BlueSkyBio GRAMMEE

Powered by TUPEL 3D

USER MANUAL

WWW.GRAMMEE.COM

IMPORTANT: Please read the instruction manual in its entirety for reliable and accurate scans.

Warnings

- **Avoid direct eye exposure to the LED lights.** Prolonged staring at the LED lights can potentially harm the eyes. (LED Risk Group 1 - IEC 62471)
- **Protect your patient's eyes.** Do not shine the LED light directly into your patient's eyes. Ensure your patient wears the provided red glasses during the scanning procedure to safeguard their eyes.
- **Maintain proper ventilation.** Do not block the vents on the device to prevent overheating.
- **Do not disassemble the device.** Attempting to disassemble the scanner can compromise its integrity and safety features.
- **Protect from moisture.** Keep the scanner dry and avoid exposing it to damp or wet environments.
- **Handle posts with care.** Exercise caution when handling posts to prevent them from falling into the patient's mouth.
(The post is made of anodized aluminum with a titanium screw).

Precautions

- **Use original accessories.** Always use the original power supply and USB cable provided with the scanner.
- **Power off when not in use.** Switch off the device when it will not be used within the next 3 hours.
- **Discontinue use if damaged.** If the scanner becomes physically damaged or damaged in any way, discontinue its use immediately and contact the manufacturer or authorized service provider.
- **Battery awareness.** Be aware that the scanner contains lithium-ion batteries. Follow proper handling and disposal guidelines for lithium-ion batteries.

CONGRATULATIONS

ON YOUR NEW DENTAL IMPLANT PHOTOGRAMMETRY SCANNER!

Welcome to the world of precision and comfort in dental restorations with your new Dental Implant Photogrammetry Scanner. This advanced tool empowers you to capture supremely accurate measurements of your patients abutments, paving the way for creating comfortable passive fit restorations.

SIMPLIFIED SCANNING PROCESS

- **Scan Post Placement:** Securely screw in the provided scan posts. The cylindrical design ensures they always face the correct orientation.
- **Unique Dot Pattern Recognition:** Each post features a unique dot pattern that the computer recognizes, allowing you to place any post in any position.
- **Scanner Calibration:** Calibrate the scanner before each scan to achieve optimal accuracy.
- **Rapid Scanning:** The scanning process takes less than 2 minutes, ensuring a quick and efficient workflow.
- **Precise STL File Export:** Export an STL file containing precisely positioned abutments for seamless integration into your design process.

OPEN-SOURCE FILE FORMAT

All output data is provided in an open-source file format, granting you the freedom to use and manipulate the data in any design software.

QUICK START GUIDE

1 NAME PATIENT

2 SCAN

3 EXPORT

Project

Patient Name

New Project

Open Project

Save Project

Save Project As

Open In File Explorer

Scan

Maxilla

Posts Captured: 0

Capture Posts

Add Posts

View

Mandible

Posts Captured: 0

Capture Posts

Add Posts

View

Export

Export Abutment Meshes

SETTING UP YOUR IMPLANT SCANNER

- **Software Installation:** Download and install the latest Implant Scanner Desktop software from https://www.grammee.com
- **Select Connection Method:** Choose your preferred connection method – USB or WiFi – from the Settings menu within the software.
  - **Connecting via USB:** Connect the scanner to your computer using the provided USB cable.
  - **Connecting via WiFi:** Power on the scanner and wait for the green screen to appear, indicating successful boot-up.

    On your computer, connect to the scanner's WiFi network:

    Network Name: Implant Scanner
    Password: Implant00

Country Code Change: If you change the Country Code in the Settings menu, restart the scanner for the changes to take effect.

Pro Tip: Utilize the included WiFi dongle to connect to both your scanner and the internet simultaneously.

PERFORMING A SCAN

- **Scan Post Placement:** Securely screw the posts into the patient's abutments using a torque of 10-15 Ncm.
  Caution: Avoid over tightening the posts to prevent potential damage to the post and abutment thread.
- **Scanner Calibration:** If prompted, perform scanner calibration. The calibration process takes approximately one hour.
- **Scanning Procedure:** Select the number of posts to be scanned and initiate the scanning process.

  The scanner's screen will turn green upon scan completion.

NEW FEATURE! MERGING MULTIPLE SCANS

In situations where the patient's mouth is too crowded to scan all abutments simultaneously, you can utilize the **'Merge Multiple Scans'** function to combine scans from different angles.

- Follow the instructions outlined in **'Performing a Scan'** for the easily visible posts.
- Reposition the posts, ensuring that at least two posts remain unchanged.
- Use the **'Add Post'** function within the software to perform a second scan.
- The software will automatically merge the two scans, creating a complete representation of the patient's abutments.

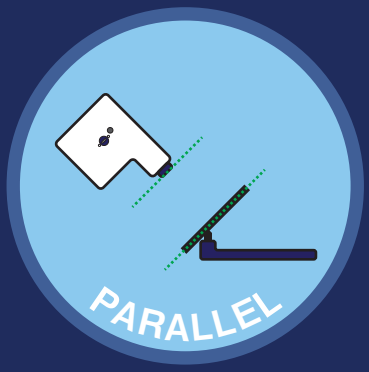
STL FILE EXPORT

- To export scans into multiple STL files, click the **'Export Abutment Meshes'** button.
- Select the desired abutment types and scan body types.
- A **.txt** file containing the raw data coordinates is automatically saved alongside the STL files.

OPTIMIZING SCAN RESULTS

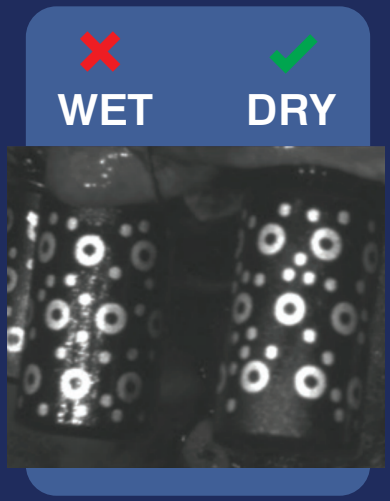
CALIBRATION GUIDELINES

- **Accurate Calibration Plate Number:** Ensure you enter the correct calibration plate number in the software.
- **Dot Alignment:** During calibration, align all four large dots in the center of both cameras. During calibration the dots may extend beyond the screen.
- **Vertical Parallelism:** Maintain the scanner vertically parallel to the calibration plate.
- **Controlled Scanning Motion:** Move the scanner slowly from side to side in a radial motion, not exceeding a 45° angle from the center.



SCANNING CONDITIONS

- **Clean and Dry Posts:** Ensure the posts are clean and dry during scanning.
- **Ambient Light Control:** Maintain ambient light levels below 5000 lx.



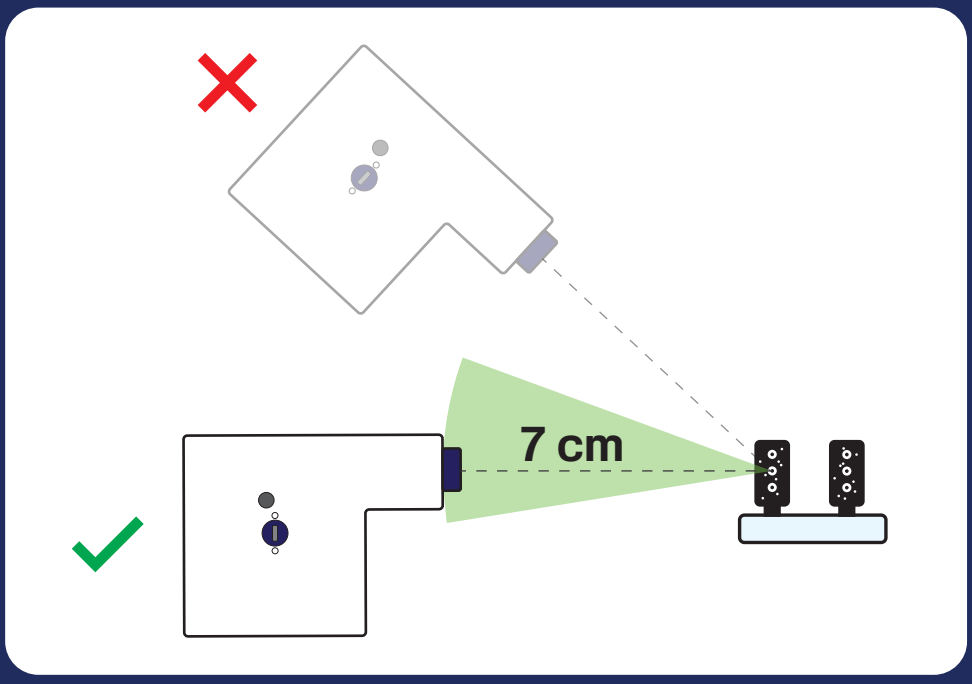
OPTIMAL SCAN DISTANCE AND ANGLE

OPTIMAL SCANNING DISTANCE:

- Maintain a scanning distance of approximately 7 cm from the posts, ensuring they are visible in both camera views.
- Multiple green dots should appear on the post when it is in focus.
- Maintain a consistent scan distance throughout the scanning process.
- Do not exceed a scanning distance of 10 cm from the first post.

OPTIMAL SCANNING ANGLE:

- Aim to scan at a level with the posts and capture them from a wide range of horizontal angles.



SCANNING TECHNIQUE:

- Hold the trigger and perform a slow and steady scanning motion from one side of the post to the other.
- Release the trigger for a brief moment to allow the computer to process the captured data.
- If more data is required, press the trigger again and capture additional shots of the uncaptured posts.
- Posts that require more data will appear darker on the display.

PRECAUTIONARY MEASURES:

- Ensure the dots on the post are not obscured by any obstructions, such as stitches.
- Avoid cross-threading the post; ensure it is screwed in straight.
- Wait for at least one minute between scans to achieve optimal accuracy.
- Be mindful of temperature changes, as they can cause slight accuracy loss.

PREPARATION

BATTERY PRECAUTIONS:

- Ensure the scanner is fully charged before use to avoid interruptions during scanning.

POST AND DEVICE CARE:

- Inspect the posts for any scratches or dirt before use.
- Sterilize the posts in an autoclave at 121°C for 30 minutes.
- Clean the exterior surface of the scanner using isopropyl alcohol.

STERILITY

- Instruments are supplied non-sterile and must be cleaned and sterilized prior to use.

  Steam Sterilization Procedure: Place the autoclave pouch containing item to be sterilized into the autoclave and follow the specific instructions provided by the manufacturer for pouched items. In general, a pouch must be sterilized by heating for 30 minutes at 250 deg F (121 deg C).

CLEANING

- **Reusable instruments:** Rinse with cool-to-lukewarm water for two and one half minutes. For all parts, place in an ultrasonic cleaner with an enzymatic detergent diluted with tap water per the manufacture's guidelines. Sonicate for 10 minutes. Rinse with tap water for three minutes.

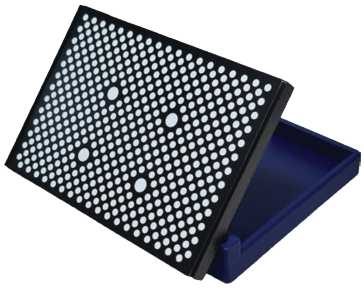
ADVANCED SETTINGS:

- Debug data allows for troubleshooting any issues that may arise during scanning. (5 GB of storage can hold debug data for approximately 10 scans)
- To send debug data to Tupel 3D, navigate to **'Tools' > 'Send debug data to Tupel' > 'Upload'**. The data is anonymous and contributes significantly to product development.

SCANNING PRACTICE:

- Familiarize yourself with the scanning technique and different software functions by practicing scanning posts placed on a table.

ACCESSORIES



Calibration Plate

USB Cable & WiFi Dongle

Posts & Scan Bodies

Safety Glasses

Country Specific Charger

Instruments

UPDATES

Staying Up-to-Date with Software and Firmware Update.Regularly visit the www.grammee.com to check for the latest software and firmware updates.

- **Software Updates:** Download and install the latest Implant Scanner PC software from the Grammee website.
- **Firmware Updates:** Firmware updates for your scanner are performed by entering "firmware update codes" into the Implant Scanner PC software. Detailed instructions for firmware updates are available on the Grammee website when applicable.

SPECIFICATION

BSB SCANNER SPECS

Scanner Size	14.2 x 11.8 x 9.7 cm
Weight	700 g
Power Consumption	15W
Battery Life	Up to 50 scans / 5 hours stand-by
Charge Time	5 hours
Battery Type	Lithium-ion
Connectivity	WiFi USB 2.0 or 3.0 (2 m type C cable included)
Illumination	3 x Green LEDs, 520nm, approx. 2W each
Display	5” Touch Screen
Camera	2 x 2MP Global Shutter
Operating Temp.	18 - 28°C
Storage Temp.	5 - 40°C (10 - 25°C for optimum battery longevity)
Tool Specification	US : 0.048” Hex Driver Europe : 1.3 mm Hex Driver

SCANNING CONDITION

Optimum Scan Range	6 - 8 cm (lens to first post)
Max. Ambient Light	5000 lx

BSB SCANNER SPECS

Positional Accuracy	± 9 micrometres
Positional Repeatability	± 6 micrometres
Angular Repeatability	± 0.034° (~ 1/30th of a degree)

* Refer to the Accuracy Report on our website to see our test conditions.

SOFTWARE FUNCTIONS

Auto calibration	Auto merge, enable up to 10 abutments scans per jaw
Real-time scanning feedback	STL & coordinates export
Able to scan up to 6 posts per scan	Iterative Noise Reduction for enhanced accuracy

SYSTEM REQUIREMENTS

Operating System	Windows 10 & 11	
GPU	Not required**	
	Minimum	Recommended
CPU	4 cores	8 cores
RAM	8 GB	16 GB

** Our software only uses CPU so you don't need a powerful GPU. We use parallel processing so using a modern CPU with many cores (8 or more) allows the fastest scanning.

IMPLANT SCANNER FCC INFORMATION

Contains TX FCC ID: 2ABCB-RPI4B

Contains IC: 20953-RPI4B

This device complies with Part 15 of FCC Rules, Operation is Subject to following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received including interference that cause undesired operation.

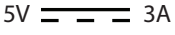
SYMBOL DEFINITION

Manufactured by

Date of Manufacture

Electronic instructions for use

Universal device identifier



Direct Current

Refer to instructions manual

Catalog Number

Serial Number

Recycle

IP20

Protection against solid objects over 12 mm in size. No protection against water.

Fulfills the requirements of relevant European Product directives

Support

Further information, instructional videos, and a troubleshooting guide are available on our website.

If you have any concerns, comments or feedback, please contact us, and we will do our best to help.

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