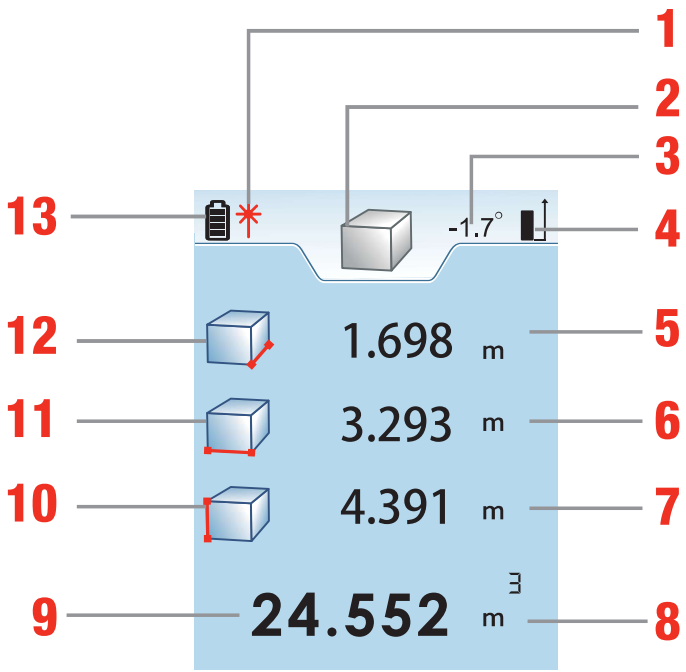
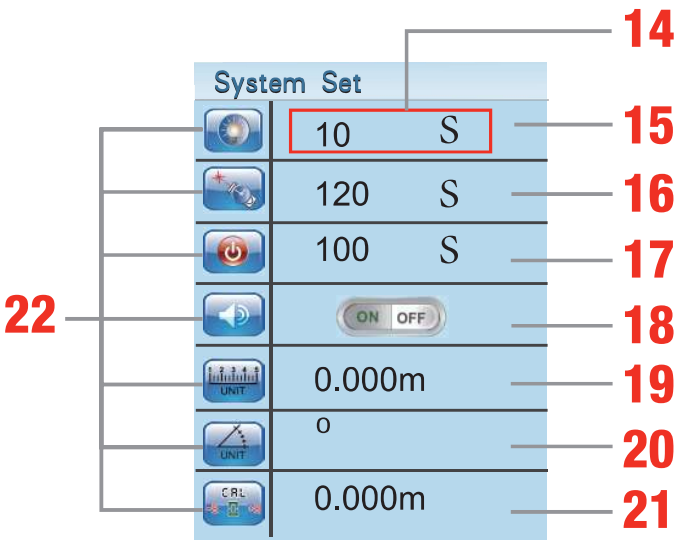
DISPLAY 1



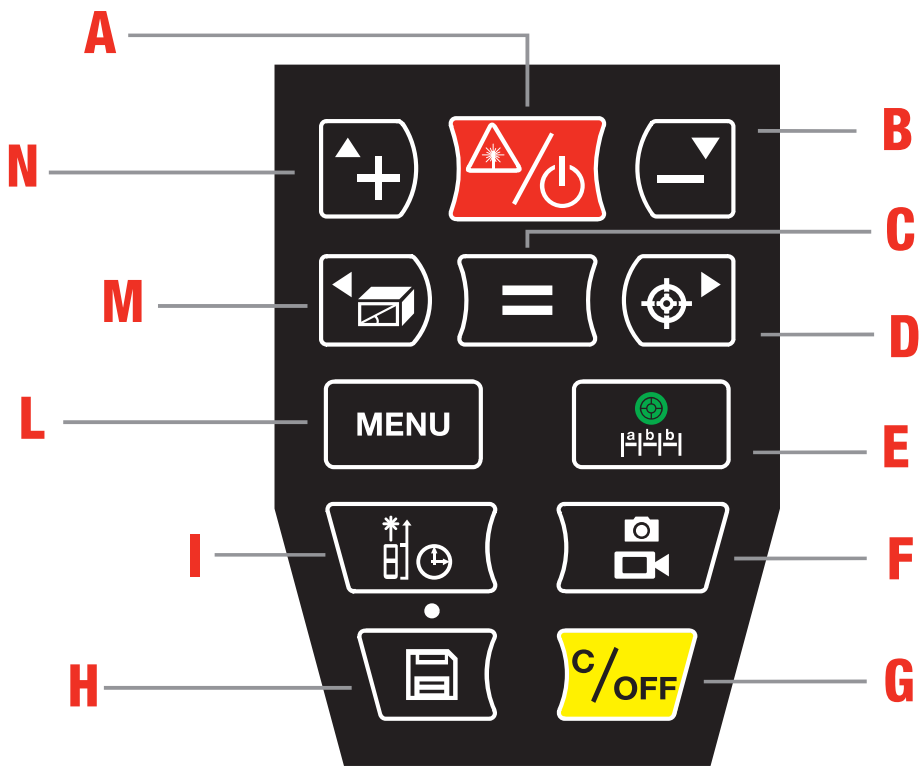
1. Laser indicator
2. Measuring method
3. Inclinometer
4. Reference point
5. Auxiliary display
6. Auxiliary display
7. Auxiliary display
8. Unit
9. Auxiliary display
10. Measuring
11. Measuring
12. Measuring
13. Battery charge state

DISPLAY 2



14. Options
15. Setting the time for the backlight
16. Setting the laser time
17. Automatic shutdown on / off
18. Volume on / off
19. Measure unit
20. Angular unit
21. Calibration
22. Functions

KEYBOARD



A. Turn on / Measure
B. Subtraction
C. Equal
D. Camera viewfinder
E. Tracking / Inclinometer
F. Photo / Video
G. Turn off / Cancel
H. Storage and reading of data
I. Selection of reference measurement / measurement delay
L. Menu
M. Multifunction distance / area / volume / Pythagoras
N. Addition

SAFETY

Before using the device, read the safety instructions and the user manual carefully. Improper use of the device, which does not conform to the instructions in this manual, may damage the device, affect the measurement results, or physically damage the user. It is not allowed to disassemble or repair the device. Any modification or modification of the laser power is prohibited. Keep out of reach of children and unqualified persons. It is strictly forbidden to aim the laser at the eyes or other body parts, it is forbidden to aim the laser at a reflective surface. Due to the interference of electromagnetic radiation with other instruments, do not use the unit in aircraft or near medical equipment or in flammable / explosive environments. Observe local regulations when disposing of batteries or instruments. If you have questions about the device, contact your local dealer. Professional quality brings a good reputation

BATTERY INSTALLATION / REPLACEMENT

Open the battery compartment on the back of the device and insert the batteries with the correct polarity. Close the lid.
Use only 2 rechargeable 1.2A 2400AhAANi-Mh batteries. **Never use non-rechargeable batteries: there is a risk of explosion during charging.** A charging cable is included . If the device is not used for a long time, remove the batteries from the battery compartment to prevent corrosion of the device body.

ON / OFF SWITCHING

To turn on the device, press for three seconds , the device and the laser will turn on simultaneously and ready are to measured.
To turn off the device: press C/OFF for at least 3 seconds. If the device is inactive for 150 seconds, it will automatically switch off (the user can set this duration in the menu, see Menu / Settings).

ADJUSTMENT OF THE MEASURING UNIT

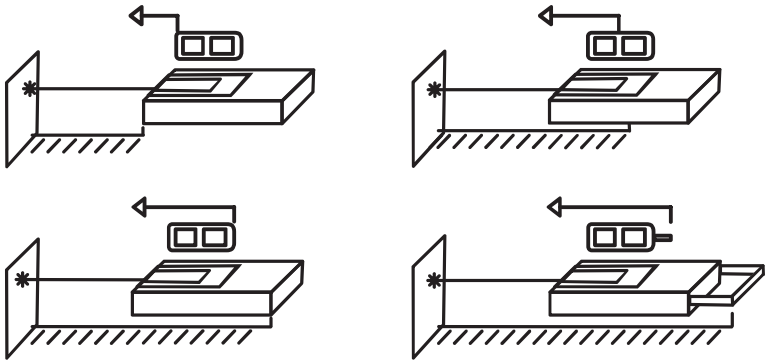
Briefly press MENU to enter the setup menu.
Press , , , to choose the setting function .
Press to enter the function.
Press or to move the red frame on the element UNIT, press =, the frame turns green. The user can select the unit by pressing or , press =, the frame turns red and saves the change by pressing .

THERE ARE 8 UNITS TO BE SELECTED

	lenght	surface	volume
1	0.000 m	0.000 m^2	0.000 m^3
2	0.00 m	0.00 m^2	0.00 m^3
3	0.00 ft	0.00 ft^2	0.00 ft^3
4	0.0 in	0.00 ft^2	0.00 ft^3
5	0 1/32 in	0.00 ft^2	0.00 ft^3
6	0'00'1/32	0.00 ft^2	0.00 ft^3
7	0.000 米	0.000 $米^2$	0.000 $米^3$
8	0.00 米	0.00 $米^2$	0.00 $米^3$

REFERENCE POINT

Press to change the starting point. There are four reference points: on the front part, on the tripod mounting thread, at the bottom of the device and on the tip of the end piece:



SIMPLE OR SINGLE MEASUREMENT

Briefly press while in measuring mode, the laser lights up; point at the object to be measured.

Press again for a single distance measurement: the result is displayed on the screen.

To clear the result on the screen, press C/OFF

The last 3 measurements are displayed in the auxiliary display area.

To clear the result on the screen, press C/OFF

CONTINUOUS MEASUREMENT

To activate this mode, keep the key pressed: the display shows the results of the minimum and maximum measurements. The screen simultaneously displays the current measurement, the results of the minimum and maximum measurements and their difference Δ.

To exit the continuous measuring mode, press briefly . To clear the result on the screen, press C/OFF.

AREA MEASUREMENT

Press once , the symbol appears on the screen. Complete the following steps based on the suggestions on the screen:

- Press to measure the first side (length)
- Press to measure the second side (height)
  The surface is calculated automatically. Perimeter and surface results are displayed on the screen.
- Briefly press C/OFF to clear the results and be ready for another measurement
- Press long to save the result

VOLUME MEASUREMENT

Press twice, the display shows .

Complete the following steps based on the suggestions on the screen:

- Press to measure the first side (length)
- Press to measure the second side (depth)
- Press to measure the third side (height). The volume is calculated automatically.
- Press = once to display the area of the base.

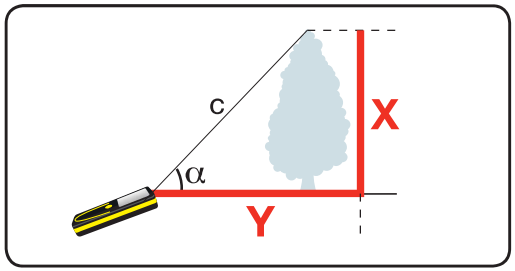
- Press twice [=] to display the sum of the vertical areas (walls).
- Press [=] three times to display the perimeter of the base.
- Press [C/OFF] to clear the results and be ready for another measurement.
- Press and hold [M] to save the results

PYTHAGORAS FUNCTION

There are seven methods of measurement:

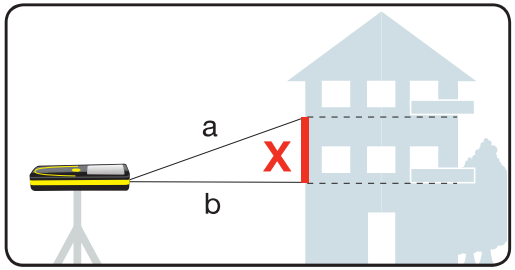
1. Calculate the length of the two legs by measuring the hypotenuse and the angle.
2. Calculate the leg by measuring the hypotenuse and a leg of a right triangle.
3. Calculate the hypotenuse by measuring the legs of the right triangle.
4. Calculate the third side of the triangle by measuring the two hypotenuses and the height of the two triangles (double Pythagoras).
5. Calculate an inaccessible height by measuring both hypotheses and the legs of a compound triangle.
6. Calculate the area of the irregular triangle by measuring the length of its three sides.
7. Measurement of the rectangular trapezium

1st mode: Calculate the length of two legs **X** and **Y** by measuring the hypotenuse **c** and the angle α



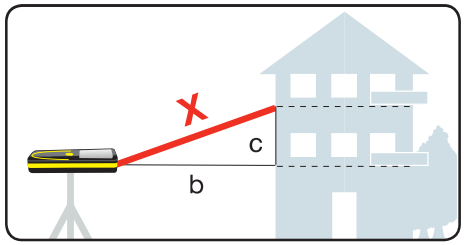
Press [Pythagoras] three times and the screen shows  ; press [▲/⏻] to measure the hypotenuse **c** and the angle of inclination α . The results of the legs **X** and **Y** are displayed after the measurement.

2nd mode: Calculate a leg **X** by measuring the hypotenuse **a** and base **b** of the right triangle

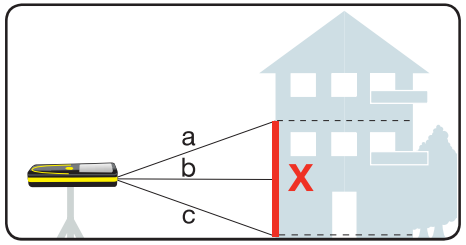


Press four times [Pythagoras], the display shows  ;
Press [▲/⏻] to measure the length of hypotenuse **a**,
Press [▲/⏻] to measure the length of the leg **b**
The device calculates the length of the leg **X**.

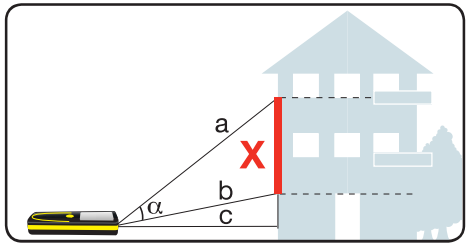
3rd Mode: Calculate the hypotenuse **X** by measuring the two legs **b** and **c** of the right triangle



Press five times , the screen displays ;
Press to measure the length of the leg **b**
Press to measure the length of the leg **c**
The device calculates the length of the hypotenuse **X**.
4th mode: Double Pythagoras. Calculate the third side of the triangle **X** by measuring the two hypotenuses **a**, **c** and the height **b** of the two triangles

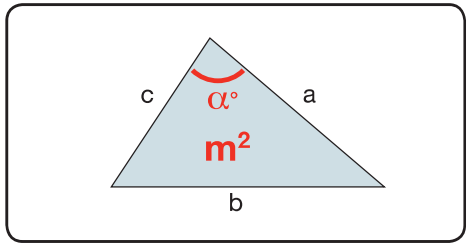


Press six times , the display shows ;
Press to measure the length of hypotenuse **a**
Press to measure the length of the height **b**
Press to measure the length of hypotenuse **c**
The device calculates the length of the third page **X**.
5th Mode: Calculate the inaccessible height **X** by measuring the 2 hypotenuses **a**, **b** and the leg **c** of a composite right triangle.



Press seven times , la schermata mostra
Press to measure the length of hypotenuse **a**,
Press to measure the length of hypotenuse **b**,
Press to measure the length of the cathetus **c**,
The device calculates the length of **X**.

6th Mode: Calculate the area of the irregular triangle by measuring the length of its three sides.

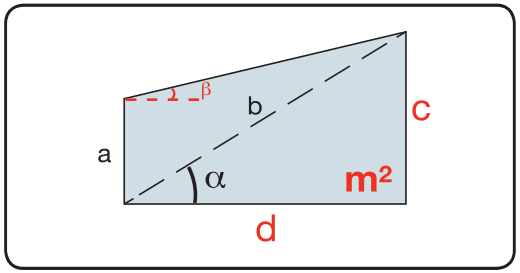


Press eight times , the display shows ;
Press to measure the first side **a**
Press to measure the second side **b**

Press [ON/OFF] to measure the third side **c**
The surface is calculated automatically.
Press once [=] to display the result of the perimeter of the triangle.
Press twice [=] to display the angle α.
- Press [SAVE] to save the results

ATTENTION:
If the instrument displays "ERR5" during the measurement, it means that the previous measurement results do not comply with the triangle rules. For example: the hypotenuse is shorter than the catheters. If calculation errors occur, the device displays "ERR5" to display the alarm. In this case, the users have to perform a new measurement. If the user makes a wrong measurement, he can briefly press [C/OFF] . Press [C/OFF] to clear the bad measurement and return to the last correct level. Of course he has to do the required measurement again. Press and hold [SAVE] , the result is saved.

7th Mode: Calculate the area of the trapezoidal rectangle by measuring the sub base **a** and the main diagonal **b**.



Press nine times [▭] , the screen displays ▱ ;
Press [ON/OFF] to measure the first side a
Press [ON/OFF] to measure the diagonal b
The angle appears on the screen and the surface is calculated automatically.
Pressing [=] repeatedly displays the results (**c**, **d** and β) on the screen. Press and hold [SAVE] to save the results.

CALCULATION

Sum of lengths
Step 1 - Press [ON/OFF] to get the first length.
Step 2 - Press [+].
Step 3 - Press twice [ON/OFF] to get the second length and the relative sum.
Repeat step 3 to continue to sum.

Subtraction of lengths
Step 1 - Press [ON/OFF] to get the first length.
Step 2 - Press [−].
Step 3 - Press twice [ON/OFF] to get the second length and the relative difference.
Repeat step 3 to continue the subtraction.

Sum and subtraction of surfaces

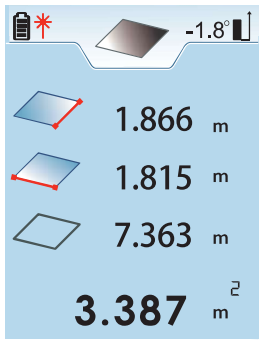


Fig. 1

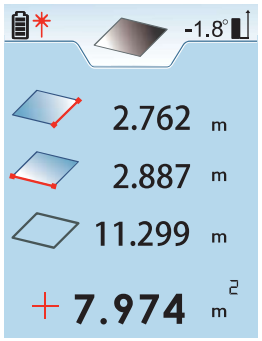


Fig. 2

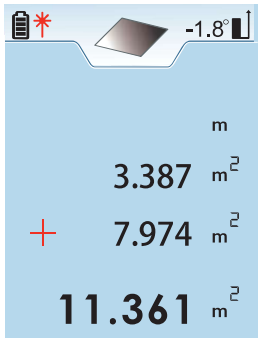


Fig. 3

Step 1 - Measure the first surface as shown in Fig.1
Step 2 - Briefly press [+] and repeat the measuring process to obtain a second surface Fig. 2
Step 3 - Press briefly [=], the device calculates the sum of the areas as shown in Fig. 3
The subtraction functions are similar to addition, using [−].

Sum and subtraction of volume

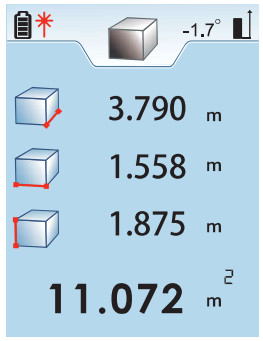


Fig. 4

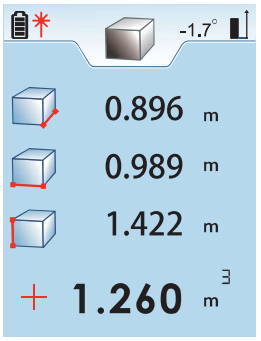


Fig. 5

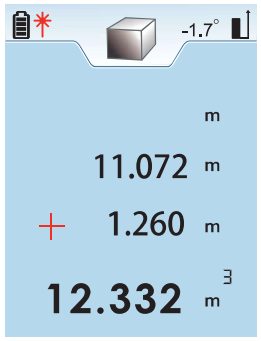
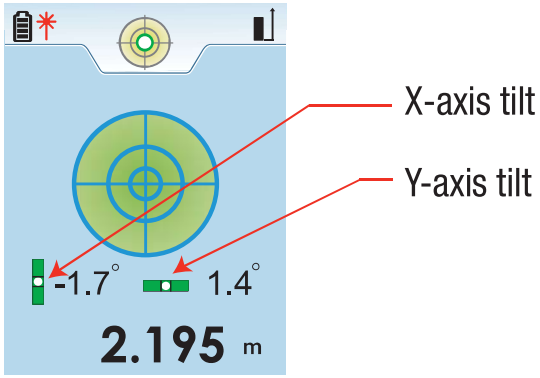


Fig. 6

Step 1 - Measure the first volume as shown in Fig.4
Step 2 – Shortly press [+] and repeat the measurement to get the second volume
Step 3 - Shortly press [=], the unit calculates the sum of the volumes as shown in Fig.6
The subtraction functions are similar to addition by using the [−] key.

TILT MEASUREMENT

Short press [▱], the screen shows:



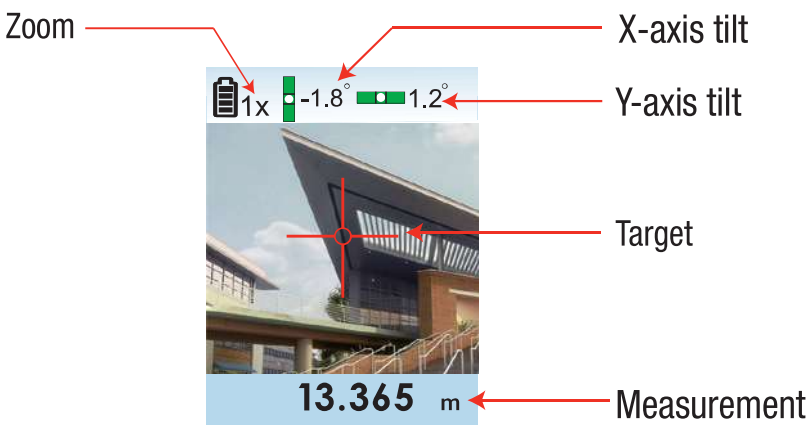
Press [C/OFF] to exit.

ELECTRONIC SEARCHER (CAMERA MODE - ZOOM)

If the user can not find the laser spot under a bright light source, he can turn on the camera for easier measurement.
1. Set the device to measure linearly and then press [◎] briefly to turn on the camera.

2. Align the cross displayed on the object to be measured, and then perform the distance measurement.
3. To exit the camera mode, press briefly . Press the C/OFF button once to clear the measurement result. By pressing this button twice, you leave the camera mode.
4. If you are already in the mode area, volume, Pythagoras and want to use the camera function to aim the objective, press . Press to take the first measurement, exit the camera mode with and the measurement will remain on the screen. Return to the camera mode with and carry out the second measurement with . To finish, press and the results of the selected function will be displayed on the screen.
5. For continuous measurement with camera mode activated: switch on camera mode, then press and hold The result of the measurement is displayed on the screen.

Important: In camera zoom mode with the buttons and activate the 2x and 4x-ZOOM



DELAYED MEASUREMENT

Press long , the delay time will be displayed on the screen in seconds. Short press or to set the time. 60s is the maximum value, 3s is the minimum value.
Then briefly press to start the delayed measurement function.

STAKE OUT

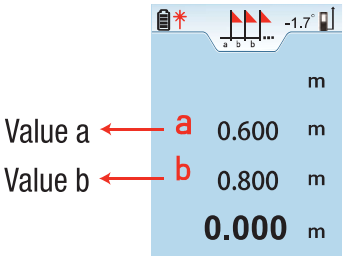


Fig. 7

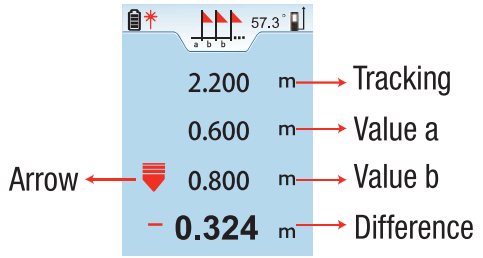
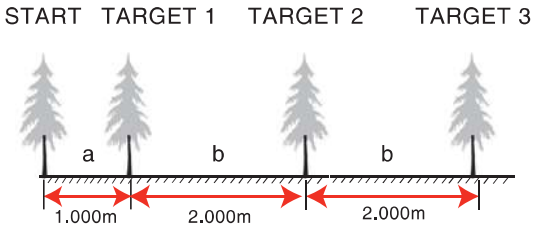


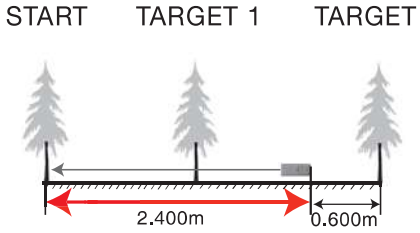
Fig.8

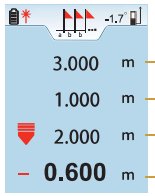
The user can use the tracking function to find the position corresponding to the defined distance

1. Press and hold , the display shows as in Fig. 7
2. Setting the value:
   - Press or to set the value “a”, press to confirm
   - Press or to set the value “b”, press to confirm
3. Arrows: : go back, : go forward, : in position
4. Short press C/OFF to stop this function.



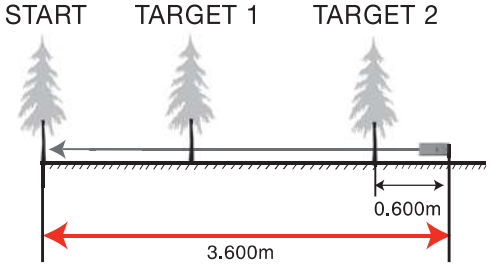
a = 1.000m
b = 2.000m
a and b are defined by the user
a and b may or may not have the same value

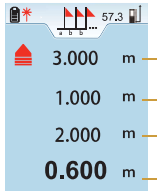




Displays the distance from the beginning to the destination 2
a
b
Move the unit 0.6 m back to the goal 2

actual distance 2.4



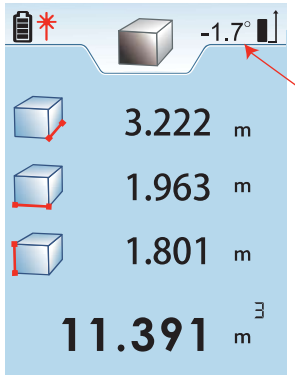


Displays the distance from the beginning to the destination 2
a
b
Move the unit 0.6 m to target 2

actual distance 3,6

TILT METER

The measuring range of the angle is -90 ° / + 90 °
Two units of measure: ° (degrees) and % (slope); Use the adjustment function to select the unit of measure (0 ° or %)



X-axis tilt

SAVING MEASUREMENTS

During the measurement, when the data is complete, press for at least 3 seconds; the collected data is automatically saved to the memory card of the device. The device can also store values from surface, volume, and Pythagoras calculations.

READING SAVED DATA

Short press to read the stored data. Press or to scroll forwards or backwards. You can search for the memory sequence displayed at the top of the screen. Press long C/OFF to clear all stored data. Press briefly on C/OFF to delete the previous data in the memory

BATTERIES

The device comes with rechargeable batteries and a connection cable. The symbol flashes during charging at the top right of the screen. When the charge is complete, we see the icon green.

Attention: Use only the supplied cable.

Hazard Statement: Use only rechargeable batteries.

FUNCTIONS

CAMERA

Press the button to activate the CAMERA function.

Press to activate the laser and press a second time to take the measurement.

Short press to take the picture **without moving the instrument away from the measured target**.

The file is saved in internal memory in JPG format with the date.

VIDEO

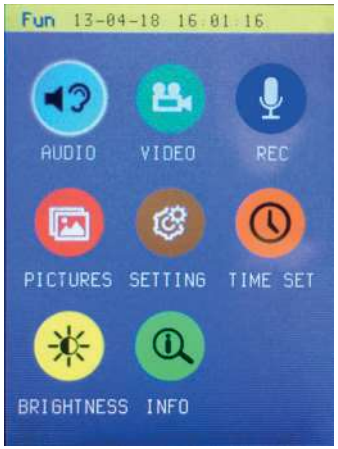
Press to activate the CAMERA function.

Press longer to start the video recording.

Press or to stop the video recording. The file is saved in the internal storage format H264 with the date.

MENU

Short press MENU to access the main menu. By using the , , and buttons, you can select from the following functions: AUDIO, VIDEO, RECORD, PHOTO, SETUP, DATE / TIME, BRIGHTNESS and INFO. Once the function has been selected, press the .



Recording audio files

Press for the audio recording function as shown.

Press to save the audio file.

Press to pause the recording.

Press to stop the audio recording.

Press to exit the audio function. The file is saved in the internal memory in WAV format with the date.

Listen to audio files

Press to access the audio files (see adjacent figure).
Press the or buttons to select the file.
Press to hear the audio file.
Press to stop playback of the audio file. The volume can be controlled by and

Watch video files

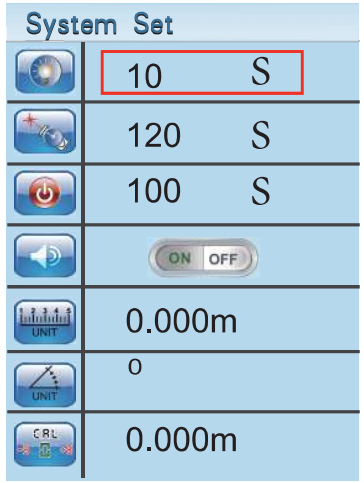
Press to access the video files (see adjacent figure).
Press the or buttons to select the file.
Press to view the video file.
Press to stop playing the video file.
Press long to delete the selected video.

View photos

Press to access the last image saved (see opposite image).
Press the or buttons to view the photo gallery.
Short press to finish. Press and hold to delete the selected image.

Settings

Press to access the menu (see adjacent figure). Press or to select the function to be set. Press and the frame turns green, then press or to change the settings. As soon as you have reached the desired setting, press again and the frame will turn red. Press to save the defined settings.
If the user does not save the new setting, the most recent change is valid only for the current session. Turning off the power to reset the changed settings to factory defaults.



PARAMETERS AND OPERATIONS

There are a total of 7 parameters on 2 pages in the menu

KEY	DESCRIPTION	OPTIONS
	Turn off the backlight	5s ~ 60s
	Turn off the laser	20s ~ 120s
	Switch off the device	100s ~ 300s
	Adjust sound	ON OFF
UNIT	Units	1: 0.000m 2: 0.00m 3: 0.0in 4: in 1/32 5: 0'00'1/32 6: 0.00ft 7: 0.000米 8: 0.00米
UNIT	Unit of angle measurement	1: o : degree 2: 100% : Slope
CAL	Calibration	−0.009m ~ +0.009m

ATTENTION

The calibration function may affect the accuracy of the unit, so this option can not be set to the default state. The user must follow the following calibration procedure:

Step 1: Turn off the device

Step 2: Press and hold [⏻] and press at the same time [C/OFF]

When the Welcome screen lights up, release the [⏻] button, and when the main menu appears, release [C/OFF] as well.

Step 3: Short press [MENU], then press [⚙]. The instrument is now ready for calibration (+/- 9 mm calibration range) by pressing the [+] and [−] keys. Example: Place the instrument at a distance of 1 m (determined) from the target and measure. If the result is not 1000 (Example 1.004), select the CALIBRATION function and make the required correction.

Set time (time set)

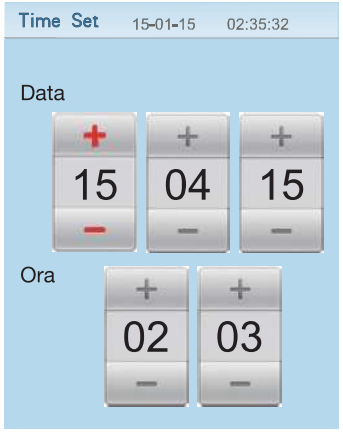
Press [🕐] to access the Date / Time menu.

Press [▭] or [◎] to choose between the date and time.

Press [+] or [−] to set the date and time.

Press [⏻] to save the new values.

Press [C/OFF] to return to the menu.

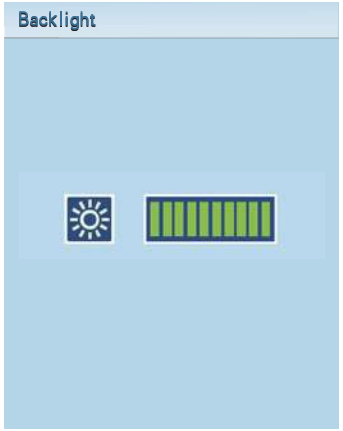


Brightness

Press [☀] to access the brightness menu.

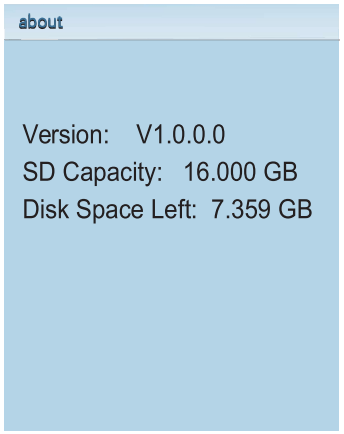
Press [+] or [−] to adjust the intensity of the screen.

Press [C/OFF] to return to the menu.



Info

Press to see the device information. The user can see device data such as software version, storage capacity and available storage space.



CONNECTION TO A PC

Connection to the PC via software

The user can transfer stored data from the device to the computer using the supplied cable.
First, the user must install the software with the CD supplied with the device.
Open the “Setup” folder on the supplied CD. Double-click “setup.exe” to install the software.

MAINTENANCE

Do not leave the appliance too hot or too humid for too long. If you are not going to use the device for a long time, remove the batteries and keep the device in a cool, dry place.

Keep the surface of the device clean and remove the dust with a soft cloth. Do not use corrosive liquids / agents. Use the same procedures as for optical lenses to maintain the laser exit window and the focal length lenses.

PACKAGE CONTENTS

1 laser devices for distance measurement
2 AA batteries
1 user manual
1 pouch for the device
1 connection cable
1 CD
1 strap

NOTE

There can be large differences in measurements when performed in harsh environments, such as: Strong sunlight, excessive temperature variability, low reflective surface, backlight, low battery.
When carrying out meaningful measurements, carry out suitable test measures by checking the measured values in a different way.

TIPS

During use, the following suggestions may be displayed on the screen:

MESSAGE	CAUSE	SOLUTION
Err1	Signal too weak	Select a measurement point with better reflection capabilities
Err2	Signal too strong	Select a measuring point with less reflection capabilities
Err3	Battery voltage too low	Replace the battery
Err5	Wrong Pythagoras measurement	Repeat the measurement by making sure the length of the hypotenuse is greater than that of the legs.
Err6	The measuring range has been exceeded	

TECHNICAL SPECIFICATIONS

Capacity *	120 m
Minimum reading	0.05 m
Measuring accuracy	± 2 mm
Zoom function	2x / 4x
Laser class	II
Laser type	635nm, <1mW
Continuous measuring function	Yes
Area / volume measurement	Yes
Pythagoras functions	Yes, complete
Sum and subtraction of measurements	Yes
Min / Max value	Yes
Stakeout	Yes
Self-timer	Yes
Calibration	Yes
Measurement memory with image	Yes
Video	Yes
Sound recording	Yes
Data transmission	Yes
End piece for diagonals	Yes
Inclinometer X and Y	Yes
Angle measurement	+/- 90 °
Storage capacity	16 GB
Automatic shutdown laser	20 / 120s
Automatic deactivation of the device	100 / 300s
Rechargeable batteries	2-NiMh 1.2V 2400mAh
Battery life	30,000 measurements
Storage temperature	-20 ° C / 60 ° C
Operating temperature	0 ° C / 40 ° C
Storage	RH85%
Dimensions	145x60x29 mm

* In non-optional conditions (strong light, backlight, characteristics and color of the reflecting surface, exhausted batteries, etc.) the capacity may vary accordingly