

# Leica BLK3D



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- when it has to be **right**

***Leica***  
**Geosystems**

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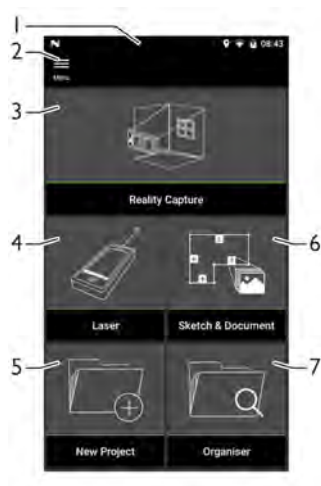
## Components

The Leica BLK3D Imager is a real-time, in-picture 3D measurement solution. See chapter [Technical data](#) for scope of use.



1. Laser/Photo capture
2. Touch screen
3. Back
4. Home
5. Laser/Photo capture
6. Recents
7. Photo capture
8. USB port protection lid
9. USB port
10. [ON/OFF](#)

## Home screen



1. Status bar
2. Side menu
3. [Reality Capture](#)
4. [Laser](#)
5. New Project
6. [Sketch & Document](#)
7. [Organiser](#)

## 3D Image distance measurement:

2D in-picture accuracy:	± 3 mm *
3D in-picture accuracy:	± 6 mm *

## Laser distance measurement (ISO 163331-1):

Accuracy with favourable conditions: **	± 1.0 mm / 0.04 in ****
Accuracy with unfavourable conditions: ***	± 2.0 mm / 0.08 in ****
Range with favourable conditions: **	250 m / 820 ft
Range with unfavourable conditions: *****	120 m / 394 ft
Smallest unit displayed:	0.1 mm / 1/32 in
X-Range Power Technology™:	yes
Ø laser point at distances:	6/30/ 60 mm (10/ 50/ 100 m)

## Tilt measurement:

Measuring tolerance to laser beam: *****	± 0.2°
Measuring tolerance to housing: *****	± 0.2°
Range:	360°

\* Measurement accuracy depends upon various factors including distance from the object, baseline length, texture of object, light conditions, temperature, calibration etc. Figures quoted assume normal to favourable conditions and recommended baselines (see [Measurement Principle](#)) and are subject to change.

\*\* applies for 100 % target reflectivity (white painted wall), low background illumination, 25 °C

\*\*\* applies for 10 to 100 % target reflectivity, high background illumination, - 10 °C to + 50 °C

\*\*\*\* Tolerances apply from 0.05 m to 10 m with a confidence level of 95%. The maximum tolerance may deteriorate to 0.1 mm/m between 10 m to 30 m, to 0.2 mm/m between 30 m to 100 m and to 0.3 mm/m for distances above 100 m

\*\*\*\*\* applies for 100 % target reflectivity, background illumination of approximately 30'000 lux

\*\*\*\*\* after user calibration. Additional angle related deviation of +/- 0.01° per degree up to +/-45° in each quadrant.

P2P measurement with DST 360 (optional):

Working range vertical sensor:	-64° to > 90°
Accuracy vertical sensor up to:	+/- 0.1°
Working range horizontal sensor:	360°
Accuracy horizontal sensor up to:	+/- 0.1°
Tolerance P2P function at distances (combination of sensors and distance measuring) approx.:	+/- 2 mm / 2 m +/- 5 mm / 5 m +/- 10 mm / 10 m
Levelling range:	+/- 5°

General:

Dimensions (H x W x D):	180.6 x 77.6 x 27.1 mm (7.11 x 3.06 x 1.07 in)
Weight (with rechargeable battery):	480 g / 17 oz
Temperature range:	Storage: -25 to 60 °C / -13 to 140 °F Operation: -10 to 50 °C / 14 to 122 °F Charging: 0 to 40 °C / 32 to 104 °F
Tripod adapter:	supports 1/4-20 UNC screw adapters

## Technology:

Operating system:	Android 7 (Nougat)
Processor (with integrated GPU):	Snapdragon 820 QuadCore (2.2 GHz)
RAM Memory:	4 GB
Real-time processor:	STM32F446
Screen:	5.0" IPS, HD 720x1280 LCD capacitive multi-touch screen, chemically strengthened, brightness: 450 cd/m2
Stereo camera:	Pixels: 2 x 10 MP (15.8 cm diagonal base line) Field of view: 80° Focal length: 4.0 mm (22 mm in 35 mm equiv. in 1:1) Aperture: F3.0
Laser EDM camera:	Pixels: 2 MP Field of view: 14°
I/O:	USB Type-C 1.0 for data transfer and charging (water-resistant), integrated speaker and microphone
Keyboard:	Three physical buttons (Power, Laser/Photo capture, Photo capture), four touch buttons (Back, Home, Recents, Laser/Photo capture)
Additional sensors:	Compass, 3D accelerometer and 3D gyroscope
Laser class:	2
Laser type:	655 nm, 0.95 mW

## Storage:

Internal storage:	64 GB
Single shots:	14000 3D images
Multi shots:	5000 3D images

Communication:

Bluetooth® Smart:	Bluetooth v4.1 and v2.1 Radiated power: 1.78 mW (BLE) Radiated power: 10.00 mW (BT classic) Frequency: 2402-2480 MHz
WLAN:	Standard: 802.11 b/g/n Radiated power: 6.31 mW Frequency: 2412-2472 MHz
GPS:	A-GPS and GLONASS

Power Management:

Battery:	Rechargeable battery pack Li-Ion (3.80 V, 3880 mAh, 14.7 Wh) (included)
Power Management:	AC adaptor (input: 100-240 V AC) (included) External charger (input: 100-240 V AC) (optional)
Charge time:	< 3.5 h (with AC adaptor) < 5 h (with optional external charger)
Operating time:	Typical capture*: 4 h / 220 multi-shot captures Continuous capture*: 2.5 h / 1000 single-shot captures Laser measurements: 6.5 h / 9500 laser measurements Auto power off: after 3 h

\* Wi-Fi®, Bluetooth® off, flash off, screen brightness 50 %

## Introduction



The safety instructions (see [Safety Instructions](#)) and the user manual should be read through carefully before the product is used for the first time.



The person responsible for the product must ensure that all users understand these directions and adhere to them.

The symbols used have the following meanings:



### WARNING

Indicates a potentially hazardous situation or an unintended use which, if not avoided, will result in death or serious injury.



### CAUTION

Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor injury and/or appreciable material, financial and environmental damage.



Important paragraphs which must be adhered to in practice as they enable the product to be used in a technically correct and efficient manner.

## Charging Li-Ion battery



Charge batteries when battery icon in status bar is flashing and before using it for the first time. While charging, the device may heat up. This is normal and should not affect the device's lifespan or performance. If the battery gets hotter than 40°C / 104°F, the charger stops. At a recommended storage temperature of -20°C to +30°C (-4°F to +86°F), batteries containing a 50% to 100% charge can be stored up to 1 year. After this storage period the batteries must be recharged. To save energy, unplug the charger when not in use.



### CAUTION

Connecting the charger improperly may cause serious damage to the device. Any damage caused by misuse is not covered by the warranty. Use only Leica-approved chargers, batteries, and cables. Unapproved chargers or cables can cause the battery to explode or damage the device.

## Charge Li-Ion battery by USB port on the device



Use the provided USB-C cable to charge the BLK3D. Open the lid (1) and plug the cable into the port of the device (2). Plug the end of the USB-C cable into one of the provided adaptors. Select the appropriate one for your country. The device can also be charged connecting the USB-C cable to the computer, but this takes more time. If the device is connected to the computer via USB cable, you can download and upload data. During charging, the device cannot be used for measuring or acquiring images.

## Charge Li-Ion battery by USB charger (optional)



Remove battery cover (1) by opening the slider (2) from left to right. Remove battery (3) and place it into charger (4). Insert the USB cable into the port (5). Plug the charger into an electrical socket. Charging is completed when indicator light (6) turns green.



## Switching ON/OFF



### Switching ON

Press ON/OFF button (1) to switch device ON.

### Switching OFF

Press ON/OFF button (1) for at least 2 seconds to switch device OFF.

## Update



BLK3D Mobile will search for updates when starting the app.

## Using the touch screen



It is recommended to use fingers on the touchscreen. Do not allow the touch screen to come into contact with other electrical devices. Electrostatic discharges can cause the touch screen to malfunction. Do not allow the touch screen to get in contact with water. The touch screen may malfunction in humid conditions or when exposed to water. To avoid damaging the touch screen, do not tap it with anything sharp or do not apply excessive pressure to it with your fingertips.



### Tap

Tap on the display to open an application or to make a selection.

### Drag

Touch and hold object and drag it to the target position.

### Double tap

Double tap on image to zoom it. Double tap again to return.

### Spread and pinch

Spread two fingers apart on image to zoom. Pinch to zoom out.

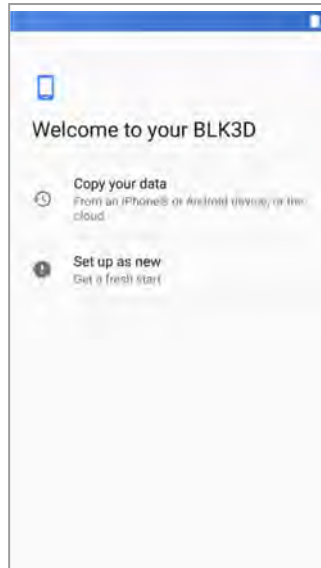
### Swipe

Swipe from left to right on the screen to scroll side Menu. Swipe downwards to scroll through options.

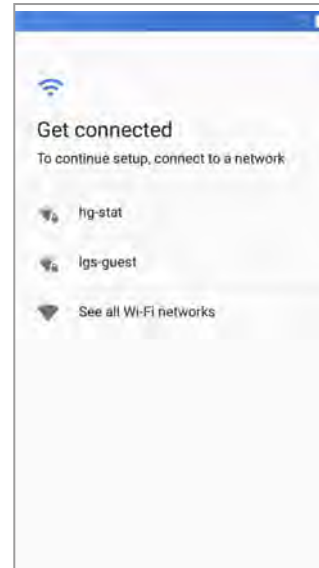
## Activation



Select language for operating system.



Copy your data from another device or set up as new.

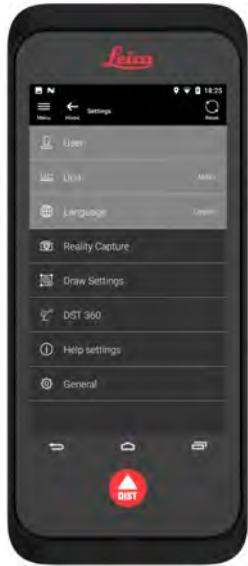


Connect to a WiFi network.

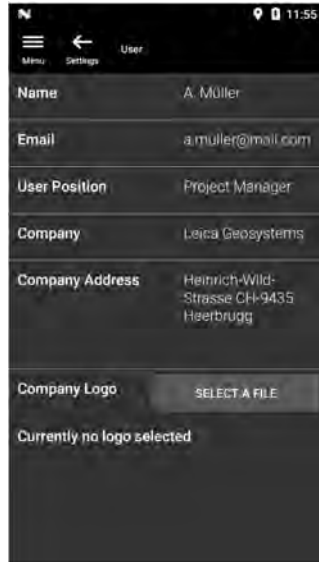


Protect your device with a PIN or a password (optional).

## Settings



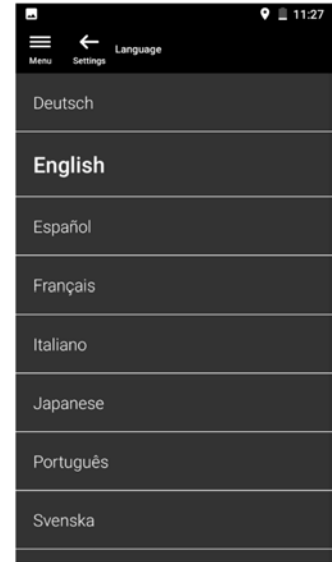
Select "Settings" menu.



Enter user data. This data will be stored in your projects and are used to automatically fill the header of an exported PDF report.



Select measurement unit.



Select language.



- ① The BLK3D Imager has a calibrated stereo-camera, which takes two simultaneous 3D images of the same scene from two different positions. This is analog to the left and right eye in human 3D stereo vision.

**Reality Capture:** Photo capture process using the BLK3D Imager.

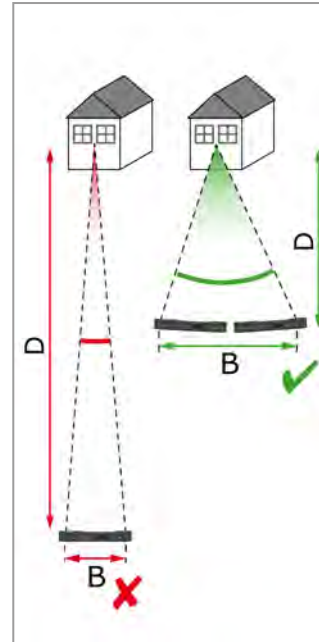
**Single-shot:** Capture of a single stereo photo.

**Multi-shot:** Capture of multiple stereo photos of the same 3D image from slightly different positions.

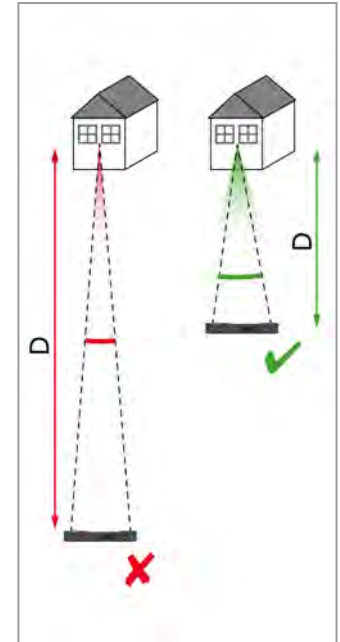
**Baseline:** Maximum distance between the cameras during Reality Capture. This distance can be increased by using Multi-shot from slightly different positions.



- ② The photos from the two cameras are displayed on the BLK3D screen. Only points which are visible in both photos can be measured.

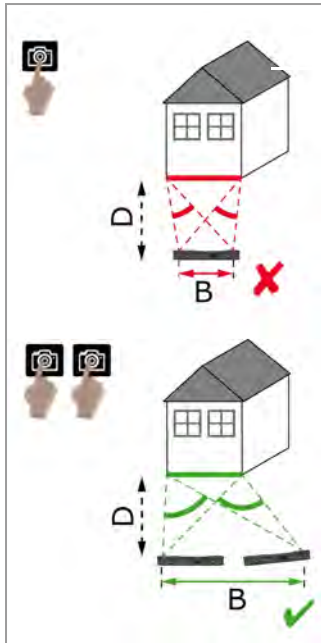


- ③ The intersection angle between the two lines of sight from the two cameras is key for good 3D accuracy. The angle is affected by the distance ( $D$ ) to the object and the baseline length ( $B$ ).



- ④ Take the photo from a short distance ( $D$ ) to the object to increase the accuracy.

**i** Shorter distance ( $D$ ) => Better results



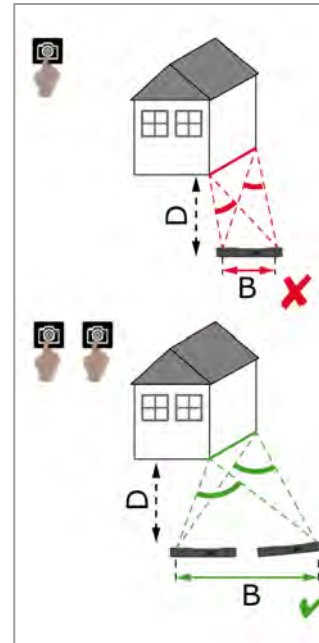
- 5 Take multiple shots (up to 3) from slightly different positions to increase the base line length (B).

**i** Longer base line (B) => Better results

**Recommended baseline for multi-shots:**  
20% of the distance from the imager to the object.

Distance	Baseline
1 m / 3.3 ft	0.2 m / 0.7 ft
2 m / 6.6 ft	0.4 m / 1.3 ft
3 m / 9.8 ft	0.6 m / 2 ft
5 m / 16.4 ft	1 m / 3.3 ft
7 m / 23.0 ft	1.4 m / 4.6 ft
10 m / 32.8 ft	2 m / 6.6 ft
15 m / 49.2 ft	3 m / 9.8 ft
20 m / 65.6 ft	4 m / 13.1 ft

**i** Multi-shot computation can fail if you move too far. The results will then be calculated based on the first single-shot.



- 6 Multi-shot is required for 3D measurements and 3D images which should be used for 3D modelling.

## 1. Take photo



1 Select "Reality Capture" function.



2 Choose between different settings:



**Timer:** set a time delay for the photo acquisition.



**Grid:** show grid lines on display for better orientation.



**Flash:** set the flash ON/OFF or auto.



**Cancel:** go back to home screen.



**Menu:** show menu for main navigation.



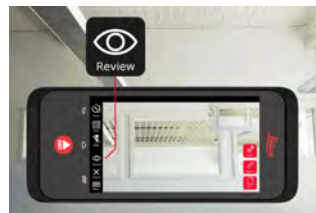
3 Hold the BLK3D correctly. Make sure that your fingers do not cover the cameras.



4 Ensure that the object you want to measure is visible in all pictures. Only points which are visible in at least two pictures can be measured. Press "Photo" to capture. You can also use the "Photo capture" button.



5 To increase measurement accuracy take an additional photo from a slightly other perspective. You can take up to 3 photos.



6 Review photos. Press "Remove" to delete unwanted photos and "Done" to exit Review mode.



7 Go to Measure mode (see 2. [Measure distances in photo](#)).



**New:** Capture the next "Reality Capture" 3D image without going to measure.

## 2. Measure distances in photo



- 1 Select "Distance". Zoom in to the object you want to measure using gestures.




- 2 Tap the first point on photo to start measuring process.





- 3 Tap the second point. The measured distance is automatically shown above the line.

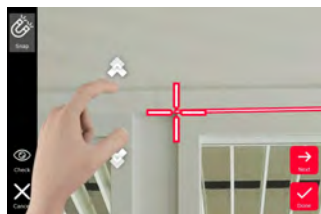


- 4 Tap on any measured point again to activate Precise mode.

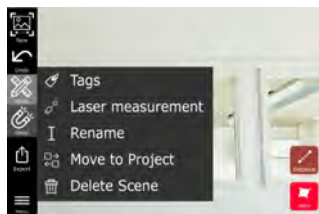
 **Snap:** automatic snap to edges in photo (active by default).

 **Delete:** delete selected measured point/line.

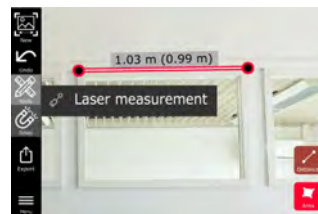
 **Undo:** erase last operation.



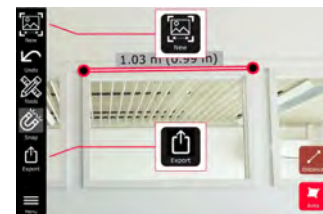
- 5 Drag and spread to precisely center the point you want to measure in the cross-hair.




- 6 Select Tools to add Tags, Rename or Delete the 3D image, Move 3D image to a project (see [Organiser](#)), measure distances with Laser (see [Laser](#)).



- 7 Select a line and measure the distance with Laser to cross-check the distance. Laser value is shown in brackets (see [Laser](#)).



- 8 Choose different options:

 **New:** exits Measure mode to take a new photo.

 **Export:** export the 3D image in JPG or PDF format.

 **Done:** confirm point position.

 **Next:** jump to the next point for Precise mode selection.

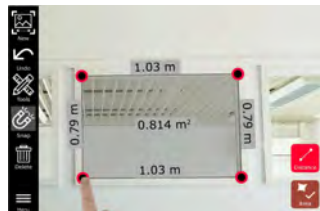
## 3. Measure areas in photo



- 1 Select "Area". Zoom in to the object you want to measure using gestures.



- 2 Tap the first point on photo to start measuring process.



- 3 Tap other points on photo to define the area. Tap "Area" button again to finish defining the area.



- 4 Tap on any measured point to activate Precise mode.



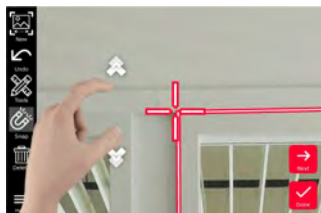
**Snap:** automatic snap to edges in photo (active by default).



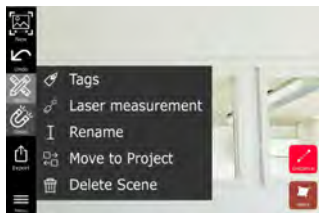
**Delete:** delete selected measured point/line.



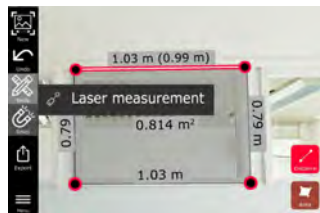
**Undo:** erase last operation.



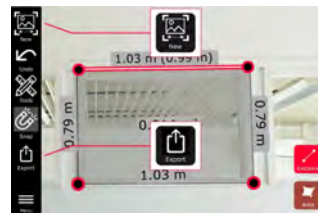
- 5 Drag and spread to precisely center the point you want to measure in the cross-hair.



- 6 Select Tools to add Tags, Rename or Delete the 3D image, Move 3D image to a project (see [Organiser](#)), measure distances with Laser (see [Laser](#)).



- 7 Select a line and measure the distance with Laser to cross-check the distance. Laser value is shown in brackets (see [Laser](#)).



- 8 Choose different options:



**New:** exits Measure mode to take a new photo.



**Export:** export the 3D image in JPG or PDF format.



**Done:** confirm point position.



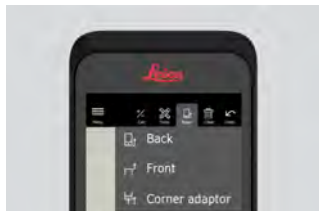
**Next:** jump to the next point for Precise mode selection.



## Distance



- ① Select "Laser" function.

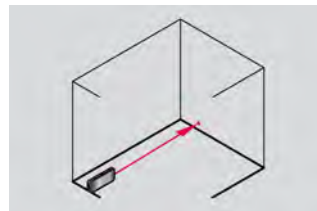


- ② Adjust measuring reference (base):

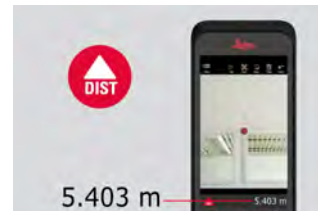
**Back:** Distance is measured from the bottom of the device (default setting).

**Front:** Distance is measured from the top of the device.

**Corner adaptor:** Distance is measured from the corner adaptor (optional).



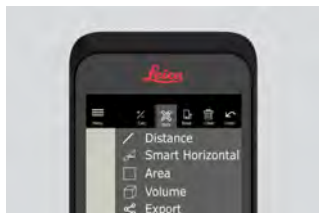
- ③ Select "Distance" from "Tools". Aim laser at the target.



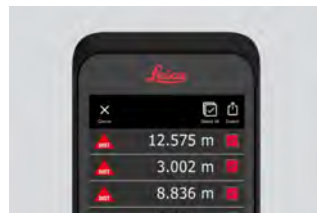
- ④ Press "Laser" button (see [Overview](#)). Measured distance is shown at the bottom of the screen.



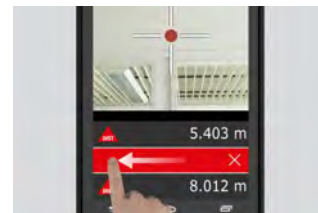
- ⑤ Select "Calc" and choose between "Add" and "Subtract". Take another Distance measurement to Add/Subtract to/from the previous one.



- ⑥ Select "Tools" to choose between different measurements (Distance, [Smart Horizontal](#), [Area](#) and [Volume](#)) and export measurement into a PDF report.

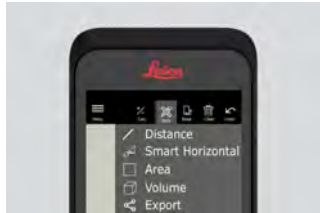


- ⑦ Select "Export" and select the measurement to be printed in a PDF report.

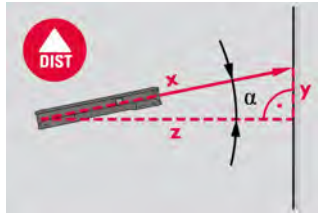


- ⑧ Swipe right to left to delete a single measurement, or select "Clear" to delete all measurements from the measurement list.

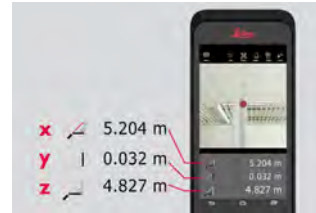
## Smart Horizontal



- 1 Select "Smart Horizontal" from "Tools".  
Adjust measure reference if needed.

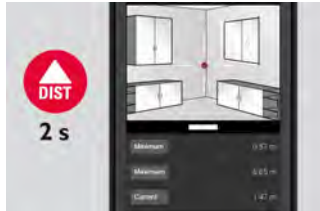


- 2 Aim active laser at target. Measure with "Laser" button.



- 3 Vertical and horizontal distances are calculated.

## Tracking

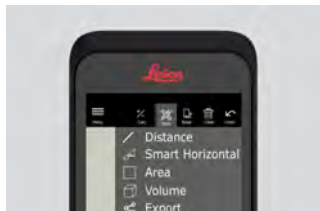


- 1 Press "Laser" button for 2 seconds to activate tracking mode.

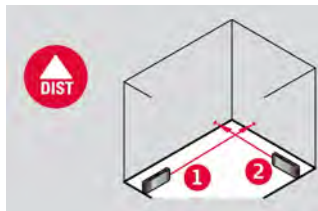


- 2 Press "Laser" button again to finish the measurement.

## Area



- 1 Select "Area" from "Tools". Adjust measure reference if needed.

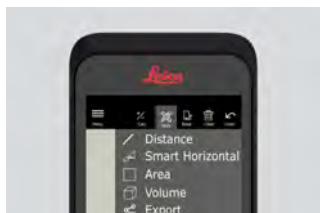


- 2 Measure two distances (length and width) with "Laser" button.

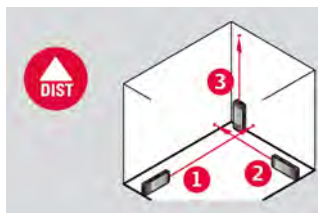


- 3 Circumference and Area are automatically calculated.

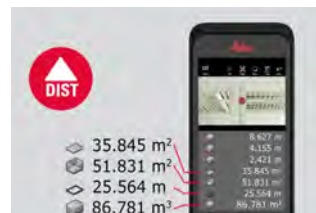
## Volume



- 1 Select "Volume" from "Tools". Adjust measure reference if needed.



- 2 Measure three distances (length, width and height) with "Laser" button.

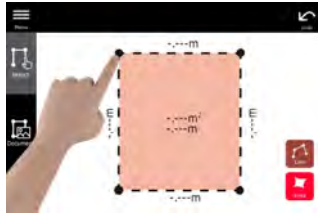


- 3 Area, Wall Area, Circumference and Volume are automatically calculated.

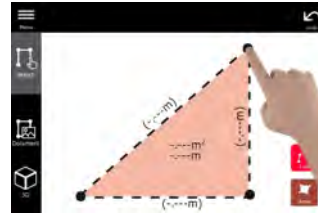
## Sketch Plan (Optional)



- 1 Select "Sketch Plan" function from "Sketch & Document" menu.



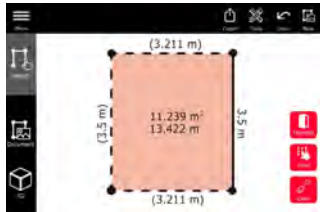
- 2 Select "Line" button and draw by dragging or tapping. Press again the button to finish the line. Line finishes automatically when connecting it to the start point.



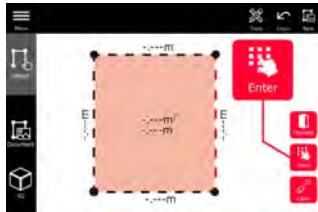
- 3 Select "Area" button and draw by dragging or tapping. To create an area, tap at least three points on the screen. Tap "Area" button again to finish defining the Area.



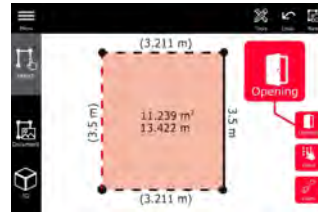
- 4 Select a line and press "Laser" to measure the length.



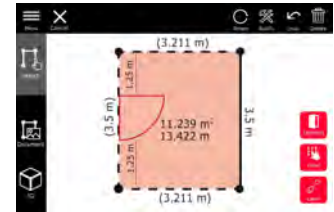
- 5 The sketch is automatically scaled. Calculated values are in brackets. Area and circumference are automatically printed on sketch.



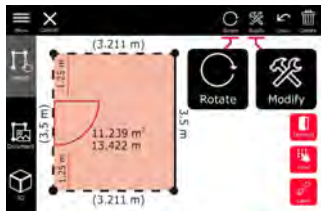
- 6 Alternatively select a line and press "Enter" to add length.



- 7 Select a line and press "Opening" to add doors or windows.



- 8 Drag the opening to move it or select the distance from the wall and measure it.



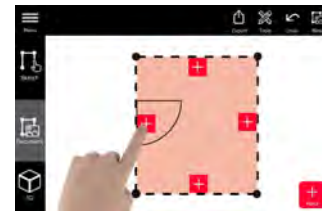
- 9 Select opening and press "Modify" to change type and enter width and height. Use "Rotate" button to change the opening orientation.



- 10 Switch to "3D" mode. A room height can be entered.



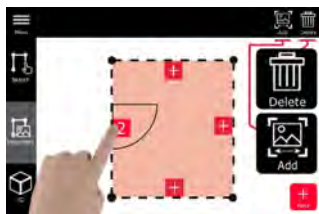
- 11 Switch to "Document". A placeholder is automatically assigned to each line and opening. Drag a placeholder to move it. Press "Place" button and tap the screen to place a new placeholder.



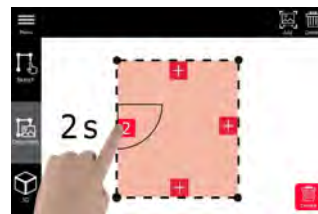
- 12 Select an empty placeholder to add a 3D image. It is possible to take a new photo or browse for existing photos. A plan can store up to 500 3D images.



- 13 Select a placeholder to review the 3D images. Press the image preview to open it and add more measurements.

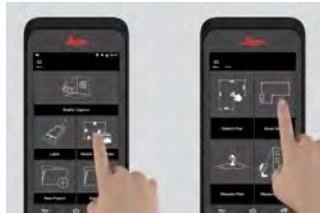


- 14 Select a placeholder to "Delete" or "Add" a 3D image. The placeholder counter will be updated.

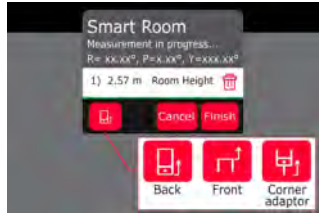


- 15 To delete a placeholder, press it for 2 seconds and press "Delete". All the stored 3D images will be deleted.

## Smart Room (Optional)

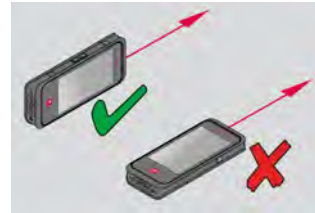


- 1 Select "Smart Room" function from "Sketch & Document" menu.

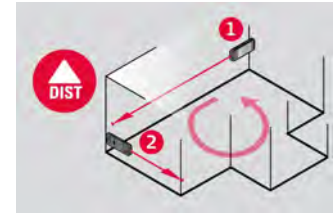


- 2 Adjust measuring reference:

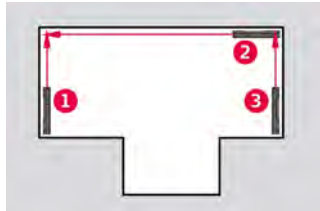
**Back:** Distance is measured from the bottom of the device (default setting).  
**Front:** Distance is measured from the top of the device.  
**Corner adaptor:** Distance is measured from the corner adaptor (optional).



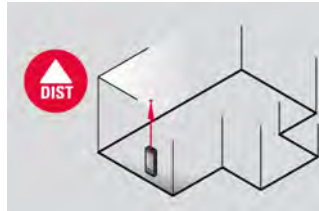
- 3 Keep screen oriented away from the wall while measuring.



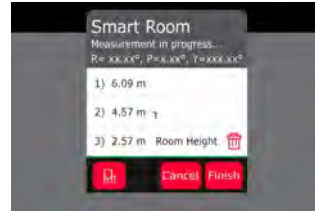
- 4 Measure room clockwise/anti-clockwise using "Laser" button. Up to 20 measurements are supported for one Smart Room.



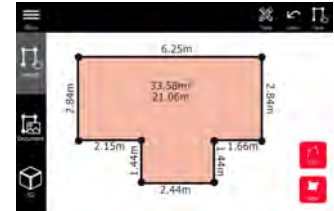
- 5 Reverse measurements can be done when needed.



- 6 Room Height can be measured any time.



- 7 All measured values are displayed. After the last measurement press "Finish".

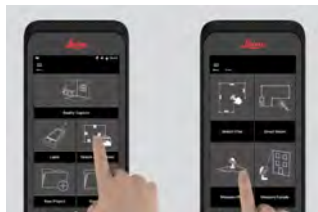


- 8 The floorplan can be modified in "Sketch" mode (see [Sketch Plan](#)).

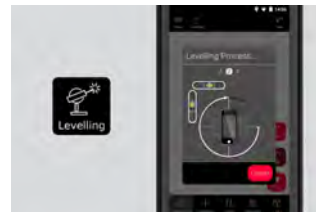
## Measure Plan (Optional)



- 1 Connect BLK3D to Leica DST 360 adapter.



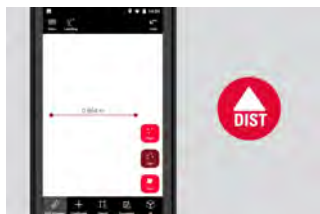
- 2 Select "Measure Plan" function from "Sketch & Document" menu.



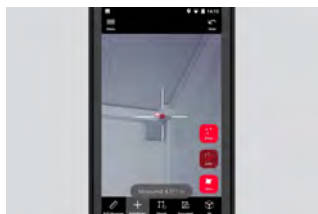
- 3 Level the instrument before starting measuring. Follow instructions on screen.



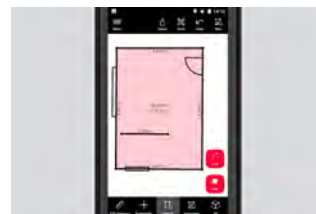
- 4 Select "Point", "Line" or "Area" in the "P2P Measure" tab.



- 5 Aim laser to target and measure with "Measure" button. Measured points are projected onto the floorplan and are automatically shown on screen.



- 6 Activate Pointfinder to use the front camera to aim the target point and measure with "Measure" button.

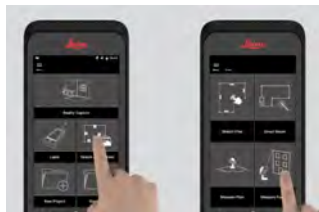


- 7 The plan can be modified in "Sketch" mode (see [Sketch Plan](#)) or visualized in 3D.

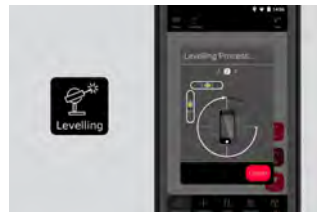
## Measure Facade (Optional)



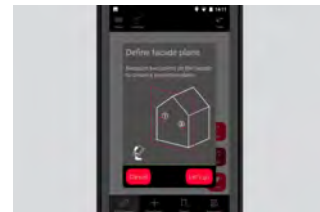
- 1 Connect BLK3D to Leica DST 360 adapter.



- 2 Select "Measure Facade" function from "Sketch & Document" menu.



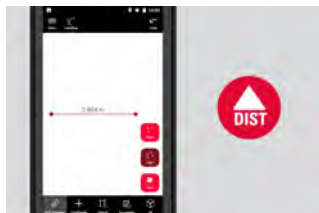
- 3 Level the instrument before starting measuring. Follow instructions on screen.



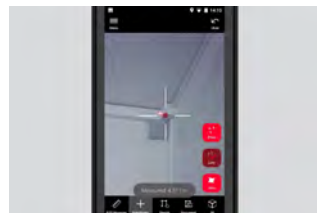
- 4 Define facade plane to create a projection plane. Follow instructions on screen.



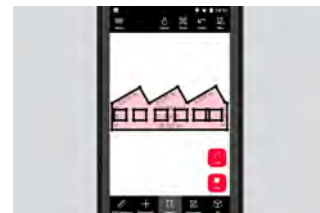
- 5 After the facade plan has been defined, select "Point", "Line" or "Area" in the "P2P Measure" tab.



- 6 Aim laser to target and measure with "Measure" button. Measured points are projected onto the floorplan and are automatically shown on screen.



- 7 Activate Pointfinder to use the front camera to aim the target point and measure with "Measure" button.



- 8 The plan can be modified in Sketch mode (see [Sketch Plan](#)). 3D view is not available for facades.





① Select "Organiser" function.

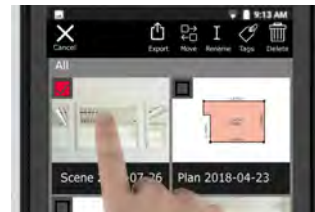


② All the plans and 3D images are stored in four categories:

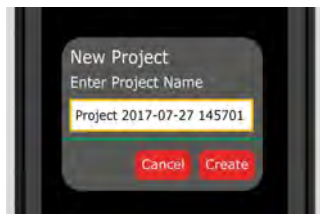
1. All
2. Projects
3. 3D Images
4. Plans



③ Open the category "All". All the plans, 3D images and projects are stored.



④ Use the "Select" button to select an item. Different actions are available: Export, Move to Project, Rename, Tag and Delete.



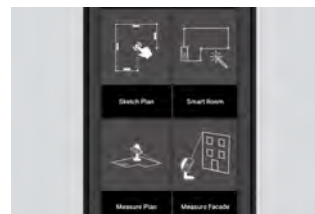
⑤ Open the category "Projects". Press the "Project" button to create a new Project folder. Plans and 3D images can be moved into project folders.



⑥ Open the category "3D Images", where all the Reality Capture 3D images are stored. Press "RC" button to switch to [Reality Capture](#) to take new 3D images.



⑦ Open the category "Plans". All the plans, including plans with 3D images attached, are stored.



⑧ Press "S&D" button to add a new plan.

- Clean the device with a damp, soft cloth.
- Never immerse the device in water.
- Never use aggressive cleaning agents or solvents.
- Backup your data regularly. Leica Geosystems AG is not liable for data loss.
- Handle with care. BLK3D Imager is a highly accurate optical measurement device.
- Use neck strap to prevent from drop.
- Do not drop. The product may malfunction if subject to strong shocks or vibration. The camera calibration needs to be checked after a drop.
- Device can get hot during extensive use. This is normal and not a failure.

# Warranty

The Leica BLK3D comes with a 1 year warranty from Leica Geosystems AG.

More detailed information about the International Limited Warranty can be found on the internet at: [https://leica-geosystems.com/-/media/files/leicageosystems/about\\_us/legal%20document/internationallimitedwarranty\\_english\\_2013.ashx?la=en](https://leica-geosystems.com/-/media/files/leicageosystems/about_us/legal%20document/internationallimitedwarranty_english_2013.ashx?la=en)



The person responsible for the instrument must ensure that all users understand these directions and adhere to them. The product is permitted to use for skilled persons only.

## Symbols used

The symbols used have the following meanings:



### **WARNING**

Indicates a potentially hazardous situation or an unintended use which, if not avoided, will result in death or serious injury.



### **CAUTION**

Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor injury and/or appreciable material, financial and environmental damage.



Important paragraphs which must be adhered to in practice as they enable the product to be used in a technically correct and efficient manner.

## Permitted use

- Capture 3D images
- Measure in 3D images
- Measure distances
- Tilt measurement
- Point to point measurement
- Data transfer with Bluetooth®/WLAN
- 2D/3D CAD export

## Prohibited use

- Using the device for the first time without reading instructions
- Using the device outside the stated limits of use (see section [Limits of use](#))
- Deactivating safety systems and removing explanatory and hazard labels
- Opening of the equipment by using tools (screwdrivers, etc.)
- Using not approved accessories from other manufacturers
- Deliberate dazzling of third parties; also in the dark
- Using the device in surveying sites with inadequate safeguards
- Deliberate or irresponsible behaviour on scaffolding, when using ladders, when measuring near machines which are running or near parts of machines or installations which are unprotected
- Aiming directly in the sun

## Hazards in use

### WARNING

Watch out for erroneous measurements if the instrument is defective or if it has been dropped or has been misused or modified. Carry out periodic test measurements. Particularly after the instrument has been subject to abnormal use, and before, during and after important measurements.

### CAUTION

Never attempt to repair the product yourself. In case of damage, contact a local dealer.

### WARNING

Changes or modifications not expressly approved could void the user's authority to operate the equipment.

### CAUTION

Only use chargers recommended by the manufacturer to charge the batteries.

### WARNING

We recommend to use the "Check & Adjust" function and the BLK3D calibration target plate to check the accuracy.

## Limits of use



Refer to section [Technical data](#). The device is designed for use in areas permanently habitable by humans. Do not use the product in explosion hazardous areas or in aggressive environments.

## Areas of responsibility

### Responsibilities of the manufacturer of the original equipment:

Leica Geosystems AG

Heinrich-Wild-Strasse

CH-9435 Heerbrugg

Internet: [www.leica-geosystems.com](http://www.leica-geosystems.com)

The company above is responsible for supplying the product, including the User Manual in a completely safe condition.

The company above is not responsible for third party accessories.

### Responsibilities of the person in charge of the instrument:

- To understand the safety instructions on the product and the instructions in the User Manual.
- To be familiar with local safety regulations relating to accident prevention.
- Always prevent access to the product by unauthorised personnel.

## Disposal

### CAUTION

Flat batteries must not be disposed of with household waste. Care for the environment and take them to the collection points provided in accordance with national or local regulations.



The product must not be disposed with household waste. Dispose of the product appropriately in accordance with the national regulations in force in your country. Adhere to the national and country specific regulations.

Product specific treatment and waste management can be downloaded from our homepage.

## Electromagnetic Compatibility (EMC)

### WARNING

The device conforms to the most stringent requirements of the relevant standards and regulations. However, the possibility of causing interference in other devices cannot be totally excluded.

## FCC statement (applicable in U.S.)

This equipment has been tested and found to comply with the limits for a Class B digital instrument, 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 into 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

This device complies with part 15 of the FCC rules. Operation is subjected to the following two conditions:

- This device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

## FCC Radiation Exposure Statement

The radiated rf output power of the instrument is below the FCC radio frequency exposure limits for portable devices according to KDB 447498.

## ISED Statement (applicable in Canada)

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- l'appareil ne doit pas produire de brouillage;
- l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

## Japanese Radio Law and Japanese Telecommunications Business Law Compliance

This device is granted pursuant to the Japanese Radio Law (電波法) and the Japanese Telecommunications Business Law (電気通信事業法).

## Regulatory

Regulatory information, certification, and compliance marks are available on BLK3D. Go to Android Settings > About phone > Regulatory labels.

## Use of the product with Bluetooth®



### WARNING

Electromagnetic radiation can cause disturbances in other equipment, in installations (e.g. medical ones such as pacemakers or hearing aids) and in aircraft. It can also affect humans and animals.

### Precautions:

Although this product conforms to the most stringent standards and regulations, the possibility of harm to people and animals cannot be totally excluded.

- Do not use the product near petrol stations, chemical plants, in areas with a potentially explosive atmosphere and where blasting takes place.
- Do not use the product near medical equipment.
- Do not use the product in airplanes.
- Do not use the product near your body for extended periods.



## Laser classification

The device produces visible laser beams, which are emitted from the instrument: It is a Class 2 laser product in accordance with:

- IEC60825-1 : 2014 „Radiation safety of laser products“



### Laser Class 2 products:

Do not stare into the laser beam or direct it towards other people unnecessarily. Eye protection is normally afforded by aversion responses including the blink reflex.

#### WARNING

Looking directly into the beam with optical aids (e.g. binoculars, telescopes) can be hazardous.

#### CAUTION

Looking into the laser beam may be hazardous to the eyes. Don't dazzle other individuals. Pay particular attention to the direction of the laser beam when remotely operating the product via an app or software. A measurement could be triggered at any time.

Wavelength

655 nm

Maximum radiant output power for classification

0.95 mW

Pulse duration

> 400 ps

Pulse repetition frequency

320 MHz

Beam divergence

0.16 x 0.6 mrad

## Labelling



Subject to change (drawings, descriptions and technical data) without prior notice.