PLANIX R1

iGUIDE PLANIX R1 User Instruction Manual

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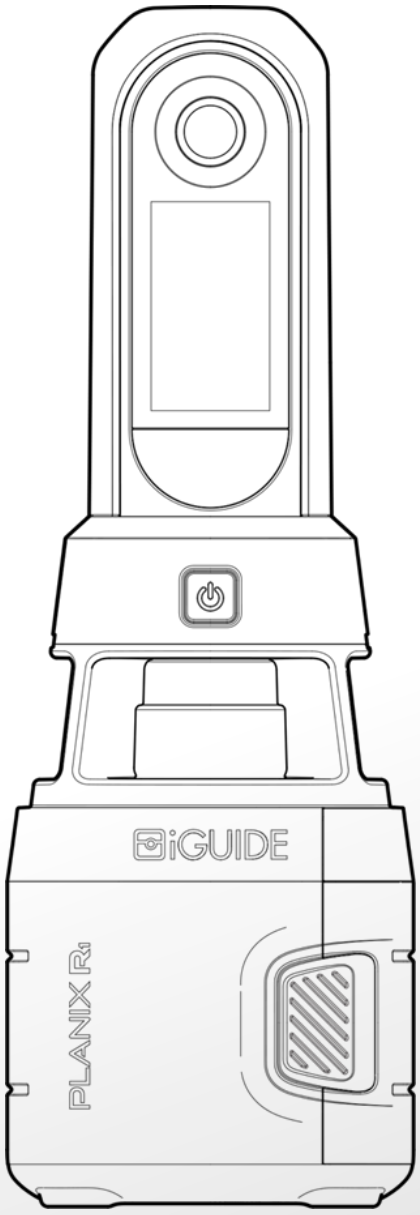

Table of Contents

Regulatory Information

Manufacturer: Planitar Inc.

Product Name: iGUIDE PLANIX R1

Model Number: IMS-R1

Compliance

This product has been tested and was found to comply with the following standards:

- **FCC CFR 47, PART 15, SUBPART B, Class B** – Unintentional Radiators
- **ISED Canada ICES-003, Issue 7** - Innovation, Science and Economic Development Canada, Verification Authorization - Information Technology Equipment (Including Digital Apparatus)
- **CISPR 32:2015+COR1:2016/EN55032:2015+A11:2020, Class B Multimedia Equipment** - International Electrotechnical Commission (International Special Committee on Radio Interference). Electromagnetic Compatibility of Multimedia Equipment - Emission Requirements
- **CISPR 32:2012/EN 55032:2012+AC:2013 - Class B** - Limits and methods of measurement of radio disturbance characteristics of Information Technology Equipment
- **CISPR 35:2016/EN 55035:2017**- Electromagnetic Compatibility of Multimedia equipment - Immunity Requirements
- **ETSI EN 301 489-1 V2.2.2 (2019-11)** - European Telecommunications Standards Institute (ETSI) ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
- **ETSI EN 301 489-17 V3.2.2 (2019-12)** - ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
- **IEC/EN 60825-1:2014** - Class 1 laser product.
- **CSA-C22.2 NO. 61010-1-12** - Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements - Third Edition; Update No. 2: April 2016
- **UL 61010-1** - Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements -Third Edition; Including Revisions through July 19, 2019
- **IEC 61010-1** - Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements - Edition 3.1; Consolidated Reprint

LASER SAFETY

This product includes a laser scanner, which is a Class 1 laser product and complies with IEC 60825-1: 2014 and 21 CFR Subchapter J Parts 1040.10 and 1040.11, except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

FCC WARNING

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Any product modifications not expressly approved by Planitar could void the user's authority to operate PLANIX equipment under FCC rules.

INNOVATION, SCIENCE AND ECONOMIC DEVELOPMENT (ISED) CANADA

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

DECLARATION OF CONFORMITY - SIMPLIFIED

This product complies with the essential requirements and provisions of RE Directive 2014/53/EU.
WARNING: Do not use the 5 GHz band (W52) of wireless LAN outdoors within countries belonging to the European Union. In many of these countries, outdoor use of the W52 is prohibited by law. Use the 2.4GHz band for outdoor use.

USER INFORMATION ON ELECTRICAL & ELECTRONIC EQUIPMENT

Our products contain high-quality components and are designed to facilitate recycling. Our products or product packaging is marked with the symbol below. The symbol indicates that the product must not be treated as municipal waste. It must be disposed of separately via the appropriate return and collection systems available. By following these instructions, you ensure that this product is treated correctly and help to reduce the potential impacts on the environment and human health, which could otherwise result from inappropriate handling. Recycling of products helps to conserve natural resources and protect the environment.

For additional disposal information, contact local authorities in charge of E-waste management or your Planitar authorized distributor. For product take-back programs, contact Planitar Inc. at www.planitar.com.

⚠ Warnings

Read and follow all safety warnings and instructions. Failure to do so may result in electric shock, fire, and serious injury.

PLANIX R1 Warnings

- The Ricoh THETA X 360° camera incorporated into the PLANIX R1 system contains custom configurations and is not user-serviceable. It must not be removed and used independently from the PLANIX R1 system. Any such use is not supported or covered by any warranty.
- The PLANIX R1 system must only be used with a Milwaukee M12™ HB2.5 battery. Other Milwaukee M12 batteries or any aftermarket M12 compatible batteries are not supported, and using any unsupported batteries will void the product warranty.
- Avoid storing or operating the system in extreme heat or cold for extended periods.
- Avoid storing or operating the PLANIX R1 under precipitation or extreme humid conditions.
- Handle the PLANIX R1 system carefully and avoid gripping the Ricoh THETA X 360° camera when handling the R1.

Battery Warnings

- Prevent unintentional powering on and battery damage by ensuring the PLANIX R1 is powered off, the battery is removed, and the system shield is installed before making any adjustments, changing accessories, transportation, or storage of the device.
- Recharge only with the charger and power supply specified and supplied by the manufacturer. A charger suitable for one type of battery may create a fire risk when used with another.
- Use PLANIX R1 only with the Milwaukee M12™ HB2.5 batteries. Using any other batteries may create a risk of injury and fire.
- When the battery is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, and screws that can make a connection from one terminal to another. Shorting the battery terminals together may cause burns or a fire.

- Under abusive conditions, liquid may be ejected from the battery; avoid contact. Liquid ejected from the battery may cause irritation or burns. If contact accidentally occurs, flush with water. If liquid contacts the eyes, additionally seek medical help.
- Do not use a battery or PLANIX R1 that is damaged or modified. Damaged or modified devices may exhibit unpredictable behaviour, resulting in fire, explosion, or risk of injury.
- Do not expose a battery or PLANIX R1 to fire or excessive temperature. Exposure to fire or temperatures above 130°C (265°F) may cause an explosion.
- Follow all charging instructions, and do not charge the battery or PLANIX R1 outside the temperature range specified. Charging improperly or at temperatures outside the specified range may damage the battery and increase the fire risk.
- Have servicing performed by Planitar using only identical replacement parts. This will ensure that the safety of the product is maintained.
- Do not modify or attempt to repair the PLANIX R1 or the battery (as applicable) except as indicated in the instructions for use and care.
- Do not expose the PLANIX R1 or the battery to water or rain or allow them to get wet, as this could damage them.
- Do not use oil or solvents to clean or lubricate your battery. The plastic casing will become brittle and crack, causing a risk of injury.
- Store the battery at room temperature away from moisture. Do not store it in damp locations where terminal corrosion may occur. For extended storage time, remove the battery from both the battery charger and PLANIX R1.

What's Included in the box?

Every PLANIX R1 kit includes the items listed below (see Figure 1):

1. PLANIX R1 Camera System with Ricoh THETA X
2. System Shield
3. Battery with battery cover
4. Battery charger
5. USB power supply
6. 6'(1.8m) USB-C cable
7. Soft carrying case with shoulder strap
8. Protective neoprene sleeve

Figure 1 - What's included in the box?

Other necessary items not included, to be provided by the user:

- Tripod with ball head and quick release (QR) plate
- Android or iOS smartphone or tablet with Wi-Fi connectivity

System Overview

The PLANIX R1 is an iGUIDE camera system designed to measure and photograph spaces simultaneously to create floor plans, detailed drawings, and iGUIDE 3D virtual tours. The R1 uses a built-in laser scanner to gather laser measurement data and a Ricoh THETA X 360° camera to capture panorama images. The scanner's laser beam is infrared and invisible.

The R1 is controlled using the iGUIDE PLANIX smart device app and has a built-in Wi-Fi access point for connecting directly to a Wi-Fi-enabled smart device. Download the app from the App Store or Google Play. Phones and tablets with a 5-7” display are most convenient for using the iGUIDE PLANIX app.

It is recommended to use the R1 with a quick-release (QR) plate, and a ball head to allow for easy levelling on a tripod. The main components of the PLANIX R1 camera system are listed below (see Figures 2 and 3 for reference).

System Components

1. **Ricoh THETA X 360° camera**
    a. **Fisheye lens:** One on each side.
    b. **LCD panel**: Displays QR code for Wi-Fi connection upon startup, system status information and the 360° image preview when operating.
    c. **Panel button**: Press to wake the LCD panel.
    d. **O button**: Not functional.
    e. **M button**: Not functional.
    f. **Status lamp** (not pictured): Indicates the camera status and is used in troubleshooting. Found on the side opposite the LCD panel.
2. **Power button**: Press and hold the power button for 3 seconds to power on the PLANIX R1. The button glows white to indicate that the system is powered on.
3. **(Lidar) Laser scanner**: Activated when the PLANIX R1 is powered on. Emits noise when operating.
4. **Mounting threaded insert**: Used to attach a QR plate with a ¼”-20 screw.
5. **Battery compartment**: Encloses the battery when attached to the battery door.
6. **Battery**: Powers the PLANIX R1. Refer to battery specifications for more information.
    g. **Battery door** (detached): Encloses the battery within the compartment. See how to assemble the battery for instructions.
7. **Battery charger**: Used to charge the battery. Refer to charging instructions.
8. **USB-C cable**: Used to connect the charger to the USB power supply. 6’ (1.8m).
9. **USB power supply**: Used to connect a power outlet and battery charger via USB-C cable.

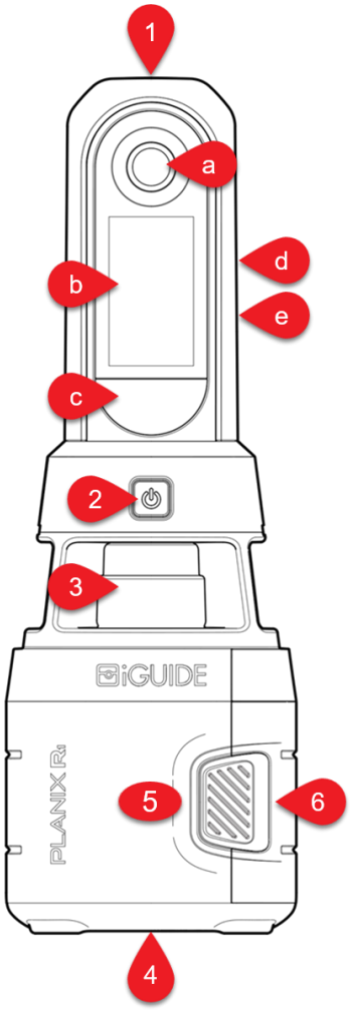

Figure 2 - System Components

Figure 3 - System components continued

Handling and Storage of the PLANIX R1

- Protect the R1 by keeping the System Shield attached to the system during travel, storage, and setup.
- The R1 should be handled by gripping two opposing sides of its body or by firmly gripping one side of its body.
- Avoid gripping the Ricoh THETA X 360° camera when handling the R1.

How to Assemble and Install the Battery

1. Unbox the Milwaukee M12™ battery.
2. Take the 'PLANIX R1' battery door in one hand and, with the M12™ battery in the other hand, insert the M12™ battery into the 'PLANIX R1' battery door until it snaps into place.
3. Insert the battery with cover into the R1 battery compartment until it snaps into place.

Note: The battery and battery door can only be properly attached and inserted into the battery compartment in one orientation. Avoid using excessive force to insert the battery.

How to Remove the Battery

1. While the battery is attached to the PLANIX R1, take the R1 in one hand and grasp the base on the side opposite the battery compartment.
2. Using the other hand, simultaneously press and hold both battery door buttons (see Figure 4) using a finger and thumb.
3. While pressing both battery door buttons, pull the battery out of the battery compartment.

Figure 4 - Battery door button locations

Note: It should only be possible for the battery to be removed by following the instructions above. If the battery can be otherwise removed or falls out unexpectedly, it may be a sign that the battery or battery compartment is damaged.

How to Replace the Battery

1. Remove the original battery from the 'PLANIX R1' battery door by pulling the retaining tab away and then pulling out the battery (see Figure 5).
2. Insert the new battery into the PLANIX R1 battery cover so the retaining tab securely snaps it in place.

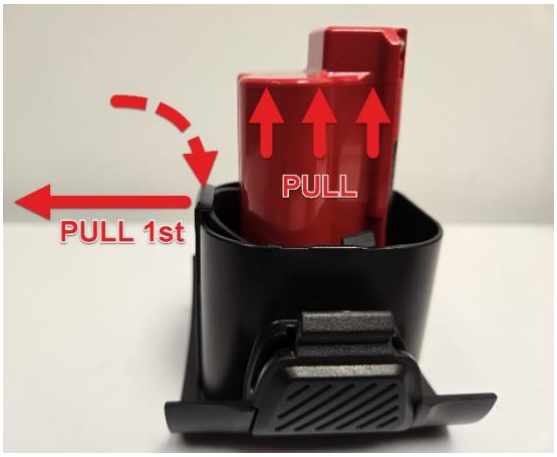

Figure 5 - Removing battery from cover

How to Remove and Attach the System Shield

Figure 6 - System Shield button locations

1. Take the PLANIX R1 in one hand, grasping the base of the R1 system (below the System Shield).
2. Using the other hand, press and hold both System Shield buttons (one on each side) simultaneously using a finger and thumb (see Figure 6).
3. While pressing both System Shield buttons, pull the System Shield upwards, off the PLANIX R1, to remove it.
4. To attach the System Shield, place the opening over the top of the PLANIX R1 and slide it down onto the R1 body until it snaps into place.

Note: It should only be possible for the System Shield to be removed by following the instructions above. If the System Shield can be otherwise removed or falls out unexpectedly, it may be a sign that the System Shield or PLANIX R1 is damaged.

Charging

The charging instructions below assume all steps to assemble the battery have already been completed.

1. Remove the battery, battery charger, USB-C cable, and USB power supply from the carrying case.
2. Plug one end of the USB-C cable into the battery charger and the other end into the USB-C port of the USB power supply.
3. Plug the USB power supply into a power outlet.
4. Insert the battery into the battery charger and leave until fully charged.
    - The battery is fully inserted into the battery charger if only the black battery door is visible (i.e., the red part of the battery should be entirely hidden).
    - When the battery charger is flashing green, it is charging.
    - When the battery charger is a constant green, it is fully charged
5. To remove the battery from the battery charger, grip the battery with one hand and pull it upwards while holding the battery charger down with the other hand.
6. Install the battery into the PLANIX R1 by aligning the pins and sliding it into the battery compartment until you hear a click.

Notes

- Use only the provided iGUIDE PLANIX R1 battery charger to charge the battery (refer to System Components).
- Charge the battery in an environment within the specified operating temperature range; refer to environmental specifications concerning PLANIX R1 operating and storage temperatures.
- Use only a double-ended USB-C type cable as a USB-A type connection does not support the necessary charging protocol.
- When the battery charger is charging, the normal flashing interval is about a half-second on and a half-second off.
- A fully discharged battery with a normal internal temperature will charge in about 60 - 90 minutes. Heavily used batteries may take longer to charge completely.

- A battery outside the normal temperature range will cause the battery charger's red light to flash. Charging will continue but at a reduced rate. If the battery temperature returns to the normal range, the red light will stop flashing, and charging will continue at a regular rate.
- A defective battery or battery charger will cause the red light to be continuously lit. In this case, the battery will not be charged and should be disposed of in accordance with local e-waste programs. If it is found that the battery charger is at fault, discontinue use and dispose of it in accordance with local e-waste programs.

Setup

1. Ensure both your Wi-Fi-enabled smart device and PLANIX R1 battery is charged.
2. Remove the PLANIX R1 camera system from the carrying case.
3. Set up your tripod and level the ball head on the tripod.
4. Attach your quick-release (QR) plate to the PLANIX R1 and then the QR plate to the tripod's ball head.
5. Raise the tripod so that the PLANIX R1 camera lens is about 4.5 ft (or 130-140 cm) from the floor surface for optimal measurement height and 3D touring experience.
6. Remove the System Shield and power on the R1.

Notes

- For direct attachment to a tripod without a QR plate and a ball head, you may need a ¼" to ⅜" adapter, as ⅜" is a standard tripod thread.
- Avoid setting the PLANIX R1 upon an unlevel surface without first adjusting the tripod.
- Raise and lower the tripod as necessary according to circumstances and surroundings.
- It's essential to keep the tripod at a consistent height as much as possible for optimal 3D touring.
- Consider loosening one of three tripod legs to allow it to swing freely and easily fit through narrow areas and doors. Ensure the loosened leg is securely extended before setting the tripod down for each scan.

Connecting to a Smart Device

The iGUIDE PLANIX app connects a compatible smart device to the PLANIX R1 via Wi-Fi. The connection instructions below assume all steps to set up the PLANIX R1 have already been completed.

Connect Using QR Code

1. Open the iGUIDE PLANIX app on your smart device.
    a. Note: To communicate with your PLANIX R1, the iGUIDE PLANIX app will request permission to find and connect to devices on your local network.
2. On the “Welcome!” screen, select “New Device” in the screen’s top right.
    a. Note: To connect to your device through Wi-Fi, the iGUIDE PLANIX app will request permission to access your location.
3. Confirm the PLANIX R1 is powered on with the QR code displayed on the screen.
4. Follow the prompts to scan the QR code using your smart device.
    a. Note: To allow the app to scan QR codes, the iGUIDE PLANIX app will request permission to access your device’s camera.
5. When prompted, join the Wi-Fi network of the PLANIX R1 (ending in .OSC).

Manually Connect Using Wi-Fi Password

1. Open the iGUIDE PLANIX app on your smart device.
    - Note: To communicate with your PLANIX R1, the iGUIDE PLANIX app will request permission to find and connect to devices on your local network.
2. On the “Welcome!” screen, select “New Device” in the screen’s top right.
    - Note: To connect to your device through Wi-Fi, the iGUIDE PLANIX app will request permission to access your location.
3. Confirm the PLANIX R1 is powered on with the QR code displayed on the screen.
4. On the QR Scan prompt screen, select “Manual Connection” at the bottom of the screen.
5. Follow the prompts on the screen and select “Open Settings” at the bottom of the screen.
6. Select the “PLANIX-XXXXXXXX.OSC” Wi-Fi network on your smart device
    - Note: The Wi-Fi network name can be found on the LCD panel below the QR code or on the label located on the base of the PLANIX R1).
7. Enter the Wi-Fi password (found on the label located on the base of the PLANIX R1).
8. Once connected, navigate back to the iGUIDE PLANIX app, which will complete the connection to the PLANIX R1.

Notes

- The Wi-Fi access point (AP) name and password are on the label on the base of your PLANIX R1.
- If you use an iOS device, select the PLANIX Wi-Fi network and turn off the ‘Private Address’ setting to avoid connectivity issues.
- When the Wi-Fi frequency band is set to 5 GHz, use the camera indoors only and select your country to ensure compliance with your local wireless regulations.

Typical Project Workflow

To produce an iGUIDE, scans in every room are necessary to create 360° panoramas and collect laser measurement data, forming a map of the space during the survey process. The PLANIX R1 can be controlled from any compatible smartphone or tablet via Wi-Fi using the iGUIDE PLANIX app. Scans are captured in the Survey section of the iGUIDE PLANIX app and surveyed laser data and images are saved locally to your smart device.

It's best practice to scan all spaces, including those that would typically not be photographed, such as attached garages, storage spaces, utility rooms, hallways, and landings. Details such as doors, windows, fixtures, and appliances must be visible in the panoramas to be included on the floor plan during drafting. Direct line-of-sight between consecutive camera positions is essential to allow the PLANIX R1 to see as many structural and non-structural elements of the home as possible and ensure successful automatic scan alignment.

Depending on the property, you may also want to measure the exterior wall thickness using a tape measure and record it in the corresponding fields in your Survey project. Typically, this is done at the front door jamb. After the property has been surveyed, export and download your project from the Projects menu in the PLANIX app, then proceed to the remaining sections of the PLANIX app to upload your project to the iGUIDE Portal. Alternatively, the data can be copied from your smart device to a desktop computer and pre-processed in the Stitch software before uploading to the iGUIDE Portal for drafting.

Survey

The Survey interface within the iGUIDE PLANIX app is unique to each PLANIX system. The Survey interface is used to operate your PLANIX R1 camera system when capturing scans for your project.

The R1 Survey menu (☰) presents the following options (see Figure 7):

1. **Survey:** The primary PLANIX R1 and data alignment controls. Create a new scan or browse to view a previous scan.
2. **Project:** Create or select a project and project folder.
3. **Floor:** Create or select a floor and floor folder for the currently selected project.
4. **Scan:** Select, edit, or delete an existing scan (after selecting a floor).
5. **Tag:** Insert a virtual tag into an existing scan. For instructions, see Real-Time Tags.
6. **Settings:** PLANIX R1 and Survey settings, system information and other options.

Figure 7 - Survey menu

Create a New Project

1. Tap in the blank field on the Project menu, enter a name, and select “Create” (see Figure 8).
2. Optional: Enter the exterior wall thickness in the field provided. This information is used to draft the exterior wall thickness on the provided floor plans and to calculate the area.

Note: Exterior wall thickness can often be measured at the front door jamb. Check your regional requirements (if applicable) for preferred exterior measurements.

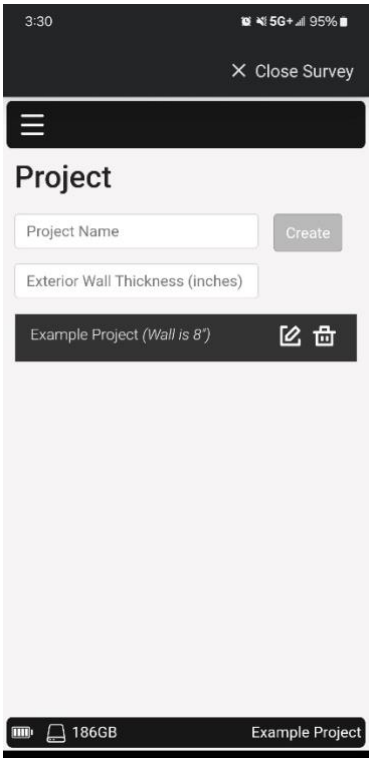

Figure 8 - Project menu

Create a New Floor

1. Tap in the blank field on the floor menu and select a pre-defined option or type one of your preference. (see Figure 9).
2. Optional: Enter the exterior wall thickness in the field provided. This information is used to draft the exterior wall thickness on the provided floor plans and to calculate the area. If left blank, the wall thickness from the project level (if entered) will be used instead.
3. Optional: Select **Below Grade** if necessary (for proper area calculation).

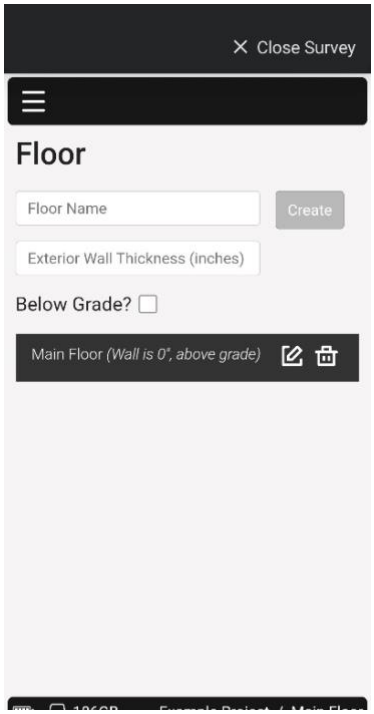

Figure 9 - Floor menu

Camera Settings

HDR: Retains more details in bright and dark areas of the 360° images by merging images with different exposure settings. Toggle on to choose from the following options: High (-5EV/+2EV), Medium (-3EV/+3EV), Low (-1EV/+2EV).

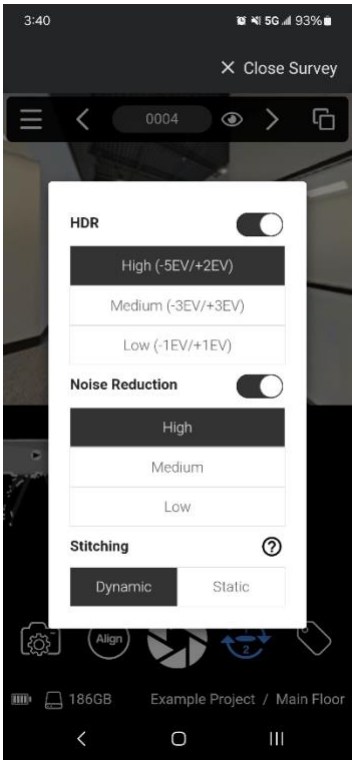

Figure 10 - Camera settings

Noise Reduction: Captures multiple images and then combines them to make a smoother-looking final output that exceeds the performance of what the camera's sensor can natively create. Toggle on to choose from the following options: High, Medium, Low.

Stitching: Choose either Dynamic or Static.

Stitching refers to the process of joining the images from the Ricoh THETA X 360° camera fisheye lenses.

Static stitching can be chosen to significantly increase the optimal measurement area (i.e., the unshaded area) in on-screen Measure Modes 2 and 3 in the iGUIDE Tour. If you plan to use Measure Modes 2 or 3, Static stitching will require fewer scans to capture a space comprehensively for subsequent measurements in images.

Dynamic stitching makes stitching artifacts less visible for a better viewing experience. This should be selected when marketing is the primary goal of the 3D virtual tour, whereas static stitching is recommended for engineering and architectural uses.

Capture a Property

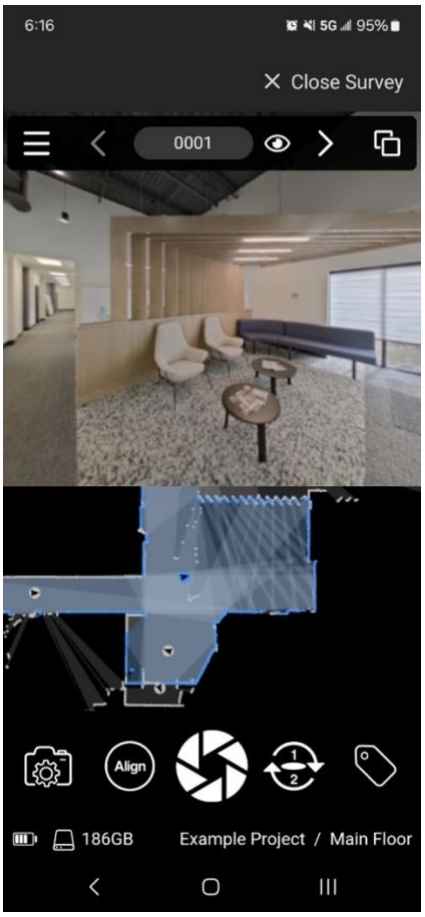

Figure 11 - Survey screen (split display)

1. Place the PLANIX R1 in a suitable location and move yourself out of view.
2. Tap the **Scan** button (see Figure 11) and wait for the chime on your device**.** A 360° image and laser scan data will be captured simultaneously.
3. Move the R1 to the next suitable location (maintaining line of sight with the previous scan) and tap the **Scan** button again to capture the next scan.

a. Note: If Auto Align mode is enabled in Survey Settings (the default is enabled), the laser scan data will automatically align to any previously captured data.

4. Tap the **Left** and **Right** arrows at the top to navigate and view a previous or next scan.
5. Tap the **Eye** button to set the selected scan as hidden (see Figure 12).

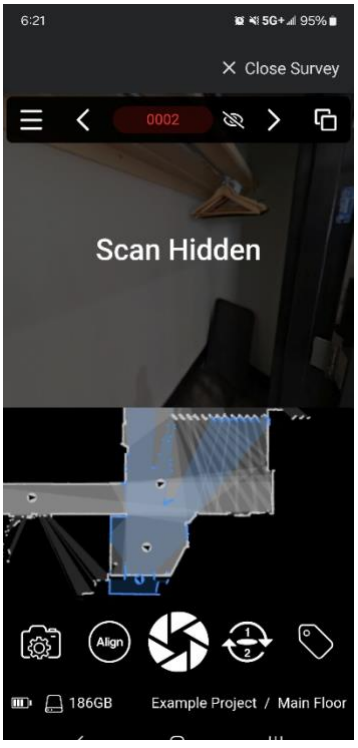

Figure 12 - Scan hidden

Real-Time Tags

The real-time tags feature in PLANIX R1 Survey empowers users to create iGUIDE tags while surveying a property. iGUIDE tags are interactive visual markers that you can use to draw a viewer's attention to something in your iGUIDE tour. Tags can be added to any new or existing Survey project that contains one or more scans.

To create a tag,

1. Select the scan from which you want your new tag to be seen.
2. Tap the **Tag** icon in the bottom-right corner of the screen (see Figure 11 or 12).
3. On the tag editor screen (see Figure 13), you may enter the following information and make the following selections:
   - **Title**: Enter a title for the tag ("New Tag" by default).
   - **Colour**: Choose between seven colours (blue by default).
   - **Content**: Enter text in bold, italic and header format; insert an image from your smart device or take a new picture using your smart device's camera; switch between Edit Mode and Preview Mode.
4. Tap to select the tag's position in the pano image, then tap **Next**.
5. Drag along the red line to position the tag in the laser scan, then tap **Save**.

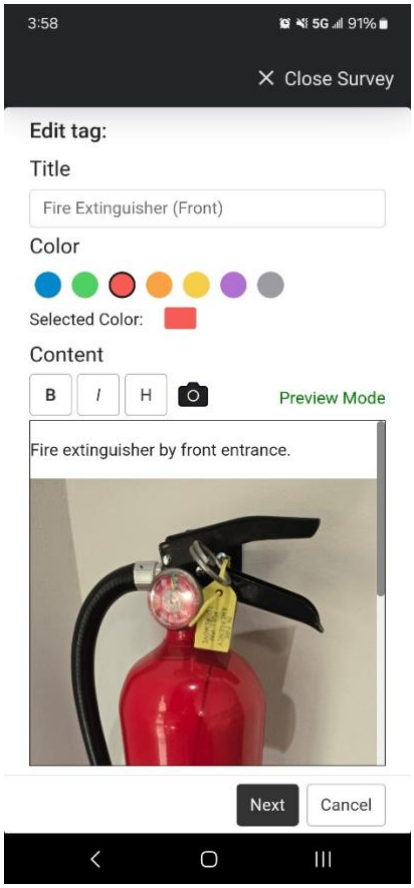

Figure 13 - Tag editor screen

Tap the **menu** icon and then **Tag** to visit the tag menu. Use the tag menu to browse existing tags on the currently selected floor. In this menu, you can select, edit and delete existing tags.

Two-Shot Mode

1. Tap the **Two-Shot** mode button (see Figures 11 or 12).
2. Stand facing the back side of the PLANIX R1 (the side with the power button) and tap the **Scan** button. A 180° image and laser measurement data will be captured.
3. Stand facing the front side of the PLANIX R1 and tap the **Scan** button again. A second 180° image will be captured and merged with the first image, excluding the halves from both images containing you, the user.

Aligning Data Manually

1. Tap the **Align** button (see Figure 11 or 12).
2. Drag one finger on the screen to move the selected scan and use two fingers to rotate.
3. Tap the **Snap** button to toggle auto-snapping on or off (see Figure 14).
    a. If enabled (blue), the current scan you are attempting to align will automatically try to snap to nearby scans as you move it across the screen (see Figure 14).
    b. If disabled (white), you can manually align the selected scan to your preferred location without disruption (see Figure 15).
4. Tap **Save** once you are happy with your changes or tap Cancel to discard them (see Figure 14 or 15).

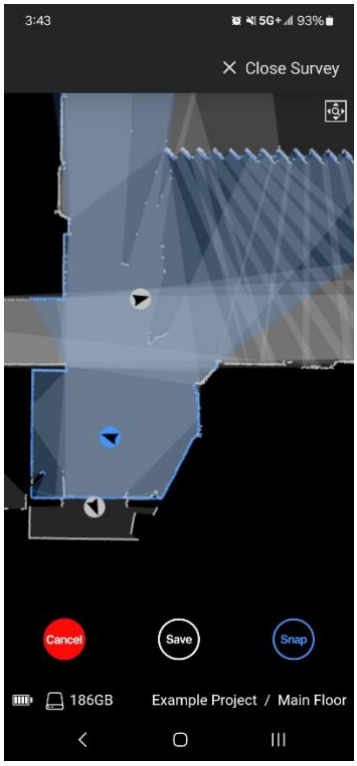

Figure 14 - Align scan, Auto-snap enabled

Figure 15 - Scan misalignment, Auto-snap turned off

Change Display Modes

1. Tap the **Change Display** button at the top right of the screen to enter Laser Display mode (see Figure 16).
2. Tap the button again to enter Pano Display mode (see Figure 16) and again to return to Split Display mode (see Figure 11).

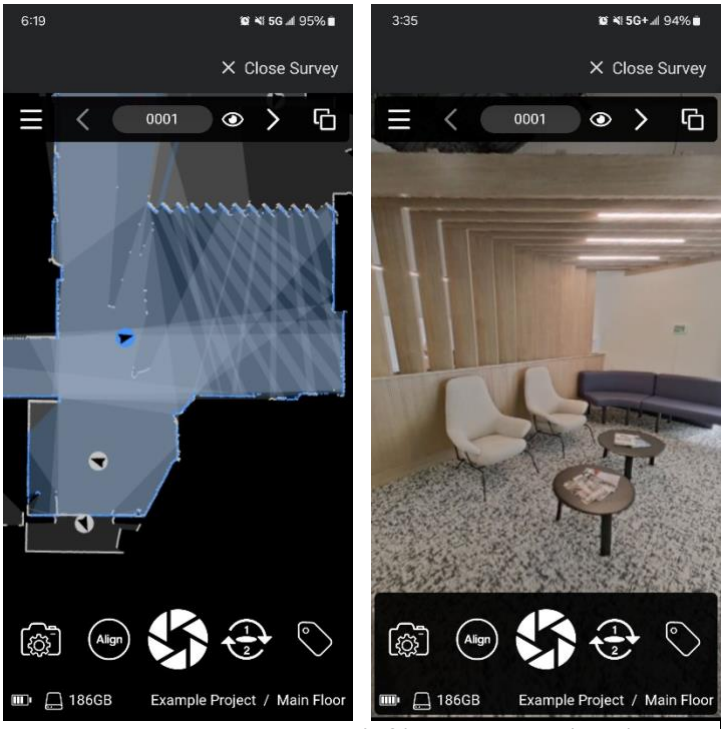

Figure 16 - Laser display (left), Pano display (right)

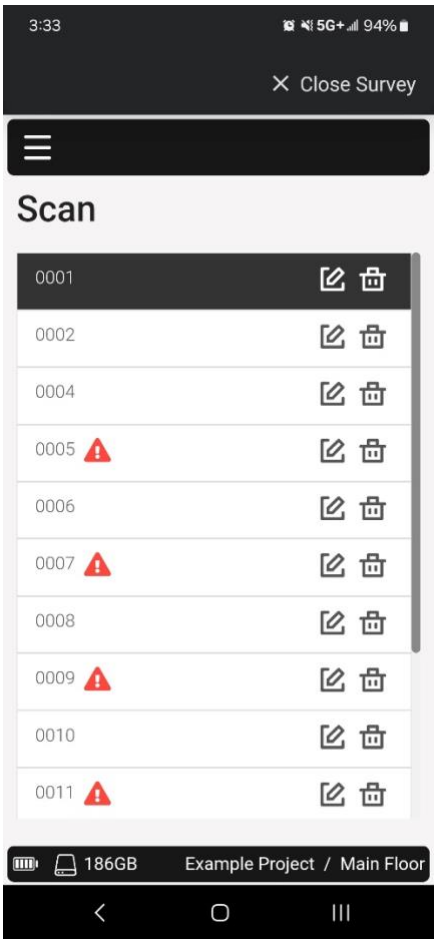

Figure 17- Scan menu, scans with alignment alerts are listed

Select and Edit Scans

1. Double-tap a scan point in the laser data to select a previous scan or use the arrows at the top of the screen.
2. Tapping the current scan name displayed at the top of the Survey screen (see Figure 16, “0001”) will bring up the Edit dialogue where the scan name can be edited.
3. Additionally, the Scan menu can be used to select, edit, or delete a previous scan (see Figure 16).
4. Scans with possible alignment issues are listed with a red warning icon (see Figure 17).

Scan Alignment (and SLAM)

Laser Scan Alignment

Laser data (point cloud data) can be aligned in both Survey (in-app) and Stitch (stand-alone desktop application). Ensuring all data is well aligned before uploading it to the iGUIDE portal for drafting is critical. The automatic alignment tools featured in the PLANIX R1 Survey will do well in typical building environments. Still, manually checking for accurate placement and occasional manual alignment is also necessary, as automatic alignment can sometimes make mistakes. The drafting team may refuse poorly aligned data sets, delaying processing times.

SLAM

SLAM stands for Simultaneous Localization and Mapping. In other words, SLAM technology enables the PLANIX R1 to actively create a map of its surroundings and simultaneously track its approximate location within its created map. The colour of the live laser data (point cloud) and the circle indicating the camera position range from green to red and indicate the possible quality of automatic alignment if a new shot is to be taken at the camera's current position. Green colour represents good alignment, while dark yellow or brown represents poor alignment. The red colour indicates that tracking is failing and trying to recover (see Figure 18).

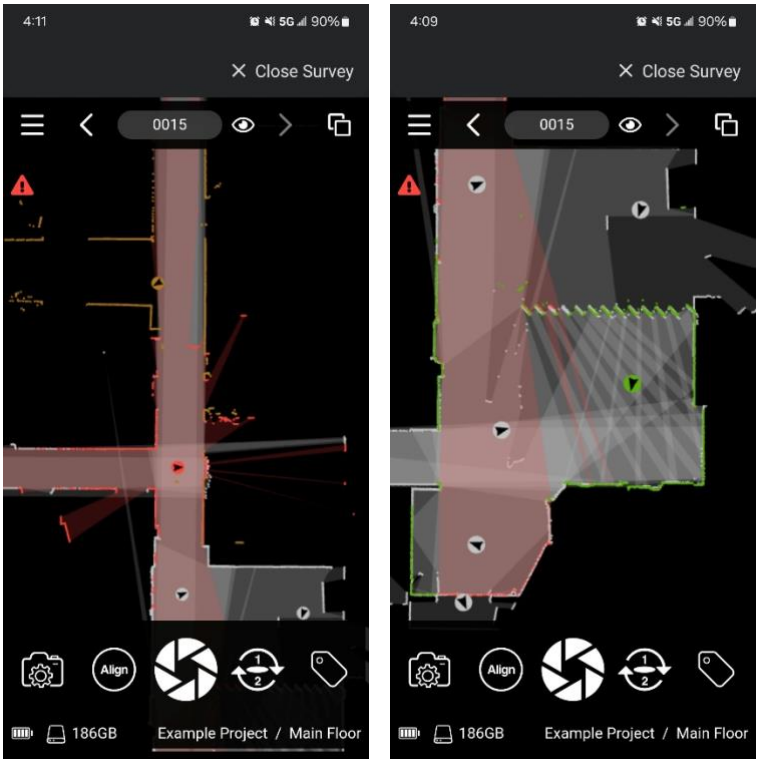

Figure 18 - Current scan position with poor alignment (left), current scan position with good alignment (right)

Data Transfer

Project data for PLANIX R1 is stored on the smart device used to operate the R1 to capture a space. To use the Stitch software on a Mac or Windows computer, the project data must be transferred from the smart device to the computer before it can be opened in Stitch. This process varies depending on the combination of the smart device and computer.

Android device to Windows computer

1. Connect the smart device to the computer via a USB cable.
    a. Choose a working cable in good condition.
    b. Ensure the cable is capable of data transfer.
2. Unlock the smart device.
3. Check Windows Explorer for the smart device and click on it.
    a. It will be listed as a selectable option under “This PC.”
4. Navigate to the PLANIX sub-folder found in the Documents folder of the smart device.
5. Select your project folder and copy it to your preferred folder on your Windows computer.
6. Safely disconnect the smart device.
7. Open the project folder on your computer in Stitch.

Note: Project folders can also be copied from Windows to Android using Windows Explorer.

Android device to Mac computer

Caution: The following steps recommend using a third-party application. Please use your discretion.

1. Connect the smart device to the computer via a USB cable.
    a. Choose a working cable in good condition.
    b. Ensure the cable is capable of data transfer.
2. Download and install 'OpenMTP' for Mac (linked here).
3. Unlock the smart device.
4. Launch 'OpenMTP' on Mac.
5. Allow access to phone data.
6. Folders on your computer are displayed on the left, and Android folders are on the right. If you don't see the Android folders, click the 'Refresh' button.
7. Navigate the Android folders until you find the PLANIX folder, where your project data is stored. Currently, this is 'Documents/PLANIX.'
8. Select one or more project folders on the right, then drag onto the destination folder on the left. A progress bar is displayed until the copying process is done.
9. Safely disconnect the smart device.
10. Open the project folder on your computer in Stitch.

Note: Project folders may also be copied from the computer to Android. When doing this, place them in the same parent folder as your other projects, e.g., 'Documents/PLANIX.'

iOS device to Mac computer

1. Connect the smart device to the computer via a USB cable.
    a. Choose a working cable in good condition.
    b. Ensure the cable is capable of data transfer.
2. Unlock the smart device.
3. Open Finder and click on your device in the sidebar menu.
4. Select Files on the right.
5. Click the '>' next to PLANIX to view the project files.

6. Select one or more project folders, then drag them to the destination folder in the left sidebar or another Finder window.
7. Safely disconnect the smart device.
8. Open the project folder on your computer in Stitch.

Notes

- Project folders may also be copied from the Mac to the iOS device.
- Project data can also be transferred between Apple devices via AirDrop.

iOS device to Windows computer

1. Connect the smart device to the computer via a USB cable.
    a. Choose a working cable in good condition.
    b. Ensure the cable is capable of data transfer.
2. Download and install 'Apple Devices' for Windows (linked here).
3. Unlock the smart device.
4. Open 'Apple Devices' on Windows.
5. Select FILES from the sidebar menu.
6. Select PLANIX from the app list.
7. Select the project folder from the Documents window (use Ctrl or Shift to select multiple project folders).
8. Click the Save button; an Explore window will open.
9. Create a new folder or select an existing folder.
10. Click the Select Folder button.
11. Safely disconnect the smart device.
12. Open the project folder on your computer in Stitch.

Note: Project folders cannot be copied from Windows to an iOS device using the Apple devices app.

System Settings

- **Save Settings -** (Top right) Save changes to system settings. All unsaved changes will be lost.
- **Coverage Opacity -** Change the opacity of measured areas when looking at the laser measurement data.
- **Show Live Lidar Data -** Show the active lidar scan. Toggle on or off.
- **Quiet Mode -** Mute all sounds produced by the 360° camera and the smart device. This mode is suitable for environments where sounds may be undesirable. Toggle on or off.
- **Units -** Input units for exterior wall thickness measurements. Toggle between centimeters or inches.
- **Wi-Fi Band -** Toggle between 2.4GHz and 5GHz bands. The 5GHz band usually provides better Wi-Fi connectivity; however, in many countries, it is to be used indoors only.
- **Region -** Select your region to allow PLANIX R1 to automatically choose an optimal Wi-Fi channel that will comply with your local wireless regulations. Ensure you follow your local regulations regarding indoor use restrictions for the 5GHz band and do not use PLANIX R1 outdoors where not permitted.
- **Access Point Name -** Specify the Wi-Fi access point name.
- **Wi-Fi Password -** Customize the Wi-Fi password.
- **Power Off Timeout -** The camera will automatically power off after the specified minutes of inactivity. Enter 0 to turn off the timeout.
- **Power Saving Mode -** Reduces power consumption by turning the lidar off between scans. Toggle on or off.
- **Auto Align -** Laser measurement data will be automatically arranged following each scan. Toggle on or off.
- **Alignment Alerts -** Be alerted each time the last scan fails to be auto-aligned. Toggle on or off.
- **System Information -** System Firmware Version, System Serial Number, 360° Camera Model, 360° Camera Firmware Version, 360° Camera Serial Number.

Specifications

Product Name

- iGUIDE PLANIX R1

Product Model

- IMS-R1

Performance

- Measurement Range: Up to 40m
- Measurement Uncertainty: +/- 25mm up to max range (raw point cloud), typically +/- 10mm from camera to wall (minimum 60cm wall length)
- Laser Scanner Field of View: 360°

Connectivity and System Control

- Wi-Fi: Wi-Fi 802.11 2.4GHz/5GHz Access Point
- iGUIDE PLANIX App

Electrical

- System Battery: See Battery Specifications
- USB Power Supply Input: 100-240V AC, 50/60Hz, 1.5A Max; Output (USB-C): 12V DC, 1.8A

Mechanical

- System Unit Weight: 725g (1.76lb) without cover, 986g (2.2lb) with cover
- System Unit Dimensions (without System Shield): W: 9.90cm (3.90") x D: 7.75cm (3.05") x H: 28.89cm (11.375")
- System Unit Dimensions (with System Shield): W: 9.90cm (3.90") x D: 7.75cm (3.05") x H: 29.53cm (11.625")
- Shipping weight (with carrying case, without packaging): 4kg (8.8lb)
- Carrying Case Dimensions: 56.52cm (22-1/4”) x 15.24cm (6”) x 15.24cm (6”)
- Tripod Mounting Thread: 1/4" - 20

Environmental

- Operating Temperature Range: 5-40°C (41-104°F)
- Storage Temperature Range: -20-60°C (-4-140°F)
- Relative Humidity: 0-90%
- Maximum Altitude (operating): 2,000 m

Battery Specifications

- Battery Model: Milwaukee M12™ HB2.5
- Article Number: 4932480164
- Operating Temperature: 5°C to 40°C (41°F to 104°F)
- Performance: 6 hours of typical operation

Warranty

Planitar warrants that, when used in accordance with the Documentation, the System shall be free from defects in materials and workmanship for one year from the date of delivery of the System to the Customer. In the event of a breach of this warranty, Customer's exclusive remedy shall be Planitar's repair or replacement of the deficient Hardware or Software or the deficient portions thereof, at Planitar's option. Customer shall, upon request of Planitar, ship Product to Planitar following all shipping instructions provided by Planitar, at the expense of Customer. Return shipping from Planitar to Customer will be at the expense of Planitar. False warranty claims are cause for billing Customer for actual cost of repair parts and labour and return shipping expenses. Planitar reserves the right to use re-engineered part(s) with performance parameters substantially equivalent to the similar new part(s) in the performance of its obligations to repair to replace System components. All replaced System components become the property of Planitar. In the event of repairs or replacement of any part(s), during the warranty period, the warranty of the System shall thereafter continue only for the unexpired period of the original warranty.

This warranty is extended to Customer only and shall not apply in the event of: i) damage, defects or malfunctions resulting from misuse, accident, neglect, tampering, (including any alterations, additions, improvements, modification or replacement of any components supplied with the Hardware), unusual physical or electrical stress or causes other than normal and intended use; ii) failure of Customer to provide and maintain a suitable environment for the System; iii) malfunctions resulting from use not approved or recommended in the Documentation or otherwise in writing by Planitar; iv) exposure of the System to dirt, sand, water including rust inside the Hardware and fire and/or shock; v) removal, tampering with or mutilation of the model No. or serial No. sticker of the Hardware; vi) damage to the System arising out of the use of any accessories other than those supplied by Planitar; or vii) any defect that is the result of physical breakage, electric connection or electrical faults external to the System.

Contact

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