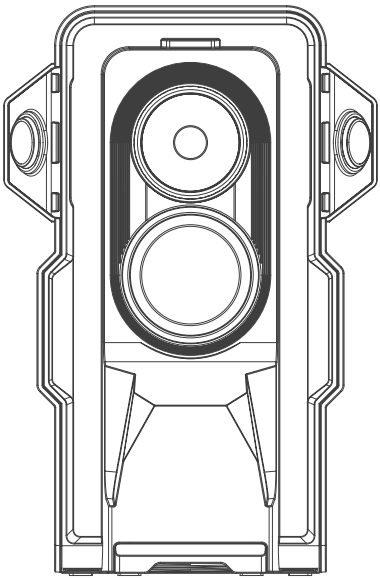
4DKanKan Meta
User Manual

V1.5



4DAGE
DIGITAL EVERYTHING

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Instructions

Tutorial

4DKanKan Meta provides detailed shooting tutorials and operation tips to users. Learn more about it on the 4DAGE official webiste.

platform.4dkankan.ai

Notice Before Use

Users must first download and install the 4DKanKan App, register, and log in before using the 4DKanKan Meta.

1. Go to the App Store and search for “4DKanKan” or download the App from the official website.

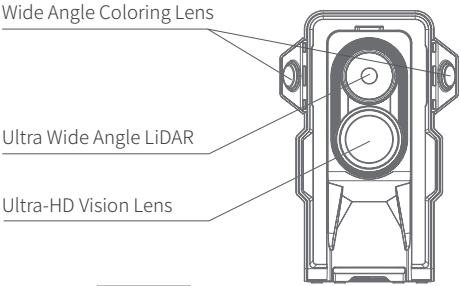
2. Sign up
Go to “Me” - “Log In/ Sign up” and create an account, according to the instructions.

3. Bind your device
After signing up and logging in, go to “Me” - “Bound Cameras” - “Manage” - “Bind Camera,” scan the SN barcode at the bottom of the camera, or manually enter the SN barcode for binding. The Tours uploaded by the scanner will be synchronized to the bound account once the binding is completed.

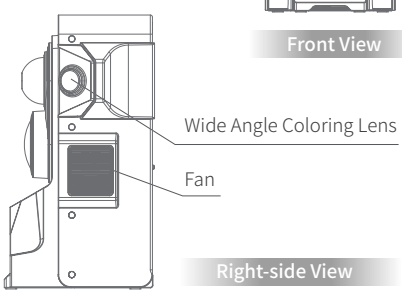
4DKanKan Meta Product Description

4DKanKan Meta is a brand new 3D laser scanner with dual acquisition modes of terrestrial laser scanning and wearable SLAM . Equipped with 905nm ultra-wide-angle LiDAR and combined with the industry's leading pointcloud fusion algorithms,4DKanKan Meta can produce 16K high-definition panoramas and high-precision point cloud data, with a point cloud accuracy of 1cm. Equipped with multi-functional modules such as RTK module, thermal module and multi-spectral module, it provides in-depth solutions for the industries.

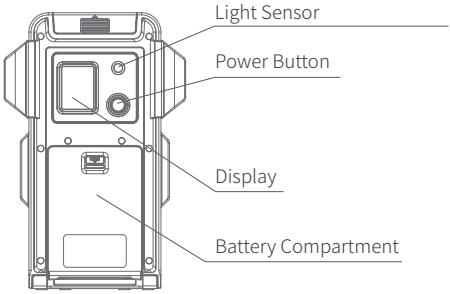
Zhuhai 4DAGE Technology Co., Ltd. designed and created the 4DKanKan Meta (hereinafter referred to as 4DAGE.)



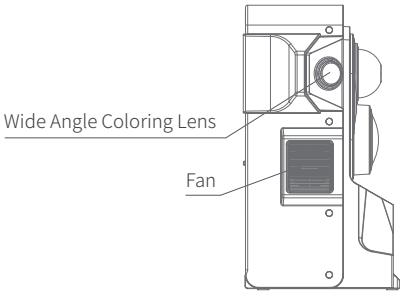
Front View



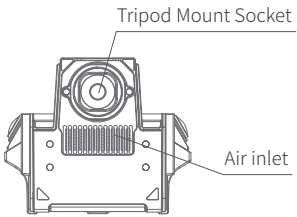
Right-side View



Back View



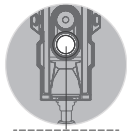
Top View



Top View

Use 4DKanKan Meta

Install and Connect



1. Install the scanner

Set the scanner tightly on a tripod and adjust the tripod's height and angle while keeping the scanner vertical to the ground.

2. Turn on the scanner

To turn on the scanner, press and hold the power button " ◯ " on the 4DKanKan Meta. The scanner is turned on when the interface appears on the screen as shown on the right side.

3. Connect to 4DKanKan Meta

After turning on the scanner, launch the App, navigate to the "Me" page, and search for the scanner WiFi with the prefix "4DSG_." Then enter the password "12345678" to connect it.

When the scanner is successfully connected, the user can return to the "Me" page, where the connection status of the scanner is displayed. The same status will be displayed on the scanner's display screen.

Scanning Method-Site Mode

The 4DKanKan Meta scanner features an automatic metering system that automatically adjust the exposure coefficient based on the shooting condictions. And, through HDR processing, it can better show the details of the bright and dark parts of the image to present the best picture effect. It is equipped with 360° rotation shooting for six positions and the algorithm enables 16K flawless image stitching.

Workflow:

1. After using the App to connect the scanner, click on the bottom navigation bar to enter the “Local” page, and click on the “+” in the lower right corner to create a new task.

2. In the pop-up tips for photo settings, choose the shot density, then click "New scene." Then, users can create a shooting task.

3. Carry the scanner to the shooting point after creating the task, and face the scanner display while clicking the shooting button from the App.

4. The scanner will start rotation shooting after clicking the shooting button. It will rotate in six times, at 60 degrees each. The user should move by following the rotation position of the scanner to avoid being captured in the frame.

In the App, the user can see a preview of the image or point cloud. When the results are satisfactory, the user can move the scanner to the next point and resume scanning. The previous points must be deleted by the users if they wish to reshoot the scene.

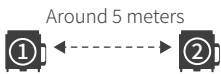
Please avoid obstructing the scanner and causing rotation angle deviation during shooting.

Scanning Schedule

Select scan points

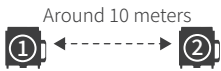
1. When scanning in low density mode

It is advised that the spacing between the points be 5 meters; the optimal point cloud effect is generated within this range.



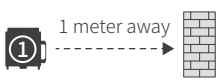
2. When scanning in high density mode

It is advised that the spacing between the points be 10 meters; the optimal point cloud effect is generated within this range.



3. During scanning, it is recommended that the scanner be one meter away from the obstruction.

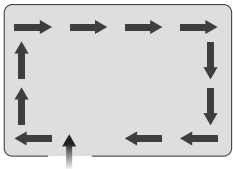
Too close proximity may compromise measurement accuracy. Being too near to the obstruction may also cause panoramic stitching issues.



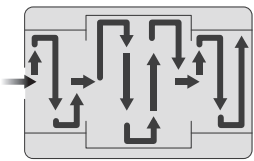
Futhermore, please avoid scanning in an environment with a lot of mirrors, as this can lead to calculation errors.

Route Planning

1. Plan your route and shoot at each point by following the route directions.



2. Please take the S route as recommended in larger spaces.



Point Adjustment Mode

This function is designed to assist in point calculation. If the generated points are misaligned with the actual position, you can use this function to adjust the generated points.

The steps are as follows:

1. Click the point setting function in the lower left corner to jump to the point setting interface.

2. The point setup interface has three function buttons: associated points, horizontal adjustment, and height adjustment. Users can adjust the points according to the actual situation to ensure that the points fit in the correct position.

Associated point: the reference point of the scanner's shooting point position, which aids in the position calculation. As the related point, the nearest point to the shooting point is typically chosen.
Horizontal adjustment: used to alter the last point's horizontal orientation.Height adjustment: used to alter the height of the last point.

3. Ensure that the position is correct, then click "Save"to finish

About Pickup Shots

The following is the solution for scenes that need to do Pickup shots:
Select the scene that need to do Pickup shots in “Local,” and then click "…" -> "Continue Shooting." Enter the “Shooting Project,” then click the " " in the lower-left corner to activate the “Point Adjustment Mode,” and then click the point closest to the selected shooting area. Click the shooting point, set it to the associated point, and then click the "Save" button in the upper right corner; the distance between the added and shooting points should be less than 5M.

The scanner's workflow is derived from the recognition of the point cloud in space. If the previous point cloud cannot be recognized at the newly added shooting point, the newly added point's calculation may fail. The following are examples of common errors: there is no location point anchoring in the pickup shots, and the anchor point is far away from the first point of the pickup shots.

SLAM

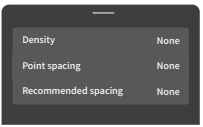
SLAM, which stands for simultaneous localization and mapping, automatically calculates and stores the spatial position of the scanner at the time of scanning.

Workflow:
1. Users can view SLAM status information in the interface for shooting scenes, and SLAM " SLAM 0m " will be displayed in gray by default when creating or continuing a scene.

2. After the first point is successfully scanned, the SLAM icon and distance will change as the scanner is moved to the next point.

The distance between the scanner and the associated point is the SLAM distance.

3. Users can view the current scene's shooting density and point spacing by clicking the " SLAM 20m ".



Recommended distance between scan points

Low density	High density	Status
< 10M	< 20M	SLAM (Green)
10-15m	20-30m	SLAM (Yellow)
> 15M	> 30M	SLAM (Red)

Green: indicates the optimal shooting range for the scanner.
Yellow: indicates that the scanner is in an unstable shooting range and that a calculation error is possible.
Red: indicates that the current position of the scanner is far from the previous point, the probability of error is high, and shooting is discouraged.

Save and Generate 3D Tours

1. After shooting all of the points, the user should click "Save" in the upper right corner of the shooting frame, then follow the prompts to add a description before clicking "Save" again to save the data to the local terminal. The App will then navigate to the "Local" page (Shown on the right).

2. Press and upload button " " if the scanner is not connected to the internet, the network interface will appear. Connect to the Wi-Fi network using the Wi-Fi interface. Once the connection is established, return to the "Local" page.

3. Click " ⬆ " again, the user can choose whether to generate an OBJ model or set password for the scene, then click "Confirm" to upload the scene data. When the scene data is successfully uploaded, the point cloud data will be automatically generated on the cloud.

After the calculation is complete, the scene will appear in the "cloud" interface; click to open the scene or log in to the official 4DKanKan website - Personal Center - Scene Management to view.

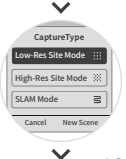
OBJ Model: After selecting generated OBJ model, the generated scenes support viewing OBJ models and downloading OBJ-formatted data files.

Scanning Method-SLAM Mode

Equipped with 905nm ultra-wide-angle LiDAR and combined with the industry's leading point cloud fusion algorithms, 4DKanKan Meta's SLAM mode can produce highly accurate point cloud data with a point cloud accuracy of 2 cm. During the SLAM scanning, you can switch to terrestrial mode to capture panoramic images, the panoramic images will be merged with point cloud data by algorithms after the scanning is completed.

1. After using the App to connect the scanner, click on the bottom navigation bar to enter the "Local" page, and click on the "+" in the lower right corner to create a new task.

2. Select "SLAM Mode" in the shooting setting pop-up tips to create a new task.



3. Carry the scanner to the shooting point after creating the task, and face the scanner display while clicking the Start button from the App.

4.After clicking the Start button, the scanner will turn on SLAM mode for scanning. During the scanning process, the APP shooting interface will display the point cloud data collected by the camera.

5.During SLAM scanning, the user should keep the scanner steady and moving at an even speed. The scanner should always be facing the direction of the user to avoid interfering with the data collection. You can switch 2D or 3D view in the app to check the collected point cloud.

Scanning Guidelines
(1) When shooting, the user needs to plan the shooting route in advance, avoid or remove obstacles on the route to prevent obstruction or interference.
(2) During movement, the user should maintain an even pace, with a maximum speed of 1.5m/s.
(3) When moving the scanner, ensure that the rotation of the scanner body does not exceed 50 degrees per second.
(4)When the user moves the scanner during the scanning process and needs to pass through a door, please ensure that the door is open and still to avoid impacting the scanning outcome.
(5) Do not force quit or close the APP during the scanning process.
(6) The estimated path for SLAM capturing is 1.5 kilometers, please kindly consider the acquisition route's distance.

Shooting Panoramas

During the SLAM scanning process, the scanner is supported to capture panoramas using high-quality point cloud and high-definition lenses to achieve photography, recording and localization, providing you with more comprehensive on-site data to ensure the most accurate representation of reality.

1.After creating a shooting task in SLAM mode and clicking the Start button in the shooting interface, the user can move the scanner for SLAM scanning.

2.When moving the scanner for scanning, the user should observe the scene, ensure the camera lens remains still and stable, and focus the camera on the scene details to be captured. Click the shooting button "  " located in the lower right corner of the shooting interface.

3.After clicking the Start button to start taking panorama, the scanner will rotate clockwise, turning the scanner 60 degrees once for a total of 6 times to complete the shooting of a designated point.

4.After shooting, the user can preview the shooting result in the shooting interface. If the result is satisfactory, the user can continue to move the scanner for SLAM scanning.

Pickup Shots

The following is the solution for scene that needs to do pickup shots:

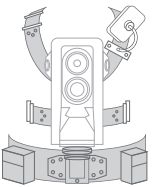
1.Locate the scene that needs to do pickup shots in "Local"and then click "..." -> "Continue Shooting" ;

2.Enter the "Shooting Project" then click the"  " in the lower left corner to activate the "Point Adjustment Mode," and then click the point closest to the next scanning area. Click the scan point, set it to the associated point, and then click the "Save" button in the upper right corner;

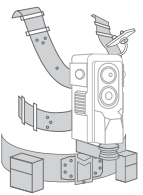
3.The distance between the new point and the previous point should be less than 1M.

4.After the shooting is completed, you can move the scanner to pickup shots of the SLAM tours.

Harness for SLAM Scanning

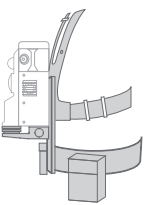


The 4DKanKan Meta harness is designed to assist the user in SLAM scanning with 4DKanKan Meta. It enables one-person operation of SLAM scanning while walking, captures the high-precision three-dimensional point cloud data in real time, reduces acquisition costs, and increases scanning efficiency.



The following are workflows:

1. The users will need to wear the harness over their shoulder, then adjust the shoulder and waist straps to fit their body type, making sure the carrier fits properly and does not wobble before locking all the buckles.



2. Pick up the scanner steadily, place the scanner on the harness mount, make sure that the mount socket of the scanner and the harness mount are aligned, and then tighten the knob of the harness mount clockwise.

3. Confirm that the scanner has been successfully installed before SLAM scanning.

4DKanKan Meta (Offline Version)

Product Description

The 4DKanKan Meta (Offline Version) service is isolated from the extranet and does not depend on network connection, the core scene data is stored in the local computer, and the scene data and permissions are managed independently, which guarantees data privacy.

For details of 4DKanKan Meta (Offline Version) product overview, please refer to "4DKanKan Meta Product Description" on page 2 and 3.

Install and Connect

For details on using 4DKanKan Meta(Offline Version), scanning method-site mode, and scanning method-SLAM mode, follow the procedures in " Install and Connect", " Scanning Method-Site Mode", and " Scanning Method-SLAM Mode" on pages 4 to 12.

Save and Upload to the USB Drive

1. Once all points have been captured, click the "Save" button in the upper-right corner of the shooting interface, and then click "Save" a again after entering the project information as instructed. Users can then save the 3D data locally, and the App will navigate to the list of local scenes (as shown on the right).

2. Insert the USB drive of the current scanner into the USB port at the bottom of the scanner, and then click the USB Drive page in the App to verify that the USB Drive has been mounted successfully.

3. To begin uploading scene data, users can select "Generate OBJ Model" and "Set scene password" in the pop-up upload box from "Local" by taping "⬆", and then clicking "Confirm." Users can view the scene in the "USB Drive" page once the upload is complete.

4. Users can synchronize scenes for editing, calculation, etc. after taking the USB drive and connecting it to a computer.

OBJ Model: After selecting generated OBJ model, the generated scenes support viewing OBJ models and downloading OBJ-formatted data files.

4DKanKan Meta (LAN Version)

Product Description

4DKanKan Meta (LAN Version) facilitates installing the 4DKanKan Meta system on designated servers, enabling the concurrent use of multiple terminal devices in client/server mode within a shared local area network (LAN) while remaining connected via an independent private network.

For details of the product description of 4DAGE META (LAN Version), please refer to the 4DKanKan Meta product description overview "Front View "、"Right-side View"、"Back View"、 "Left-side View" and "Top View" on page 2 and 3.

Contact us at 400-669-8025 for further details. Messages can also be sent to sales@4dage.com.Zhuhai 4DAGE Technology Co., Ltd, carries out the manufacturing and design of 4DKanKan Meta.

Install and Connect

For details on using 4DKanKan Meta(LAN Version), scanning method-site mode, and scanning method-SLAM mode, follow the procedures in " Install and Connect", " Scanning Method-Site Mode", and " Scanning Method-SLAM Mode" on pages 4 to 12.

Multi-functional Modules

RTK Module/GNSS Receiver (Optional)

RTK is a technique for dynamic relative positioning in real time using carrier phase observations. Users can choose to purchase 4DKanKan Meta RTK Plug-in/GNSS Receiver according to their actual needs.

Workflow:

1. Open the top cover of 4DKanKan Meta, insert the RTK Module, and move the device outdoors to receive GNSS signals.

2. Open the 4DKanKan APP and connect to the scanner. Ensure the camera network is properly set up in the [Me]-[Camera Network] section to maintain RTK GNSS signal reception.

3. In the APP, click [Local] to create a new task, then enable the RTK switch by clicking the " " icon on the scan page. You can also check the real-time GNSS status, HRMS, and VRMS by clicking the " " icon in the shooting screen.

GNSS: Global Navigation Satellite System
HRMS: Horizontal Root Mean Square
VRMS: Root Mean Square Voltage

RTK Status

(1) NONE

(3) FLOAT 

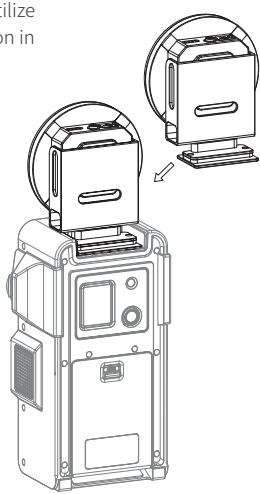
(2) SINGLE 

(4) FIXED 

When scanning outdoors, it is recommended to ensure that the RTK status is "fixed," which will improve the accuracy of scene data.

Fill Light Module (Optional)

To increase work efficiency, utilize the fill light with the acquisition in a low-power, high-brightness environment.



Fill light status description

(1) ON 

2) OFF 

Overview of API and SDK Developer Tools

Developers can utilize the API and SDK tools provided by 4DAGE to improve the usability of the tour space and data. Principal applications of these tools include:

1. Customising and expanding our 3D player
2. Integration with solutions, APIs, and third party software.

SDK

The SDK permits the modification of our 3D player in order to improve the user experience. The application is a WebGL application that enables web browser navigation in three-dimensional space.

1. Include supplementary material or enhancements
2. Modify point designs and icons
3. Adjust the height configuration of markers in VR mode

Kindly be informed that the SDK is exclusively located on the client side. The information is not transmitted to our database and lacks exceptional
durability (unless it is stored or recorded in the client).

Learn more about SDK:
https://docs.4dkankan.com/#/en-us/guide/quickstart

API

Connecting a user's back-end system to ours via the 4DAGE API establishes a direct system-to-system connection, allowing users to exchange data and execute operations on spaces in our system. These operations and data modifications are persistent, in contrast to the SDK, because they are executed directly in our data store via the API.

The API provides a variety of functionality, including but not limited to:

1. Conducting searches and queries for models and model information.
2. Acquiring image data, panoramic and video data.
3. Acquiring tour lists, tour points, tour editing, etc.
4. Modify labeling data for tour images.

Learn more about APl:
https://docs.4dkankan.com/#/product/openapi/en-us/apis

FAQ

What is the difference between a 4DKanKan Meta and a panoramic camera?

A panoramic camera captures and outputs panoramic images or videos, whereas the 4DKanKan Meta captures and generated point cloud data and panoramic images.

Point Cloud Data VS Panoramic Image

Each point cloud in the point cloud data contains spatial coordinate information, which can be used to calculate the distance, area, volume, etc. between the point clouds. Panoramic images are images devoid of spatial structure information and can only be displayed.

What is the difference with traditional 3D modeling equipment?

Traditional 3D modeling equipment requires high professional skills of the operator and specific requirements of the scanning environment. It also requires more complex professional software for subsequent data modeling processing.

4DKanKan Meta uses artificial intelligence algorithms to automatically generate 3D scenes without human intervention. Ordinary users do not need special knowledge and can master the shooting method by reading the manual.

How accurate is the 4DKanKan Meta?

4DKanKan Meta is equipped with three 905nm LIDAR that can collect 200,000 point cloud per second and 2 million point cloud at a single point, with a point cloud precision of ±1 cm and a 16K resolution for the panoramic images collected.

How do users view the 3D Tours using VR headsets?

Select "VR mode" in the upper right corner of the generated 3D Tours on the user's phone. Users can put their phones in the appropriate VR headsets to enjoy spectacular visualeffects.

About Account

4DKanKan Meta has been set up as a “Scanner Account" and a "User Account" to assist users in getting started quickly. The term “Scanner Account" refers to the scanner's initial account from the factory. Users can connect to the scanner's WiFi via the App or scan the QR code on the official website's login page. The scanner account can be used to manage scenes.

"User Account" refers to a user account signing up in the App or the official website. Users can log in using their username and password. Users can enjoy all of the benefits by purchasing Membership Subscription after linking it to a scanner's SN number.

What devices are 4DKanKan compatible with?

4DKanKan is compatible with iPhone 15/14/13/12, iPhone 15/14/1312 Pro or 15/14/13/12 Pro Max with iOS 14 and above.

4DKanKan minimum configuration requirements for Android.

1. Processor recommendations: Snapdragon 6 series 655 or above, Snapdragon 8 series 820 or above, Kirin 710 and above.

2. System requirements: Android 8.0 or above (64-bit operating system), it is recommended that 10.0 or above.

3. RAM: 8 GB or more.

About Diverging Paths Shooting

Diverging paths scanning means after completing the first path shooting during the process, the user must return to a previous point and shoot another path. Diverging paths shooting necessitates the use of the "Point Adjustment" feature. On the "Project" page, open the "Point Adjustment Mode" by clicking the "  " in the bottom left corner. And click the point closest to the selected shooting area. Click the scan point, set it to the associated point, and then click the "Save" button in the upper right corner to get back to the shooting page.

About Exposure

Please avoid shining direct sunlight on the lens, as this will result in overexposure. Furthermore, overexposure is also more noticeable in darker indoor environments.

About the Battery

Make sure that the camera has sufficient power when in use, as some functions will be limited when the battery is low.

Others

How long does it take for the scene calculation to be processed after it is uploaded?

Take the example of scanning an indoor or outdoor scene with 8 scan points spaced 5 meters apart. Take the example of scanning an indoor or outdoor scene with 8 scan points spaced 5 meters apart. It takes about 40 minutes from uploading to completion of calculation. However, if multiple users upload a scene at the same time, the server will calculate the scenes in order of priority.

Where is the data kept?

1. 4DKanKan Meta's data is kept on the cloud servers.

2. 4DKanKan Meta's (Offline Version) data is kept on the computer.

3. 4DKanKan Meta's (LAN Version) data is kept on the servers.

Can 4DKanKan Meta create models of small objects?

Our scanner is mainly used for scanning and modeling large scenes, not for 3D modeling of small objects.

What are the specific limitations of the scenes to be scanned?

The maximum number of scan points in Low Density mode is 500, and the maximum number of scan points in High Density mode is 200.

Is it possible to edit the scene after the calculation?

Once the scene has been uploaded, the user can download it to local, edit it, and then re-upload it.

Can 4DKanKan Meta measure the dimensions of a space?

Yes, you can measure the dimensions of a space using the "Measurement Tools" function.

Can users obtain scene data and upload it to their own web?

User can log in to the PC terminal and navigate to "Scene Management" then click the "  " in the upper right corner to initiate the embedded production. Then, to implement it, users can copy the code from the embedded link code and embed it into their own website.

Post-sales Service

Terms of Service

Users who purchased 3D scanner (hardware) through 4DAGE's official online channels (4DAGE's official website) are eligible for warranties.

Hardware Warranties

(1) Terms of hardware warranties

1. Beginning with the second day after receipt, if a functional failure due to non-human damage occurs within seven days and is verified by 4DAGE, the user may return, exchange it for the same model with the same specifications or repair it for free.

2. Beginning on the second day after receipt, if a functional failure occurs due to non-human damage between the eighth and fifteenth days and is verified by 4DAGE, users may exchange it for the same model with the exact specifications or repair it for free.

3. If a functional failure occurs due to no-human damage within one year of receipt and is verified by 4DAGE, the user is entitled to free repair service.

4. From the date of receipt, if a functional failure occurs due to non-human damage within one year and the scanner is unable to perform well after two repaires. Users can select free repair or contact customer service using the effective repair record provided by the repairer in the warranty card to see if it can be exchange it for the same model with the exact speifications or return it.

(2) Limited hardware warranty

4DAGE will not provide warranty

1. The warraty has expired;
2. The user's failure to use, preserve, or maintain the product in accordance with the product manual causes the damage;
3. The damage is caused by misuse, such as falling, squeezing, or immersion in water;
4. The damage is caused by force majeure such as floods, fires, and lightnung strikes;
5. Machines repaired by non-official website designated service providers;
6. The failure or accident is caused by using non-original accessories;
7. The scanner was not purchased through 4DAGE's official channel, and any of the models, serial numbers, or manufacturing numbers on the product have been changed, deleted, relocated, or cannot be identified;
8. The warranty only covers the hardware. All accessories, including software, and user manuals, are not covered by warranty;
9. Any damage or scratches on the product's appearance will not be eligible for the return or replacement service.

(3) Return and refunds

1. Contact the customer service department using the phone number or email address listed on the official website;
2. Once the inspection personnel has confirmed that it can be returned or exchanged, the entire set of products (including gifts) and invoices should be mailed or delivered to 4DAGE;
3. 4DAGE will handle the case in accordance with the product maintenance list;
4. The user should pay for the shipping costs associated with the return. If the user does not pay the shipping cost, it will be deducted from the refund amount at the current rate. The refund path is identical to the payment path. the refund's arrival time is determined by the bank and payment institution.

Repair Service

(1) About paid repair

4DAGE offers qualified paid repair services for products that have been accidentally damaged, are out of warranty, or do not meet warranty

(2) Paid repair service

1. Be patient when contacting the customer service department via the phone number or email address listed on the official website;
2. Please make payment after confirming the repair content and cost with maintenance personnel;
3. Ship the product to 4DAGE for repair.

Disclaimer

(1) Copyright declaration

Users should understand and accept that the works (video, music, pictures, etc.) created by using 4DKanKan's equipment, once uploaded to 4DKanKan's official website voluntarily by the users individually, indicate that the works are shared by 4DAGE and the users with the right of display and the right of use.

(2) Limit of liability

To the greatest extent permitted by applicable law, 4DAGE shall not be liable for any direct, indirect, or consequential damages resulting from users' copying or downloading of the information or materials contained in 4DAGE's user manual.

Specifications

Panorama Resolution	16K（16384 x 8192）
Single Image Resolution	5472 x 3648
Device Type	Stationary and mobile 3D laser scanner
Wavelength	905 (nm)
Laser	Class 1 (in accordance with IEC 60825-1:2014)
Scan Range	0.2-70m
Point Cloud Accuracy	1σ (@ 20m) ⩽ 1 cm 1σ (@ 0.2~1m) ⩽ 2 cm
Battery Capacity	5000(mAh)
Voltage	14.4V
Battery Duration	Maximum of about 4 hours per battery for continuous scanning
Operating Temperature	-5°C～45°C
Dimensions	258mm*169mm*141.5mm
Weight	Approx. 2.9 kg (including battery)