Leica DISTO™ X6
The original laser distance meter

User Manual

Version 1.0
English

- when it has to be **right**

Leica Geosystems

PART OF HEXAGON

Introduction

This manual contains important safety directions as well as instructions for setting up the product and operating it. Refer to 1 Safety Directions for further information.

Read carefully through the User Manual before you switch on the product.

☞ The content of this document is subject to change without prior notice. Ensure that the product is used in accordance with the latest version of this document.

Updated versions are available for download at the following Internet address:

https://www.disto.com/manuals

☞ Keep for future reference!

Trademarks

- *Bluetooth*® is a registered trademark of Bluetooth SIG, Inc.

All other trademarks are the property of their respective owners.

Validity of this manual

This manual applies to the Leica DISTO™ X6. Where there are differences between the standard setups they are clearly described.

Leica Geosystems address book

On the last page of this manual, you can find the address of Leica Geosystems headquarters. For a list of regional contacts, please visit http://leica-geosystems.com/contact-us/sales_support.

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1 Safety Directions

1.1 General Introduction

Description

The following directions enable the person responsible for the product, and the person who actually uses the equipment, to anticipate and avoid operational hazards.

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

About warning messages

Warning messages are an essential part of the safety concept of the instrument. They appear wherever hazards or hazardous situations can occur.

Warning messages...

- make the user alert about direct and indirect hazards concerning the use of the product.
- contain general rules of behaviour.

For the users' safety, all safety instructions and safety messages shall be strictly observed and followed! Therefore, the manual must always be available to all persons performing any tasks described here.

DANGER, **WARNING**, **CAUTION** and **NOTICE** are standardised signal words for identifying levels of hazards and risks related to personal injury and property damage. For your safety, it is important to read and fully understand the following table with the different signal words and their definitions! Supplementary safety information symbols may be placed within a warning message as well as supplementary text.

Type	Description
⚠ DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Type	Description
⚠ **WARNING**	Indicates a potentially hazardous situation or an unintended use which, if not avoided, could result in death or serious injury.
⚠ **CAUTION**	Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor or moderate injury.
NOTICE	Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in 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.

1.2 Definition of Use

Intended Use

- Measuring distances in interior as well as exterior condition
- Tilt measurement
- Data transfer with Bluetooth®

Foreseeable misuse

- Use of the product without instructions
- Use outside of the intended use and limits
- Disabling of safety systems
- Removal of hazard notices
- Opening the product using tools, for example a screwdriver, unless this is permitted for certain functions
- Use with accessories from other manufacturers without the prior written explicit approval of Leica Geosystems AG
- Modification or conversion of the product
- Deliberate dazzling of third parties; also in the dark
- Inadequate safeguards at the working site
- Deliberate or irresponsible behaviour on scaffold, when using ladders, when measuring near machines which are running or near parts of machines or installations which are unprotected
- Aiming directly into the sun
- Optics are fogged up or wet. Before measurements, condensation moisture and splash water must be removed from directly accessible parts such as the output optics using a suitable cloth
- Moving the device during measurements. Try to hold it still when measuring
- Dusty atmosphere. Make sure that the lenses of the instrument are free of dust when measuring. If necessary, clean with a brush
- Measurements in rain, snow, fog or other atmospheric conditions between the device and the target point
- Measurements in strong electrical and magnetic fields, which cannot be completely ruled out in the vicinity of transformers, strong magnets, power supply systems, and so on
- Measurements with the laser beam in the immediate vicinity of highly reflective surfaces

1.3 Limits of Use

☞ Refer to section 9 Technical Data.

Environment

Suitable for use in an atmosphere appropriate for permanent human habitation. Not suitable for use in aggressive or explosive environments.

1.4 Responsibilities

Manufacturer of the product

Leica Geosystems AG, CH-9435 Heerbrugg, hereinafter referred to as Leica Geosystems, is responsible for supplying the product, including the User Manual and original accessories, in a safe condition.

The company above is not responsible for third-party accessories.

Person responsible for the product

The person responsible for the product has the following duties:

- 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
- To ensure that the product is used in accordance with the instructions

☞ The product is permitted to use for skilled persons only.

1.5 Hazards of Use

Radios, digital cellular phones or products with Bluetooth

⚠WARNING

Use of product with radio or digital cellular phone devices

Electromagnetic fields can cause disturbances in other equipment, installations, medical devices, for example pacemakers or hearing aids, and aircrafts. Electromagnetic fields can also affect humans and animals.

Precautions:

- Although the product meets the strict regulations and standards which are in force in this respect, Leica Geosystems AG cannot completely exclude the possibility that other equipment can be disturbed or that humans or animals can be affected.
- Do not operate the product with radio or digital cellular phone devices in the vicinity of filling stations or chemical installations, or in other areas where an explosion hazard exists.
- Do not operate the product with radio or digital cellular phone devices near medical equipment.
- Do not operate the product with radio or digital cellular phone devices in aircrafts.
- Do not operate the product with radio or digital cellular phone devices for long periods with the product immediately next to your body.

☞ This warning also applies when using products with Bluetooth.

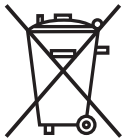
⚠WARNING

Improper disposal

If the product is improperly disposed of, the following can happen:

- If polymer parts are burnt, poisonous gases are produced which may impair health.
- If batteries are damaged or are heated strongly, they can explode and cause poisoning, burning, corrosion or environmental contamination.
- By disposing of the product irresponsibly you may enable unauthorised persons to use it in contravention of the regulations, exposing themselves and third parties to the risk of severe injury and rendering the environment liable to contamination.

Precautions:

▸ 

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.
Always prevent access to the product by unauthorised personnel.

Product-specific treatment and waste management information can be downloaded from Get Disto Support, section **Recycling Passports**.

⚠ CAUTION

Electromagnetic radiation

Electromagnetic radiation can cause disturbances in other equipment.

Precautions:

- Although the product meets the strict regulations and standards which are in force in this respect, Leica Geosystems cannot completely exclude the possibility that other equipment may be disturbed.
- The product is a class A product when operated with the internal batteries. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

NOTICE

Dropping, misusing, modifying, storing the product for long periods or transporting the product

Watch out for erroneous measurement results.

Precautions:

- Periodically carry out test measurements, particularly after the product has been subjected to abnormal use and before and after important measurements.

NOTICE

Target surfaces

Measuring errors and increase of measuring time can occur.

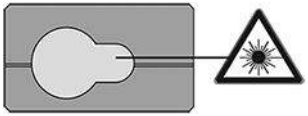
Precautions:

- Keep in mind that measuring errors can occur when measuring to colourless liquids, glass, styrofoam or permeable surfaces or when aiming at high gloss surfaces.
- Against dark surfaces the measuring time increases.

1.6 Laser Classification

General

The laser LED built into the product produces a visible laser beam which emerges from the front side.



The laser product described in this section is classified as laser class 2 in accordance with:

- IEC 60825-1 (2014-05): "Safety of laser products"

These products are safe for momentary exposures but can be hazardous for deliberate staring into the beam. The beam may cause dazzle, flash-blindness and after-images, particularly under low ambient light conditions.

⚠ CAUTION

Class 2 laser product

From a safety perspective, class 2 laser products are not inherently safe for the eyes.

Precautions:

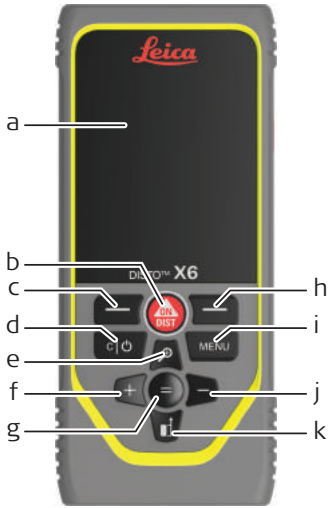
- Avoid staring into the beam or viewing it through optical instruments.
- Avoid pointing the beam at other people or at animals.
- Pay particular attention to the direction of the laser beam when remotely operating the product by an app or software. A measurement could be triggered at any time.

Description	Value
Wavelength	620-690 nm
Maximum average radiant power	< 1 mW
Pulse duration	> 400 ps.
Pulse repetition frequency (PRF)	320 MHz
Beam divergence	0.16 mrad × 0.6 mrad

2 Overview

Components

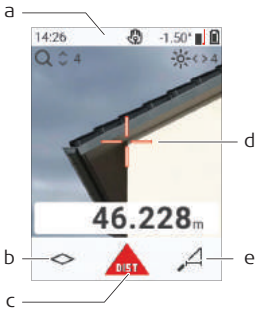
The Leica DISTO™ is a laser distance meter operating with a class 2 laser.
See chapter 9 Technical Data for scope of use.



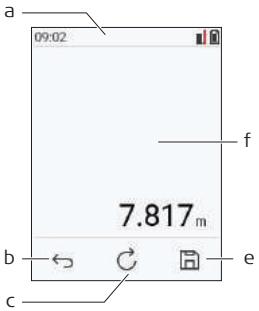
a	Display/Touch screen
b	**ON/DIST**, ON/Measure
c	Left selection key linked to symbols above
d	Clear/OFF
e	Zoom/Navigate upwards/Pointfinder
f	Add/Navigate left
g	Enter/Equal
h	Right selection key linked to symbols above
i	Menu – Function/Settings
j	Subtract/Navigate right
k	Measuring reference/Navigate downwards

Basic measuring screen

Pointfinder on

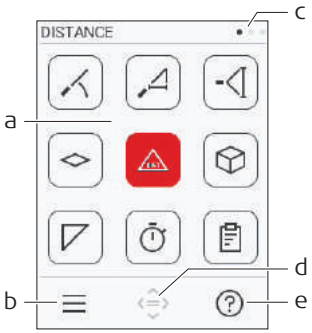


Pointfinder off



a Status bar
b Favourite, left key
c Active function
d Cross hair
e Favourite, right key
f Measuring results

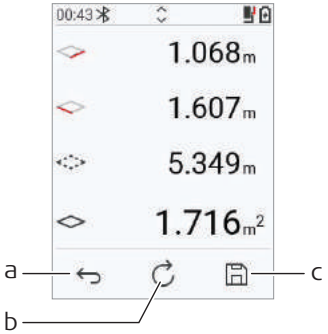
Selection screen



☞ Red icons represent **Functions**
Black icons represent **Settings**

a Function/Settings menu
b Touch icon or press the left selection key to switch between Function/Settings menu. Option: Press **MENU** key twice
c Page indicator. Press left/right on navigator key or swipe left/right on touch screen
d Selects the indicated icon. Touch icon or press the **=** key or **ON/DIST** key
e Help function. Touch icon or press the right selection key to see available help

Basic result screen



a Back step-by-step.
For example: Repeat measurement

b Repeat function
For example: Repeat whole measurement

c Save result. Check saved results in the **REPORTS** menu. Option: For some functions to measure multiple points

Icons on status bar

12:03	Time		Gesture control
	Bluetooth is switched on		Scroll up/down for further results
	Bluetooth connection established		Measuring reference
	Device is measuring		Offset is activated and adds/substracts the defined value from measuring distance
	Device is levelled		Battery power
	Device is not levelled		Zoom

3 Instrument Setup

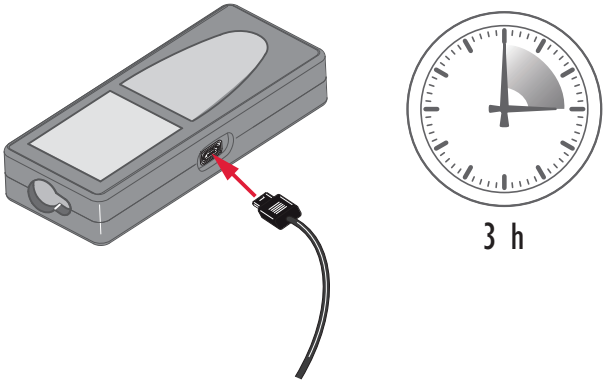
Charging the Li-Ion battery by USB

Charge the battery before using it for the first time.

☞ Use the original charging cable only.

Plug the small end of the cable into the port of the device, and plug the end of the charger into an electrical socket. Select the appropriate connector for your country. The device can be used while charging.

Using the computer for charging the device is possible if the USB port is providing sufficient power. We therefore recommend the use of a USB charging device with 5 V/1 A.



- The battery must be charged before using it the first time, because it is delivered with an energy content as low as possible.
- The permissible temperature range for charging is from 5 °C to +40 °C/+41 °F to +104 °F. For optimal charging, we recommend charging the batteries at a low ambient temperature of +10 °C to +20 °C/+50 °F to +68 °F if possible
- It is normal for the battery to become warm during charging. Using the chargers recommended by Leica Geosystems, it is not possible to charge the battery once the temperature is too high
- For new batteries or batteries that have been stored for a long time (> three months), it is effectual to make a discharge/charge cycle
- For Li-Ion batteries, a single discharge/charge cycle is sufficient. We recommend carrying out the process when the battery capacity indicated on the charger or on a Leica Geosystems product deviates significantly from the actual battery capacity available.

⚠CAUTION

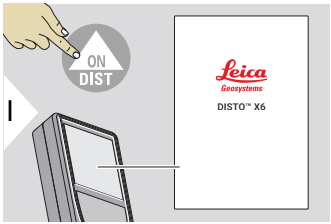
The device shows the message code 298

Internal diagnostics indicate a possible swell of the Li-Ion battery.

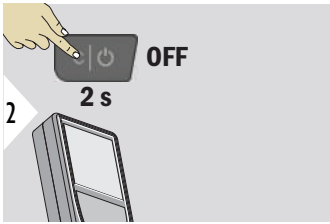
Precautions:

- Switch off and stop using the device.
- Replace the battery before using the device again.

Switching ON/OFF



Device is turned ON.

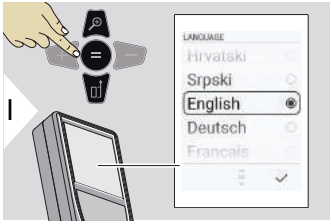


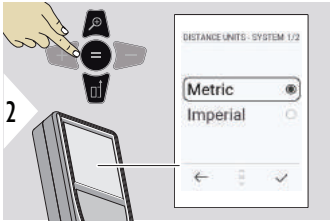
Device is turned OFF.

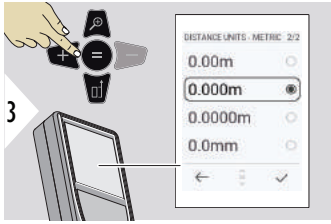
☞ If the device does not react anymore or cannot be switched off, press and hold the C/Off key for about 10 s. After releasing the button, the device restarts.

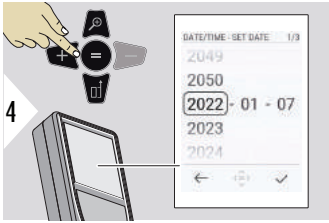
Start-up wizard

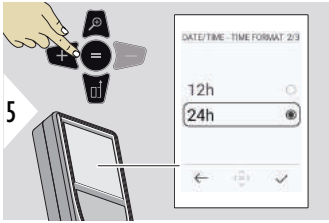
This wizard starts automatically when switching the device ON the very first time or after a Reset. The user is asked to set **LANGUAGE**, **DISTANCE UNITS** and **DATE/TIME**. Follow these steps.

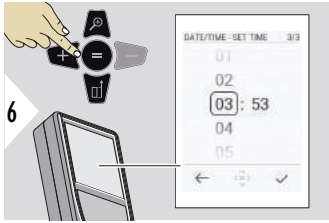




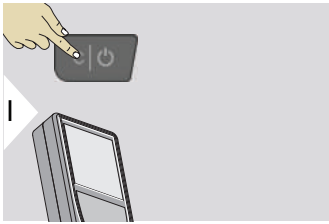








Clear



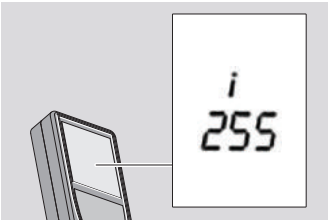
Leave current function, go to default operation mode.

Message codes

NOTICE

If the message "i" appears with a number, observe the instructions in 7 Message Codes section.

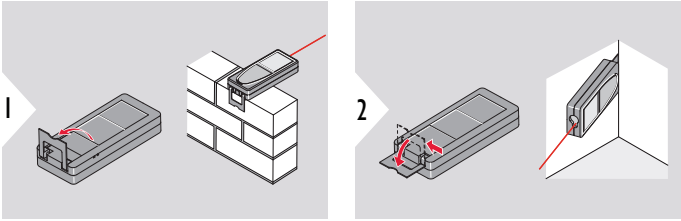
Example:



Multifunctional endpiece

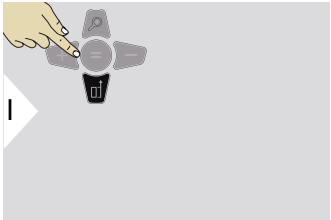
☞ When measuring with 90° flipped-out endpiece, make sure that it lies plane against the edge you measure from.

Example:

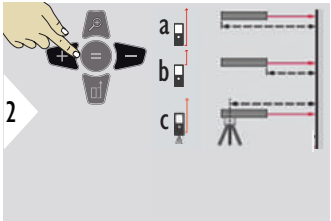


☞ The orientation of the endpiece is automatically detected and the zero point is adjusted accordingly.

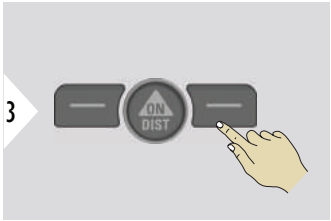
Adjusting measuring reference



☞ Adjusting the measuring reference only works in pointing mode. Make sure that the laser is switched on.



a Distance is measured from the rear of the device (standard setting)
b Distance is measured from the front of the device
c Distance is measured from the tripod thread



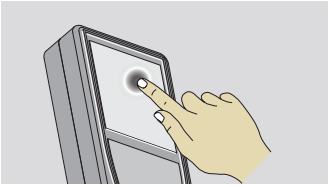
Confirm setting.

☞ If device is switched off, reference goes back to standard setting (rear of the device).

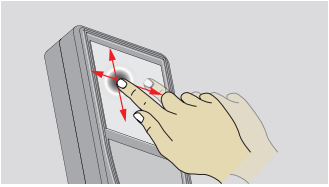
4 Operation

Using the touch screen

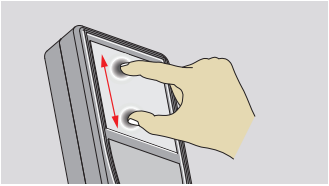
- Use only fingers to use the touch screen
- Do not allow the touch screen to come into contact with other electrical devices
- Electrostatic discharges can cause the touch screen to malfunction
- Do not allow the touch screen to contact water. The touch screen may malfunction in humid conditions or 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 on the display to open an onscreen button or to make a selection. Tapping on the icon in the middle of the bottom line activates the distance measurement or triggers the camera.



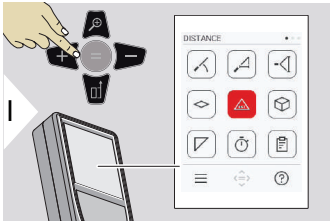
Drag on the display to move to previous or to next screen in the galerie function.

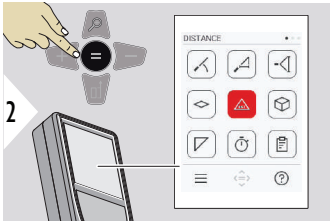


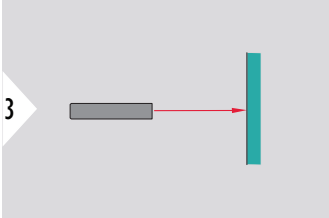
Spread two fingers apart to zoom if pointfinder is activated.

☞ Instead of using the touch screen, the normal keypad keys can be used also.

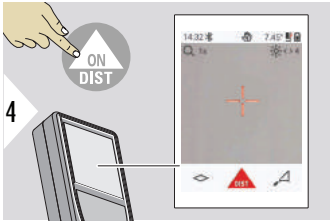
Single DISTANCE





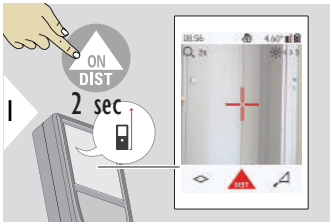


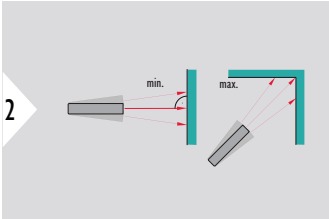
Aim active laser at target.



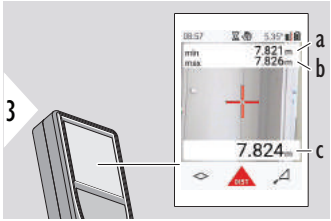
a Measured distance

Permanent/minimum-maximum measuring



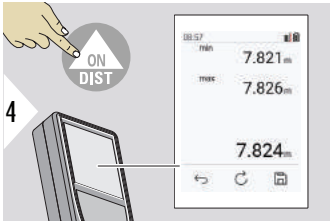


Used to measure room diagonals (maximum values) or horizontal distance (minimum values).

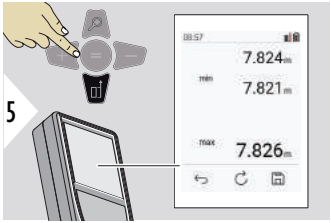


Live view

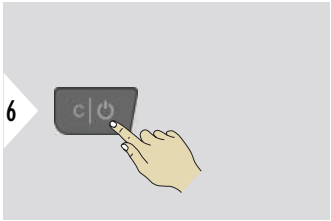
- a The minimum distance measured
- b The maximum distance measured
- c Main line: The current value measured



Stops permanent/minimum-maximum measuring.
The measuring results are displayed.

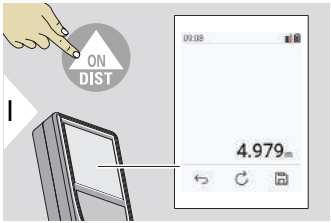


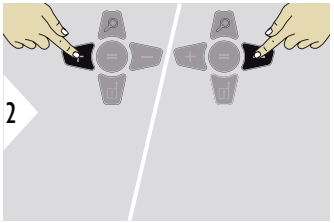
Use the **Down** navigation key to take over values in the main line for sending by Bluetooth.



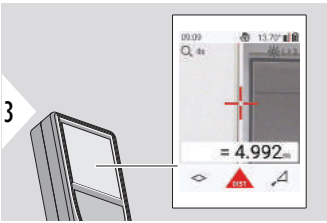
Exit

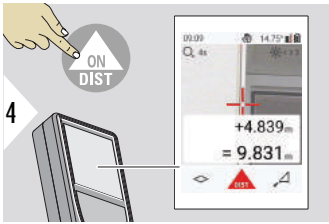
Add/subtract

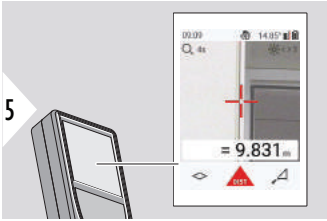


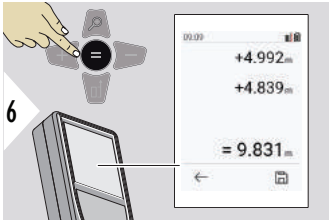


+ The next measurement is **added** to the previous one
– The next measurement is **subtracted** from the previous one









Push the **Enter/Equal** key to stop adding/substracting values.

☞ This process can be repeated as required. The same process can be used for adding or subtracting areas or volumes.

Bluetooth data transfer

DISTO™ Plan. Use App for Bluetooth data transfer. Your device can also be updated through this App.

☞ Bluetooth is active when the device is switched on. Connect the device with your smartphone, tablet, laptop... If **Autosend** is activated, measurement values are transferred automatically right after a measurement. To transfer a result, press the **Enter/Equal** key:

Refer to **BLUETOOTH SETTINGS** for details.
When connected to an iOS device, press + or – key for 1 second to let the keyboard appear on the display of your mobile device. Pressing one of those keys again closes the keyboard.
Bluetooth switches off as soon as the laser distance meter is switched off.

The Leica DISTO™ is compatible to smartphone, tablet or laptop devices using Bluetooth 4.0 or higher. The number of possible measurements with only one battery charge is hardly affected due to the Low Energy technology.

Following software and app are available from Leica Geosystems. They extend the possibilities arising with the use of Leica DISTO™:

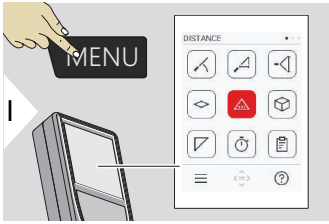
DISTO™ Transfer for use with Windows 10 or higher. It is free of charge and can be downloaded from https://www.disto.com.

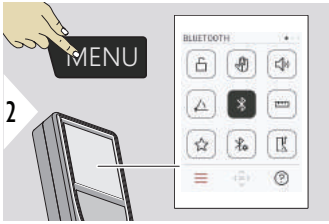
The DISTO™ Plan app is available for iOS and Android tablets and smartphones. Download the app from the corresponding app stores. The app is basically free but includes in-App purchases to extend its functionality as well.

☞ We provide no warranty for free Leica DISTO™ software and offer no support for it. We accept no liability whatsoever arising from the use of the free software and we are not obliged to provide corrections nor to develop upgrades. A wide range of commercial software can be found on our homepage. Apps for Android® or iOS can be found in special internet shops. Refer to https://www.disto.com for more details.

5 Settings

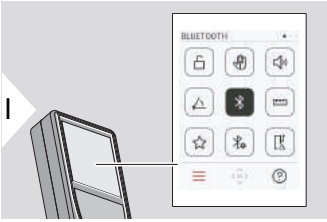
Overview





Press the MENU key twice to enter the settings menu.

Settings



Activate/deactivate **KEY LOCK**

GESTURE ON/OFF

BEEP ON/OFF

ANGLE UNITS

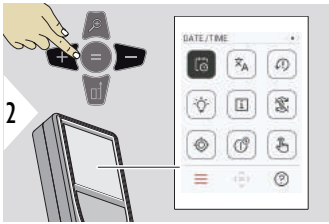
BLUETOOTH ON/OFF

DISTANCE UNITS

FAVORITES

BLUETOOTH SETTINGS

DISTANCE OFFSET



DATE/TIME

LANGUAGE

RESET DEVICE

DISPLAY ILLUMINATION

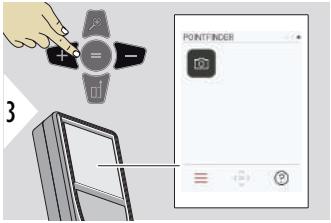
INFORMATION

SCREEN ROTATION

TILT CALIBRATION

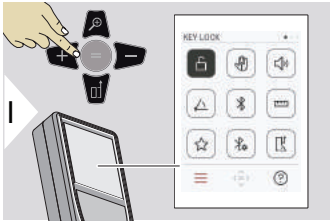
SHUTDOWN TIME

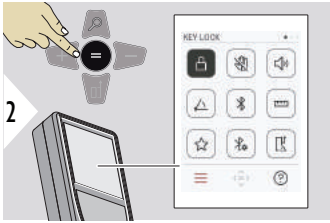
Switch **TOUCH SCREEN** ON/OFF



Pointfinder

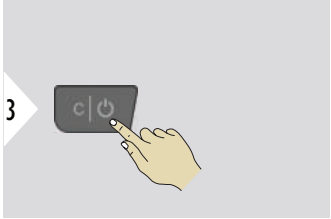
Activate/deactivate KEY LOCK





Toggle ON/OFF

An activated key lock stays active even if the device is switched off.

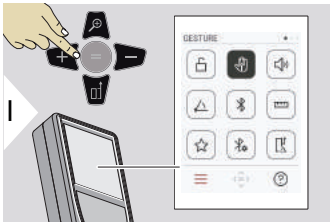


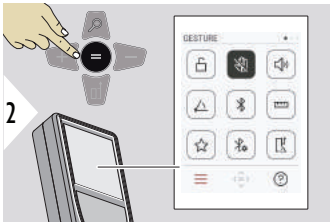
Exit settings.

☞ If **KEY LOCK** is activated: Press the **=** key after device is switched on to access device.

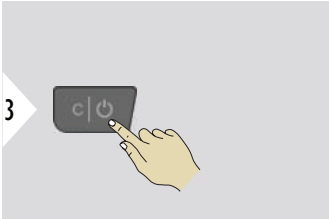
GESTURE ON/OFF

This feature allows triggering measurements without touching the device. To do so, wipe through laser beam with hand or other object within 25 cm.



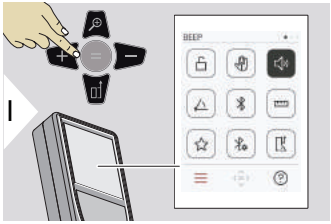


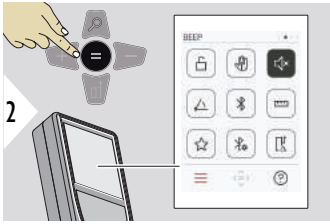
Toggle ON/OFF



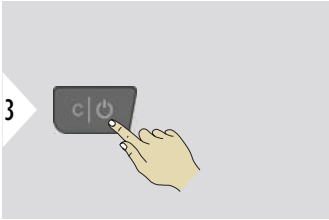
Exit settings.

BEEP ON/OFF



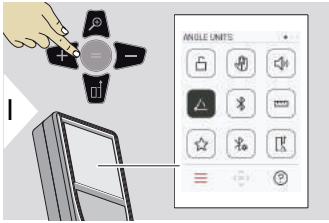


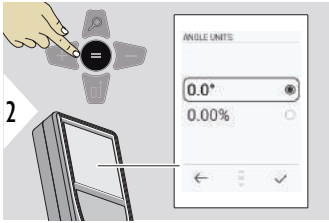
Toggle ON/OFF

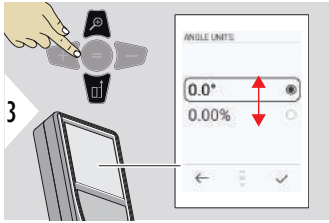


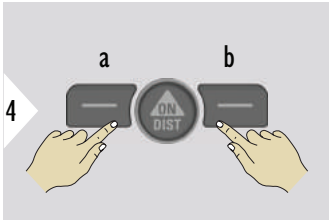
Exit settings.

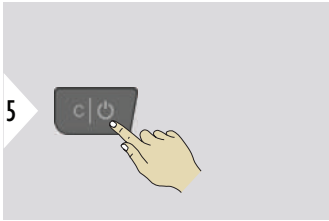
ANGLE UNITS







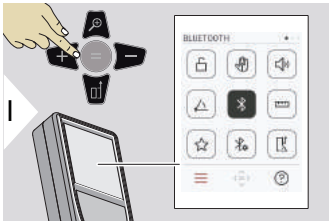


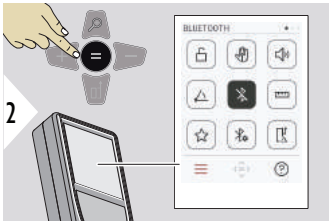


a Refuse
b Confirm

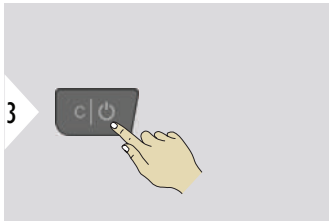
Exit settings.

BLUETOOTH ON/OFF





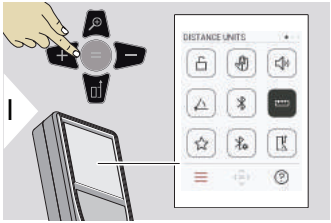
Toggle ON/OFF

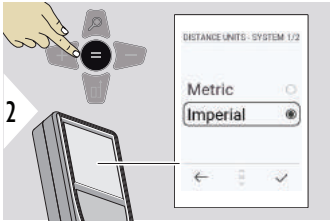


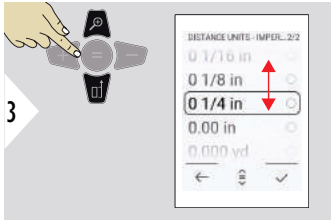
Exit settings.

☞ When Bluetooth is switched on, a black Bluetooth icon is displayed in status bar. Once connection is established, the colour of the icon changes to blue.

DISTANCE UNITS

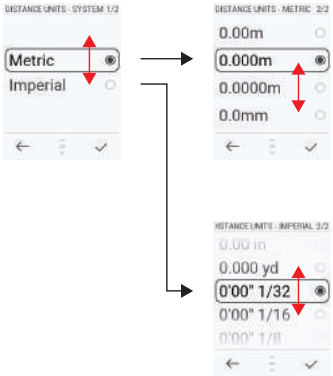


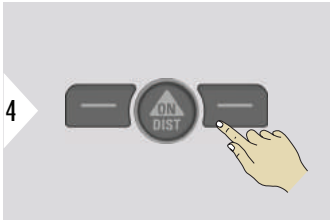




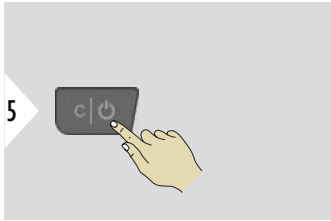
Toggle between the units.

Example



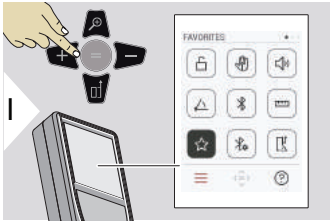


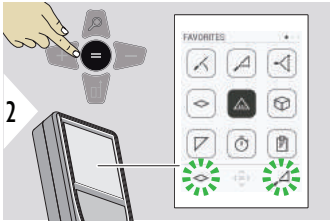
Confirm setting.

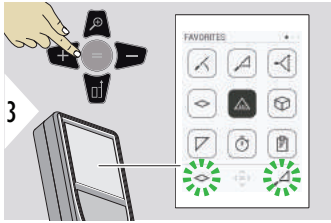


Exit settings.

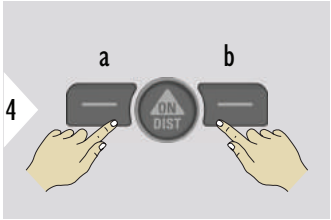
FAVORITES



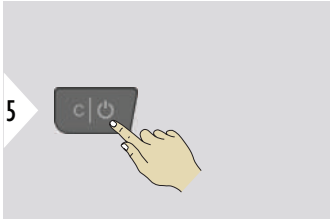




Select favourite function.

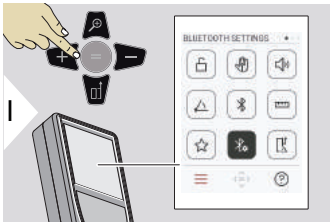


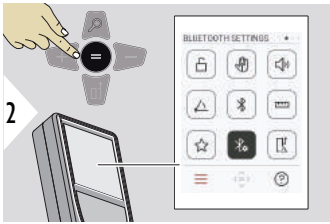
Press the left or right selection key. Function is set as favourite above the corresponding selection key.

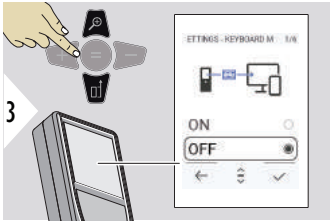


Exit settings.

BLUETOOTH SETTINGS

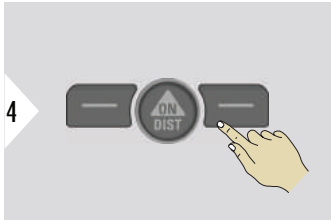




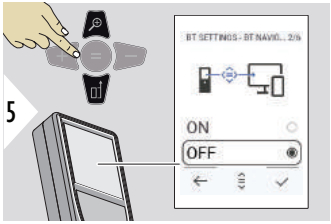


BT SETTINGS - KEYBOARD MODE

Select ON or OFF. Enables measurements to be transmitted as entered on an external keyboard to a computer, tablet or smartphone.

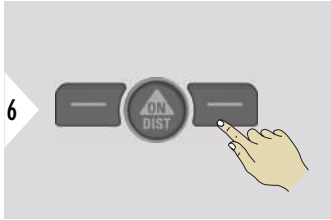


Confirm setting.

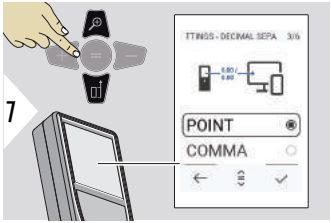


BT SETTINGS - BT NAVIGATION

If activated, it is possible to send measurements manually by using the right favourite key. The left favourite key allows switching on/off the arrow keys for navigation.[1)]

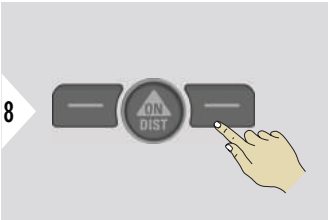


Confirm setting.

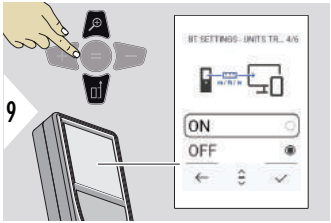


BT SETTINGS - DECIMAL SEPARATOR

Select kind of decimal point for transmitted value.

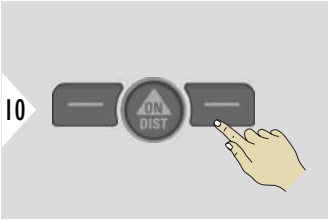


Confirm setting.



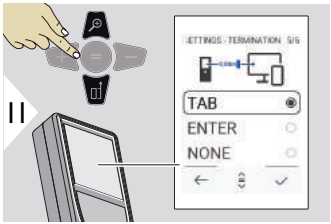
BT SETTINGS - UNITS TRANSFER

Select if unit is transmitted or not.



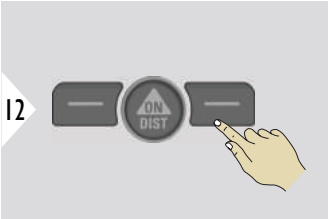
Confirm setting.

[1] For example, move between cells when working with Microsoft Excel. A long press/hold of the corresponding favourite key, starts the function as shown on the display (grey colour).

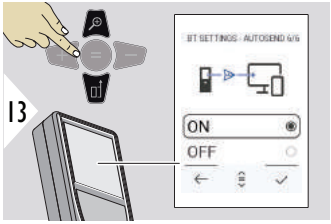


BT SETTINGS - TERMINATION AFTER VALUE

Select termination of transmission.

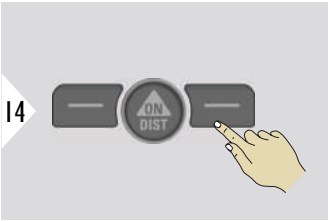


Confirm setting.

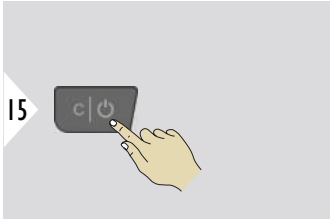


BT SETTINGS - AUTOSEND

Select if value is transmitted automatically or manually.



Confirm setting.

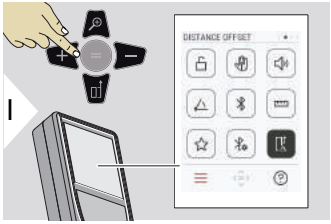


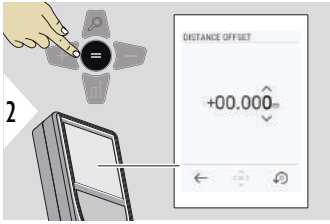
Exit settings.

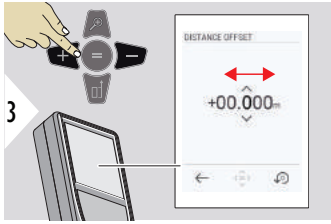
☞ Depending on the chosen settings for Keyboard mode and Autosend, some selection points might be skipped.

DISTANCE OFFSET

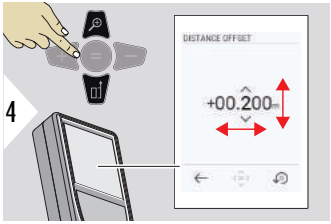
An offset adds or subtracts a specified value automatically to or from all measurements. This function allows tolerances to be taken into account. The offset icon is displayed.



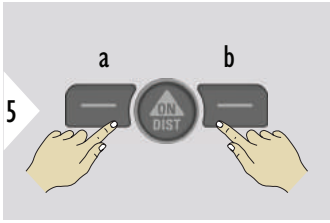




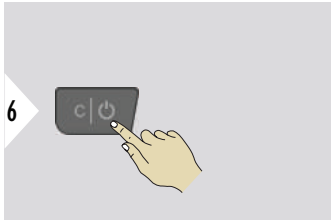
Select digit.



Adjust digit.

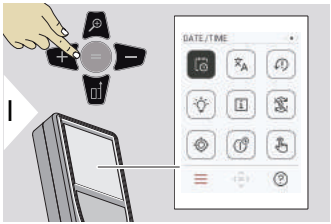


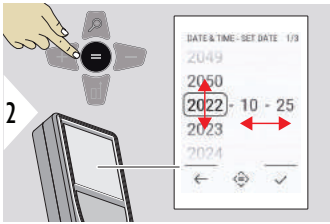
a Approve value
b Reset setting

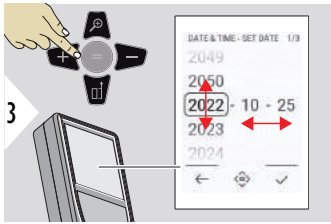


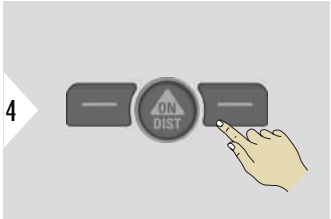
Exit settings.

DATE/TIME

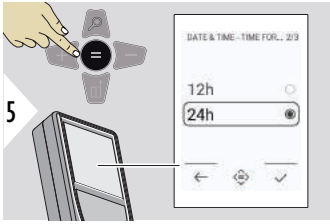


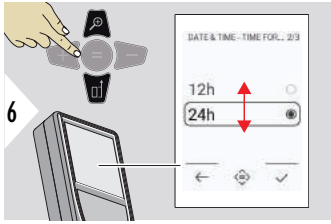


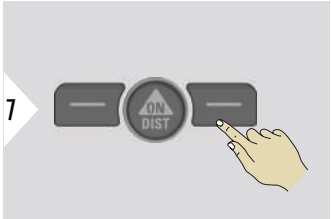




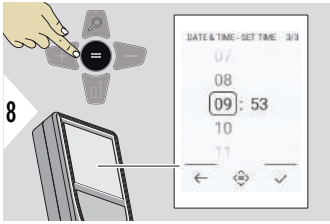
Confirm setting.

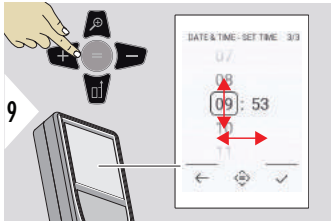


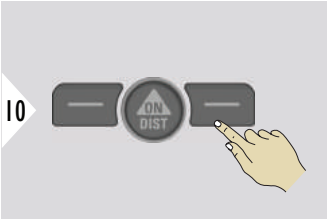


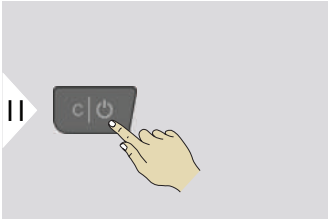


Confirm setting.



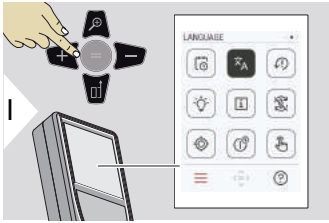


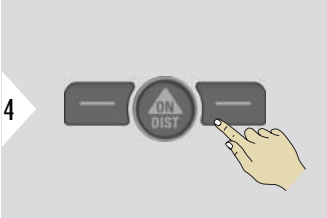




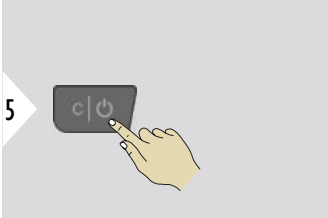
Exit settings.

LANGUAGE





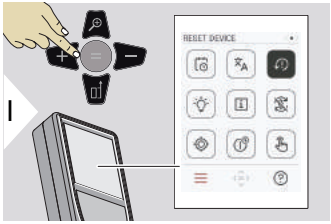
Confirm setting.

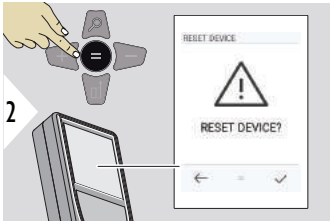


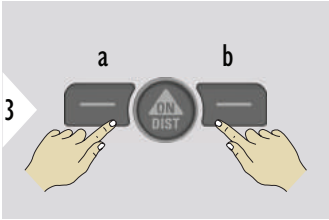
Exit settings.

RESET DEVICE

Reset returns the instrument to the factory settings. All customised settings and memories are lost.

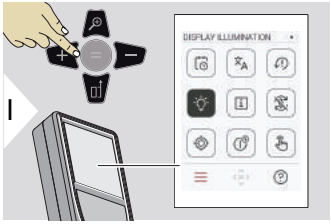


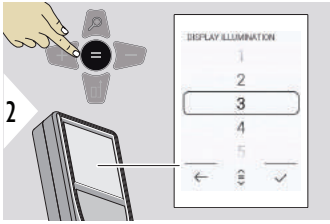


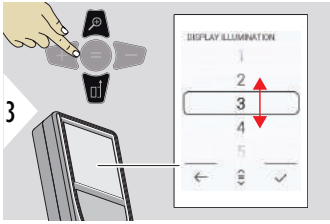


a Refuse
b Confirm

DISPLAY ILLUMINATION

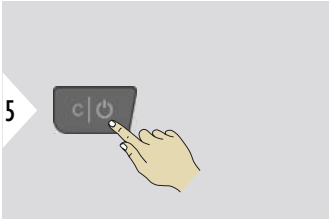






Select brightness.

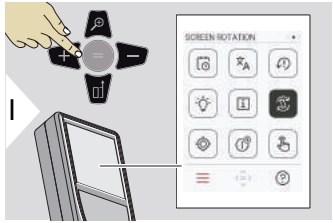
Confirm setting.

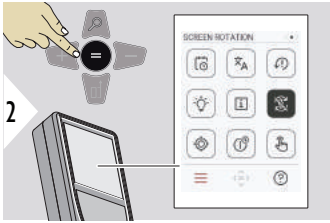


Exit settings.

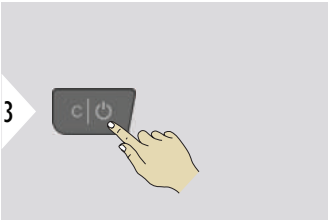
☞ To save power, reduce brightness if not necessary.

SCREEN ROTATION



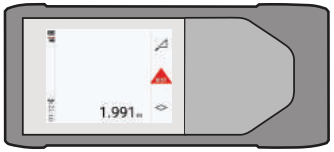


Toggle ON/OFF

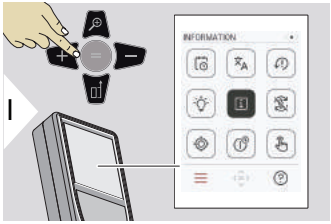


Exit settings.

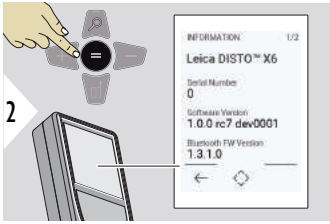
Example



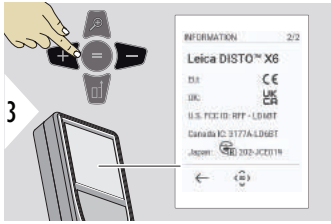
INFORMATION /E-Label



Click 2x Menu Key to access settings and 3x - Key to move to Information/E-Label

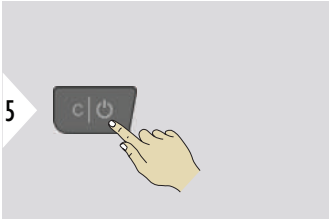


Click = Key to access Information/E-Label



Click - Key to show E-Label content

Exit information screen.



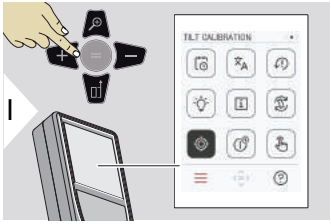
Exit settings.

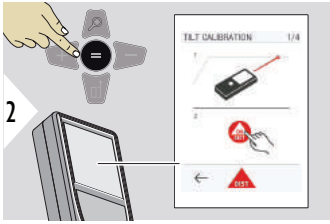
TILT CALIBRATION

This icon appears on the screen once the Leica DISTO™ X6 is operated without an adapter. Refer to **Tilt Sensor** for details.

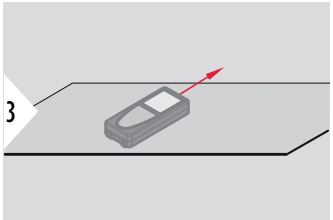
This icon appears on the screen once the Leica DISTO™ X6 is mounted on a Leica DST 360-X. Refer to **DST 360-X CALIBRATION** for details.

Tilt Sensor

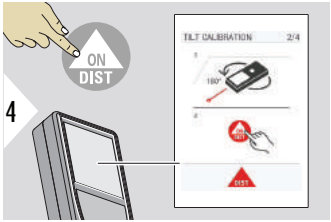




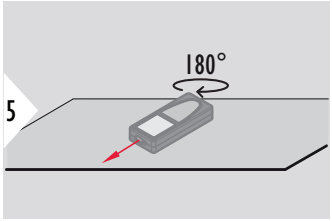
Follow the instructions on the screen.



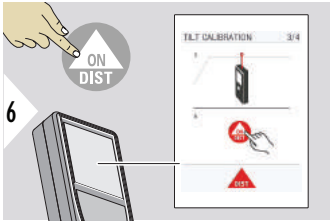
Place device on absolutely flat surface.



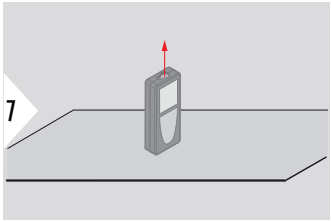
Once finished, press the **ON/DIST** key.
Follow the instructions on the screen.



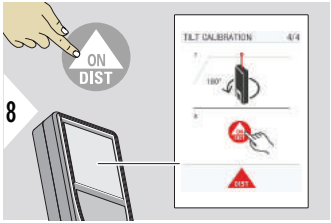
Turn the device horizontally by 180° and place it again on absolutely flat surface.



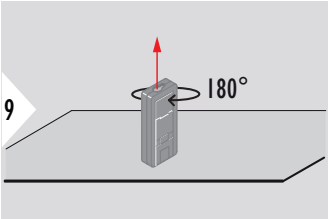
Once finished, press the **ON/DIST** key.
Follow the instructions on the screen.



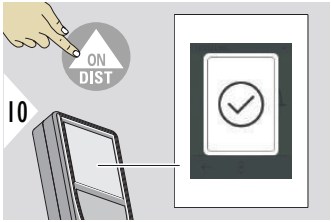
Place device on absolutely flat surface.



Once finished, press the **ON/DIST** key.
Follow the instructions on the screen.



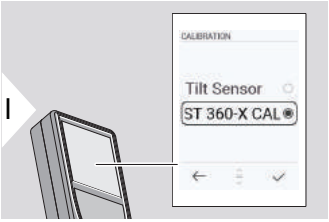
Turn the device horizontally by 180° and place it again on absolutely flat surface.



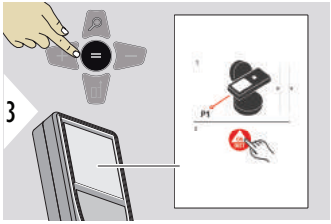
Once finished, press the **ON/DIST** key.

After 2 s, the device goes back to the basic mode.

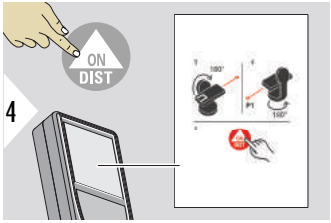
DST 360-X CALIBRATION



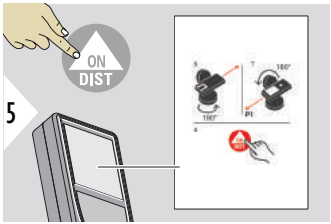
For levelling, the device must be in an inclination range of ±5°.



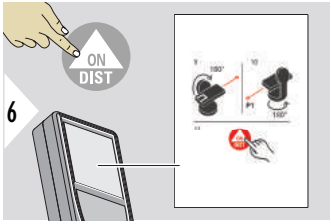
1 Roughly level the device on the Leica DST 360-X horizontally. Aim at a target in approximately 5 m distance.
2 Push **ON/DIST** for measurement.



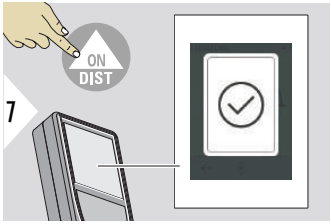
3 Flip the device by 180°.
4 Rotate the device by 180° and aim very accurate at the same target as in the previous measurement.
5 Push **ON/DIST** for measurement.



6 Rotate the device by 180°.
7 Flip the device by 180° and aim at the same target as in the previous measurement.
8 Push **ON/DIST** for measurement.



9 Flip the device by 180°.
10 Rotate the device by 180° and aim very accurate at the same target as in the previous measurement.
11 Push **ON/DIST** for measurement.

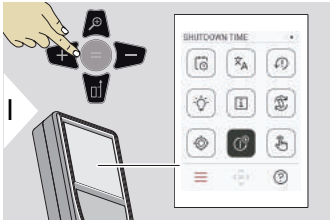


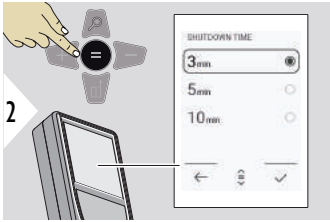
Once finished, press the **ON/DIST** key.

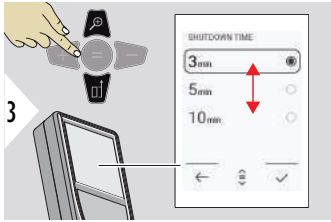
☞ After 2 s, the device goes back to the basic mode.

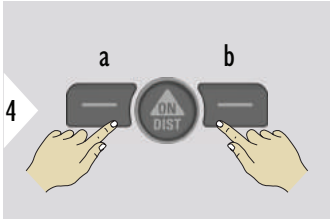
SHUTDOWN TIME

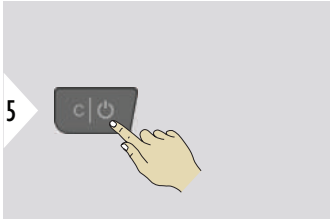
Define time when device shall switch off automatically.







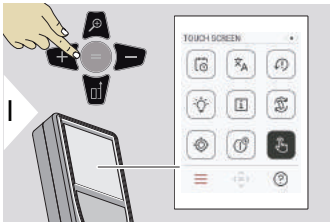


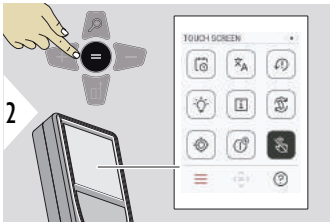


a Refuse
b Confirm

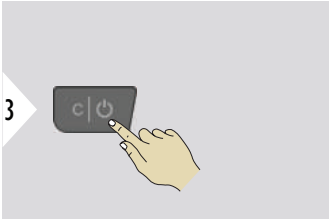
Exit settings.

Switch TOUCH SCREEN ON/OFF





Toggle ON/OFF



Exit settings.

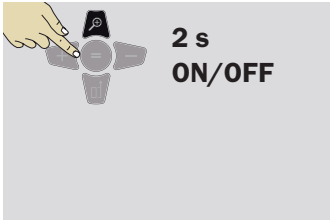
Pointfinder

This feature is a great help for outdoor measuring. The integrated pointfinder (view screen) shows the target on the display. The device measures in the middle of the crosshair, even if the laser dot is not visible.

☞ Parallax errors occur when the pointfinder camera is used on close targets, with the effect that the laser appears displaced in the crosshair. In this case, the error is automatically corrected with a shift of the crosshair.

Two ways to switch on/off the pointfinder

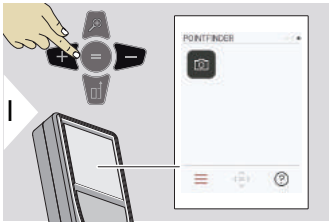
Option 1:

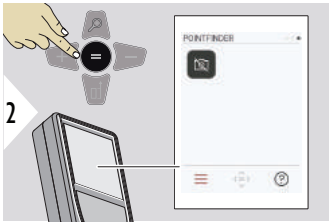


Press and hold the zoom key for 2 s to switch the pointfinder on/off. The status is saved and remains the same, even device is switched off and on again.

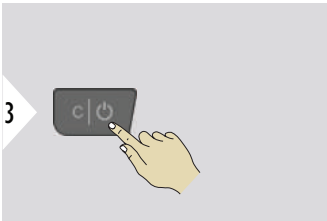
☞ The pointfinder can only be switched on/off once the laser beam is on.

Option 2:

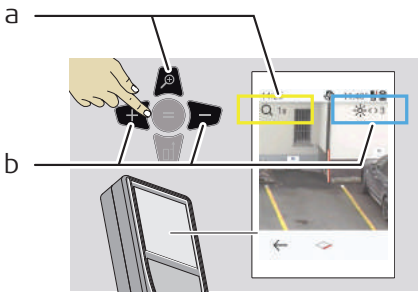




Toggle ON/OFF



Exit settings.

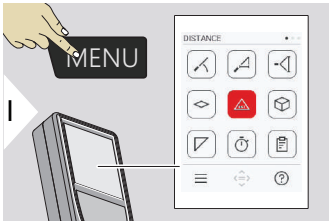


a Adjust zoom while toggling the zoom key. The zoom stage is shown.

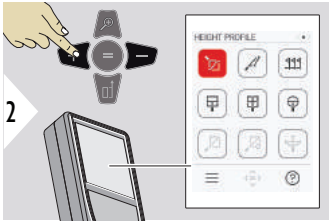
b Adjust illumination with navigation keys left and right. The **DISPLAY ILLUMINATION** value is shown.

6 Functions

Overview



- LEVELLING
- SMART HORIZONTAL
- HEIGHT TRACKING
- AREA
- Single DISTANCE
- VOLUME
- TRIANGLE AREA
- TIMER
- REPORTS



- HEIGHT PROFILE
- SLOPE
- STAKE OUT
- MIP - WIDTH

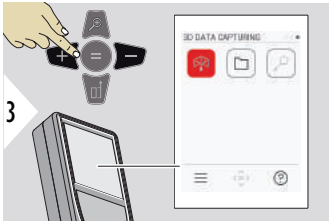
MIP - AREA

MIP - DIAMETER

POINT TO POINT [2]

POINT TO POINT - LEVELLED [2]

POINT TO LINE [2]



3D DATA CAPTURING [2] [3]

P2P - FILES

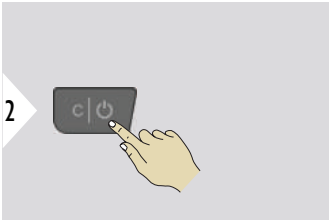
SMART AREA [2]

[2] Activated, when connected to Leica DST 360-X adapter

[3] DXF and CSV

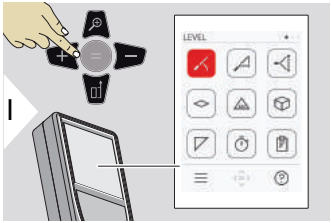
Close/exit all functions described in this chapter as follows:

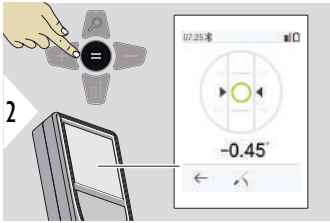
Leave menu.



Exit.

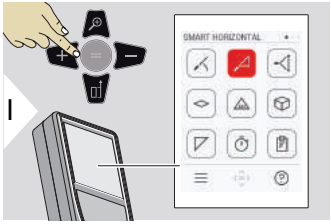
LEVELLING

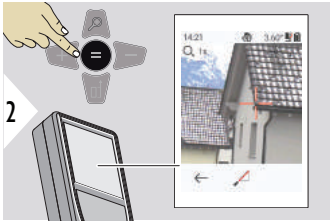




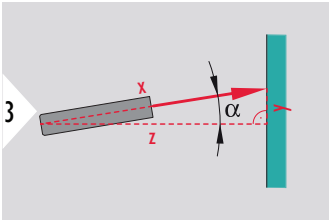
Displays inclinations of 360°. Instrument beeps at 0°. Ideal for horizontal or vertical adjustments.

SMART HORIZONTAL

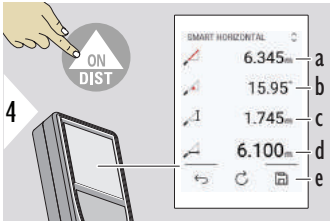




Aim laser at target.



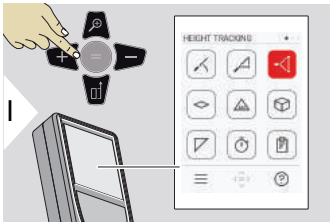
Up to 360° and a transverse tilt of ±10°.

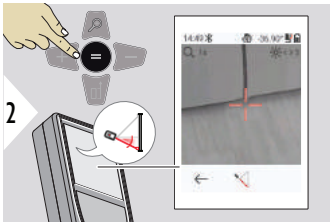


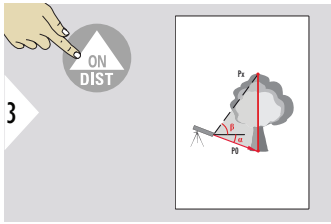
a Measured distance, x
b Angle, α
c Height difference from measuring point, y
d Horizontal distance, z
e Save result. Check saved results in the **REPORTS** menu

HEIGHT TRACKING

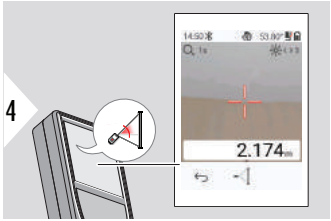
Heights of buildings or trees without suitable reflective points can be determined. At the bottom point, distance and tilt are measured - which needs a reflective laser target. The upper point can be targeted with the pointfinder/crosshair and does not need a reflective laser target as only the inclination is measured.



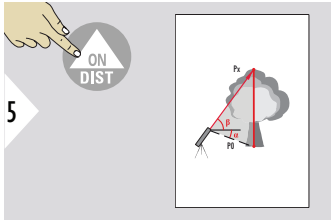


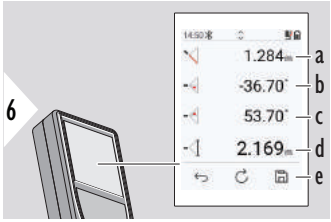


Aim laser at lower point.

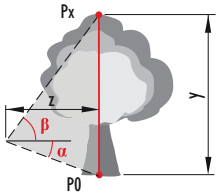


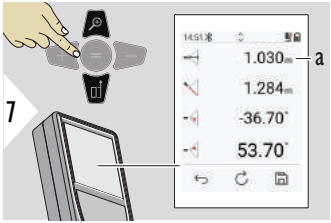
Aim laser at upper points and angle/height tracking starts automatically.





a Distance P0
b Angle α
c Angle β
d Tracking height y if device is turned on tripod
e Save result. Check saved results in the **REPORTS** menu

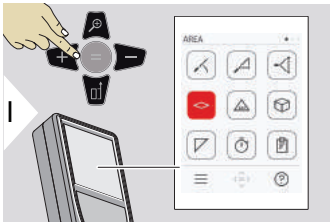


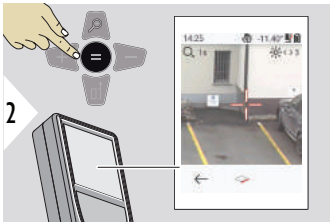


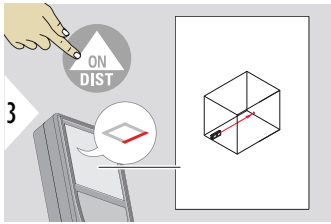
a Distance z

☞ Use the **Down** navigation key to take over values in the main line for sending by Bluetooth.

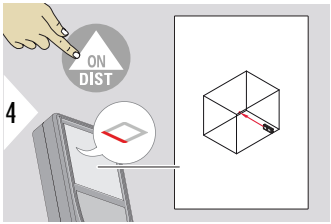
AREA



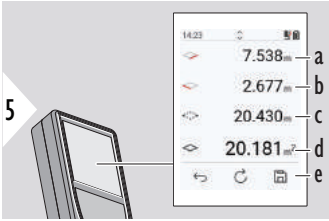




Aim laser at first target point.



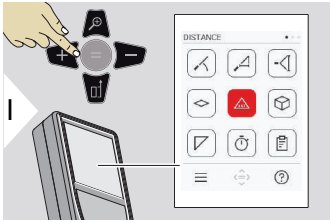
Aim laser at second target point.

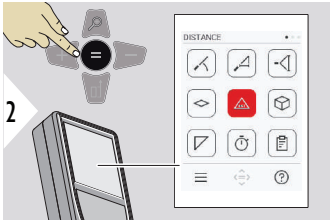


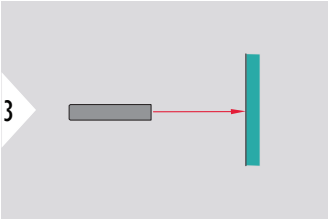
a First distance
b Second distance
c Circumference
d Area
e Save result. Check saved results in the **REPORTS** menu

☞ The main result is the area of this rectangle. The individual measured values are shown above the main line.
Partial measurements/painter function: Press + or − before starting the first measurement. Measure and add or subtract distances. Finish with =. Measure second length.

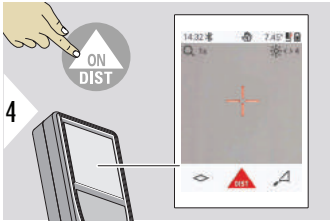
Single DISTANCE

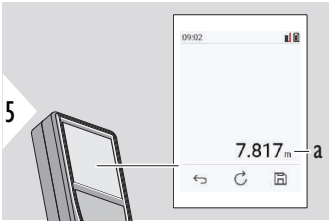






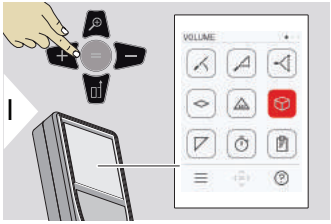
Aim active laser at target.

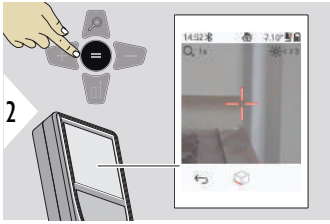


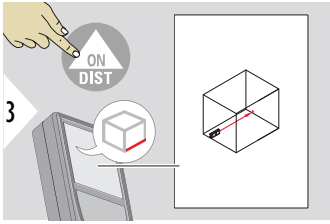


a Measured distance

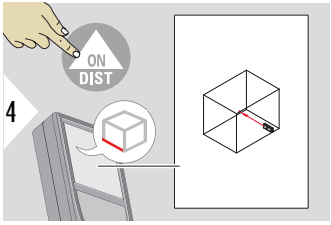
VOLUME



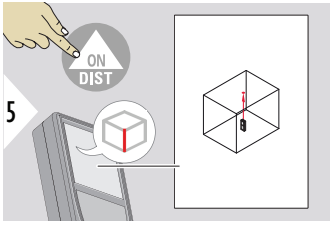




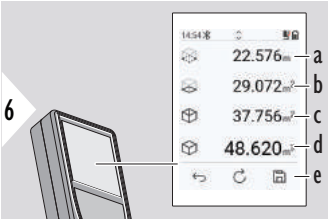
Aim laser at first target point.



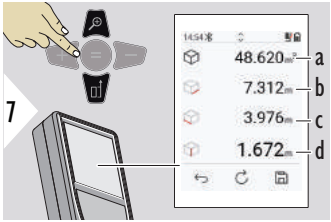
Aim laser at second target point.



Aim laser at third target point.



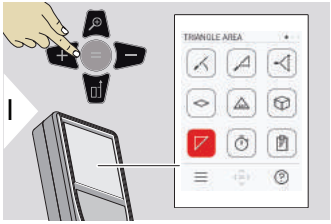
a Circumference
b Ceiling/floor area
c Wall areas
d Volume
e Save result. Check saved results in the **REPORTS** menu

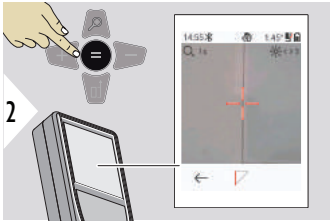


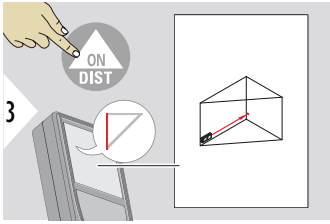
a Volume
b First distance
c Second distance
d Third distance

More results.

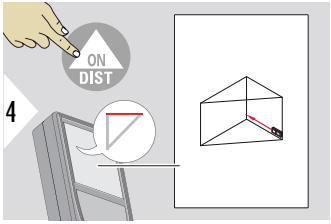
TRIANGLE AREA



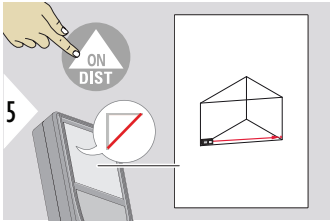




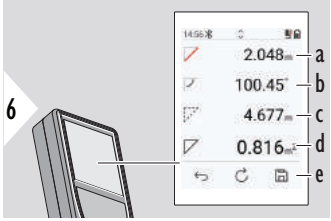
Aim laser at first target point.



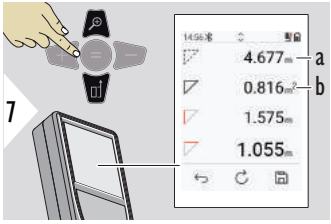
Aim laser at second target point.



Aim laser at third target point.



a First distance
b Second distance
c Third distance
d Angle between first and second measurement
e Save result. Check saved results in the **REPORTS** menu

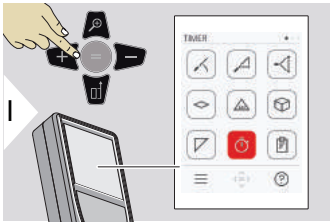


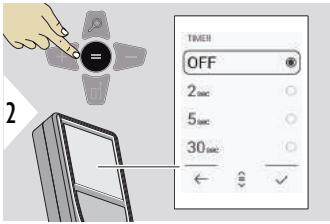
More results.

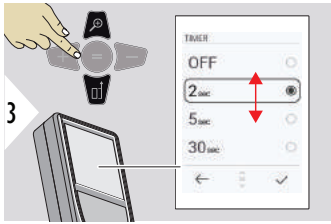
a Circumference
b Triangular area

☞ The main result is the area of this triangle. With + or – several triangle can be added or subtracted. Refer to Add/subtract

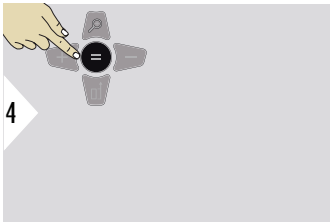
TIMER



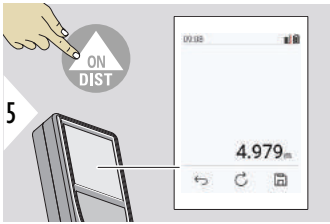




Select release time.



Confirm setting.

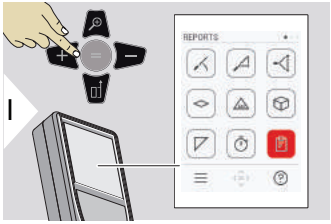


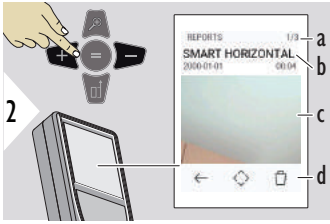
The timer starts once the **ON/DIST** key is pressed.

- The countdown is displayed on the screen
- An interval beep sounds during the countdown

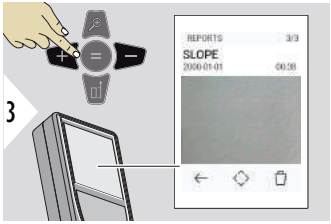
REPORTS

- Saved measurements can be viewed
- Press the save button in the result screen to create a report
- Reports are saving measurements and results as a list together with date and time. If the pointfinder was switched on, it includes the last picture also
- List can be downloaded as jpg or csv file by USB-C cable

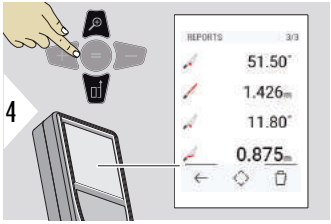




a Number of reports available
b Type of report
c Screenshot of last measuring point
d Delete one or all reports

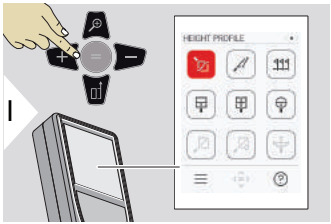


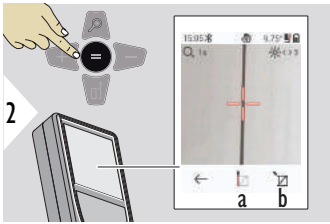
Toggle between available reports.



Check measuring details of the selected report.

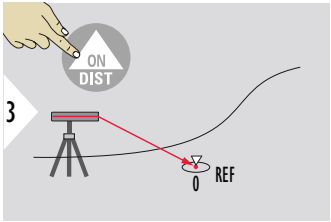
HEIGHT PROFILE



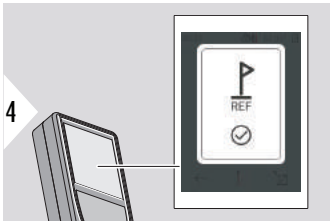


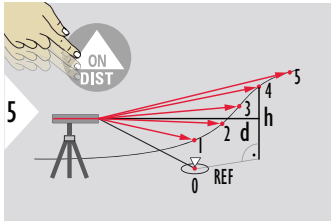
a Start measuring. First measurement is the reference point

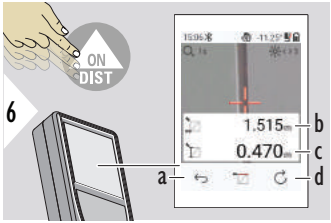
b Set absolute height of reference point. Example: Height above sea level



Aim at reference point (REF).





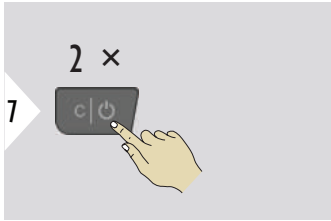


a Step back to read out previous measuring points

b Horizontal distance to device = d

c Height difference to reference point (REF) = h

d Start new height profile measurement



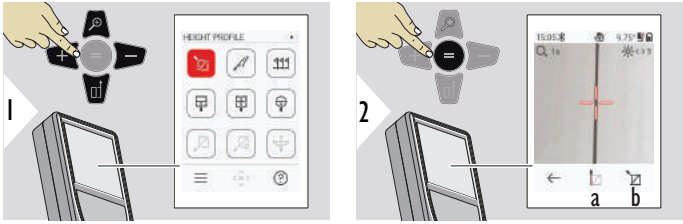
Exit function.

☞ Push the **ON/DIST** key for > 2 s for continuous height profile measuring.

☞ Ideal for measuring of height differences to a reference point. Can be also used to measure profiles and terrain sections. After measuring the reference point, the horizontal distance and height is displayed for each following point.

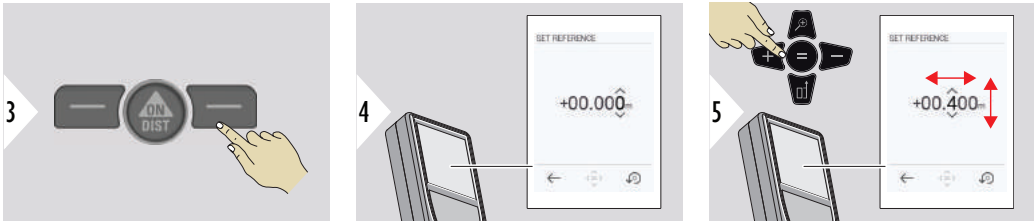
Option: Set absolute height of reference point

It is possible to set the height for the measured reference point. For example: Set level of the measured reference point to 400 m above sea level. A measured point 2 m above the reference point would be 402 m then.

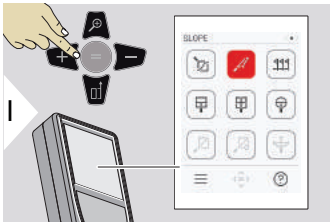


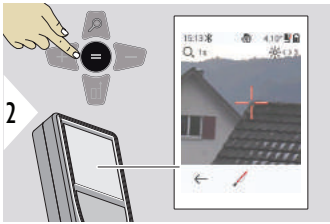
a Start measuring. First measurement is the reference point

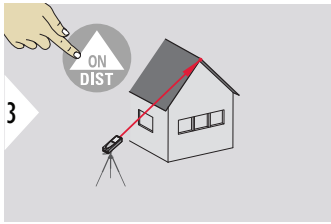
b Set absolute height of reference point



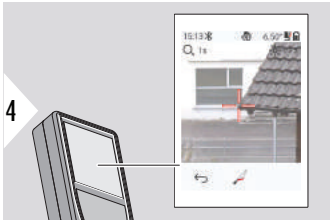
SLOPE

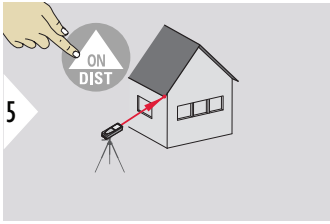




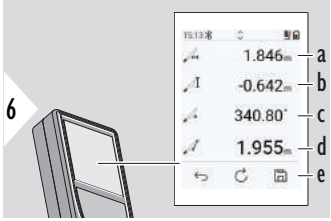


Aim laser at upper target point.

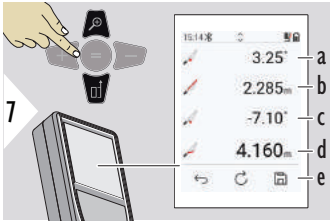




Aim laser at lower target point.



a Horizontal distance between both points
b Vertical height between both points
c Included angle between both points
d Distance between both points
e Save result. Check saved results in the **REPORTS** menu

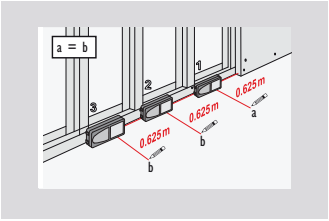


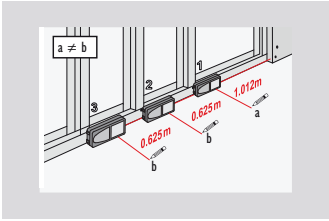
a P1 angle
b P1 distance
c P2 angle
d P2 distance
e Save result. Check saved results in the **REPORTS** menu

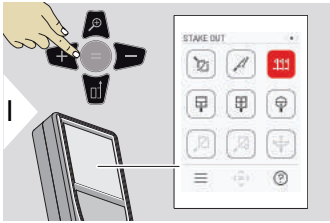
☞ Indirect distance measuring between two points with additional results. Ideal for applications such as length and slope of roof, height of chimneys,... It is important, that the instrument is positioned in the same vertical plane as the two measured points. The plane is defined of the line between the two points. This means, that the device on the tripod is only moved vertically and not turned horizontally to reach both points.

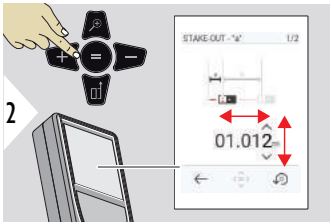
STAKE OUT

Two different distances, **STAKE-OUT - "a"** and **STAKE-OUT - "b"**, can be entered to mark off defined measured lengths.

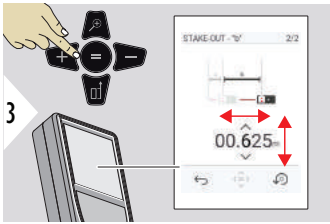




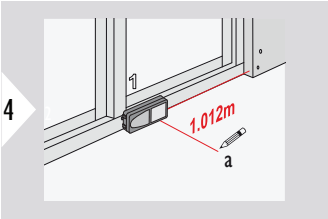




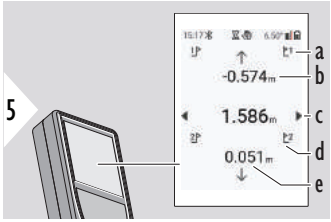
Adjust distance a.
Press = to approve
STAKE-OUT - "a".



Adjust distance b.
Press = to approve
STAKE-OUT - "b".

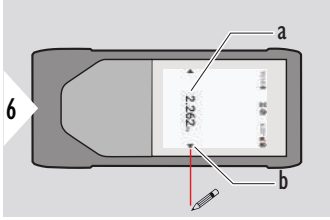


Start measuring. Move device slowly along the stake out line. The distance to the previous/next stake out point is displayed.



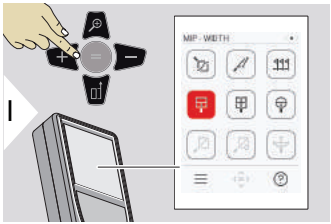
a	# of previous stake out
b	Distance to previous stake out
c	Total distance
d	# of next stake out
e	Distance to next stake out

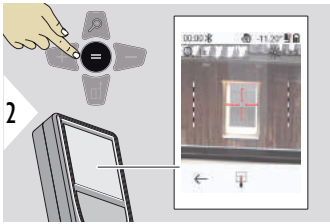
When approaching a stake out point to less than 18 mm the value of the stake out point is frozen and arrows appear on the side of the display for marking purposes.

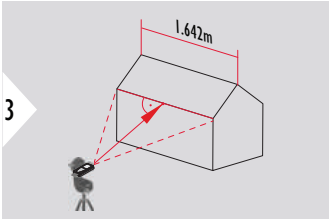


a	Value of the current stake out point
b	Stake out point position indicated with arrows

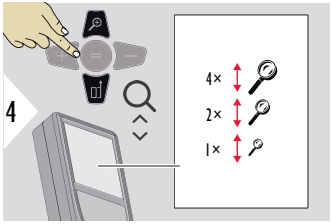
MIP - WIDTH



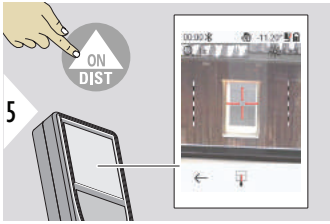


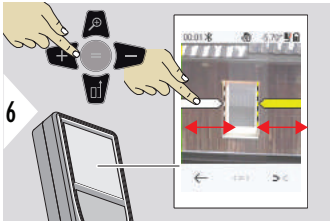


It is absolutely necessary to aim with the laser perpendicular to the object.

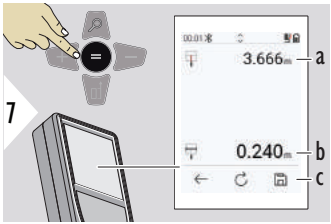


If necessary, use the Zoom for precise aiming.





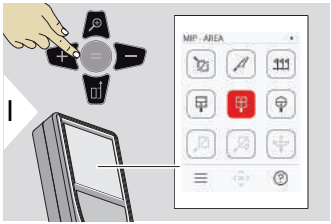
Select arrows with the right favourite key or by tapping on the display. Adjust for measurement by arrow keys or on touch screen.

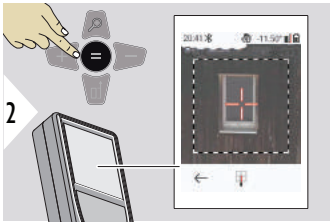


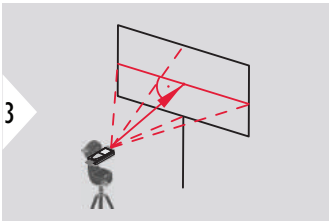
Confirm measurement. Corresponding width is calculated.

a Distance to object
b Width between the two arrow positions
c Save result. Check saved results in the **REPORTS** menu

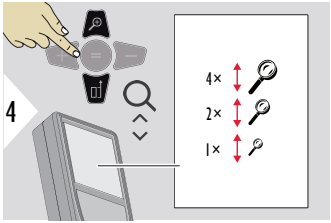
MIP - AREA



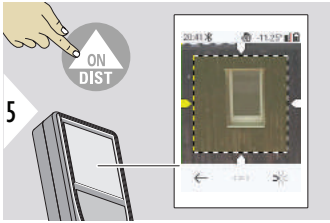


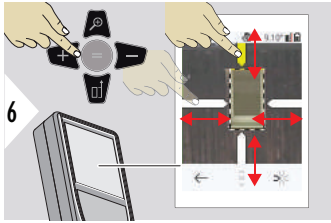


Aim perpendicular to the horizontal centreline of the area. This area must be perfectly flat on the vertical plane.

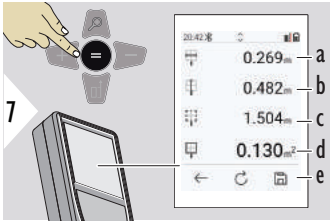


If necessary, use the Zoom for precise aiming.



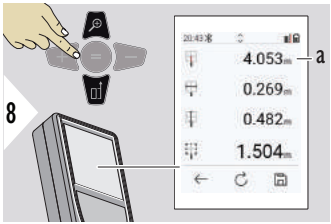


Select arrows with the right favourite key or by tapping on the display. Adjust for measurement by arrow keys or on touch screen.



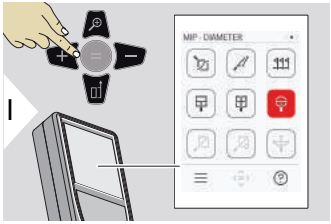
Confirm measurement. Corresponding width is calculated.

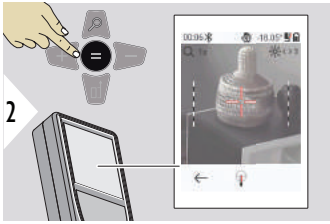
a Width between the two arrow positions
b Length between the two arrow positions
c Circumference
d Area
e Save result. Check saved results in the **REPORTS** menu

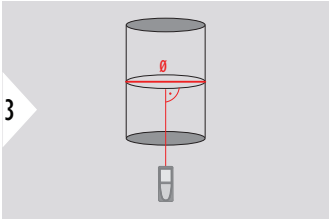


a Distance

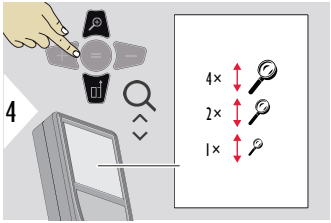
MIP - DIAMETER



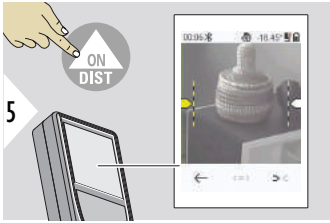


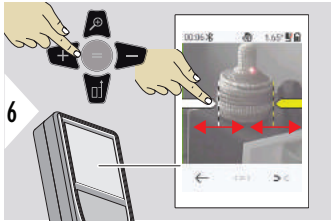


Aim laser perpendicular to the middle of the round object.

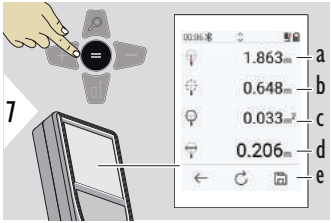


If necessary, use the Zoom for precise aiming.





Select arrows with the right favourite key or by tapping on the display. Adjust for measurement by arrow keys or on touch screen.

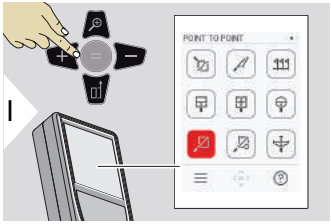


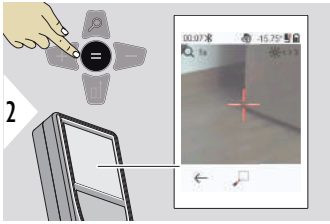
Confirm measurement. Corresponding width is calculated.

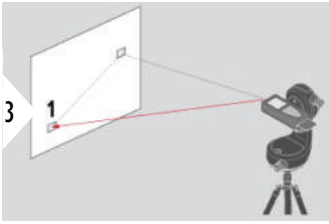
a Distance to object
b Circumference
c Circular area
d Diameter
e Save result. Check saved results in the **REPORTS** menu

POINT TO POINT

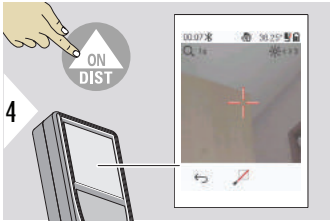
The **POINT TO POINT** measurement function is activated when connected to the Leica DST 360-X.

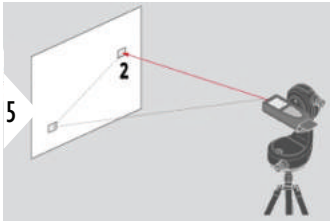




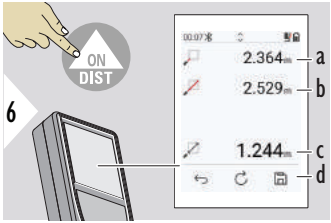


Aim laser at first target point.



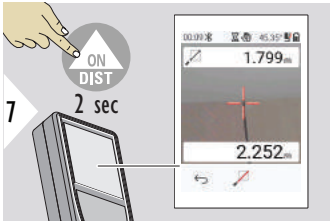


Aim laser at second target point.



a Distance to first target point
b Distance to second target point
c Distance between first and second target point
d Save result. Check saved results in the **REPORTS** menu

☞ Use the **Down** navigation key to take over values in the main line for sending by Bluetooth.

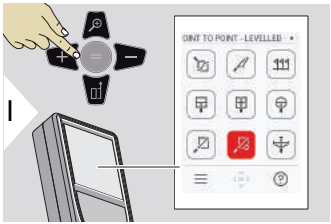


If permanent measurement for the second target point is chosen, live measured distance values are displayed.

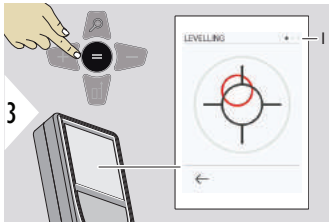
POINT TO POINT - LEVELLED

This function is activated when connected to the Leica DST 360-X adapter.

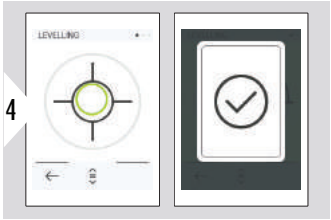
Use this **POINT TO POINT - LEVELLED** measurement function to get more measuring data. Do not move device after levelling. The tie distance is calculated based on two known coordinates with x, y and z value.



For levelling, the device must be in an inclination range of ±5°.



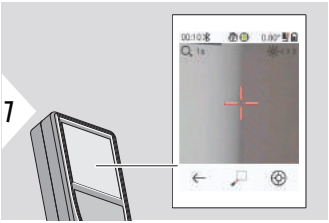
The colour of the bubble indicates the levelling status. Red: Not levelled.

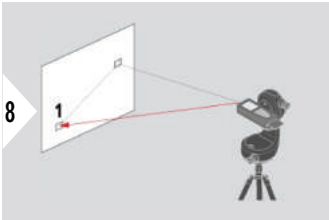


Adjust the Leica DST 360-X. A green bubble indicates correct levelling.

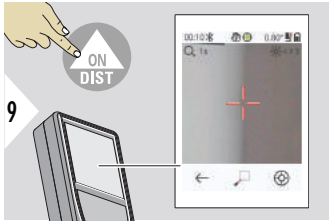
Rotate the device clockwise 90°. Follow the instructions on the display.

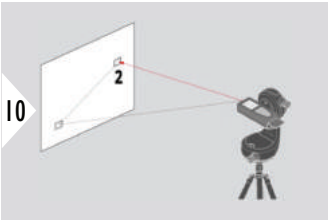
Rotate the device clockwise 90°. Follow the instructions on the display.



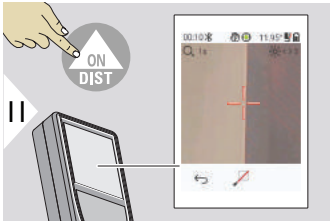


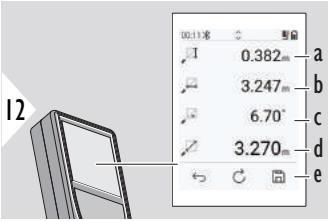
Aim laser at first target point.



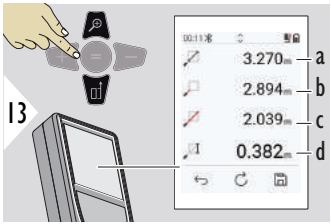


Aim laser at second target point.



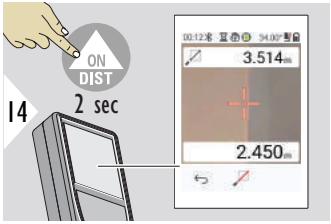


a Vertical height between both points
b Horizontal distance between both points
c Angle between both points
d Distance between both points
e Save result. Check saved results in the **REPORTS** menu



a Distance between both points
b Distance to the first target point
c Distance to the second target point
d Height between first and second target point

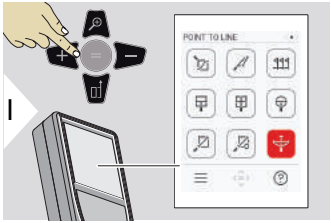
☞ Use the **Down** navigation key to take over values in the main line for sending by Bluetooth.



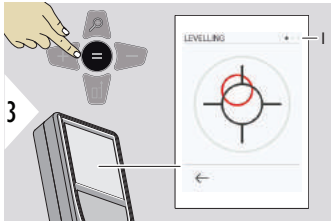
If chosen permanent measurement for second target point, the current distances are displayed.

POINT TO LINE

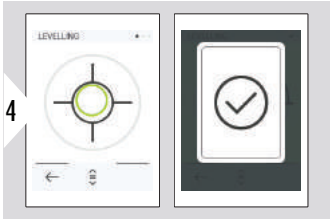
- Measure a line. For example, border of a plot of land or side of a house. Then measure points of interest to get them with dimension referenced to this line
- Get distance to the line and to its starting point. For example, to add to a plan
- Document points referenced to an outline to be found later when point is no longer directly accessible



For levelling, the device must be in an inclination range of ±5°.



The colour of the bubble indicates the levelling status. Red: Not levelled.

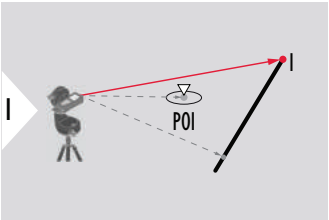


Adjust the Leica DST 360-X. A green bubble indicates correct levelling.

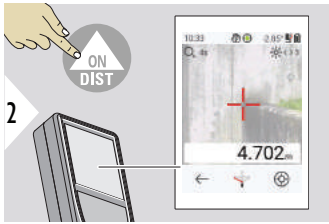
Rotate the device clockwise 90°. Follow the instructions on the display.

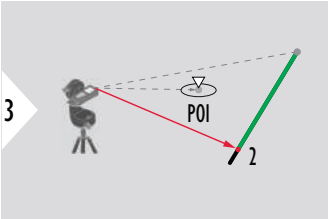
Rotate the device clockwise 90°. Follow the instructions on the display.

POINT TO LINE - start measurement

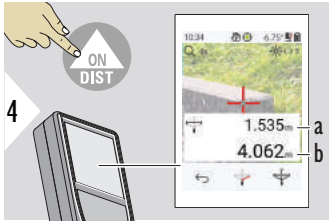


Aim at the starting point, first point of the reference line.



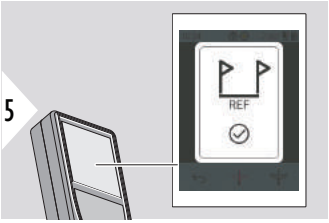


Aim at the second point along the reference line.

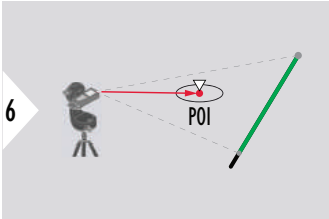


a Length of reference line

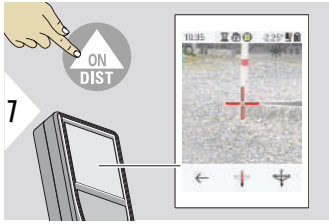
b Distance to second point

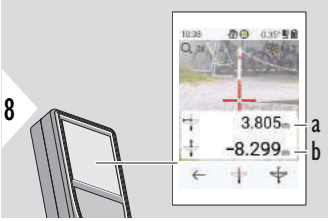


Confirmation: Reference line has been defined.



Aim at the point of interest, POI.

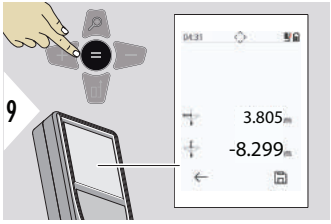




Depending on the position of the POI, measurement results may show positive and/or negative values.

a Distance from starting point on reference line to 90° projection of POI

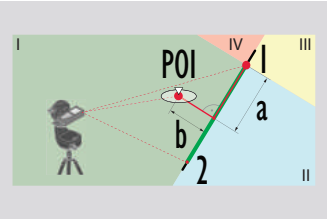
b Distance from POI to reference line



The measuring results disappear after 2 sec. Push the **Enter/Equal** key to:

- Recall last measurement
- Possibility to save the data as a report

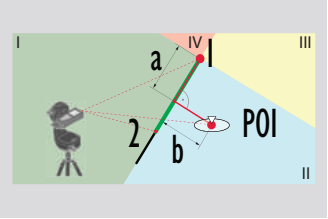
Interpreting results:



1: starting point, 2: second point

a Distance from starting point on reference line to 90° projection of POI: **a > 0**

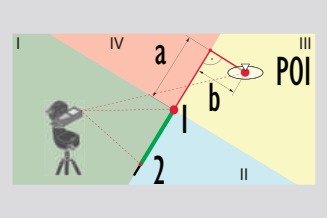
b Distance from POI to reference line: **b > 0**



1: starting point, 2: second point

a Distance from starting point on reference line to 90° projection of POI: **a > 0**

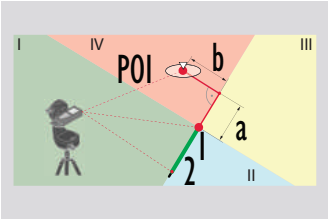
b Distance from POI to reference line: **b < 0**



1: starting point, 2: second point

a Distance from starting point on reference line to 90° projection of POI: **a < 0**

b Distance from POI to reference line: **b < 0**



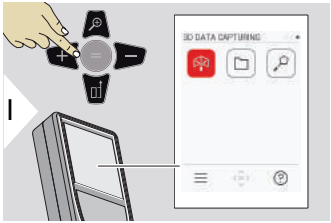
1: starting point, 2: second point

a Distance from starting point on reference line to 90° projection of POI: **a < 0**

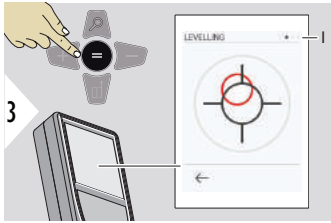
b Distance from POI to reference line: **b > 0**

3D DATA CAPTURING

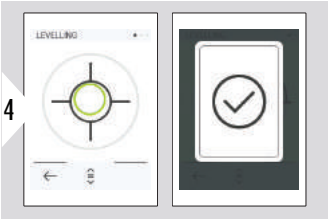
- Measure CAD files like DXF to be used in CAD programs or user-specific software. Also if Pointfinder is switched on pictures are saved for reference
- Download DXF files and pictures (JPG) by USB-C cable
- DXF files are also stored as CSV for later import into specific software or to be used in Excel for further processing
- Use **CAD Projects Manager** to delete projects (DXF, CSV and JPG files) all at once or per project



For levelling, the device must be in an inclination range of ±5°.



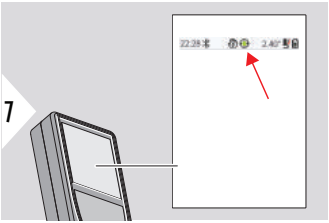
The colour of the bubble indicates the levelling status. Red: Not levelled.



Adjust the Leica DST 360-X. A green bubble indicates correct levelling.

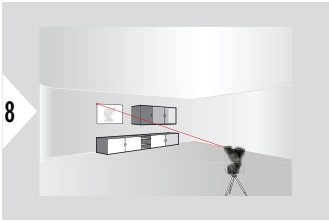
Rotate the device clockwise 90°. Follow the instructions on the display.

Rotate the device clockwise 90°. Follow the instructions on the display.

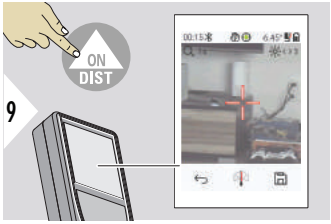


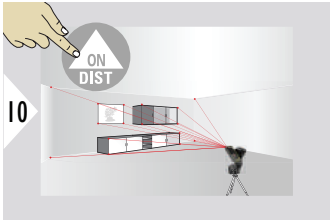
Check status line:

- Indicates proper levelling
- Indicates insufficient levelling



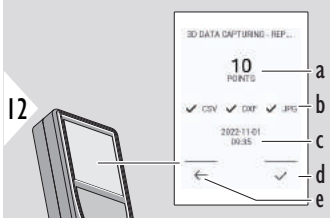
Aim at first point.



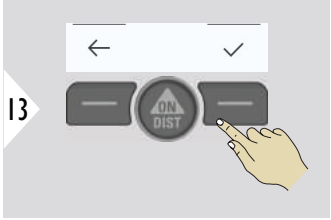


Aim at additional points.

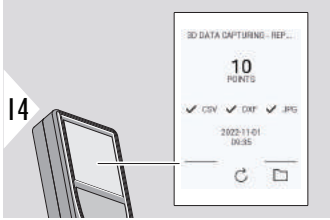
Stops DXF capture and saves data.

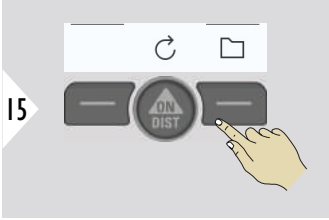


a Number of measured points
b Ticks indicate format of results available
c Time stamp of measurement
d Finish and save measurement
e Back, collect more measuring points



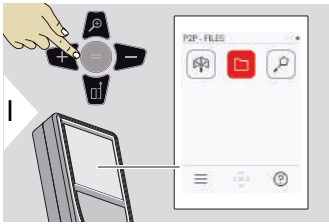
Finish measurement.

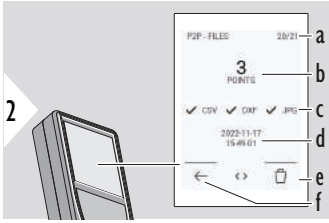




Open **P2P - FILES**. Refer to **P2P - FILES** for details.

P2P - FILES





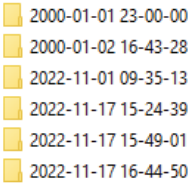
a Number of 3D data measurements. Toggle left/ right to see available data sets
b Number of measured points of the selected 3D data measurement
c Checks indicate format of results available of the selected 3D data measurement
d Time stamp of selected 3D data measurement
e Delete the selected 3D data measurement
f Exit

Use the USB Type-C connector cable to connect the Leica DISTO™ X6 to a PC or laptop.
Open the Explorer, search for the USB connected device to navigate and backup/transfer measured data.

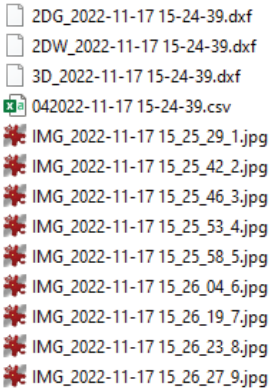
Depending on measured data, the following directories are available:

- DXF
- Reports

Possible content of the DXF directory:



Open one of the DXF directories to see the content.



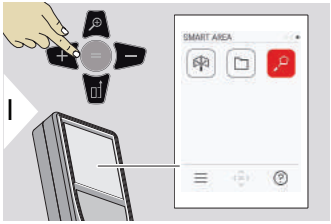
Content description of the DXF directory, example:

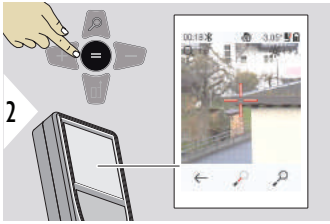
- **2DG_*.dxf:** 2D ground plan
- **2DW_*.dxf:** 2D wall plan
- **3D_*.dxf:** 3D plan
- ***.csv:** Table with polar and cartesian coordinates
- **IMG_*.jpg:** 240 × 240 pixel picture of measured point

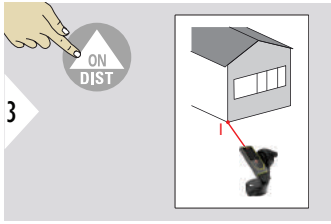
View/copy/move/backup/transfer data.

SMART AREA

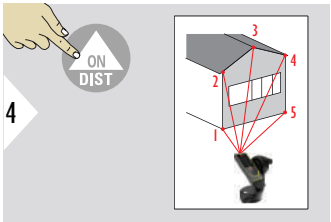
This function is activated when connected to the Leica DST 360-X adapter.



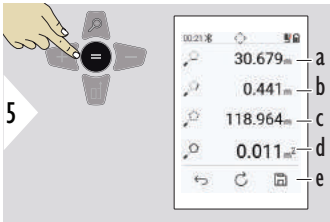




Aim laser at first target point.



Aim at additional points. Maximum 30.
For correct results, points must be measured clockwise or anticlockwise.



By pressing =, the area is calculated.

a Distance between last and previous measured point
b Distance between last and first measured point
c Circumference
d Area
e Save result. Check saved results in the **REPORTS** menu

7 Message Codes

Overview

Code	Cause	Correction
156	Transverse tilt greater than 10°	Hold the instrument without any transverse tilt.
162	Calibration error	Make sure the device is placed on an absolutely horizontal and flat surface. Repeat the calibration procedure. If the error still occurs contact your dealer.
204	Calculation error	Perform measurement again.
205	Memory full	Delete data to free up memory space.
240-245	Data transfer error	Connect device and repeat procedure.
252	Temperature too high	Allow device cool down.
253	Temperature too low	Warm device up.
254	Battery error	Charge batteries.
255	Received signal too weak, measuring time too long	Change target surface (for example white paper).
256	Received signal too high	Change target surface (for example white paper).
257	Too much background light	Shadow target area.

Code	Cause	Correction
260	Laser beam interrupted	Repeat measurement.
298	Battery status poor	Replace battery to avoid severe damage on the device.
299	Hardware error	If this message continuously appears, the device must be serviced. Ask dealer for help.
300-303	Error with Leica DST 360-X adapter	Repeat procedure. If the message still occurs, contact your dealer.
301	The device has been moved, levelling not valid anymore	Perform levelling again. Levelling with invalid levelling is possible but it affects the accuracy.
304	Distance for calibration of Leica DST 360-X is out of range	Select a distance of about 5 m from the target.
305	Aiming error during Leica DST 360-X calibration	Repeat procedure and make sure for precise aiming.
306	Leica DST 360-X calibration failed	Repeat calibration process.
307	Aiming error during Leica DST 360-X calibration	Repeat procedure and make sure for precise aiming.

8 Care

- Clean the device with a damp, soft cloth
- Never immerse the device in water
- Never use aggressive cleaning agents or solvents

9 Technical Data

General

Accuracy with favourable conditions [4)] Accuracy with unfavourable conditions [5)]	1 mm/0.04″ [6)] 2 mm/0.08″ [7)]
Range with favourable conditions [4)] Range with unfavourable conditions [5)]	0.05-250 m/0.16-820 ft [6)] 0.05-150 m/0.16-500 ft [7)]
Smallest unit displayed	0.1 mm/ 1/32″
X-Range Power Technology	Yes
Laser class	2
Laser type	635 nm, < 1 mW
Ø laser point | at distances	6/30/60 mm | 10/50/100 m
Tilt measuring tolerance to laser beam [8)]	±0.2°
Tilt measuring tolerance to housing [8)]	±0.2°

[4)] Favourable conditions are: white and diffuse reflecting target (white painted wall), low background illumination and moderate temperatures.

[5)] Unfavourable conditions are: targets with lower or higher reflectivity or high background illumination or temperatures at the upper or lower end of the specified temperature range.

[6)] Tolerances apply from 0.05 m to 10 m with a confidence level of 95%. With favourable conditions, the tolerance may deteriorate by 0.10 mm/m for distances above 10 m.

[7)] Tolerances apply from 0.05 m to 10 m with a confidence level of 95%. With unfavourable conditions, the tolerance may deteriorate by 0.15 mm/m for distances above 10 m.

Tilt measuring range [8]	360°
Measuring range with Leica DST 360-X horizontal [9]	360°
Measuring range with Leica DST 360-X vertical [9]	−64° to > 90°
Tolerance P2P function at distances [9]	±5 mm/5 m | ±10 mm/10 m
Protection class	IP65 (dust tight and jet-water protected)
Automatic laser switch off	after 90 s
Automatic power switch off	Configurable in **SHUTDOWN TIME**
Bluetooth Bluetooth power Bluetooth frequency Bluetooth range	Bluetooth v5.0 ≤ 2.5 mW 2400-2483.5 MHz 10 m
Relative humidity	Max. 95% non-condensing
Operation height	Max. 3000 m/9840 ft
Battery Battery durability	3.7 V/2000 mAh up to 4000 measurements
Dimension (H × D × W)	155 × 68 × 25 mm | 6.1 × 2.68 × 0.98″

[8] After user calibration. Additional angle-related deviation of ±0.01° per degree up to ±45° in each quadrant.
Applies at room temperature. For the whole operating temperature range, the maximum deviation increases by ±0.1°.

[9] In combination with Leica DST 360-X adapter.

Weight (with batteries)	230 g/8.11 oz
Temperature range storage Temperature range operation	−25 to 70 °C/−13 to 158 °F −10 to 55 °C/14 to 131 °F
Charging time Charging temperature Charging power	3 h 5 to 40 °C 5 V/1 A

Functions

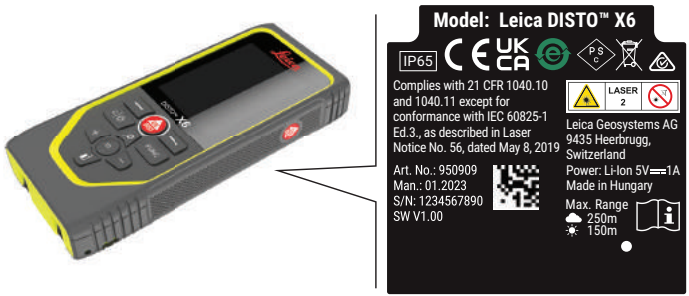
Distance measuring	yes
Min/Max measuring	yes
Permanent measuring	yes
Stake out	yes
Addition/Subtraction	yes
Area	yes
Triangle area	yes
Volume	yes
Painter function (area with partial measurement)	yes
Smart Horizontal Mode/Indirect height	yes
Levelling	yes
Reports	yes
Beep	yes
Illuminated colour display	yes
Bluetooth	yes

Personalised Favorites	yes
Timer	yes
Point to point function/distance	yes[10)]
Smart Area	yes[10)]
Height tracking	yes
Height profile	yes
Sloped objects	yes
Profile Measurement	yes
Gesture Control	yes
Point-to-line function	yes[10)]
CAD data capturing (DXF/CSV/JPG)	yes[10)]
Measure in Picture	yes

[10)] In combination with Leica DST 360-X adapter.

9.1 Conformity to National Regulations

Labelling Leica DISTO™ X6



Refer to **INFORMATION**/E-Label on page 44 to call up other legally relevant symbols and certifications.

EU

Hereby, Leica Geosystems AG declares that the radio equipment type Leica DISTO™ X6 is in compliance with Directive 2014/53/EU and other applicable European Directives.
The full text of the EU declaration of conformity is available at the following Internet address: http://www.disto.com/ce.

UKCA

Hereby, Leica Geosystems AG declares that the radio equipment type Leica DISTO™ X6 is following the provisions of the applicable relevant statutory requirement S.I. 2017 No. 1206 Radio Equipment Regulations 2017.
The full text of the UK declaration of conformity is available at the following Internet address: http://www.disto.com/ukca.

USA

FCC Part 15

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.

Changes or modifications not expressly approved by Leica Geosystems for compliance could void the user's authority to operate the equipment.

Canada

CAN ICES-003 B/NMB-003 B

ISED Statement, applicable in Canada

This device complies with Industry Canada's licence-exempt RSSs. 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.

Radio Frequency (RF) Exposure Compliance Statement

The radiated RF output power of the instrument is below the Health Canada's Safety Code 6 exclusion limit for portable devices (radiated element separation distance between the radiating element and user and/or bystander is below 20 cm).

Japan

- This device is granted pursuant to the Japanese Radio Law (電波法).
- This device should not be modified (otherwise the granted designation number will become invalid).

Others

The conformity for countries with other national regulations has to be approved prior to use and operation.

10 International Limited Warranty

Description

International Limited Warranty

The Leica DISTO™ X6 comes with a two year warranty from Leica Geosystems AG. To receive an additional year warranty, the product must be registered on our website at Leica Disto Warranty within eight weeks of the purchase date. If the product is not registered, our two year warranty applies.

More detailed information about the International Limited Warranty can be found on the internet at Leica Warranty

979590-1.0.1en

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Leica Geosystems AG
Heinrich-Wild-Strasse
9435 Heerbrugg
Switzerland

www.leica-geosystems.com

- when it has to be **right**