parameter in the Settings.ini file.

This section can be minimized or resized by dragging the Standard Measurements title bar.

The LOWER section of the output list contains the measurements that are supplied by Size Stream. This list can also be edited to rearrange the list order or to hide those measurements from the list that the user deems to be not useful or extraneous to their application. In addition, there are many other measurements that are available that are not shown in the list .

See the section **Changing the Measurement List Order** in this manual for instructions on how to customize the standard measurement output list.

Parameterized (Optimized) Waist Circumference

The Parameterized Waist function allows the user to set the limits for where the Size Stream Scanner software will extract the Optimized Waist measurement from the 3D scan image.

The software uses two different methods to determine the starting point for this measurement. The first method uses the Small of the Back while the second method uses a formula based on the relationship of the Crotch Height and Hip Circumference.

With reference to that starting point, the user defines the upper and lower limits for the front, back and side points for the software to find the optimized circumference.

The results of both methods are displayed in the measurement output list as:

“Opt Small of Back Waist Tape Measure” and “Opt Formula Waist Tape Measure”

The user can then determine which method works best for their particular application.

The Parameterized Waist can be used in both the Scanner software and in the Studio software but must be configured separately in each application.

Measurement limits are set and adjusted by the user in **OptimizedMeasurements.mg** file.

In the Scanner software, this file is located in the Executables folder:

C:\ Size Stream \ Scanner \ Executables \ OptimizedMeasurements.mg

In the Studio software: c:\ Size Stream \ Studio \ OptimizedMeasurements.mg

All values are set in millimeters regardless of the measurement output units chosen.

The file is shown below.

Parameterized Waist File: OptimizedMeasurement.mq

```
<?xml version="1.0"?>
<!-- ALL VALUES ARE IN MILLIMETERS -->
<Measurements>
```

[Small Back] Parameterized Waist Circumference
m_ParamWaist_SmallBack_Circumference

The circumference of the minimal waist defined in the given bounds using the small of the back as a reference point.

```
<MethodOfExecution>      1.0      </MethodOfExecution>
<FrontUpperLimit>       13.0     </FrontUpperLimit>
<FrontLowerLimit>      -75.0    </FrontLowerLimit>
<BackUpperLimit>        0.0     </BackUpperLimit>
<BackLowerLimit>       -50.8    </BackLowerLimit>
<BackFormulaUpperLimit> 63.5     </BackFormulaUpperLimit>
<BackFormulaLowerLimit> -19.05   </BackFormulaLowerLimit>
<SideUpperLimit>        13.0     </SideUpperLimit>
<SideLowerLimit>       -25.4    </SideLowerLimit>
<SideOffset>           25.4     </SideOffset>
<FormulaThresholdXOver> 25.0     </FormulaThresholdXOver>
<CrotchOffset>         228.6    </CrotchOffset>
<HipCoefficient>        0.02    </HipCoefficient>
<HipSquareCoefficient>  0.0     </HipSquareCoefficient>
```

[Formula] Parameterized Waist Circumference
m_ParamWaist_Formula_Circumference

The circumference of the minimal waist defined in the given bounds using the formulaic method to compute the starting waist height.

```
<MethodOfExecution>      2.0     </MethodOfExecution>
<FrontUpperLimit>        0.0     </FrontUpperLimit>
<FrontLowerLimit>     -125.0   </FrontLowerLimit>
<BackUpperLimit>       13.0     </BackUpperLimit>
<BackLowerLimit>      -50.8    </BackLowerLimit>
<BackFormulaUpperLimit> 13.0     </BackFormulaUpperLimit>
<BackFormulaLowerLimit> -50.8    </BackFormulaLowerLimit>
<SideUpperLimit>       38.1     </SideUpperLimit>
<SideLowerLimit>      -25.4    </SideLowerLimit>
<SideOffset>          25.4     </SideOffset>
<FormulaThresholdXOver> 25.0     </FormulaThresholdXOver>
<CrotchOffset>         228.6    </CrotchOffset>
<HipCoefficient>        0.02    </HipCoefficient>
<HipSquareCoefficient>  0.0     </HipSquareCoefficient>
```

Method of Operation

The Parameterized Waist operates by determining the location of a horizontal slice that it “marks” and then uses as the starting point. The user then can adjust the upper and lower limits of the Front, Back and Side points of the slice to define a range that the software can “move” the slice to determine the smallest circumference. It then outputs this smallest circumference as the final measurement.

There are two methods the software uses to determine the starting slice:

1) Using the Small of the Back. The software determines where this is on the scan subject and “marks” the horizontal slice at that point.

2) Using a Formulaic Method. The software has a formula based on the relationship of the Crotch Height and Hip Circumference with user-defined parameters to find the Small of the Back starting slice.

The software will automatically use both of these methods and will output the results for both. They will be listed in the standard measurement list as:

OPT Small of Back Waist Tape Measure

OPT Formula Waist Tape Measure

These measurements will also be shown as circumferences on the 3D Body Mesh.

Adjusting the Parameters

The OptimizedMeasurements.mg file has two identical lists of parameters. This enables the user to set different limits for the two methods used.

Each parameter line is explained below:

Method of Operation: This line defines which method being used. The default file has a 1.0 in the top set to use the Small of Back method while the lower set has a 2.0 to use the Formula method. These can be changed if, for example, the user wants to set two Small of Back methods using different limits.

Front Upper Limit: This line defines the upper limit in millimeters (mm) that the Front Point can move when using either the Small of the Back or the Formula method.

Front Lower Limit: This line defines the lower limit in mm that the Front Point can move when using either the Small of the Back or the Formula method.

Back Upper Limit: This line defines the upper limit in mm that the Back Point can move when using the Small of Back method. It is not used in the Formula method.

Back Lower Limit: This line defines the lower limit in mm that the Back Point can move when using the Small of Back method. It is not used in the Formula method.

Back Formula Upper Limit: This line defines the upper limit in mm that the Back Point can move when using the Formula method. It is not used in the Small of Back method.

Back Formula Lower Limit: This line defines the lower limit in mm that the Back Point can move when using the Formula method. It is not used in the Small of Back method.

Side Upper Limit: This line defines the upper limit in mm that the Left and Right Side Points can move when using either the Small of Back or the Formula method.

Side Lower Limit: This line defines the lower limit in mm that the Left and Right Side Points can move when using either the Small of Back or the Formula method.

Side Offset: This line defines the total limit in mm that the Left and Right Sides Points can move with respect to each other when using either the Small of Back or the Formula method.

Formula Threshold Xover: This line defines the percentage of the Hip Circumference that the Small of Back must be above the Crotch Point before the Formula method will be used instead of the Small of the Back method.

Crotch Offset: This line sets the offset value in mm that can be added to the Crotch Point to be used in the starting height computation.

Hip Coefficient: This line sets the coefficient multiplier used to multiply the Hip Circumference used in the starting height computation. This can be any real number.

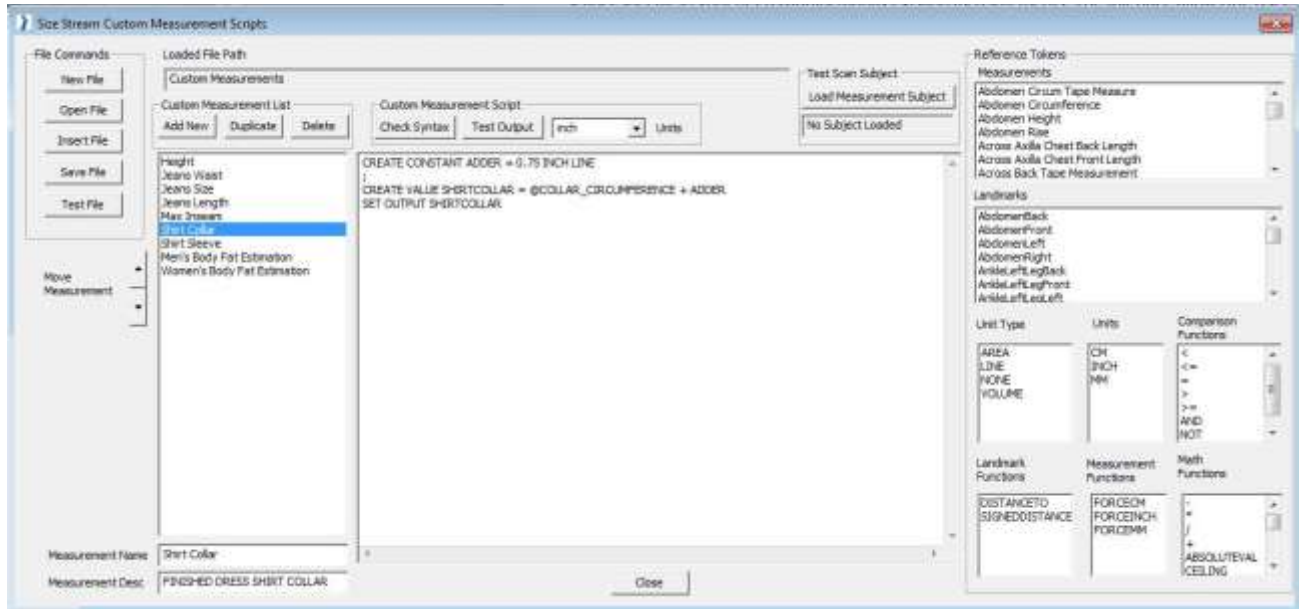
Hip Square Coefficient: This line sets the coefficient multiplier used to multiply the Hip Circumference Squared used in the starting height computation. This can be any real number.

Size Stream Custom Measurement Editor

If your application requires adjusting a measurement from the standard list, you can write a custom measurement with it using the **Custom Measurement Scripts** application found in the Size Stream\Studio\Executables folder. Text can also be applied to have size prediction output.

The Size Stream Custom Measurement Editor allows the user to modify existing measurements to your needs. The interface allows the user to test the new scripts for errors and then verify the output prior to using the customized measurement list in the Size Stream Scanner and Studio software.

Overview



The Custom Measurement window has five basic sections:

1. File Commands - this section contains basic file functions.
2. Custom Measurement List - this section is where measurements are created, named, and managed. In the box above, the selected measurement shows its name and description in the corresponding boxes. The list order can be changed using the up/down arrows at the left.
3. Custom Measurement Script - here is where the measurement is defined and programmed. Lines that start with a semi-colon are comment lines while instruction lines have no semi-colon. Syntax can be checked for errors and Output can be verified using the buttons above the script window.
4. Test Scan Subject - here the user can choose a specific scan to use for verifying the scripts being programmed. A Binary raw data file must be selected.
5. Reference Tokens - here are listed the available measurements and landmarks that can be utilized to make custom measurements and/or outputs. Also listed are the various functions and labels that are needed to complete the logic functions.

A tutorial on how to use the custom measurement tool follows here.

Specific questions and assistance requests should be directed to support@sizestream.com.

Custom Measurement Editor Tutorial

1. Create Constants and/or Values.
2. Define mathematical operations.
3. Evaluate and compare conditions

When composing custom measurement scripts, there are some rules that must be followed:

There must be a space between every word and every function.

Correct: Create Value collar = @Neck + 2 inch line

Incorrect: Create Valuecollar = @Neck+2 inch line

Variable names must be in one-word form.

Correct: Create Value Shirtcollar = @Neck + 2 inch line

Correct: Create Value Shirt_collar = @Neck + 2 inch line

Incorrect: Create Value Shirt collar = @Neck+2 inch line

Script Syntax must be followed.

These are the formats of the different kind of script lines:

Create Value `VariableName = Math Expression`

Create Constant `VariableName = Math Expression UNIT UNITTYPE`

Else

Else If `Comparison Expression`

If `Comparison Expression`

Then Set Output

Then Set Value

Set Output `"TextOutput"`

Set Output `VariableName`

Set Output `MeasurementName`

Set Output `LandmarkName.X` or `LandmarkName.Y` or `LandmarkName.Z`

Set Value `VariableName = Math Expression`

; `Comment`

Create Value `VariableName = Math Expression`

"Create Value" allows you to create a variable that contains a numeric value that can be calculated and changed in the script. Give your value variable a descriptive name, then assign a valid math expression to it. Math expressions may include measurements, landmarks, defined constants and defined values. Values are automatically adjusted to be in the user's selected unit of measurements.

Examples:

Define a value based on an operation between two landmarks:

`CREATE VALUE LEFTNECK2BUST = @COLLARLEFT DISTANCETO @BUSTLEFT`

Define a value based on a measurement:

`CREATE VALUE OUTSEAM = @OUTSIDE_LEG_LENGTH_LEFT`

Define a value based on a combination of expressions:

`CREATE VALUE AVGSHOULDERLENGTH = (@SHOULDER_LENGTH_LEFT + @SHOULDER_LENGTH_RIGHT) / TWO`

Define a value based on landmark references:

`CREATE VALUE YDIFF = (@BUSTFRONT.Y - @WAISTFRONT.Y) * (@BUSTFRONT.Y - @WAISTFRONT.Y)`

Create Constant VariableName = Numeric Value UNIT UNITTYPE

“Create Constant” allows you to define a constant value and have it correctly applied in math expression even when the user changes the units of measurement. Give your Constant variable a descriptive name, then assign a numeric value to the variable. Define the Constant’s measurement unit, then define the Constant’s type of unit. Note that the applied value of the Constant will change depending on the user’s units settings.

“NONE” – a unit-less constant never changes value

“LINE” – a line constant will be directly converted between INCH, CM and MM

“AREA” – an area constant will be converted between INCH², CM² and MM²

“VOLUME” – a volume constant will be converted between INCH³, CM³ and MM³

Examples:

Define the constant unit-less value “2” for use in calculating an average between two variables:

```
CREATE CONSTANT TWO = 2 INCH NONE
```

Define the constant value “1 inch” for use in comparing the difference between two circumference measurements:

```
CREATE CONSTANT ONEINCH = 1 INCH LINE
```

Define the constant value “100 mm” for use in comparing the difference between two surface areas:

```
CREATE CONSTANT ONEHUNDREDDMM = 100 MM AREA
```

Define the constant value “1000 cm” for use in comparing the difference between two volumes:

```
CREATE CONSTANT ONETHOUSANDCM = 1000 CM VOLUME
```

If

Else if

Else

Then Set Output

Then Set Value

“If” allows you to evaluate a comparison expression and choose to execute an operation based on the result of that comparison. After “If” give a valid comparison statement that consists of comparison operations using measurements, landmarks, defined constants and values. Math expressions cannot be used in a comparison statement. Math expressions should be stored in a value variable and then used in a comparison statement. “If” statements must be immediately followed by a “Then” statement.

“Else if” works the same as an “If” statement, but is expected to follow a pair of “If/Then” statements. This allows for “chained” comparisons that culminate with an “Else” statement that is a catch-all if no other “If” or “Else if” statement evaluates to true.

“Else If” statements and “Else” statements must be immediately followed by a “Then” statement.

“Then” statements should only be used to set a new value in an already defined Value variable or to set the output to the script.

Examples:

A single simple comparison: (“If” with no “Else”):

```
If MaxShoulderLength > @SHOULDER_LENGTH_RIGHT  
Then Set Value MaxShoulderLength = @SHOULDER_LENGTH_RIGHT
```

A single complicated comparison (“If” with no “Else”):

```
If ( MaxShoulderLength > @SHOULDER_LENGTH_RIGHT ) AND ( MaxShoulderLength =  
@SHOULDER_LENGTH_RIGHT )  
Then Set Value MaxShoulderLength = @SHOULDER_LENGTH_RIGHT
```

More than one comparison: (“If” with “Else”):

```
If MaxShoulderLength > @SHOULDER_LENGTH_RIGHT  
Then Set Value MaxShoulderLength = @SHOULDER_LENGTH_RIGHT  
Else  
Then Set value MaxShoulderLength = @SHOULDER_LENGTH_LEFT
```

A set of comparisons: (“If” with “Else if” and “Else”):

```
If MaxShoulderLength > @SHOULDER_LENGTH_RIGHT  
Then Set Value MaxShoulderLength = @SHOULDER_LENGTH_RIGHT  
Else if MaxShoulderLength = @SHOULDER_LENGTH_RIGHT AND MaxShoulderLength =  
@SHOULDER_LENGTH_LEFT  
Then Set Value MaxShoulderLength = @SHOULDER_LENGTH_RIGHT  
Else  
Then Set Output “Error”
```

Set Value

“Set Value” allows you to change the value of an already defined Value variable. This is useful when a value variable may need to change value based on the results of a comparison statement. The same kind of math expressions that are valid when doing a “Create Value” statement are also valid for “Set Value”.

Example:

```
CREATE VALUE maxshoulderlength = @SHOULDER_LENGTH_LEFT  
IF maxshoulderlength < @SHOULDER_LENGTH_RIGHT  
THEN SET VALUE maxshoulderlength = @SHOULDER_LENGTH_RIGHT
```

Set Output “TextOutput”

Set Output VariableName

Set Output MeasurementName

Set Output LandmarkName.X or LandmarkName.Y or LandmarkName.Z

“Set Output” is used to declare what the result of the script measurement is. If the “Set Output” statement has a result enclosed by quotes “ ” then what is between the quotes will be displayed as text value, e.g. “Small”, “X-Large”. Otherwise the result will be a numeric value and can be a defined constant or value variable name, a measurement name, or a landmark reference. Note that a Landmark reference must include the X, Y or Z direction value of the landmark.

: Comment

Comment lines are any lines that begin with a semicolon. They are useful to explain intended functionality of a script or as programmer notes in the script.

Comment lines are not a functional part of the script and are present and visible only to the person writing the script.

Creating Custom Circumference Measurements

A new functionality, "Create Measure", used to create a user-defined custom circumference measurement has been added to the Custom Measurement Editor.

The basic steps are:

1. Designate the reference starting point height.
2. Calculate any distance above or below the landmark where the circumference is to be taken.
3. Specify the parameters of the circumference.

Example 1: to get a circumference at a designated height from the floor

```
;DESIGNATE MEASURING POINT...  
CREATE VALUE HEIGHT = 40 inch none  
;  
;DEFINE MEASUREMENT: TYPE; REF VALUE; BODY PART; METHOD; ORIENTATION...  
CREATE MEASURE CIRC = CIRCUMFERENCE HEIGHT TORSO TAPE HORIZONTAL  
;  
SET OUTPUT CIRC
```

Example 2: to get a circumference at a designated landmark point:

```
;DESIGNATE MEASURING POINT LANDMARK...  
CREATE VALUE HEIGHT = @BUSTFRONT.Y  
;  
;DEFINE MEASUREMENT: TYPE; REF VALUE; BODY PART; METHOD; ORIENTATION...  
CREATE MEASURE CIRC = CIRCUMFERENCE HEIGHT TORSO TAPE HORIZONTAL  
;  
SET OUTPUT CIRC
```

Example 3: to get a circumference at the midpoint between two landmarks:

```
;DESIGNATE MEASURING POINT LANDMARK...  
CREATE CONSTANT TWO = 2 INCH NONE  
CREATE VALUE HEIGHT = ( @ELBOWLEFT.Y + @WRISTLEFT.Y ) / TWO  
;  
;DEFINE MEASUREMENT: TYPE; REF VALUE; BODY PART; METHOD; ORIENTATION...  
CREATE MEASURE CIRC = CIRCUMFERENCE HEIGHT LEFTARM TAPE HORIZONTAL  
SET OUTPUT CIRC
```

Example 4: to get a circumference at one inch above the midpoint between two landmarks:

```
;DESIGNATE MEASURING POINT LANDMARK...  
CREATE CONSTANT ONE = 1 INCH LINE  
CREATE CONSTANT TWO = 2 INCH NONE  
CREATE VALUE HEIGHT = ( ( @ELBOWRIGHT.Y + @WRISTRIGHT.Y ) / TWO ) + ONE  
;  
;DEFINE MEASUREMENT:6c65a11da5364a532d TYPE; REF VALUE; BODY PART; METHOD; ORIENTATION...  
CREATE MEASURE CIRC = CIRCUMFERENCE HEIGHT RIGHTARM TAPE AXIAL  
SET OUTPUT CIRC
```

Parameter Definitions:

Landmarks: see the Landmark list in the Custom Measurement Editor for available landmarks.

Body Parts: Torso, RightArm, LeftArm, RightLeg, LeftLeg, All (encompasses entire scan data).

Method: Simulated TAPE measurement or terrain-following CONTOUR measurement.

Orientation: HORIZONTAL or AXIAL.

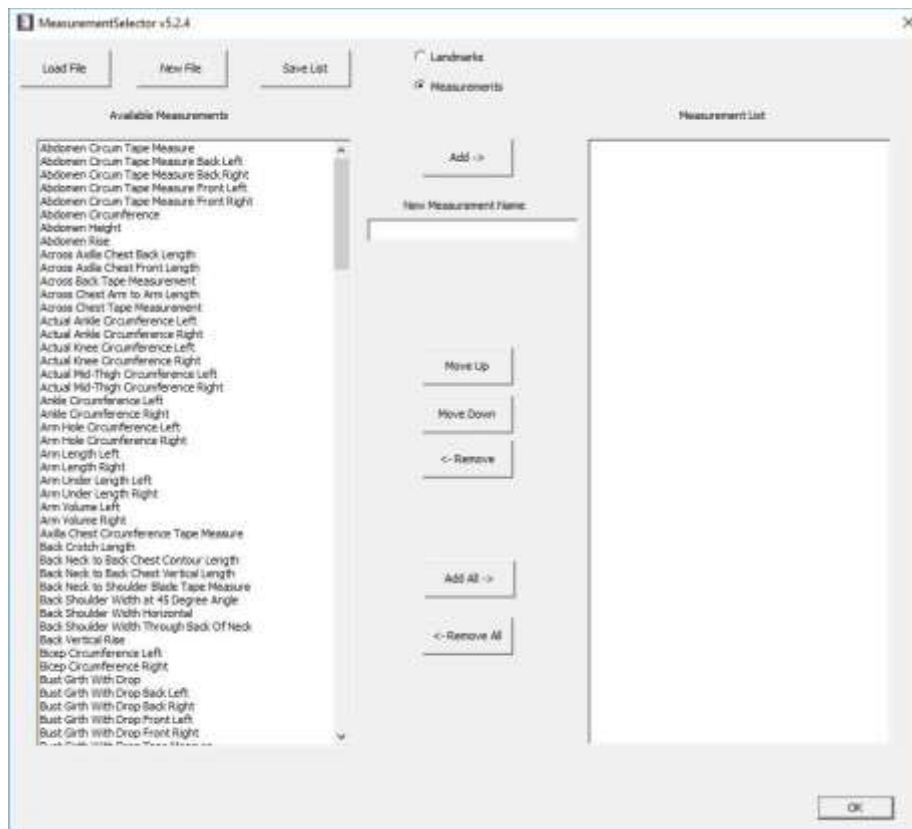
Changing the Measurement List Order

The order in which the list of the Size Stream standard measurements and/or landmarks appears can be changed by the user. This can eliminate searching for those measurements that are most used and can delete those measurements that the user does not use or need.

The Measurement Selector tool is used to reorder the standard measurements or landmarks and is located in the Scanner Executables folder: c:\ Size Stream \ Scanner \ Executables \ MeasurementSelector.exe.

Note that this function only edits the Size Stream Standard (or “Core”) measurements and landmarks. Measurements created in the **Custom Measurement Editor** are not included.

In addition to reordering, the user can also **rename** a measurement or landmark to more closely match an application or user’s custom naming convention. Renaming can also aid in identifying the standard measurement(s) used in the **Custom Measurement Editor**.



Measurement Selector Functions:

To rearrange the Size Stream Standard Measurement or Landmark List:

Choose either Landmarks or Measurements.

Click “Load File” to edit an existing file or “New File” to create a new list.

Click on a desired measurement from the Available Measurements list then click the “Add” button to move it to the new Measurement List...or...

Click on a measurement in the new list and click the “Remove” button to delete it back to the Available Measurements side.

Use the “Move Up” and “Move Down” buttons to arrange the order of the selected measurements. Only one measurement can be selected or moved at a time.

SAVE the new list:

Click the "Save List" button.

Navigate to the folder where the list is to be saved using normal Windows file saving.

You can rename the list as you choose, however, you must also change the name in the settings.ini file in order for the new file name to be recognized and accessed:

Go to: C:\Size Stream \ Scanner \ Executables \ settings.ini

Open the file and scroll to the section "Custom Measurements File Path".

Edit the last line to change to the new file name taking care to enter it exactly the same.

Save and Close the settings file.

The measurement list can be changed in both the Scanner software and in the Studio software but must be configured separately in each application or just COPY and PASTE the MeasurementDisplayOrderList.txt file to either application.

Renaming a Measurement or Landmark:

To rename a standard measurement or landmark:

Select the measurement to be renamed in the Available Measurements list.

Enter the new name in the "New Measurement Name" slot and click the "Add" button. The renamed measurement will appear in the new list.

If the renamed measurement is selected and "Removed" from the new list, it will revert back its original name in the Available Measurements list.

The "Add All" button moves all the Available measurements to the new list window.

The "Remove All" button moves all the selected new measurements back to the Available Measurements window. All renamed measurements will revert back to their original names.

Size Stream Standard Measurement List

No.	Measurements by Number	No.	Measurements Alphabetically
0	Collar Circumference	84	Abdomen Circum Tape Measure
1	Neck Circumference	219	Abdomen Circum Tape Measure Back Left
2	Back Shoulder Width Horizontal	220	Abdomen Circum Tape Measure Back Right
3	Shoulder Length Left	217	Abdomen Circum Tape Measure Front Left
4	Shoulder Length Right	218	Abdomen Circum Tape Measure Front Right
5	Shoulder Slope Left	31	Abdomen Circumference
6	Shoulder Slope Right	32	Abdomen Height
7	OverArm Circumference	33	Abdomen Rise
8	Chest / Bust Circumference	141	Across Axilla Chest Back Length
9	Bust Girth With Drop	140	Across Axilla Chest Front Length
10	Underbust Circumference	88	Across Back Tape Measurement
11	Bust To Bust Length	178	Across Chest Arm to Arm Length
12	Side Neck to Bust length Left	87	Across Chest Tape Measurement
13	Side Neck to Bust length Right	172	Actual Ankle Circumference Left
14	Arm Hole Circumference Left	173	Actual Ankle Circumference Right
15	Arm Hole Circumference Right	174	Actual Knee Circumference Left
16	Arm Length Left	175	Actual Knee Circumference Right
17	Arm Length Right	176	Actual Mid-Thigh Circumference Left
18	Arm Under Length Left	177	Actual Mid-Thigh Circumference Right
19	Arm Under Length Right	91	Ankle Circumference Left
20	Sleeve Length Left	92	Ankle Circumference Right
21	Sleeve Length Right	14	Arm Hole Circumference Left
22	Waist Circumference	15	Arm Hole Circumference Right
23	Waist Height	16	Arm Length Left
24	Horizontal Waist	17	Arm Length Right
25	Pants Waist	18	Arm Under Length Left
26	Narrow Waist	19	Arm Under Length Right
27	Low Rise Waist – VOID	70	Arm Volume Left
28	Elbow Height Waist	71	Arm Volume Right
29	Stomach FP Circumference	133	Axilla Chest Circumference Tape Measure
30	Stomach Max Circumference	180	Back Crotch Length
31	Abdomen Circumference	97	Back Neck to Back Chest Contour Length
32	Abdomen Height	98	Back Neck to Back Chest Vertical Length
33	Abdomen Rise	100	Back Neck to Shoulder Blade Tape Measure
34	Hip Circumference	158	Back Shoulder Width at 45 Degree Angle
35	Seat Circumference	2	Back Shoulder Width Horizontal
36	Crotch Height	159	Back Shoulder Width Through Back Of Neck
37	Crotch Length Full	162	Back Vertical Rise
38	Front Vertical Rise	89	Bicep Circumference Left
39	Seat Fold Height	90	Bicep Circumference Right
40	Inseam Left	9	Bust Girth With Drop
41	Inseam Right	191	Bust Girth With Drop Back Left
42	Outside Leg Length Left	192	Bust Girth With Drop Back Right
43	Outside Leg Length Right	189	Bust Girth With Drop Front Left
44	Thigh Circumference Left	190	Bust Girth With Drop Front Right
45	Thigh Circumference Right	74	Bust Girth With Drop Tape Measure
46	MidThigh Circumference Left	129	Bust Prominence Left
47	MidThigh Circumference Right	130	Bust Prominence Right
48	Knee Circumference Left	166	Bust Surface Area Left
49	Knee Circumference Right	167	Bust Surface Area Right

No.	Measurements by Number	No.	Measurements Alphabetically
50	UnderKnee Circumference Left	11	Bust To Bust Length
51	UnderKnee Circumference Right	164	Bust Volume Left
52	UnderKnee Height Left	165	Bust Volume Right
53	UnderKnee Height Right	54	Calf Circumference Left
54	Calf Circumference Left	55	Calf Circumference Right
55	Calf Circumference Right	101	Center Trunk Length
56	Min Lower Leg Girth Left	102	Center Trunk Length Tape Measure
57	Min Lower Leg Girth Right	131	Cervicale to Bust Length Left
58	Foot Length Left	132	Cervicale to Bust Length Right
59	Foot Length Right	72	Chest / Bust Circum Tape Measure
60	Surface Area Total	8	Chest / Bust Circumference
61	Surface Area Leg Left	187	Chest/Bust Circum Back Left
62	Surface Area Leg Right	188	Chest/Bust Circum Back Right
63	Surface Area Arm Left	185	Chest/Bust Circum Front Left
64	Surface Area Arm Right	186	Chest/Bust Circum Front Right
65	Surface Area Torso	128	Chin Height
66	Volume	0	Collar Circumference
67	Leg Volume Left	36	Crotch Height
68	Leg Volume Right	37	Crotch Length Full
69	Torso Volume	122	Elbow Circumference Tape Measure Left
70	Arm Volume Left	123	Elbow Circumference Tape Measure Right
71	Arm Volume Right	124	Elbow Height Left
72	Chest / Bust Circum Tape Measure	125	Elbow Height Right
73	Over Arm Circum Tape Measure	28	Elbow Height Waist
74	Bust Girth With Drop Tape Measure	81	Elbow Height Waist Tape Measure
75	Underbust Circum Tape Measure	58	Foot Length Left
76	Waist Circum Tape Measure	59	Foot Length Right
77	Horizontal Waist Tape Measure	115	Forearm Circumference Left
78	Pants Waist Tape Measure	116	Forearm Circumference Right
79	Narrow Waist Tape Measure	179	Front Crotch Length
80	Low Rise Waist Tape Measure - VOID	117	Front Hip Tape Measure
81	Elbow Height Waist Tape Measure	96	Front Jacket Tape Measure
82	Stomach FP Circum Tape Measure	147	Front Shoulder Width
83	Stomach Max Circum Tape Measure	38	Front Vertical Rise
84	Abdomen Circum Tape Measure	118	Front Waist Tape Measure
85	Hip Circum Tape Measure	95	Half Back Center Tape Measure
86	Seat Circum Tape Measure	157	Halter
87	Across Chest Tape Measurement	142	Head Circumference
88	Across Back Tape Measurement	149	High Hip
89	Bicep Circumference Left	150	High Hip to Small Of Back Optimized Waist
90	Bicep Circumference Right	146	Hinged Bust Circumference
91	Ankle Circumference Left	145	Hinged Upper Bust Circumference
92	Ankle Circumference Right	85	Hip Circum Tape Measure
93	Wrist Circumference Left	211	Hip Circum Tape Measure Back Left
94	Wrist Circumference Right	212	Hip Circum Tape Measure Back Right
95	Half Back Center Tape Measure	209	Hip Circum Tape Measure Front Left
96	Front Jacket Tape Measure	210	Hip Circum Tape Measure Front Right
97	Back Neck to Back Chest Contour Length	34	Hip Circumference
98	Back Neck to Back Chest Vertical Length	231	Hip Widest Circum Tape Measure Back Left
99	Subject Height	232	Hip Widest Circum Tape Measure Back Right
100	Back Neck to Shoulder Blade Tape Meas	229	Hip Widest Circum Tape Measure Front Left
101	Center Trunk Length	230	Hip Widest Circum Tape Measure Front Right
102	Center Trunk Length Tape Measure	233	Hip Widest Tape Circumference
103	Side Neck Trunk Length	153	Hips Eight Inches Down from Small of Back
104	Side Neck Trunk Length Tape Measure	154	Hips Two Inches Above Crotch

No.	Measurements by Number	No.	Measurements Alphabetically
105	Opt Small of Back Waist Tape Measure	24	Horizontal Waist
106	Opt Small Waist Front Height	119	Horizontal Waist Height
107	Opt Small Waist Back Height	77	Horizontal Waist Tape Measure
108	Opt Small Waist Left Height	40	Inseam Left
109	Opt Small Waist Right Height	41	Inseam Right
110	Opt Formula Waist Tape Measure	48	Knee Circumference Left
111	Opt Formula Waist Front Height	49	Knee Circumference Right
112	Opt Formula Waist Back Height	67	Leg Volume Left
113	Opt Formula Waist Left Height	68	Leg Volume Right
114	Opt Formula Waist Right Height	151	Low Hip
115	Forearm Circumference Left	152	Low Hip to Small Of Back Optimized Waist
116	Forearm Circumference Right	27	Low Rise Waist - VOID
117	Front Hip Tape Measure	80	Low Rise Waist Tape Measure - VOID
118	Front Waist Tape Measure	136	Mid Shoulder Height Left
119	Horizontal Waist Height	137	Mid Shoulder Height Right
120	Min lower leg Height Left	155	Mid Shoulder To Bust Length Left
121	Min lower leg Height Right	156	Mid Shoulder To Bust Length Right
122	Elbow Circum Tape Measure Left	143	Mid Shoulder to Waist Length Left
123	Elbow Circum Tape Measure Right	144	Mid Shoulder to Waist Length Right
124	Elbow Height Left	46	MidThigh Circumference Left
125	Elbow Height Right	47	MidThigh Circumference Right
126	Thigh Height Left	56	Min Lower Leg Girth Left
127	Thigh Height Right	57	Min Lower Leg Girth Right
128	Chin Height	120	Min lower leg Height Left
129	Bust Prominence Left	121	Min lower leg Height Right
130	Bust Prominence Right	26	Narrow Waist
131	Cervicale to Bust Length Left	79	Narrow Waist Tape Measure
132	Cervicale to Bust Length Right	183	Neck Circum Back Left
133	Axilla Chest Circum Tape Measure	184	Neck Circum Back Right
134	Side Back Waist to Floor Left	181	Neck Circum Front Left
135	Side Back Waist to Floor Right	182	Neck Circum Front Right
136	Mid Shoulder Height Left	1	Neck Circumference
137	Mid Shoulder Height Right	112	Opt Formula Waist Back Height
138	Vertical Trunk Circumference Left	111	Opt Formula Waist Front Height
139	Vertical Trunk Circumference Right	113	Opt Formula Waist Left Height
140	Across Axilla Chest Front Length	114	Opt Formula Waist Right Height
141	Across Axilla Chest Back Length	110	Opt Formula Waist Tape Measure
142	Head Circumference	203	Opt Formula Waist Tape Measure Back Left
143	Mid Shoulder to Waist Length Left	204	Opt Formula Waist Tape Measure Back Right
144	Mid Shoulder to Waist Length Right	201	Opt Formula Waist Tape Measure Front Left
145	Hinged Upper Bust Circumference	202	Opt Formula Waist Tape Measure Front Right
146	Hinged Bust Circumference	105	Opt Small of Back Waist Tape Measure
147	Front Shoulder Width	199	Opt Small of Back Waist Tape Measure Bk Left
148	Waist at 50%	200	Opt Small of Back Waist Tape Measure Bk Right
149	High Hip	197	Opt Small of Back Waist Tape Measure Frt Left
150	High Hip to Small Of Back Opt Waist	198	Opt Small of Back Waist Tape Measure Frt Right
151	Low Hip	107	Opt Small Waist Back Height
152	Low Hip to Small Of Back Opt Waist	106	Opt Small Waist Front Height
153	Hips 8 Inches Down from Small of Back	108	Opt Small Waist Left Height
154	Hips Two Inches Above Crotch	109	Opt Small Waist Right Height
155	Mid Shoulder To Bust Length Left	170	Outer Arm Hole Circumference Left
156	Mid Shoulder To Bust Length Right	171	Outer Arm Hole Circumference Right
157	Halter	42	Outside Leg Length Left
158	Back Shoulder Width at 45 Degree Angle	43	Outside Leg Length Right
159	Back Shoulder Width Through Back Neck	73	Over Arm Circum Tape Measure

No.	Measurements by Number	No.	Measurements Alphabetically
160	Shoulder Arc Left	7	OverArm Circumference
161	Shoulder Arc Right	25	Pants Waist
162	Back Vertical Rise	78	Pants Waist Tape Measure
163	Upper Bust Front Length	86	Seat Circum Tape Measure
164	Bust Volume Left	215	Seat Circum Tape Measure Back Left
165	Bust Volume Right	216	Seat Circum Tape Measure Back Right
166	Bust Surface Area Left	213	Seat Circum Tape Measure Front Left
167	Bust Surface Area Right	214	Seat Circum Tape Measure Front Right
168	Shoulder Circumference	35	Seat Circumference
169	Shoulder Circumference Height	39	Seat Fold Height
170	Outer Arm Hole Circumference Left	160	Shoulder Arc Left
171	Outer Arm Hole Circumference Right	161	Shoulder Arc Right
172	Actual Ankle Circumference Left	168	Shoulder Circumference
173	Actual Ankle Circumference Right	169	Shoulder Circumference Height
174	Actual Knee Circumference Left	3	Shoulder Length Left
175	Actual Knee Circumference Right	4	Shoulder Length Right
176	Actual Mid-Thigh Circumference Left	5	Shoulder Slope Left
177	Actual Mid-Thigh Circumference Right	6	Shoulder Slope Right
178	Across Chest Arm to Arm Length	134	Side Back Waist to Floor Left
179	Front Crotch Length	135	Side Back Waist to Floor Right
180	Back Crotch Length	12	Side Neck to Bust length Left
181	Neck Circum Front Left	13	Side Neck to Bust length Right
182	Neck Circum Front Right	103	Side Neck Trunk Length
183	Neck Circum Back Left	104	Side Neck Trunk Length Tape Measure
184	Neck Circum Back Right	20	Sleeve Length Left
185	Chest/Bust Circum Front Left	21	Sleeve Length Right
186	Chest/Bust Circum Front Right	82	Stomach FP Circum Tape Measure
187	Chest/Bust Circum Back Left	223	Stomach FP Circum Tape Measure Bk Lft
188	Chest/Bust Circum Back Right	224	Stomach FP Circum Tape Measure Bk Rt
189	Bust Girth With Drop Front Left	221	Stomach FP Circum Tape Measure Frt Lt
190	Bust Girth With Drop Front Right	222	Stomach FP Circum Tape Measure Frt Rt
191	Bust Girth With Drop Back Left	29	Stomach FP Circumference
192	Bust Girth With Drop Back Right	83	Stomach Max Circum Tape Measure
193	Underbust Circum Tape Measure Front Left	227	Stomach Max Circum Tape Meas Bk Lt
194	Underbust Circum Tape Measure Front Right	228	Stomach Max Circum Tape Meas Bk Rt
195	Underbust Circum Tape Measure Back Left	225	Stomach Max Circum Tape Meas Frt Lt
196	Underbust Circum Tape Measure Back Right	226	Stomach Max Circum Tape Meas Frt Rt
197	Opt Small of Back Waist Tape Meas Front Left	30	Stomach Max Circumference
198	Opt Small of Back Waist Tape Meas Front Right	99	Subject Height
199	Opt Small of Back Waist Tape Meas Back Left	63	Surface Area Arm Left
200	Opt Small of Back Waist Tape Meas Back Right	64	Surface Area Arm Right
201	Opt Formula Waist Tape Measure Front Left	61	Surface Area Leg Left
202	Opt Formula Waist Tape Measure Front Right	62	Surface Area Leg Right
203	Opt Formula Waist Tape Measure Back Left	65	Surface Area Torso
204	Opt Formula Waist Tape Measure Back Right	60	Surface Area Total
205	Waist Circum Tape Measure Front Left	44	Thigh Circumference Left
206	Waist Circum Tape Measure Front Right	45	Thigh Circumference Right
207	Waist Circum Tape Measure Back Left	126	Thigh Height Left
208	Waist Circum Tape Measure Back Right	127	Thigh Height Right
209	Hip Circum Tape Measure Front Left	69	Torso Volume
210	Hip Circum Tape Measure Front Right	75	Underbust Circum Tape Measure
211	Hip Circum Tape Measure Back Left	195	Underbust Circum Tape Measure Bk Lt
212	Hip Circum Tape Measure Back Right	196	Underbust Circum Tape Meas Bk Rt

No. Measurements by Number

213	Seat Circum Tape Measure Front Left
214	Seat Circum Tape Measure Front Right
215	Seat Circum Tape Measure Back Left
216	Seat Circum Tape Measure Back Right
217	Abdomen Circum Tape Measure Front Left
218	Abdomen Circum Tape Measure Front Right
219	Abdomen Circum Tape Measure Back Left
220	Abdomen Circum Tape Measure Back Right
221	Stomach FP Circum Tape Measure Front Left
222	Stomach FP Circum Tape Measure Front Right
223	Stomach FP Circum Tape Measure Back Left
224	Stomach FP Circum Tape Measure Back Right
225	Stomach Max Circum Tape Measure Front Left
226	Stomach Max Circum Tape Measure Front Right
227	Stomach Max Circum Tape Measure Back Left
228	Stomach Max Circum Tape Measure Back Right
229	Hip Widest Circum Tape Measure Front Left
230	Hip Widest Circum Tape Measure Front Right
231	Hip Widest Circum Tape Measure Back Left
232	Hip Widest Circum Tape Measure Back Right
233	Hip Widest Tape Circumference

No. Measurements Alphabetically

193	Underbust Circum Tape Meas Frt Lt
194	Underbust Circum Tape Meas Frt Rt
10	Underbust Circumference
50	UnderKnee Circumference Left
51	UnderKnee Circumference Right
52	UnderKnee Height Left
53	UnderKnee Height Right
163	Upper Bust Front Length
138	Vertical Trunk Circumference Left
139	Vertical Trunk Circumference Right
66	Volume
148	Waist at 50%
76	Waist Circum Tape Measure
207	Waist Circum Tape Measure Bk Left
208	Waist Circum Tape Measure Bk Right
205	Waist Circum Tape Measure Frt Left
206	Waist Circum Tape Measure Frt Right
22	Waist Circumference
23	Waist Height
93	Wrist Circumference Left
94	Wrist Circumference Right

Size Stream Landmark List

No. Landmarks by Number

0 CrotchPoint
1 NeckFront
2 NeckBack
3 NeckLeft
4 NeckRight
5 CollarFront
6 CollarBack
7 CollarLeft
8 CollarRight
9 OverArmFront
10 OverArmBack
11 OverArmLeft
12 OverArmRight
13 ShoulderLeft
14 ShoulderRight
15 ArmpitLeft
16 ArmpitRight
17 BustFront
18 BustBack
19 BustLeft
20 BustRight
21 UnderBustFront
22 UnderBustBack
23 UnderBustLeft
24 UnderBustRight
25 StomachFPFront
26 StomachFPBack
27 StomachFPLeft
28 StomachFPRight
29 StomachMaxFront
30 StomachMaxBack
31 StomachMaxLeft
32 StomachMaxRight
33 WaistFront
34 WaistBack
35 WaistLeft
36 WaistRight
37 AbdomenFront
38 AbdomenBack
39 AbdomenLeft
40 AbdomenRight
41 HipFront
42 HipBack
43 HipLeft
44 HipRight
45 SeatFront
46 SeatBack
47 SeatLeft
48 SeatRight

No. Landmarks Alphabetically

38 AbdomenBack
37 AbdomenFront
39 AbdomenLeft
40 AbdomenRight
164 ActualAnkleLeftLegBack
163 ActualAnkleLeftLegFront
165 ActualAnkleLeftLegLeft
166 ActualAnkleLeftLegRight
168 ActualAnkleRightLegBack
167 ActualAnkleRightLegFront
169 ActualAnkleRightLegLeft
170 ActualAnkleRightLegRight
172 ActualKneeLeftLegBack
171 ActualKneeLeftLegFront
173 ActualKneeLeftLegLeft
174 ActualKneeLeftLegRight
76 ActualKneeRightLegBack
175 ActualKneeRightLegFront
177 ActualKneeRightLegLeft
178 ActualKneeRightLegRight
180 ActualMidLeftThighBack
179 ActualMidLeftThighFront
181 ActualMidLeftThighLeft
182 ActualMidLeftThighRight
184 ActualMidRightThighBack
183 ActualMidRightThighFront
185 ActualMidRightThighLeft
186 ActualMidRightThighRight
90 AnkleLeftLegBack
89 AnkleLeftLegFront
91 AnkleLeftLegLeft
92 AnkleLeftLegRight
94 AnkleRightLegBack
93 AnkleRightLegFront
95 AnkleRightLegLeft
96 AnkleRightLegRight
135 ApexBustLeft
136 ApexBustRight
15 ArmpitLeft
16 ArmpitRight
188 Bust With Drop Back
187 Bust With Drop Front
189 Bust With Drop Left
190 Bust With Drop Right
147 Bust120DegreesLeft
155 Bust120DegreesRight
148 Bust150DegreesLeft
156 Bust150DegreesRight
149 Bust210DegreesLeft

No.	Landmarks by Number
49	UpperLeftThighFront
50	UpperLeftThighBack
51	UpperLeftThighLeft
52	UpperLeftThighRight
53	UpperRightThighFront
54	UpperRightThighBack
55	UpperRightThighLeft
56	UpperRightThighRight
57	MidLeftThighFront
58	MidLeftThighBack
59	MidLeftThighLeft
60	MidLeftThighRight
61	MidRightThighFront
62	MidRightThighBack
63	MidRightThighLeft
64	MidRightThighRight
65	KneeLeftLegFront
66	KneeLeftLegBack
67	KneeLeftLegLeft
68	KneeLeftLegRight
69	KneeRightLegFront
70	KneeRightLegBack
71	KneeRightLegLeft
72	KneeRightLegRight
73	UnderKneeLeftLegFront
74	UnderKneeLeftLegBack
75	UnderKneeLeftLegLeft
76	UnderKneeLeftLegRight
77	UnderKneeRightLegFront
78	UnderKneeRightLegBack
79	UnderKneeRightLegLeft
80	UnderKneeRightLegRight
81	CalfLeftLegFront
82	CalfLeftLegBack
83	CalfLeftLegLeft
84	CalfLeftLegRight
85	CalfRightLegFront
86	CalfRightLegBack
87	CalfRightLegLeft
88	CalfRightLegRight
89	AnkleLeftLegFront
90	AnkleLeftLegBack
91	AnkleLeftLegLeft
92	AnkleLeftLegRight
93	AnkleRightLegFront
94	AnkleRightLegBack
95	AnkleRightLegLeft
96	AnkleRightLegRight

No.	Landmarks Alphabetically
157	Bust210DegreesRight
150	Bust240DegreesLeft
158	Bust240DegreesRight
151	Bust300DegreesLeft
159	Bust300DegreesRight
145	Bust30DegreesLeft
153	Bust30DegreesRight
152	Bust330DegreesLeft
160	Bust330DegreesRight
146	Bust60DegreesLeft
154	Bust60DegreesRight
18	BustBack
17	BustFront
19	BustLeft
105	BustPointLeft
106	BustPointRight
20	BustRight
82	CalfLeftLegBack
81	CalfLeftLegFront
83	CalfLeftLegLeft
84	CalfLeftLegRight
86	CalfRightLegBack
85	CalfRightLegFront
87	CalfRightLegLeft
88	CalfRightLegRight
141	CenterBustLeft
142	CenterBustRight
107	Chin
6	CollarBack
5	CollarFront
7	CollarLeft
8	CollarRight
0	CrotchPoint
101	ElbowLeft
123	ElbowLeftArmBack
122	ElbowLeftArmForward
124	ElbowLeftArmLeft
125	ElbowLeftArmRight
102	ElbowRight
127	ElbowRightArmBack
126	ElbowRightArmForward
128	ElbowRightArmLeft
129	ElbowRightArmRight
111	Head Circum Back
110	Head Circum Front
112	Head Circum Left
113	Head Circum Right
192	Hip Widest Back

No.	Landmarks by Number
97	Left toe
98	Left heel
99	Right toe
100	Right heel
101	ElbowLeft
102	ElbowRight
103	WristLeft
104	WristRight
105	BustPointLeft
106	BustPointRight
107	Chin
108	Mid Shoulder Left
109	Mid Shoulder Right
110	Head Circum Front
111	Head Circum Back
112	Head Circum Left
113	Head Circum Right
114	WristLeftArmForward
115	WristLeftArmBack
116	WristLeftArmLeft
117	WristLeftArmRight
118	WristRightArmForward
119	WristRightArmBack
120	WristRightArmLeft
121	WristRightArmRight
122	ElbowLeftArmForward
123	ElbowLeftArmBack
124	ElbowLeftArmLeft
125	ElbowLeftArmRight
126	ElbowRightArmForward
127	ElbowRightArmBack
128	ElbowRightArmLeft
129	ElbowRightArmRight
130	NarrowWaistForward
131	NarrowWaistBack
132	NarrowWaistLeft
133	NarrowWaistRight
134	Small of the Back
135	ApexBustLeft
136	ApexBustRight
137	UpperBustLeft
138	UpperBustRight
139	SideBustLeft
140	SideBustRight
141	CenterBustLeft
142	CenterBustRight
143	LowerBustLeft
144	LowerBustRight

No.	Landmarks Alphabetically
191	Hip Widest Front
193	Hip Widest Left
194	Hip Widest Right
42	HipBack
41	HipFront
43	HipLeft
44	HipRight
66	KneeLeftLegBack
65	KneeLeftLegFront
67	KneeLeftLegLeft
68	KneeLeftLegRight
70	KneeRightLegBack
69	KneeRightLegFront
71	KneeRightLegLeft
72	KneeRightLegRight
98	Left heel
97	Left toe
143	LowerBustLeft
144	LowerBustRight
161	Mid Neck Left
162	Mid Neck Right
108	Mid Shoulder Left
109	Mid Shoulder Right
58	MidLeftThighBack
57	MidLeftThighFront
59	MidLeftThighLeft
60	MidLeftThighRight
62	MidRightThighBack
61	MidRightThighFront
63	MidRightThighLeft
64	MidRightThighRight
131	NarrowWaistBack
130	NarrowWaistForward
132	NarrowWaistLeft
133	NarrowWaistRight
2	NeckBack
1	NeckFront
3	NeckLeft
4	NeckRight
10	OverArmBack
9	OverArmFront
11	OverArmLeft
12	OverArmRight
100	Right heel
99	Right toe
46	SeatBack
45	SeatFront
47	SeatLeft

No. Landmarks by Number

145 Bust30DegreesLeft
 146 Bust60DegreesLeft
 147 Bust120DegreesLeft
 148 Bust150DegreesLeft
 149 Bust210DegreesLeft
 150 Bust240DegreesLeft
 151 Bust300DegreesLeft
 152 Bust330DegreesLeft
 153 Bust30DegreesRight
 154 Bust60DegreesRight
 155 Bust120DegreesRight
 156 Bust150DegreesRight
 157 Bust210DegreesRight
 158 Bust240DegreesRight
 159 Bust300DegreesRight
 160 Bust330DegreesRight
 161 Mid Neck Left
 162 Mid Neck Right
 163 ActualAnkleLeftLegFront
 164 ActualAnkleLeftLegBack
 165 ActualAnkleLeftLegLeft
 166 ActualAnkleLeftLegRight
 167 ActualAnkleRightLegFront
 168 ActualAnkleRightLegBack
 169 ActualAnkleRightLegLeft
 170 ActualAnkleRightLegRight
 171 ActualKneeLeftLegFront
 172 ActualKneeLeftLegBack
 173 ActualKneeLeftLegLeft
 174 ActualKneeLeftLegRight
 175 ActualKneeRightLegFront
 176 ActualKneeRightLegBack
 177 ActualKneeRightLegLeft
 178 ActualKneeRightLegRight
 179 ActualMidLeftThighFront
 180 ActualMidLeftThighBack
 181 ActualMidLeftThighLeft
 182 ActualMidLeftThighRight
 183 ActualMidRightThighFront
 184 ActualMidRightThighBack
 185 ActualMidRightThighLeft
 186 ActualMidRightThighRight
 187 Bust With Drop Front
 188 Bust With Drop Back
 189 Bust With Drop Left
 190 Bust With Drop Right
 191 Hip Widest Front
 192 Hip Widest Back
 193 Hip Widest Left
 194 Hip Widest Right

No. Landmarks Alphabetically

48 SeatRight
 13 ShoulderLeft
 14 ShoulderRight
 139 SideBustLeft
 140 SideBustRight
 134 Small of the Back
 26 StomachFPBack
 25 StomachFPFront
 27 StomachFPLeft
 28 StomachFPRight
 30 StomachMaxBack
 29 StomachMaxFront
 31 StomachMaxLeft
 32 StomachMaxRight
 22 UnderBustBack
 21 UnderBustFront
 23 UnderBustLeft
 24 UnderBustRight
 74 UnderKneeLeftLegBack
 73 UnderKneeLeftLegFront
 75 UnderKneeLeftLegLeft
 76 UnderKneeLeftLegRight
 78 UnderKneeRightLegBack
 77 UnderKneeRightLegFront
 79 UnderKneeRightLegLeft
 80 UnderKneeRightLegRight
 137 UpperBustLeft
 138 UpperBustRight
 50 UpperLeftThighBack
 49 UpperLeftThighFront
 51 UpperLeftThighLeft
 52 UpperLeftThighRight
 54 UpperRightThighBack
 53 UpperRightThighFront
 55 UpperRightThighLeft
 56 UpperRightThighRight
 34 WaistBack
 33 WaistFront
 35 WaistLeft
 36 WaistRight
 103 WristLeft
 115 WristLeftArmBack
 114 WristLeftArmForward
 116 WristLeftArmLeft
 117 WristLeftArmRight
 104 WristRight
 119 WristRightArmBack
 118 WristRightArmForward
 120 WristRightArmLeft
 121 WristRightArmRight

Troubleshooting the Size Stream Body Scanner

Problem: During a computer Restart, the software hangs up and/or does not recognize all 14 sensors.

Solution: The Windows Restart function causes a problem with the sensor drivers and should never be used! If the computer requires a restart for any reason, it should be manually SHUTDOWN using the Windows Shutdown command or by depressing the computer power button until the computer completely shuts down. Wait 5 seconds and then start the computer again. This will clear the problem and the software will function normally.

Problem: System Alignment was successful but now I'm getting bad or no body data.

Solution: It is possible that one or more of the sensors have locked up in an unknown state.

1. SHUTDOWN the computer.
2. Disconnect AC power to the computer.
3. Unplug all 14 sensor USB cables from the back of the computer.
4. Reconnect all 14 sensor USB cables.
5. Connect AC power and start the computer.
6. Launch the Scanner software.

Problem: System Alignment failed! What do I do now?

Solution: Make sure the alignment object is vertical and not moving. Lower the foam slider to the floor to steady the object.

If the alignment continues to fail, contact Support@sizestream.com

Problem: An error message says the computer is looking for 14 sensors but only sees 13. What do I do now?

Solution: There are several things that can cause this error:

1. A loose USB connection: Check all the USB connections at the computer and at the sensors. Make sure they are all secure.
2. A sensor that has gone into an unknown state and needs to be reset: You can reset the sensors to a known state by shutting down the computer; disconnect AC power to the computer; disconnect all sensors from the computer; connect all sensors back in the computer; connect AC power and start the computer.
3. A failed USB port: This can be checked by disconnecting the sensors from one USB card at a time and monitoring the number of sensors in the Device Manager as you do this. You should be able to determine if a USB card has a bad port if the number of sensors does not change when you unplug the cable. Move that cable to one of the unused USB ports and see if the sensor appears on the list again.

4. A failed USB cable: This is not common but is possible. If you have tried the above steps and the sensor still does not appear in the Device Manager, switch the USB cable with one from another sensor. If the sensor now appears in the Device Manager it is probably the cable. Replace it with a new cable. You can purchase a USB cable locally if you do not have any spare cables or request one from Size Stream.

Contact Support@sizestream.com

5. A failed sensor: If you have tried all the above steps and the sensor does not appear in the Device Manager, it has probably failed and needs to be replaced.

Contact Support@sizestream.com

Problem: Upon system startup, a message says my license has expired!

Solution: If you have been issued an Emergency License Activator code, follow the instructions in the PDF to get a temporary 10-day license.

Contact Support@sizestream.com to have your normal license restored.

If you have not been issued an Emergency License Activator code, send the license Site Code to Support@sizestream.com as soon as possible.

If you do not see the Site Code in the License Expiration dialog, go to the License menu at the top of the dialog and select "Show Site Code"

Send the Site Code to Support@sizestream.com to get your license restored.

Some common things that can cause the licensing to fail:

- 1) Changing the system time.
- 2) Copying or renaming the folder where the license is located. (That'd be the same place as the executable)
- 3) Installing the software on an OS account that doesn't have Admin rights.
- 4) Running the software as a different user than the one who installed it.
- 5) Accessing the software over VPN.:

The Settings.ini File

Many of the functions of the Size Stream Scanner software are configurable and are controlled by the Settings.ini file found in the Size Stream Scanner Executables folder.

Most of the parameters in this file pertain to the operational settings of the scanner hardware and should not be changed without guidance from Size Stream Support personnel, however, there are some parameters that the user can change based on preferences and applications.

This section shows the actual file and lists each parameter, its function and what changes can be made to it by the user.

Comment lines begin with a semi-colon (;)
Instruction lines have no semi-colon.

```
;Settings Size Stream Scanner
;
;
;    BEFORE CONFIGURING THIS FILE IT IS STRONGLY RECOMMENDED THAT YOU CREATE
;    A BACKUP COPY!
;
;
;    Altering settings values can result in software errors and unexpected behavior.
;    Please make a back-up of a "known good" settings file before attempting to alter values.
;
;
;    File Formatting Rules:
;    "Comment" lines must start with a ';'
;    Setting format is "SETTING NAME" "TYPE" "VALUE" without the ""'s
;    Setting Name, Type and Value should be separated by a space
;    Possible types are BOOL, DOUBLE, DWORD, INT, CSTRING
;    Setting names and types are case insensitive
;    Setting names must be alpha-numeric only
;
;
;
;*****
;
;    Begin Version 2.0 Append
;
;
;
;
;    Measurement units
;    This applies to measurements and custom measurements both for display and saving to file.
;    Measurements and custom measurements will be converted to the appropriate unit.
;    Acceptable values:
;    25.4: measurements will be in inches (INCH)
;    10.0: measurements will be in centimeters (CM)
;    1.0: measurements will be in millimeters (MM)
;    When ABSENT: Defaults to 25.4 (INCH)
MeasureUnit double 25.4
;
;
;
;
;    Multi Scan
;    This applies to the number of full scan cycles that occur when an automatic scan is performed.
;    When 2 or greater it will also result in composite final result for the measurements.
;    Acceptable Values: a value from 2 - 5
;    When ABSENT: Defaults to a single scan and no composite.
MultiScan int 3
;
;
;
```

```

; Scan Sequence
; This controls the order in which the sensors acquire 3D data.
; The available sequences control for speed and quality of the scan.
; Acceptable values:
; 0: Typical SS-14
; 1: Fast SS-14 not recommended
; 2: Serial, slowest possible (one sensor at a time) SS-14 and SS-20
; 3: Instant SS-14
; 4: Reserved (not used)
; 5: SS-20 Multiacquire
; 6: SS-20 Instant
; When ABSENT: Defaults to 0
ScanSequence int 0
;
;
; Apply Cut Planes Before Save
; This applies to the Manual Scan function.
; Acceptable values:
; When TRUE: cut planes will be applied to raw data before it is saved to file.
; When FALSE: cut planes are not applied to raw data and all data is saved to file.
; When ABSENT: Defaults to TRUE
ApplyCutPlanesBeforeSave bool true
;
;
; Display Mode
; This applies to the 3D visualization on the interface.
; Acceptable values;
; 1: Refined Mesh (blue surface image), measurement lines
; 2: Refined Mesh Points (orange dot image), measurement lines
; 3: Refined Mesh (blue surface image), no measurement lines
; 4: Refined Mesh Points (orange dot image), no measurement lines
; When ABSENT: Defaults to 1
DisplayMode int 2
;
;
; Date Time Format
; This applies to save file names. When a format is specified a date-time will be appended
; at the end of each saved file. (Raw data, refined body mesh, measurement and avatar).
; Acceptable values:
; A string that is a valid date time format for a C# String as described in
; http://www.csharp-examples.net/string-format-datetime/
; When ABSENT: Defaults to {0:MMMM d yyyy hh_mm }
DateTimeFormat cstring {0:MMMM d yyyy hh_mm}
;
;
; Custom Measurements File Path
; Defines the Path to a Custom Measurement file. This file contains script information for a set of
; measurements that can be calculated from the core measurement and landmark information sets.
; When ABSENT: Custom Measurements are disabled.
CustomMeasurementsFilePath cstring C:\Size Stream\Scanner\System Files\Mens Custom Suit.txt
;
;

```

```

; Avatar Creation Template File Paths
; These are paths to system files required for creating avatars.
; When ABSENT: Avatar Creation is disabled.
; NOTE: The OBJ files must exist and have an accompanying DAT file with the same file name.
;FemaleAvatarTemplateFilePath cstring C:\Size Stream\Scanner\System Files\Avatar Files\Female_new.obj
;MaleAvatarTemplateFilePath cstring C:\Size Stream\Scanner\System Files\Avatar Files\Male_new.obj
;
;
; Sound Folder
; Defines the Path to a folder where system audio files are stored. These audio files are used for
; instruction during automatic scan.
; When ABSENT: Audio is disabled.
SoundFolder cstring C:\Size Stream\Scanner\Sound Files\
;
;
; Welcome File Length
; Length, in seconds, of the Welcome3.wav that should be located in the Sound Folder.
; This controls how long the software pauses when this sound file plays during the
; automatic scan sequence. If the value is not correct it will cause the
; scan sequence to initiate out of sequence with the Welcome File audio instructions.
; When ABSENT: Audio is disabled during automatic scan.
WelcomeFileLength int 19
;
;
; System Save Path
; Defines the path to a folder where all files generated by automatic scan are saved.
; When ABSENT: System will prompt user to select a folder on system start up.
SystemSavePath cstring C:\Size Stream\Scanner\Save Files\
;
;
; Assignment Folder
; Defines the Path to the folder holding the sensor assignment files.
; When ABSENT: System Initialization fails!
AssignmentFolder cstring C:\Size Stream\Scanner\System Files\Assignment Files\
;
;
; Dat Folder Path
; Defines the Path to the folder where system DAT files exist.
; When ABSENT: System Initialization fails!
DatFolderPath cstring C:\Size Stream\Scanner\System Files\Dat Files\
;
;
; Alignment Folder
; Defines the Path to the folder where System Alignment information is stored.
; When ABSENT: System Initialization fails!
AlignmentFolder cstring C:\Size Stream\Scanner\System Files\Alignment Files\
;
;
; Alignment Logging Path
; Defines the Path to the file where System Alignment logging is stored during the alignment sequence.
; NOTE: After Alignment is complete this intermediate file is moved into the
; Alignment Folder and renamed with the current date / time stamp for storage.
; When ABSENT: System Alignment will fail!
AlignmentLoggingPath cstring C:\Size Stream\Scanner\System Files\Alignment Files\logging.txt
;
;
; Number Of Sensors
; Defines the number of sensors that the software should expect to be connected.

```

```

; Acceptable values:
; 0: Indicates the software should be run in "no hardware" mode. This mode is reserved mainly for
diagnostics.
; 14: Expected number of sensors for SS-14 Scanner
; 20: Expected number of sensors for SS-20 Scanner
; Any other number will result all or some functionality of the software not working correctly.
; When ABSENT: System Initialization will fail!
NumberOfSensors int 14
;
; System Type
; Related to which serial number version of sensor is being used in the SS-14 Scanner
; Acceptable values:
; 8: Indicates a "12".. serial number series of SS-14 sensor (Also referred to as a 1.08 version sensor)
; 9: Indicates a "13".. serial number series of SS-14 sensor (Also referred to as a 1.09 version sensor)
; When ABSENT: System Alignment will fail.
SystemType int 9
;
;
; Cut Plane Parameters
; These values define a set of cutplanes that represent the internal scan volume of the scanner.
; During automatic scan operation the data outside of these cut planes is automatically considered
invalid data
; and is removed from the 3D raw data.
; When ABSENT: A set of default values for the cutplanes are applied.
HandToHandDistance double 965.2
MaximumHeight double 2100.0
HandHoldHeight double 965.2
FrontToBackDistance double 1000.0
;TopBottomCutInAngle double 10.0
TopBottomCutInAngle double 8.0
FrontBackCutInAngle double 15.0
;
; Alignment Values
; These values represent measurement information specific to the Alignment Object used during
System Alignment.
; Changing the values will cause System Alignment to fail!
; When ABSENT: System Alignment will fail.
fronts1 double 106
fronts2 double 181
fronts3 double 158
fronts4 double 182
backs1 double 120
backs2 double 74
backs3 double 38
backs4 double 45
backs5 double 95
backs6 double 62
checkersize double 38.1
;
; Alignment Object Thickness
; This value represents the thickness of the Alignment Object used during System Alignment.
; THIS VALUE SHOULD NOT BE CHANGED.
; When ABSENT: System Alignment will fail!
AlignmentObjectThickness double 5.3
;
;
;*****
;
; Begin Version 2.3 Append

```

```

;
;
;
; Save Data During Scan
; These three values control whether the data are saved to a file during the processing of a scan.
; Raw data refers to the Raw Data point cloud
; Mesh data refers to the refined body mesh data
; Measurement data refers to the measurement text file
; Acceptable values:
; TRUE: The data will be saved to file during the scan processing.
; FALSE: The data will not be saved to file during the scan processing.
; when ABSENT: Defaults to TRUE
SaveRawData bool true
SaveMeshData bool true
SaveMeasurementData bool true

```

```

;
;
; Alignment Logging
; This setting defines whether or not to dump additional information files into the Alignment Logging
Path
; during a system alignment. This information generally is used for troubleshooting and diagnostic
purposes.
; If an error occurs during system alignment then the additional information will be dumped to the
alignment folder
; whether or not this setting is TRUE.
; Acceptable Values:
; TRUE: additional information will be generated and saved.
; FALSE: additional information will not be generated and saved.
; When ABSENT: Defaults to FALSE
AlignmentLogging bool true

```

```

;
;
; Cut Plane Parameters
; These values define a set of cutplanes that represent the internal scan volume of the scanner.
; During automatic scan operation the data outside of these cut planes is automatically considered
; invalid data and removed from the 3D raw data.
; When ABSENT: A set of default values for the cutplanes is applied for processing.
; This is the width of the scanner from handhold to handhold minus a set distance to eliminate
; the handholds and side-frame data from a scan.
ScannerWidth double 900

```

```

*****
;
; Begin Version 2.4 Append
;
;

```

```

;
; Save Avatar Data
; This setting controls whether the data to create an avatar are saved to file during the processing of a
scan.
; Acceptable values:
; TRUE: The data will be saved to file during the scan processing.
; FALSE: The data will not be saved to file during the scan processing.
; when ABSENT: Defaults to TRUE
SaveAvatarData bool true

```

```

*****
;
; Begin Version 2.5 Append
;
;

```

```
;
;
; Slice Measurement Thickness
; This setting defines the Horizontal circumferential measurement interval (in mm).
; Acceptable Values: The thickness of the slices going up the body from the floor measured in mm.
; Must be a positive value greater than 0.
; There is a practical maximum and minimum value.
; When ABSENT: Horizontal Slices will not be taken.
;HorizontalInterval double 25.4
```

```
;
;
; Mesh Density
; This defines the number of polygons in the refined body mesh.
; Acceptable values:
; 1 - 10k polygons (highly recommended)
; 2 - 20k polygons
; 3 - 30kpolygons
; When ABSENT: Defaults to 1
MeshDensity int 1
```

```
*****
```

Begin Version 3.0 Append

```
;
;
; Print Use Alt Format
; This setting defines which print format to use.
; The normal format has a two page print out. The first page is the scan data and additional
; page(s) list the measurements.
; The alt format has a one page print out that shows the scan data and a list of measurements.
; The measurement list may continue to a second page needed.
; Acceptable values:
; TRUE: use the alt format
; FALSE: use the normal format
; When ABSENT: Defaults to FALSE
PrintUseAltFormat bool true
```

```
;
;
; Print Measurement Style
; This setting defines Which set of measurements to write on the print out.
; Acceptable values:
; 0 - No measurements
; 1 - Normal Measurements Only
; 2 - Custom Measurements Only
; 3 - All Measurements (Custom + Normal)
; When ABSENT: Defaults to 3
PrintMeasurementStyle int 3
```

```
*****
```

Begin Version 4.0 Append

```
;
;
; Measurement Guidance file.
; This file contains the user-defined parameters for creating optimized waist measurements.
; When ABSENT: No MG file will be loaded. This may cause some measurements to fail extraction
and
; be considered "not available".
MeasureGuideFile cstring C:\Size Stream\Scanner\Executables\OptimizedMeasurements.mg
```

```

;
;
;
;
; Enable Color
; This setting defines Whether to capture and process RGB color data at the end of a scan sequence.
; Acceptable values:
; TRUE: The software will use the RGB camera to capture and process color data. The color
; data is stored with the Raw 3D Data.
; FALSE: The software will NOT capture RGB data from the RGB camera. However, the software
; will still display color data when loaded from a file that already contains the data.
; When ABSENT: Defaults to FALSE
EnableColor bool false
;
;
;
;
; Clean Extra Data
; This option is intended specifically for color scanning!
; This defines Whether to apply an extra data cleaning process after processing to Raw 3D Data.
; This process includes applying cutplanes and eroding the data during the CleanExtraData
processing.
; Acceptable values:
; TRUE: The software will apply cutplanes and erosion after the Raw 3D Data has been processed.
; FALSE: The software will not apply these processes to the Raw 3D Data unless
ApplyCutPlanesBeforeSave
; has been set to true, in which case the cutplanes will still be applied.
; When ABSENT: Defaults to FALSE.
CleanExtraData bool false
;
;
;
;
; Erosion
; This defines the amount of points to 'erode' away from the raw 3D data during the CleanExtraData
processing.
; Acceptable values: Whole numbers from 0 and larger.
; Setting of 0 is recommended for SS-20.
; Setting of 3 is recommended for SS-14.
; When ABSENT: Defaults to 6
Erosion int 3
;
;
;
;
; Process Mode
; This setting defines how far the data is processed after the automated scanning sequence.
; Acceptable values:
; 0 - Will only process through Raw 3D Data
; 1 - Will process through Raw 3D Data and Refined Body Mesh
; 2 - Will process through Raw 3D Data, Refined Body Mesh and extracted measurements.
; When ABSENT: Defaults to 2
; When INVALID: Defaults to 2
ProcessMode int 2
;
;
;

```

```

; Raw Data Export Mode
; This setting defines the file format to save Raw 3D Data when saved automatically through the
scanning process.
; Acceptable values:
; 0 - BINARY file format
; 1 - XYZ file format
; 2 - OBJ file format (for 3D Raw Data- NOT refined body mesh)
; 3 - 3DPrint file format
; When ABSENT: Defaults to 0
; When INVALID: Defaults to 0
RawDataExportMode int 0
;
;
; Measurement Order File Path
; This setting defines the path to the measurement display order file.
; This file is not a user function but will be provided by Size Stream upon request.
; This file contains the optional user-selected measurement list that will be displayed in the standard
measurement
; output list (not the Custom list), the measurement text file and the print-out.
; Acceptable values: A full file path to a properly formatted measurement display file.
; When ABSENT: All Measurements are presented in their default order
MeasurementOrderFilePath cstring C:\Size Stream\Scanner\Executables\ABC Measurement List.txt
;
;*****
;
; Begin Version 4.3 Append
;
;
; Enable Color Image Save
; This setting permits the user to save out color images when saving out raw data.
; When ABSENT: Color images are not saved to file when saving out raw data.
;
EnableColorImageSave bool false
;
;
;*****
;
; Begin Version 4.4.1 Append
;
;
; QRCode Custom Measurement File Path
; This setting defines the path to a custom measurement script file. If this setting is defined,
; it enables the Scanner software to generate a text QR code from the results of the custom
measurement script file.
; This QR Code is generated on demand from a button in the Scanner Menu.
; When ABSENT: The QR Code generation function is disabled and hidden on the system.
; When INVALID: The QR Code generation function is disabled and hidden on the system.
; When VALID: The QR Code generation button is available on the system.
;
QRCodeCustomMeasurementFilePath cstring C:\Size Stream\Scanner\System Files\QR Code.txt
;
;
;

```



```

; Apply Frame Cut Plane
; When cut planes are applied to the Raw 3D Data, this setting indicates whether
; the "Frame Cut Plane" should also be applied to the Raw 3D Data. The "Frame Cut Plane"
; is a cut plane specific to the Size Stream Scanner Frame and is determined dynamically during
; system alignment. This setting is exposed for situations where a custom frame is being used that
; may not require, or may be hindered by, this cut plane.
; When TRUE: the frame cut plane is applied when cut planes are applied.
; When FALSE: the frame cut plane is NOT applied when the cut planes are applied.
; When ABSENT: behaves as though TRUE
;
applyframecutplane bool true
;
*****
;
; Begin Version 5.2 Append
;
; Removed Excess Arms Processing option
; This option controls whether additional, sometimes noisy, data is removed from the arms when
; processing to a refined body mesh.
; When TRUE: This additional data from the arms is removed during refined body model creation.
; When FALSE: This additional data is not removed.
; When ABSENT: behaves as though TRUE
; Recommended: This value should be set to FALSE when operating an SS-20 Scanner.
RemoveExcessArms BOOL FALSE
;
;
; Use PSA
; This option controls whether an additional processing step is taken to improve the quality of the Raw
3D Data
; after a scan.
; When TRUE: The additional processing step is taken.
; When FALSE: The additional processing step is not taken.
; When ABSENT: Behaves as though TRUE
; Recommended: This value should be set to FALSE when operating an SS-20 Scanner
UsePSA BOOL TRUE
;
;
; Write ORD File
; This option controls whether an Optitex-compatible ORD format file is written out whenever a
measurement file is written out.
; The OptiTex-compatible ORD file will contain values for measurements in the Customer
Measurement file at the "CustomMeasurementsFilePath"
; It will be written with the same name as the measurements file, but with an ".ORD" extension instead
of an ".XYZ" extension. It will be
; located in the saved folder defined by "SystemSavePath"
; When TRUE: This file will be generated
; When FALSE; This file will not be generated
; When ABSENT: Behaves as though FALSE
;
WriteORDFile BOOL FALSE
;
;
;
;

```

```

; Sensor Type
; Size Stream software is configured to be able to work with different types of 3D sensors
; in order to rapidly adapt to the best available 3D sensors on the market. .
; This setting informs the software of which sensor is being used.
; When 0: Means SS-14 sensors are present.
; When 1: Means SS-20 sensors are present.
; When ABSENT: Behaves as though a value of 0 SS-14
SensorType int 0
;
;
; Logging Enabled
; This controls whether system logging is turned on during the operation of the Scanner.
; When turned on the system will generate a log file located in the file indicated by
"LoggingPath"
; This log file can be helpful when troubleshooting issues with the Scanner.
; When TRUE: The log file will be generated during Scanner operation.
; When FALSE: The log file will not be generated during Scanner operation.
; When ABSENT: Behaves as though FALSE
LoggingEnabled BOOL FALSE
;
; Logging Path
; This is the path to the logging file. It will be generated during Scanner operation if
; "LoggingEnabled" is set to true.
LoggingPath CString C:\Size Stream\Scanner\Executables\Log.txt
;
;
; Image Save PNG
; Image Save JPEG
; These settings control what file format images are saved to, if "EnableColorImageSave" is
set to TRUE.
; If BOTH settings are set to TRUE, only PNG will be saved.
; If BOTH settings are set to FALSE, BMP file format will be saved.
ImageSavePNG BOOL FALSE
ImageSaveJPEG BOOL FALSE
;
;
; Use Old Leg Fill
; This controls whether we use a depreciated version of leg processing when creating a
refined body mesh.
; When TRUE: We will use the deprecated version of leg filling.
; When FALSE: We will use the latest version of leg filling.
; When ABSENT: Behaves as though FALSE.
UseOldLegFill BOOL FALSE
;
;
; ShoulderMethod: Two algorithms are now available to calculate the shoulder points
; When 1: Old shoulder algorithm.
; When 2: New shoulder algorithm. Calculates the shoulder point taken at an angle
from the armpit indicated by the ShoulderAngle setting.
; When ABSENT: Behaves as though 1.
ShoulderMethod int 1

```

```

;   ShoulderAngle: The angle (in degrees) used to calculate the shoulder point when
ShoulderMethod is set to use algorithm 2.
;       0 degrees indicates straight up from the armpit.
;       90 degrees indicates straight sideways from the armpit, towards the outside of the
arm.
;       < 0 degrees is treated as a positive value. (-90 degrees is treated as 90 degrees)
;       > 90 degrees is treated as 90 degrees.
;       When ABSENT: behaves as 90 degrees.
ShoulderAngle double 90.0
;
;
;   Use SS20 Bounding Box
;   This is a raw 3D data processing setting that is specific to the SS20 configuration. It attempts to
remove bad data near the wrist & forearms.
;   If arm data is chronically too sparse then set this to FALSE.
;
UseSS20BoundingBox BOOL FALSE
;
;*****
;
;       Begin Version 5.2.5 Append
;
;   Natural Waist Angle
;   Controls the angle at which the Waist Circumference is taken.
;   valid values 0-20
;
NaturalWaistAngle double 10.0
;
;
;   Refined Body Mesh Controls
;
;   These controls influence how the body mesh is created.
;
MeshSliceRightArm int 5
MeshSliceRightLeg int 5
MeshSliceTorso int 3
MeshSliceLeftLeg int 5
MeshSliceLeftArm int 5
MeshSliceHead int 3
;
;
;1-45
MeshAngleRightArm int 5
MeshAngleRightLeg int 5
MeshAngleTorso int 3
MeshAngleLeftLeg int 5
MeshAngleLeftArm int 5
MeshAngleHead int 3
;
;   Refined Body Mesh Smoothing
;   Controls how many neighbors are used when calculating the smoothing amount.
;   Should be adjusted when the Refined Body Mesh MeshDensity is adjusted.
;   0: no smoothing
;   1: smooth out to one neighbor
;   max valid number 75
;
NormalSmoothingDepth int 1
;

```

```
;  
;  
;   Orbbec Sensor Trim  
;   Controls the data trim amount on each sensor  
Trim_0 int 0  
Trim_1 int 0  
Trim_2 int 0  
Trim_3 int 0  
Trim_4 int 0  
Trim_5 int 0  
Trim_6 int 0  
Trim_7 int 0  
Trim_8 int 0  
Trim_9 int 0  
Trim_10 int 0  
Trim_11 int 0  
Trim_12 int 0  
Trim_13 int 0  
Trim_14 int 0  
Trim_15 int 0  
Trim_16 int 0  
Trim_17 int 0  
Trim_18 int 0  
Trim_19 int 0  
  
;  
;  
;   EnableAsyncAcquire: Controls whether experimental asynchronous acquisition mode is enabled.  
;   When ABSENT: experimental asynchronous mode is disabled.  
EnableAsyncAcquire bool false  
;  
;  
;   EnableConcurrentDepthAcquire: Controls whether experimental concurrent depth acquisition mode is  
enabled.  
;   When ABSENT: experimental experimental concurrent depth acquisition mode is disabled.  
EnableConcurrentDepthAcquire bool false
```

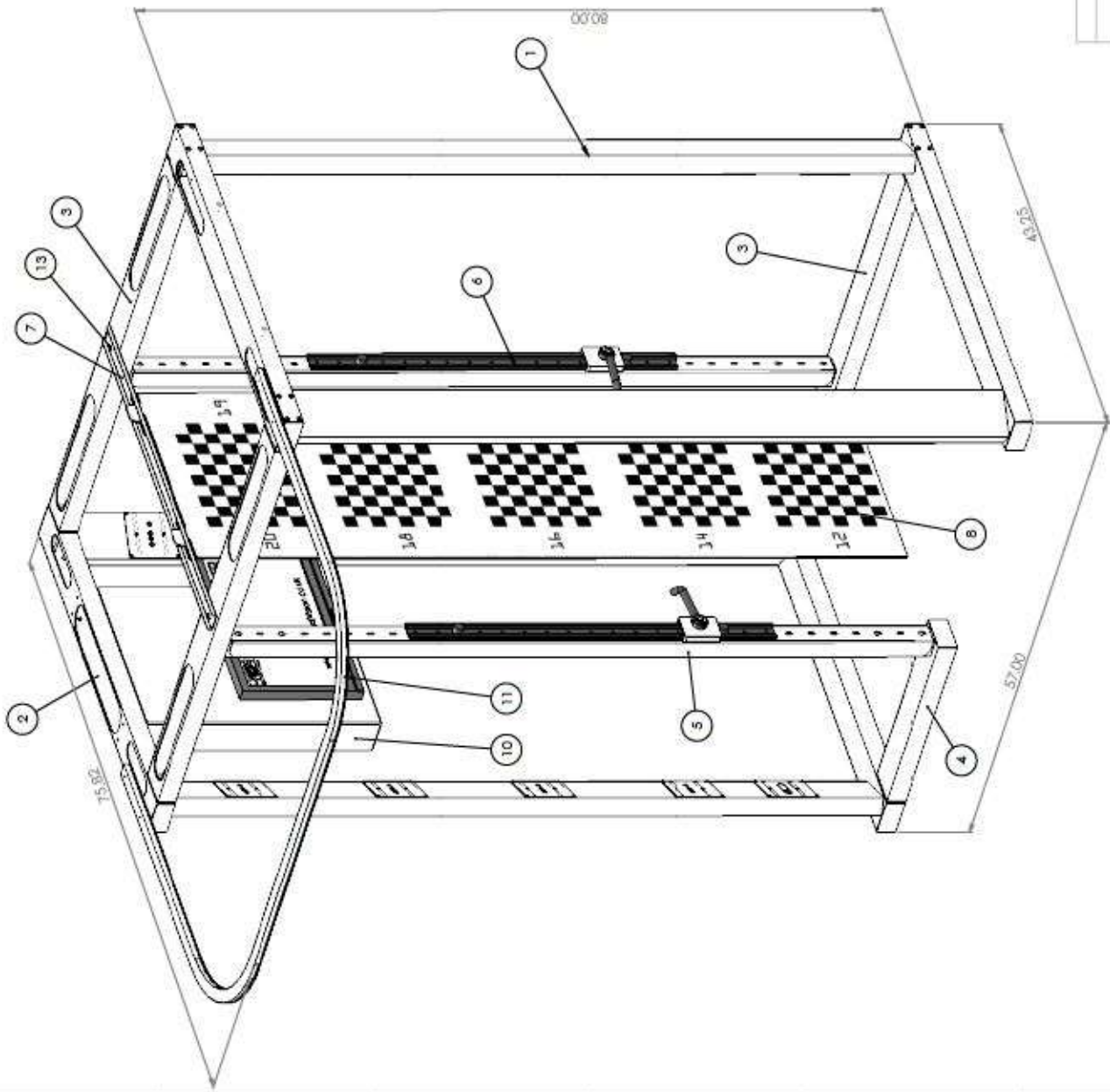
Assembling the External Monitor

The Size Stream Scanner can be operated from the inside via the touchscreen monitor or from the outside using the optional external monitor, keyboard and mouse.

1. Assemble the included monitor stand.
2. Assemble the monitor to its base and connect the monitor power cable to the back of the monitor.
3. The computer has an HDMI connector which is reserved for the touchscreen monitor and a white DVI video connector which can be then used for an external monitor. Connect the provided DVI cable to the DVI connector on the computer and to the DVI connector on the monitor.
4. Connect the keyboard and mouse USB cables to the spare USB ports on the computer. Do not connect the mouse and keyboard to the USB ports on the side of the touchscreen monitor as this will interfere with the scanner operation.
5. Connect the monitor to AC power and turn on the monitor.
6. The monitors will have to be set up to show the same display. Depending on the monitor, this process may vary in the terms used. On the monitor Desktop, right-click and select "Display Settings". Then, in the "Multiple Monitor" section, change to "Duplicate Displays".

You will now be able to control the Scanner from either monitor.

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	Initial Design	04/17/17	ME



ITEM NO.	PART NUMBER	DESCRIPTION	Default/ QTY.
1	Orb Back Tower	OAMS-200-004	1
2	Orb Front Tower	OAMS-200-001	1
3	1_45 T Connector	OAMS-200-002	3
4	1_45 L Connector	OAMS-200-003	1
5	Handhold	InfAL-200-005	1
6	Handhold	InfAL-200-005	1
7	Alignment Bar	InfAL-100-009	1
8	Alignment Board Cibbec OCR	OAMS-100-500	1
9	2U CPU	5 PCIe 3rd CPU	1
10	Touchscreen CPU Mount	OAMS-100-016	1
11	Touchscreen	24 inch Touchscreen	1
12	91772A706	1/4 - 20 x 5 Truss MS	26
13	91515A200	#8-18 Self Drilling Screw	4
14	Dressing Room Curtain Track		1

DESIGN CHANGES/ISSUES		NAME		DATE	
DATE	DESCRIPTION	NAME	DATE	NAME	DATE
		ME	04/17/17		

DRAWN: []
 CHECKED: []
 INCL APP: []
 TEL: []

SIZE STREAM