HORIZONT®

Digital Laser Distance Meter

(E－60／E－80／E－100)

E- Professional

English

User Manual

Version 1.2

English

Thanks for your purchase E series (60/80/100m) digital laser distance meter.

 The safety instructions alone with the user manual should read carefully before initial operation. Helpful Hint:The first and last page including the pictures should look first,whilst reading through the manual.Letters and Numbers in braces {} refer to the illustrations.

Use of the instrument

Permitted use

- Measuring distances
- Computing functions, e. g. areas and volumes
- Digital pointfinder functions
- Measuring tilts

Prohibited use

- Using the instrument 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.), as far as not specifically permitted for certain cases
- Carrying out modification or conversion of the product
- Use of accessories from other manufacturers without the express approval of Leica Geosystems

Keypad

Keypad function:

1、 “ ” key：

Short press: Single distance Measuring；

Long press: Minimum/Maximum Measuring.

2、 “ ” key：

Short press: Addition measurement.(Under measuring mode)；

Positive check the last 20 displays in the storage. (Under navigating data in the storage)

3、 “ ” key：

Short press: Addition measurement.(Under measuring mode)；

Negative check the last 20 displays in the storage. (Under navigating data in the storage)

4、 “ ” area/volume key：

Function Select of area or volume measure.

5、 “ ” Indirect measurement：

The instrument can calculate distances using Pythagoras’ theorem.

6、 “ ” Measurement reference key:

Short press: Change the measurement reference on “front”/“end”.

Long perss: Change the light intensity of the LCD with keys of

7、 “ ” units/storage key：

Short press: Push display data into the storage;

Short press twice: Show the last 180 displays in reverse order.

Long press:Change the unit whitch need to deal with,(mm，inch，ft）.

8、 “ ” clear/off key：

Short press: Clear the last entry or measurement.Within a function (area,volume,etc.) single measurements can be deleted step by step and re-measure.

Long press: Turn off the system.

9、“ ” Digital pointfinder key:

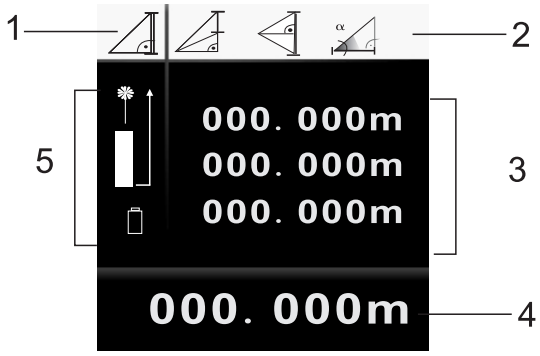
The device has an integral digital pointfinder, which shows the target directly on the display. The displayed crosshairs allow precise measu-rements to be made even though the laser beam is not visible.

Short press: Enter the digital targeting interface (zoom step 1x).

Chang zoom step 1x-2x.

Display

Display:B display in normal mode



1. Program selection with measurement instructions

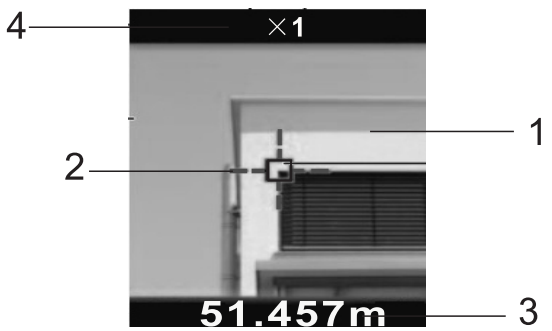
2.Program selection submenu

3.Measurement field

4.Result bar

5.Status bar with (Laser ON, Reference plane, Display Long range mode, Battery status)

Display C: display in “digital pointfinder” mode



1.Image 2.Crosshairs

3.Distance tracking value 4. Zoom step (1x, 2x)

The device has an integral digital pointfinder, which shows the target directly on the display. The displayed crosshairs allow precise measurements to be made even though the laser beam is not visible

The integral coloured digital pointfinder is a great help outdoors and can be used in every function. Longer distances and precise measurements on detailed surfaces can even be accomplished in bright sunlight without any problem

Parallax errors occur when the digital pointfinder is used on close targets, the laser dot may appear displaced in the crosshair. In this case you should rely on the actual laser dot for targeting the object

1. E series provide up to national standard lithium charger kit.When the lowest charge button show in the display,the product needs to be charged.

2. he first charge please continue to charge 12 hours

3. lease use the original charging Charger Kit.When finished ,please power off.

Selecting Units

Long press 

key to change unit.Possible units：

Distance	Area	Volume
0.000 m	0.000 m^2	0.000 m^3
0.000 ft	0.000 ft^2	0.000 ft^3
0.000 in	0.000 in^2	0.000 in^3

Operation

Simple operation

1、Open /Close system

Open: Long press 

Close: Long press 

Note: The device will automatically turn off after 3 minutes of inactivity.

2、Clear or exit function

Short press 

,clear the last entry or measurement. Within a function (area,volume,etc.) single measurements can be deleted step by step and re-measure.

3、 Addition / subtraction

Distance measuring:

The next measurement is added to the previous one. Press 

The next measurement is subtracted from the previous one.press 

result is always shown in the summary line.

4、Reference setting

The default reference setting is from the rear of the instrument. 

Press  to take the next measurement from the front edge 

pressing the  key for longer show  picture, you can now adjust the brightness of the display using the  or the  key. Display illumination has six levels of adjustment. Step 6 is the brightest and step 1 is the darkest setting.

5、Single Distance Measuring

Short press 

key to open Laser。Aim at the desired target and press key again. The measured distance is displayed immediately in the summary line.

6、Minimum/Maximum Measuring

This function allows the user to measure the minimum/maximum distance from a fixed measuring point. It is commonly used to measure diagonal distances (maximum values) or horizontal distances (minimum values).

Long press ON DIST key until you hear a beep, indicating the device is in a continuous measuring mode. Then slowly sweep the laser back and forth respectively up and down over the desires target point.

Press CLEAR OFF key again and the continuous measurement will be stopped. the maximum and minimum distances are shown in Intermediate line 1 and

7、Area

Press Area/Volume key. The corresponding symbol appears in the display. Take two measurements, the result will be displayed in the main.

8、Volume

Press area/volume key twice. The corresponding symbol appears in the display. Take three distance measurements, the result will be displayed in the main.

9、Indirect measurement

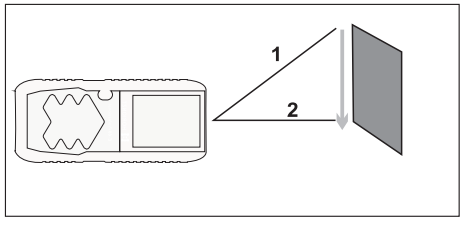
The instrument can calculate distances using Pythagoras' theorem.

Make sure you adhere to the prescribed sequence of measurement:

- All target points must be in a horizontal or vertical plane.
- The best results are achieved when the instrument is rotated about a fixed point.
- The minimum/maximum function can be used.

Make sure that the first measurement and the distance to be measured are at right angles.

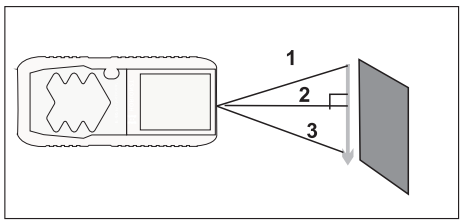
1、Indirect measurement - determining a distance using 2 auxilliary measurements



Indirect measurement 1

Short press key once，The corresponding symbol “ ” appears in the display. Aim at the upper point (1) and trigger the measurement. After the first measurement the value is adopted. Keep the instrument as horizontal as possible. Aim at the point (2) and trigger the measurement the partial results in Intermediate line 1 and line 2, and the result (the red line) will be displayed in the main.

2、Indirect Measurement - determining a distance using 3 Measurements

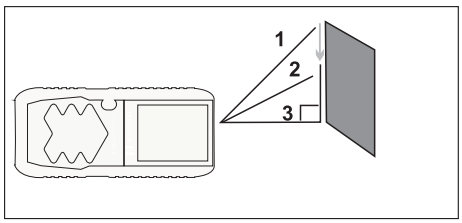


Indirect measurement 2

Press this button twice; the display shows the following symbol .

The laser is switched on.Aim at the upper point (1) and trigger the measurement; Aim at the upper point (2) and trigger the measurement. After the second measurement the value is adopted. Keep the instrument as horizontal as possible. Aim at the point (3) and trigger the measurement, the partial results in Intermediate line 1 ~ line 3, and the result (the red line) will be displayed in the main.

3、Indirect measurement - determining a distance using 3 auxilliary measurements



Indirect measurement 3

Short press key thrice ，The corresponding symbol “ ” appears in the display. Aim at the upper point (1) and trigger the measurement; Aim at the upper point (2) and trigger the measurement. After the second measurement the value is adopted. Keep the instrument as horizontal as possible. Aim at the point (3) and trigger the measurement, the partial results in Intermediate line 1 ~ line 3, and the result (the red line) will be displayed in the main.

the partial results in Intermediate line 1 ~ line 3, and the result (the red line) will be displayed in the main.

10、Historical storage

Short press UNIT/S key to push the display data into storage. " c" expressed store of success, and the last 180 data and 45 combined data displays are showed in reverse order. Using the + key and − key allows to navigate in the storage.

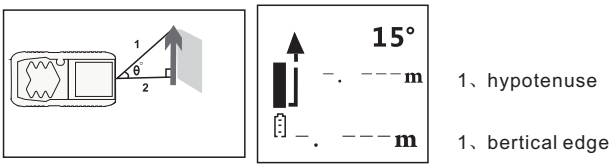
In order to leave the storage press CLEAR OFF key.

11、Tilt measurement 1:Direct vertical distance

Notice:

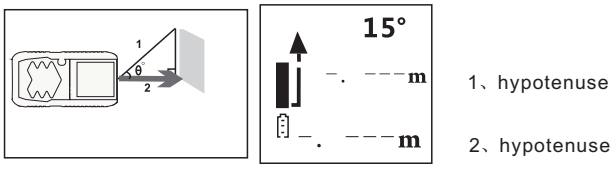
1、The inclination sensor measures tilts between ± 90°

2、the device is used with section ±0.5°



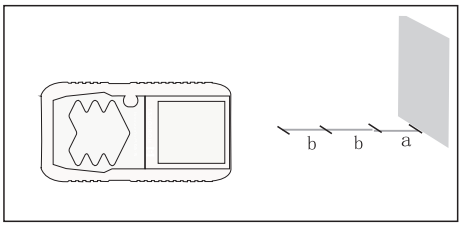
The inclination sensor measures tilts between +/-90° , The infocode i 271 means that the device has been set outside the permissible limits.press the key ∠ four times-the angle symbol α appears in the display.press the ON DIST to measure the inclination and distance.

Tilt measurement 2:Direct horizontal distance



Press key ∠ five times- α symbol appears in the display,the tilt is continuously shown,press ON DIST key to open laser,press it again to take horizontal distance.

12、Stake out function



Two different distances (a and b) can be entered into the instrument and can then be used to mark off defined measured lengths.

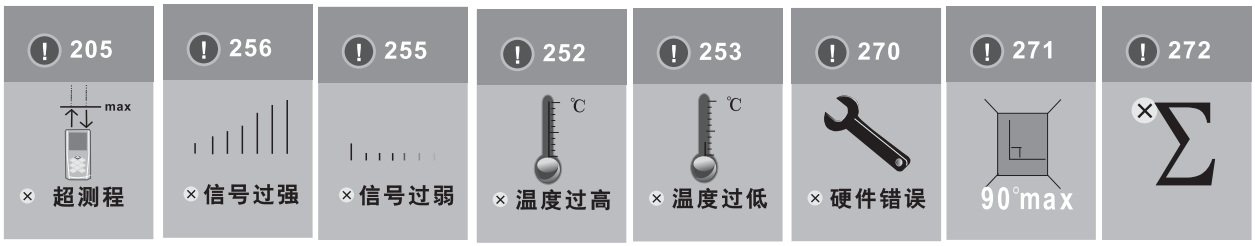
Press this button  six times and the stake out function symbol  appears in the display.by using  and  ,you can adjust the values (first a and then b) to suit the desired stake out distances. Holding the buttons down increases the rate of change of the values. Once the desired value (a)has been reached it can be confirmed with the  button. Value (b) can be entered using  and  . The defined value (b) is confirmed with the  button. Pressing the  button starts the laser measurement. The display shows required stake out distance in the summary line between the stake out oint (first a and then b) and the instrument (rear reference). The arrows in the display  indicate in which direction theE series needs to be moved in order to achieve the defined distance(either a or b). As soon as the staking out point is reached, the symbol  appears in the display.

Press the  key to return last function or stop measurement.

Message Codes

The following mistakes can be corrected:

Info	Cause	Remedy
205	Ranging transfinite	Use in allowed ranging
252	Temperature too high	Cool down instrument
253	Temperature too low	Warm up instrument
255	Receiver signal too weak, measurement time too long	Use target plate
256	Received signal too powerful	Use target plate
270	Error of hardware	Open/close the insteument Repeatedly
271	Measuring angel＞90°	Measuring angel（0-90°）
272	Computation errors	Repead steps



技术参数

1	Range	0.05-60m	0. 05-80m	0.05-100m
2	Measuring accuracy	±1.5mm		
3	Smallest unit displayed	1mm		
4	Single distance measuring time	0. 4-4s		
5	Unit	m/inch/ft		
6	Laser class	Class 2M		
7	Laser power	＜1mW		
8	Laser type	635nm		
9	Continue measurement	●	●	●
10	Area measurement	●	●	●
11	Volume measurement	●	●	●
13	Addition/Subtraction	●	●	●
14	Indirect measurement	●	●	●
15	Minimum/Maximum	●	●	●
16	Reference setting	●	●	●
17	Historical storage	180	180	180
18	Light intensity	Grade 6	Grade 6	Grade 6
19	Beeb	●	●	●
20	Tilt measurement	——	——	●
21	stake out function	——	●	●
22	Inch nut	●	●	●
23	Digital pointfinder	1x-2x zoom	1x-2x zoom	1x-2x zoom
24	Spirit bubble	●	●	●
25	Battery type	Lilhium 3.7V/1100mAh		
26	Battery validity	15000+		
27	Ip rating	Ip54		
28	Temperature ange	0-40° C		
29	Automatic laser off	30s		
30	Automatic switch off	180s		
31	Storage	-10-60° C		
32	Dimendion	131mmX58mmX30mm		
33	Weight	172g		

Measuring Conditions

digital laser distance meter is used indoor and outdoor.

At night, at dusk and when the target is shadowed the measuring range without target plate is increased up .Use a target plate to increase the measurement range during daylight or if the target has a bad reflection.

For distances over 50m – without using a target plate – the maximum deviation may increase to ±10mm.

Care

Do not immerse the unit in water. Wipe off dirt with a damp, soft cloth. Do not use aggressive cleaning agents or solutions. Treat the optical surfaces with the same care that you would apply to eye glassed and cameras.

Safety Instructions

English

Carefully read the Safety Instructions and the UserManual before using this product.Pthe person responsible for the instrument must ensure that all users understand these directions and adhere to them.

Symbols used

The symbols used in the Safety Instructions have the following meanings:

⚠ WARNING:

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

⚠ CAUTION:

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

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

Use of the instrument

Permitted use

- Distances measure.
- Computing functions, e.g. areas and volumes.
- Storing measurements.

Prohibited use

- Using the instrument 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.), as far as not specifically permitted for certain cases.
- Carrying out modification or conversion of the product.
- Use after misappropriation.
- Use of accessories from other manufacturers without the pxpress approval of original manufacturer.
- Aiming directly into the sun.
- Deliberate dazzling if third parties; also in the dark.
- Inadequate safeguards at the surveying site (e.g. when measuring on roads, construction sites, etc.)

Limits of use

See Section “Technical Data”.

Product is designed for use in areas permanently habitable by humans, do not use the production explosion hazardous areas or in aggressive environments.

Areas of responsibility

Responsibilities of the manufacturer of the original equipment: original manufacturer is responsible for supplying the product, including the User Manual and original accessories, in a completely safe condition.

Responsibilities of the person in charge of the instrument:

⚠ WARNING

The person responsible for the instrument must ensure that equipment is used in accordance with the instructions. This person is also accountable for the deployment of personnel and for their training and for the safety of the equipment when in use.

The person in charge of the instrument has the following duties:

- To understand the safety instructions on the product and the instructions in the User Manual.
- To e familiar with local safety regulations relating to accident prevention.

- To inform original manufacturer immediately if the equipment becomes unsafe.

Hazards in use

CAUTION:

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

Precautions:

Carry out periodic test measurements. Particularly after the instrument has been subject to abnormal use, and before, during and after important measurements. Make sure the optics of the instrument is kept clean and that three is no mechanical damage to the bumpers.

CAUTION:

In using the instrument for distance measurements or for positioning moving objects (e.g. canes, building equipment, platforms, etc.) unforeseen events may cause erroneous measurements.

Precautions:

Only use this product as a measuring sensor, not as a control device. Your system must be configured and operated in such a way ,that in case off an erroneous measurement, malfunction of the device or power failure due to installed safety measures (e.g. safety limit switch), it is assured that no damage will occur.

⚠WARNING:

Dispose of the product appropriately in accordance with the regulations in force in your country. Always prevent access to the product by unauthorized personnel.

⚠CAUTION:

Aiming the telescopic viewer directly at the sun or at the reflected laser beam(reflected off metallic or mirroring surfaces, prisms…) is hazardous to the eyes.

Precautions:

Never aim the telescopic viewer directly at the sun or at highly reflecting surfaces (metallic or mirroring surfaces, prisms…)

Electromagnetic Compatibility（EMC）

The term “electromagnetic compatibility ” is taken to mean the capability of the product to function smoothly in an environment where electromagnetic

radiation and electrostatic discharges are present, and without causing electromagnetic interference to other equipment.

⚠ WARNING:

E-series Professional conforms to the most stringent requirements of the relevant standards and regulations, Yet, the possibility of it causing interference in other devices cannot be totally excluded.

⚠ WARNING:

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

Precautions:

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

- 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.

⚠ CAUTION:

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

Laser classification

digital laser distance meter produces a visible laser beam which emerges from the front of the instrument.

It is a Class 2 laser product in accordance with :

- IEC60825-1:2001"Radiation safety of laser products" (radiation safety of products)

EN60825-1:2001"radiation safety of laser products" (radiation safety of products)

It is a Class Ⅱ laser product in accordance with:

- FDA21CFR Ch.Ⅰ§1040:2004(US department of Health and Human Service, Code of Federal Regulations)

Do not look directly into the beam with optical aids.

CAUTION:

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

Precautions:

Do not look into the laser beam .make sure the laser is aimed above or below eye level. (particularly with fixed installations ,in machines ,etc.)

WARRANTY CARD NO:

ModleNO :

SerialNO :

Date Of Purchase:

Dealer:

1、Probidong a warranty of two years

2、Declarations:

Fallowing conditions are NOT included in warranty:

(1) Open the equipment by tools without specifically permission

(2) The use of the equipment outside limits or improper handing

(3) Servoced by unauthorized persons or workshops

(4) obiterated Serial Number of equipment

3、Warranty Card must be provided and please produce your invoce when desired