# Leica DISTO™ E7500i

The original laser distance meter





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#### Introduction



The safety instructions and the user manual should be read through carefully before the product is used for the first time.



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

The symbols used have the following meanings:



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

# **A**CAUTION

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

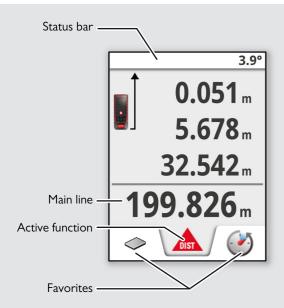
Important paragraphs which must be adhered to in practice as they enable the product to be used in a technically correct and efficient manner.

#### **Overview**

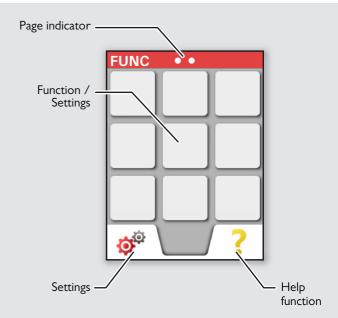


EN

## **Basic** measuring screen

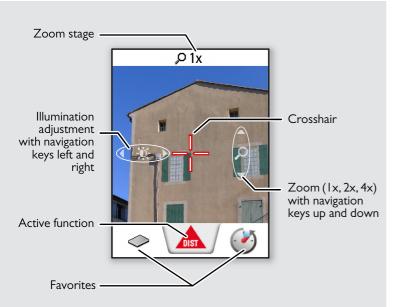


#### **Selection screen**

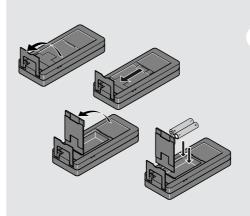


Instrument Set-up EN

#### **Pointfinder (Viewscreen)**



#### **Insert batteries**



To ensure a reliable use, do not use zinc carbon batteries. We recommend using high quality batteries.

Change batteries when battery symbo is flashing.



#### **Switching ON/OFF**





Device is turned OFF.

#### Clear

sec, the device

switches off au-



Undo last action.



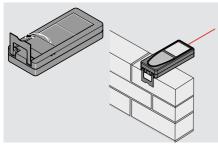
Leave actual function, go to default operation mode.

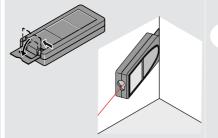
#### **Message Codes**

If the info icon appears with a number, observe the instructions in section "Message Codes". Example:



### **Multifunctional endpiece**

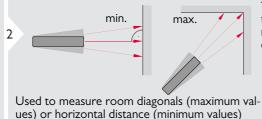




The orientation of the endpiece is automatically detected and the zero point is accordingly adjusted.

### Permament / Minimum-Maximum measuring





The minimum and maximum distance measured is displayed (min, max.). The last value measured is displayed in the main line.





Stops permanent / minimum-maximum measuring.

Operations EN

#### Add / Subtract





The next measurement is **added** to the previous one.



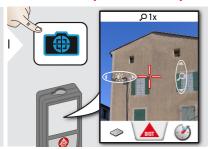
The next measurement is **sub-tracted** from the previous one.



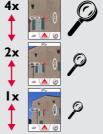


This process can be repeated as required. The same process can be used for adding or subtracting areas or volumes.

#### **Pointfinder (Viewscreen)**













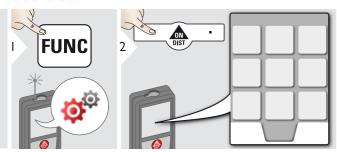
Exit pointfinder (viewscreen).

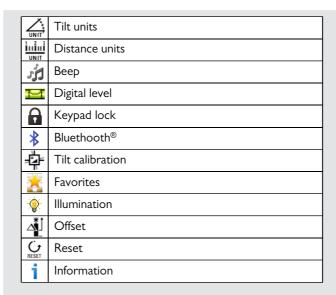
This is a great help for outdoor measuring. The integrated pointfinder (viewscreen) shows the target on the display. The device measures in the middle of the cross hair, even if the laser dot is not visible.

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 rely on the real laser dot



## **Overview**

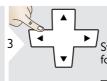












Switch between the following units:

360.0°	0.00 %
± 180.0°	0.0 mm/m
± 90.0°	0.00 in/ft

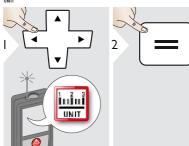






Exit settings.

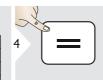
# **Distance units**





# Switch between the following units:

0.0000 m	0'00" 1/4
0.000 m	0.0 in
0.00 m	0 in 1/32
0.0 mm	0 in 1/16
0.00 ft	0 in 1/8
0'00" 1/32	0 in 1/4
0'00" 1/16	0.000 yd
0,00,1/8	

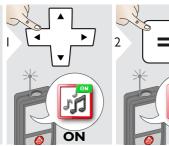




Confirm setting.

Exit settings.

# → Beep ON/OFF

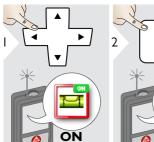


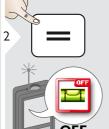




Exit settings.

# ■ Digital level ON/OFF





To switch ON, repeat procedure.



Exit settings.

The digital leve is displayed in the status bar.

# **De-/Activate keylock**





To deactivate, repeat procedure. The keylock is active if device is switched off.





Exit settings.









#### De-/Activate Bluetooth® Smart







To switch ON, repeat procedure.



Exit settings.

Default mode: displayed if device is connected with Bluetooth®.

Switch on with keylock

Switch on Bluetooth® Smart in Settings.

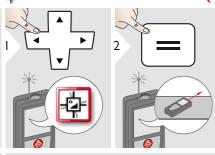
Connect the device with your smart phone, pad, laptop,...

The actual measurement is transferred automatically if Bluetooth® con-Bluetooth® switches off as soon as the laser distance meter is switched

The efficient and innovative Bluetooth® Smart module (with the new Ready devices. All other Bluetooth® devices do not support the energy saving Bluetooth® Smart Module, which is integrated in the device.

We provide no warranty for free DISTO<sup>™</sup> software and offer no supfree 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 Mac iOS can be found in special internet shops.

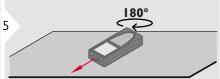
### Calibration of tilt sensor (Tilt Calibration)





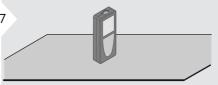


Place device on absolutely flat surface.



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





Place device on absolutely flat surface.



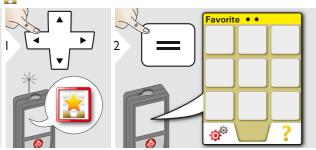


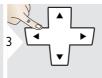
Turn the device horizontally by 180° and place it again on absolutely flat surface.



After 2 sec the device goes back to the basic mode

# Personalized favorites





Select favorite function.



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



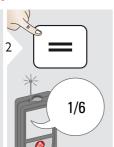
Exit settings.

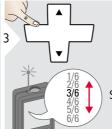


Short cut: Press 2 sec on a selection-key in the measuring mode.

#### **<b>♦** Illumination







Select brightness.



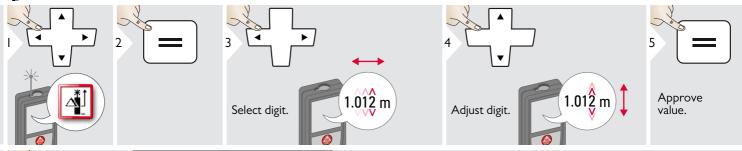
Confirm setting.



Exit settings.





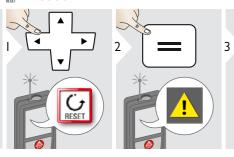




Exit settings.

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.

#### Reset



Second confirmation with selection keys:

/S:



4 C OFF

Exit settings.

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

#### **Overview**



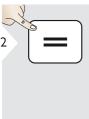
	Timer
80	Calculator
Įĵ	Adjusting measuring reference
125.5 7893.5 567.0 78732.5	Memory
DIST	Single Distance Measurement
1	Smart Horizontal Mode

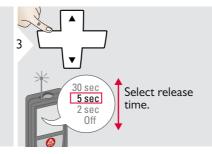
×	Inclination Tracking
$\Diamond$	Area
	Volume
	Triangle area
† ↑ IR	Long Range Mode
P <sub>o</sub> P <sub>x</sub>	Height-profile Measurement

A	Measuring on sloped objects
Height Tracking	
	Trapezium
a b b	Stake out
7	Pythagoras I
	Pythagoras 2







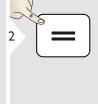


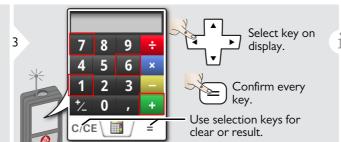


The self release starts if ON/Measure key is pressed.





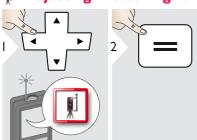




The measurement result from the main line is taken over to the calculator and can be used for further calculations

Ft/in fractions are converted into ft/in decimal.

# Adjusting measuring reference/tripod



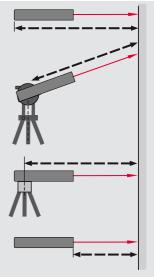


Distance is measured from the rear of the device (standard setting).

Distance is measured from a Leica DISTO Adapter FTA 360 (lock symbol = permanently)

Distance is measured from the tripod thread permanently.

Distance is measured from the front of the device (lock symbol = permanently).



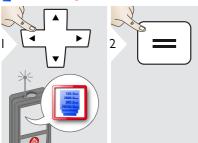


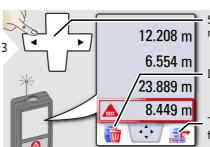


If device is switched off, reference goes back to standard setting (rear of the device).

If you use an original Leica DISTO adapter, the reference does not need to be adapted to tripod thread!

# Memory





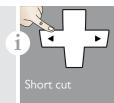
Switch between measurements.

Delete memory.

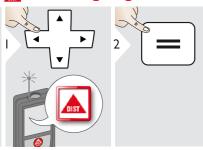
Take over value for further actions.

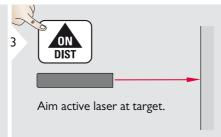


Use Up/Down navigation keys to show more detailed results of the specific measurement.



# **▲** Measuring single distance



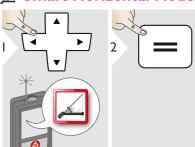




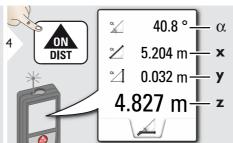
#### Target surfaces:

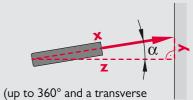
Measuring errors can occur when measuring to colourless liquids, glass, styrofoam or semi-permeable surfaces or when aiming at high gloss surfaces. Against dark surfaces the measuring time increases.

#### ✓ Smart Horizontal Mode



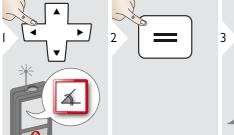






(up to  $360^{\circ}$  and a transverse tilt of  $\pm 10^{\circ}$ )

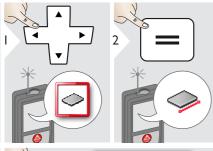
# ✓ Inclination tracking

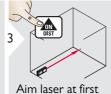




Inclination is permanently displayed. Instrument beeps at 0° and 90°. Ideal for horizontal or vertical adjustments.

#### **△** Area





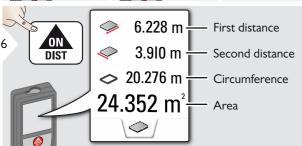








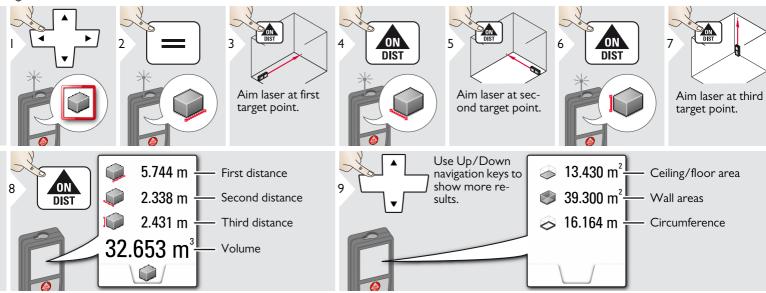
Aim laser at second target point.



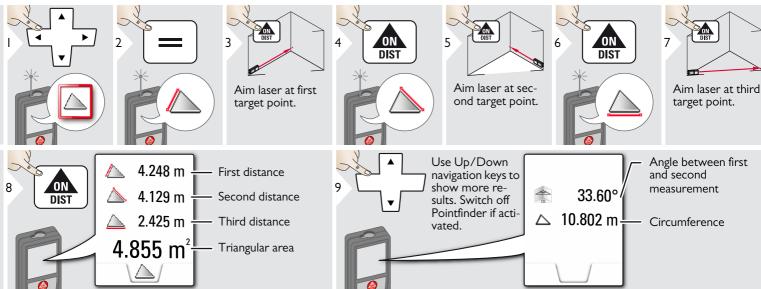
The result is shown in the main line and the measured value above.

Partial Measurements / Painter function: Press + or - before starting the first measurement. Measure and add or subtract distances. Finish with =. Measure 2nd length.

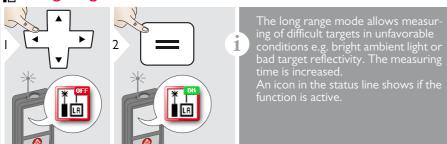




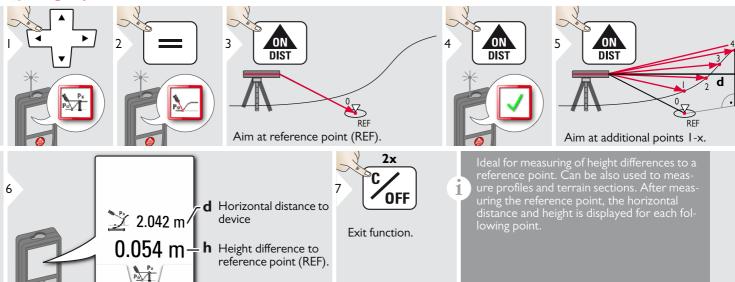




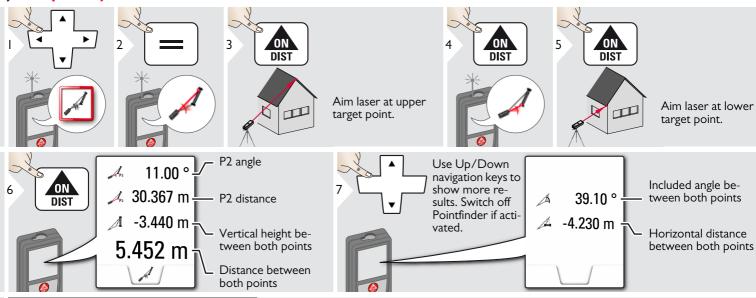
# Long range mode



# Height-profile measurement



## ✓ Sloped objects



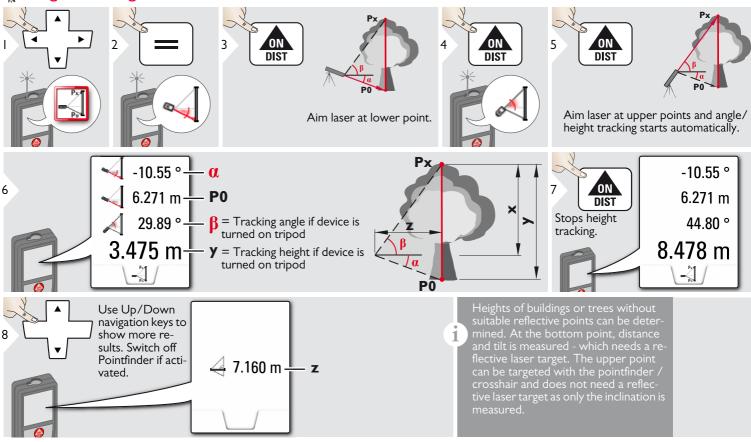
20

Indirect distance measuring between 2 points with additional results. Ideal for applications such as length and slope of roof, height of chimneys....

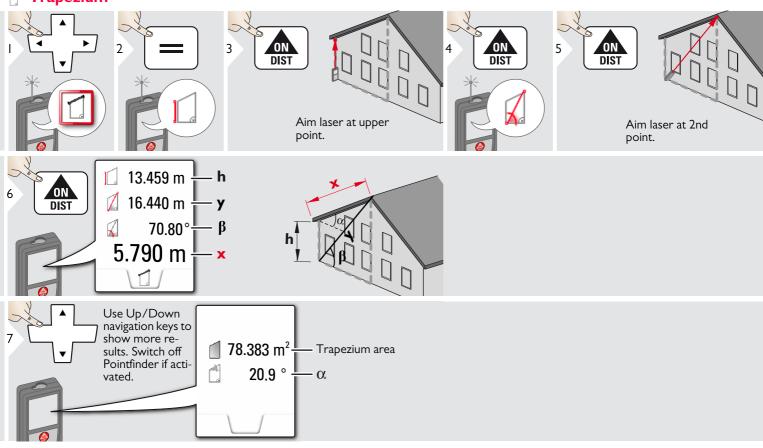
It is important, that the instrument is positioned in the same vertical plane as the 2 measured points. The plane is defined of the line between the 2 points.

Leica DISTO™ E7500i 792324c

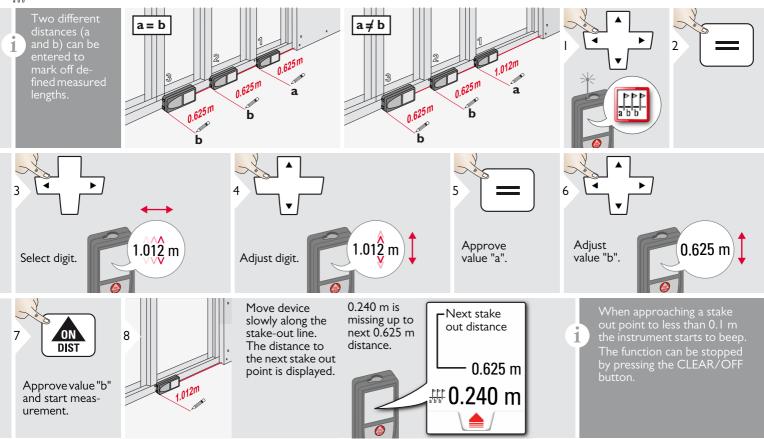








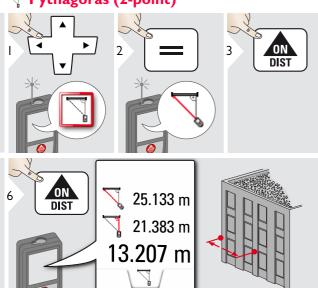
## **Stake out**

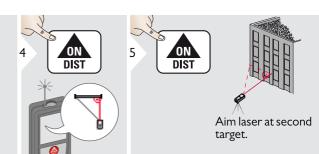


Aim laser at first

target.

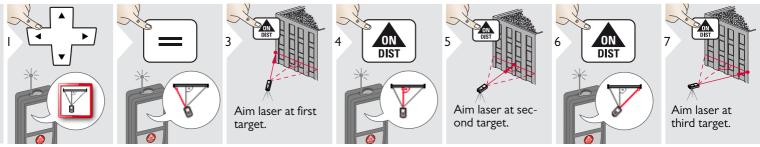
# **¬** Pythagoras (2-point)

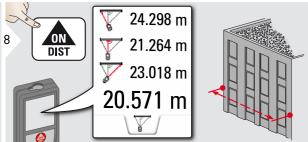




Pressing the measuring key for 2 sec in the function activates automatically Minimum or Maximum measure-

# Pythagoras (3-point)





The result is shown in the main line.

Pressing the measuring key for 2 sec in the function activates automatically Minimum or Maximum measurement

We recommend to use the pythagoras only for indirect horizontal measuring.

For height measuring (vertical) it is more precise to use a function with inclination measurement.

Technical Data EN

Distance measurement	
Typical Measuring Tolerance*	± 1.0 mm / ~1/16" ***
Maximum Measuring Tolerance**	± 2.0 mm / 0.08 in ***
Typical Range*	200 m / 660 ft
Range at unfavourable condition ****	80 m / 260 ft
Smallest unit displayed	0.1 mm / 1/32 in
Power Range Technology <sup>™</sup>	yes
Ø laser point at distances	6 /30 / 60 mm (10 / 50 / 100 m)
Tilt measurement	
Measuring tolerance to laser beam****	± 0.2°
Measuring tolerance to housing*****	± 0.2°
Range	360°
General	
Laser class	2
Laser type	635 nm, < 1 mW
Protection class	IP65 (dust tight and jet water protected)
Autom. laser switch off	after 90 s
Autom. power switch-off	after 180 s
Bluethooth® Smart	Bluethooth v4.0
Range of Bluethooth®	10 m
Bluethooth®: - Power - Frequency	0.6 mW 2402 - 2480 MHz
Battery durability (2 x AA)	up to 5000 measurements
Dimension (H x D x W)	143 x 58 x 29 mm 5.6 x 2.28 x 1.14 in
Weight (with batteries)	198 g / 6.37 oz
Temperature range: - Storage - Operation	-25 to 70 °C -13 to 158 °F -10 to 50 °C 14 to 122 °F

\* applies for 100 % target reflectivity (white painted wall), low background illumination, 25  $^{\circ}$ C

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

\*\*\* Tolerances apply from 0.05 m to 10 m with a confidence level of 95%. The maximum tolerance may deteriorate to 0.1 mm/m between 10 m to 30 m, to 0.20 mm/m between 30 m to 100 m and to 0.30 mm/m for distances above 100 m \*\*\*\* applies for 100 % target reflectivity, background illumination of approximately 30'000 lux

\*\*\*\*\* after user calibration. Additional angle related deviation of  $+/-0.01^{\circ}$  per degree up to  $+/-45^{\circ}$  in each quadrant. Applies at room temperature. For the whole operating temperature range the maximum deviation increases by  $+/-0.1^{\circ}$ .

For accurate indirect results, the use of a tripod is recommended. For accurate tilt measurements a transverse tilt should be avoided.

Functions	
Distance measuring	yes
Min/Max measuring	yes
Permanent measuring	yes
Stake-out	yes
Addition/Subtraction	yes
Area	yes
Triangle area	yes
Volume	yes
Trapezium	yes
Painter function (area with partial measurem.)	yes
Pythagoras	2-point, 3-point
Smart Horizontal Mode / Indirect height	yes
Height-profile measurement	yes
Inclination tracking	yes
Sloped objects	yes
Height tracking	yes
Memory	30 displays
Веер	yes
Illuminated colour display	yes
Multifunctional endpiece	yes
Pointfinder (Viewscreen)	4xZoom
Digital Level	yes
Bluetooth <sup>®</sup> Smart	yes
Personalized Favorites	yes
Timer	yes
Long Range Mode	yes
Calculator	yes

If the message **Error** does not disappear after switching on the device repeatedly, contact the dealer.

If the message **InFo** appears with a number, press the Clear button and observe the following instructions:

No.	Cause	Correction
156	Transverse tilt greater than 10°	Hold the instrument without any transverse tilt.
162	Calibration mistake	Make sure, the device is placed on a absolutely horizontal and flat surface. Repeat the calibration procedure. If the mistake still occurs, contact your dealer.
204	Calculation error	Perform measurement again.
240	Data transfer error	Repeat procedure.
252	Temperature too high	Let device cool down.
253	Temperature too low	Warm device up.
255	Received signal too weak, measuring time too long	Change target surface (e.g. white paper).
256	Received signal too high	Change target surface (e.g. white paper).
257	Too much back- ground light	Shadow target area.
258	Measurement outside of measuring range	Correct range.
260	Laser beam inter- rupted	Repeat measurement.

• Clean the device with a damp, soft cloth.

- Never immerse the device in water.
- Never use aggressive cleaning agents or solvents.

# Warranty

#### **International Limited Warranty**

The Leica DISTO™ 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 http://myworld.leica-geosystems.com 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: www.leica-geosystems.com/internationalwarranty.

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

### Areas of responsibility

# Responsibilities of the manufacturer of the original equipment:

Leica Geosystems AG Heinrich-Wild-Strasse CH-9435 Heerbrugg

Internet: www.disto.com

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

The company above is not responsible for third party accessories.

# Responsibilities of the person in charge of the instrument:

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

#### **Permitted use**

- Measuring distances
- Tilt measurement
- Data transfer with Bluetooth<sup>®</sup>

#### Prohibited use

- Using the product without instruction
- · Using outside the stated limits
- · Deactivation of safety systems and removal of explanatory and hazard labels
- Opening of the equipment by using tools (screwdrivers, etc.)
- · Carrying out modification or conversion of the product
- Use of accessories from other manufacturers without express approval
- Deliberate dazzling of third parties; also in the dark
- · Inadequate safeguards at the surveying site (e.g. when measuring on roads, construction sites, etc.)
- Deliberate or irresponsible behaviour on scaffolding, when using ladders, when measuring near machines which are running or near parts of machines or installations which are unprotected
- · Aiming directly in the sun

#### Hazards in use



#### !\ WARNING

Watch out for erroneous measurements if the instrument is defective or if it has been dropped or has been misused or modified. Carry out periodic test measurements.

Particularly after the instrument has been subject to abnormal use, and before, during and after important measurements.

### /!\ CAUTION

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



#### **WARNING**

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

#### Limits of use

Refer to section "Technical data".

The device is designed for use in areas permanently habitable by humans. Do not use the product in explosion hazardous areas or in aggressive environments.

# **Disposal**



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

The product must not be disposed with household waste.

Dispose of the product appropriately in accordance with the national regulations in force in your country.



Adhere to the national and country specific regulations.

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

#### **Electromagnetic Compatibility** (EMC)



#### !\ WARNING

The device conforms to the most stringent requirements of the relevant standards and regulations.

Yet, the possibility of causing interference in other devices cannot be totally excluded.

Safety Instructions EN

# FCC statement (applicable in U.S.)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and 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 subject 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.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

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

Cet appareil est conforme à la section 15 des règlements FCC. Son fonctionnement est soumis aux deux conditions suivantes :

- cet appareil ne doit pas causer d'interférences nuisibles, et
- cet appareil doit accepter toute autre interférence reçue, y compris les interférences pouvant entraîner un fonctionnement non désiré.

Ce dispositif est conforme à la norme RSS-210 d'Industrie Canada. L'utilisation est sujette aux deux conditions suivantes :

 ce dispositif ne pas doit pas être la source d'interférences nuisibles, et  ce dispositif doit accepter toutes les interférences, y compris les interférences pouvant induire des opérations non souhaitées.

# Use of the product with Bluetooth®

# **M** WARNING

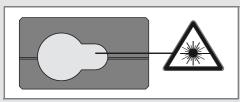
Electromagnetic radiation can cause disturbances in other equipment, in installations (e.g. medical ones such as pacemakers or hearing aids) and in aircraft. It can also affect humans and animals.

#### **Precautions:**

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

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

#### Laser classification



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

 IEC60825-1: 2014, Radiation safety of laser products"

#### Laser Class 2 products:

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

# **M**WARNING

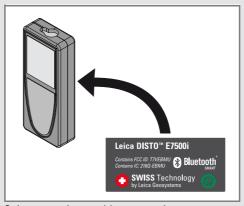
Looking directly into the beam with optical aids (e.g. binoculars, telescopes) can be hazardous.

## **A**CAUTION

Looking into the laser beam may be hazardous to the eyes.

Description	Value
Wavelength	620 - 690 nm
Maximum radiant output power for classification	< ImW
Pulse repetition frequency	320 MHz
Pulse duration	> 400 ps
Beam divergence	0.16 x 0.6 mrad

### **Labelling**



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

EN



Leica Geosystems AG, Heerbrugg, Switzerland has been certified as being equipped with a quality system which meets the International Standards of Quality Management and Quality Systems (ISO standard 9001) and Environmental Management Systems (ISO standard 14001).

Total Quality Management - Our commitment to total customer satisfaction. Ask your local Leica Geosystems agent for more information about our TQM program.

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Pat. No.: WO 9427164, WO 9818019, WO 0244754, WO 0216964,

US 5949531, EP 1195617, US 7030969, US 8279421 B2,

Patents pending



