MeshyAndI

User manual | 0.23 | Rev 1.0

01 Getting started and installation

This manual covers MeshyAndI 0.23 on Android and the same module inside TS GNSS Alb build 484. First measure a shape with known dimensions, then use the workflow for your project.

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1. Download the APK from position.gnss.al/downloads.html. For an update, install over the existing app; do not uninstall before backing up your data.
2. Open the app. The logo is followed by the menu. Choose Shqip / English; the selection is saved and can be changed later.
3. Connect to the internet for initial activation. Check Licenca / aktivizimi. A 30-day trial depends on device eligibility; reinstalling does not create a new trial.
4. AR requires a supported phone, Google Play Services for AR and camera permission. Inside TS GNSS: Matje/Piketim > Matje > MeshyAndI in GNSS mode.

02 Projects and scanning

1. Projekti > Krijo projekt creates a named project. Hap projekt opens existing work; Menaxho projektet opens, renames or deletes projects.
2. Regjistro > Skanim 3D + RGB opens the camera. Wait for tracking, aim at a textured area and press Nis. Move slowly with overlap between views.
3. Pause when relocating or passing obstructions. Do not cover the lenses. Transparent, reflective or textureless surfaces can leave gaps. Watch tracking status and counters.
4. Përfundo → matje saves the scan and opens analysis. Ruaj offers other available destinations. Confirm that the scan appears in the library before closing.

Choosing a mode

Planimetri 2D and Scatch 3D measure lines and shapes directly with the camera crosshair without generating a point cloud. Choose 3D scanning for stockpile surfaces, RGB, sections or desktop processing.

> A project can contain several scans. Scan export selects an individual scan; it does not automatically merge all point clouds. Deleting a project deletes its plan, while scans remain in the library.

03 Measuring shapes

Measure → **Choose icon** → **Capture points** → **Name**

Open Planimetri 2D or Scatch 3D. Press Mat on the right and choose a shape. Aim the crosshair at a physical point and press Mat again for each point. Follow the prompt above the view. Undo removes the last point; regular shapes complete automatically.

Shape	Point sequence
Irregular shape	Capture corners in order, at least 3. Mbyll closes a non-self-intersecting polygon.
Rectangle	1 first corner; 2 first edge endpoint; 3 width. The third point is projected perpendicular to the first edge.
Triangle	Three non-collinear corners. Area and perimeter from triangle geometry.
Circle	Three distinct perimeter points. Spread them around the circle; avoid a short clustered arc.
Arc	Start, an intermediate point on the arc, end. The arc passes through the middle point and can be a major arc.
Ellipse	Centre, first semi-axis endpoint, perpendicular semi-axis endpoint.
Cylinder	Three points on the base circle; a fourth at the top level. Height is measured perpendicular to the base.

Name the completed shape, for example Floor 1, Column or Window. Shto matje starts another shape without resetting the session origin.

04 Scatch 3D and gradients

The shape plane

In Planimetri 2D, dimensions are horizontal. Regular shapes use the first point Z; original control coordinates remain in exports. Irregular shapes retain corner heights. Scatch 3D measures spatial lengths and vertical or inclined figures.

For a vertical window, choose Scatch 3D > Mat > Drejtkëndësh. Measure an edge and the width in the window plane. For a vertical circle, capture three points in that plane. A non-planar irregular outline is stored as a 3D wire; it has no valid planar area.

Colour and names

1. Enable Ngjyra sipas lartësisë. The gradient covers the valid surface and uses the session figures' Z range. Read the legend.
2. A horizontal face at constant Z has one colour. An inclined circle/face and a cylinder show height variation.
3. Shfaq figurat shows or hides geometry; it does not delete measurements. Riemërto poligonin changes the stored name displayed at the centre.

Main formulas

Rectangle: $A = ab$, $P = 2(a+b)$. Triangle: $s = (a+b+c)/2$, $A = \sqrt{[s(s-a)(s-b)(s-c)]}$. Circle: $A = \pi r^2$, $P = 2\pi r$. Arc: $L = r|\theta|$, θ in radians. Ellipse: $A = \pi ab$; P uses Ramanujan II approximation. Cylinder: $V = \pi r^2 h$, total $A = 2\pi r(r+h)$.

05 Stockpiles and volumes

1. Record Skanim 3D + RGB. Walk around the stockpile and capture the toe, sides and top. Check gaps; photographs without depth do not guarantee a metric surface.
2. Choose Përfundo → matje. In the viewer select Kufiri i grumbullit and pick points along the material-to-base contact in order.
3. Choose Llogarit volumin. Select a fitted inclined base or a horizontal base at the boundary points' mean height, according to the actual base.
4. Review coverage, model cell size, base RMS and maximum base deviation. Rotate the surface and compare the boundary with the scan.
5. Use Eksporto PDF / DXF / PLY. The PDF reports above-base volume, measured surface, coverage and boundary XYZ. Raportet e volumeve opens saved results.

Interpreting the result

The model is 2.5D: a height surface above a base. Gaps are not guessed. Below-base volume is reported separately and is not counted as above-base material. Coverage describes triangulated area, not measurement accuracy.

> Do not treat this as a complete volume for cavities, overhangs or objects with multiple heights at one horizontal position. The analytic cylinder on page 4 is a different model from stockpile volume.

06 Scan analysis and RTK

Library and viewer

Open a scan in Biblioteka e skanimeve. Use Rrotullo for navigation, Sipër for top view and Rikthe pamjen to reset. Pamja selects real RGB, height colour or a surface where data is available. Trajektore / foto shows associated capture data.

1. Distancë: pick two points and review 3D length, horizontal length and height difference. Poligon measures horizontal area. Use Ruaj matjen to retain it under Matjet.
2. Prerje poligoni creates a new scan of the selected area and preserves the original. Profil / seksion needs two points and a slab width. Krijo surface builds a 2.5D surface at the chosen cell size.
3. Importo DXF opens a supported plan as an unaligned preview. Lidh DXF: 2 pika needs two corresponding scan points and their DXF coordinates. Check scale and orientation before export.

RTK as an accompanying observation

Standalone RTK / NMEA TCP reads NMEA from the configured IP and port; the receiver must already receive corrections. Inside TS GNSS the module uses the existing GNSS solution. FIXED, FLOAT and SINGLE describe the receiver solution.

> RTK CSV does not automatically georeference the scan. Antenna-to-camera offset, orientation, timing and control points must be checked.

07 Export and storage

Purpose	Action
Project figures	Ruaj / Export from measurement, or Export > Planimetria e plotë. Choose PDF, DXF or CSV.
Scan	Export > Pointcloud / RGB; select a scan. PLY for points; RGB + trajektore ZIP for photos; Projekti i skanimit ZIP for the package.
Analysis	Eksporto ZIP from the viewer for the scan and available analysis sidecars.

What shape export retains

PDF includes an overview, names, formulas, dimensions and XYZ, with logos and contacts. DXF retains 3D lines and names; the cylinder includes faces. Curves are segmented rather than native ARC/CIRCLE/ELLIPSE entities. CSV distinguishes geometry rows from measured_control rows and stores analytic parameters.

Figures from one session export together with their relative positions. Returning from the report to the camera allows Shto matje in the active session. Starting a new session archives the existing plan; Planimetri të mëparshme opens prior copies. Archives are not automatically spatially merged.

Backup

Save exports to a folder you control and copy them to a PC. Open the PDF and a geometry file to check units, names and coordinates. Uninstalling or clearing app data can remove the private library.

08 Troubleshooting and quality checks

Symptom	Check
Black or connecting camera	Close other camera apps; check permission and AR services. Use Provo përsëri kamerën. If still stuck, save work and restart the phone.
Measure cannot capture	Wait for TRACKING, improve lighting and aim at a textured surface. Do not capture with lost tracking.
Unstable circle	Points must not be collinear or clustered. Undo and recapture with wider spacing.
Uniform colour	Check On/Off and the Z range. A constant-height surface correctly has one colour.
Missing photos or depth	PLY contains no photos. Check the ZIP package, Depth support and RGB-D recording status.
Unexpected volume or scale	Check base, units, coverage and a known distance. Rescan gaps before relying on the result.

Before delivery, check a known dimension, all shape names, polygon closure, metre units and the local origin. Compare several XYZ values across PDF and CSV/DXF. Retain the source package for later processing.

Support: info@gnss.al · +355 67 466 3188. Current downloads and documentation: position.gnss.al/downloads.html and position.gnss.al/documentation.html. When requesting help, include the product, version, device model and steps that reproduce the issue. Do not include passwords or licence tokens in screenshots.