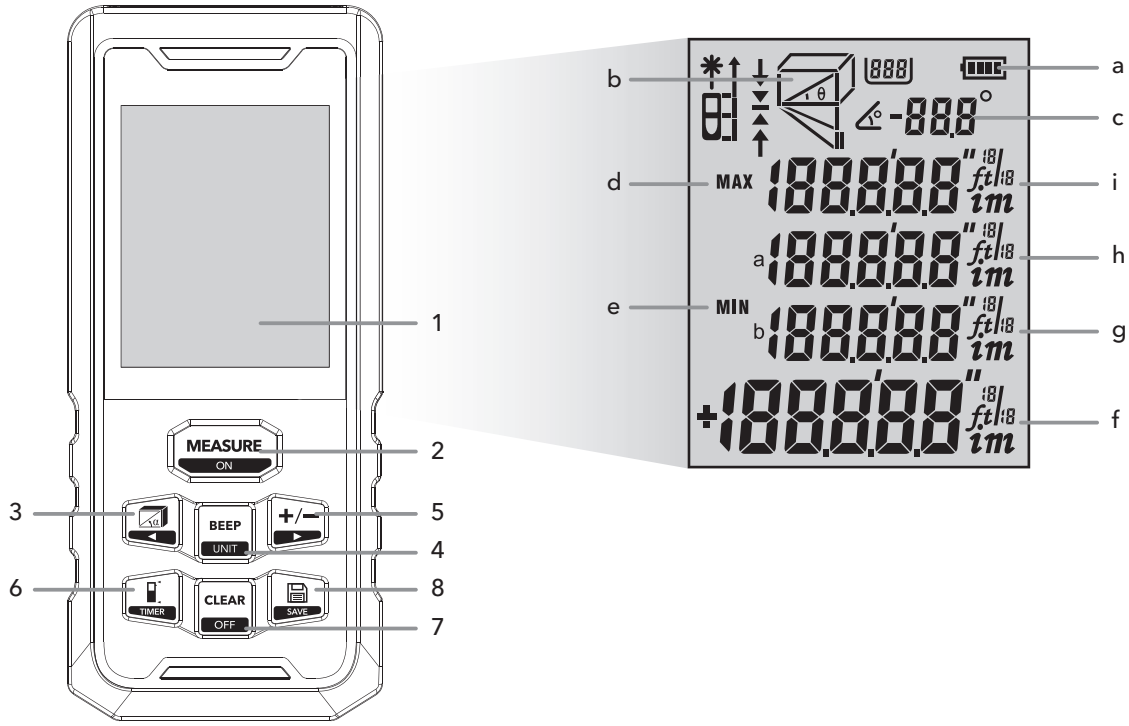
INSTRUCTION MANUAL [EN]

202.40R – DISTY 40R
202.60G – DISTY 60G
202.80R – DISTY 80R

OVERVIEW



1. Screen
2. Measure - ON button
3. Function - Back button
4. Beep - Unit button
5. Addition/Subtraction – Next button
6. Reference point – Timer button
7. Clear – OFF button
8. Memory – Save button

a. Battery indicator
b. Function indicator
c. Angle
d. Maximum
e. Minimum
f. Major display
g. Auxiliary display, line 1
h. Auxiliary display, line 2
i. Auxiliary display, line 3

SAFETY & WARRANTY

Read the complete safety and warranty instructions provided together with the device before using.

While the product is in operation, be careful not to expose your eyes to the emitting laser beam.
Do not disassemble the tool. There are no user serviceable parts inside.
Do not modify the tool in any way. Modifying the tool may result in hazardous Laser Radiation Exposure.

BATTERY

Open the battery door on the back of the device and place the batteries according to correct polarity. Then cover the batteries with the battery door.
Only use 1,5V AAA Alkaline batteries or the provided AAA Ni-MH rechargeable batteries.

If the device is not used for a longer time, remove the batteries to avoid battery corrosion to the device.

OPERATION

- Turn ON/OFF the instrument

  Hold the Measure – ON button [2] for approx. 3 seconds to turn the device on. By starting up the device, the laser will light up shortly. The device is stand by for measurement.

  Hold the Clear – OFF button [7] for approx. 3 seconds to turn off the device.
  The device will shut down automatically after approx. 150 seconds without any operation.

- Unit settings

  Hold the Beep – Unit button [4] for approx. 3 seconds to change the measurement unit. The default unit is 0.000m. There are 6 units to choose:

Length	Area	Volume
0.000 m	0.000 m^2	0.000 m^3
0.00 m	0.00 m^2	0.00 m^3
0.0 in	0.00 ft^2	0.00 ft^3
0.00 ft	0.00 ft^2	0.00 ft^3
0 $^1/_{16}$ in	0.00 ft^2	0.00 ft^3
0′ 00″ $^1/_{16}$	0.00 ft^2	0.00 ft^3

  (For every change you need to release and hold the Beep - Unit button [4] for another 3 seconds.)

- Changing the reference point

  Press the Reference point – Timer button [6] shortly to change the reference point.
  There are 3 reference points which you can choose:
  Front Top of the device (with laser exit) is the reference point
  Middle The middle of the ¼″ screw on the backside is the reference point (for use with tripod)
  Back Bottom of the device is the reference point

- Delay measurements

  You can easily delay your measurement with 3 to 60 seconds. Hold the Reference point – Timer button [6] for approx. 3 seconds. SEC will be shown on the display with the number of seconds of the delay.
  To adjust the delay, press the Function – Back button [3] and/or the Addition/Subtraction – Next button [5] that several times needed to reach the delay you prefer.
  Press the Measure – ON button [2] to start the countdown. The device will measure when the countdown reaches the 0.

- Backlight

  The backlight will turn ON/OFF automatically.
  The backlight will be on for 15 seconds while operating. After 15 seconds with no operation, the backlight will turn off automatically. It will light up again after pressing any button.

- Sound ON/OFF

  The device can produce beeping sounds. To turn them ON of OFF, press the Beep – Unit button [4].

- Measurements

1. *Single Distance measurement*

   Press the Measure – ON button [2] to make a laser beam appear and activate the measure mode. Press the Measure – ON button [2] again to see appear the measured length. You can see the measured results displayed on the major display [f].

2. *Continuous measuring*

   Hold the Measure – ON button [2] and a continuous measuring mode will be activated. The minimum and maximum measuring results will be shown [d, e] and the present result will be shown in the major display [f]. Press the Measure – ON button [2] or on the Clear – OFF button [7] to quit the continuous measuring mode.

3.  *Area measurement*

   Press the Function – Back button [3] once, a square appears at the top of the screen. One of the sides of the square/ rectangle is blinking on the screen. Then follow the subsequent instructions to calculate the volume:
   Press the Measure – ON button [2] once for the length.
   Press the Measure – ON button [2] again for the width.
   The device will show the result on the major display [f]. The current measuring result will appear in the auxiliary display [g, h, i].
   Press the Clear – OFF button [7] to remove and clear the previous measurement results. Press the same button again to exit this mode.

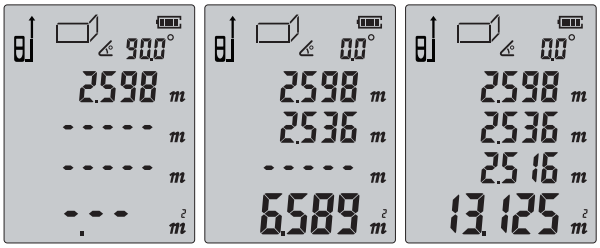
4.  *Volume measurement*

   Press the Function – Back button [3] twice to enter the volume measurement mode. A rectangular shape will appear on the top of the screen. Then follow the subsequent instructions to calculate the volume:

Press the Measure – ON button [2] once for the length.
Press the Measure – ON button [2] again for the width.
Press the Measure – ON button [2] a third time for the height.
The device will show the result on the major display [f]. The current measuring result will appear in the auxiliary display [g, h, i].
Press the Clear – OFF button [7] to remove and clear the measurement results. Press the same button again to exit this mode.

5.  *Painter function*

When the device is in the surface/area function, you can use the addition and subtraction function to add up the different surface areas.
Press the Measure – ON button [2] three times till a part of the rectangular appears on the screen.
Press the Measure – ON button [2] to measure the bottom edge of the first wall. You can see the surface measure in the major display [f].
Press the Measure – ON button [2] to measure the bottom edge of another wall. Afterwards you can get the sum of these two walls.



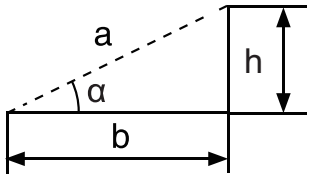
Repeat these steps for more walls. Press the Clear – OFF button [7] to remove and clear the previous measurement results. This way you can perform a new measurement.

When there is no data in the auxiliary display [g, h, i], press the Clear – OFF button [7] to exit this mode.

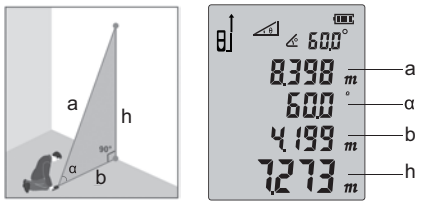
6. *Pythagoras*

This section provides 4 ways in which Pythagoras can be applied, if the user has difficulty calculating the solution immediately.

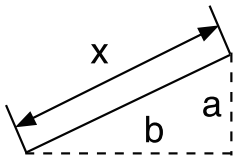
1)  **Calculate the length of two legs by measuring the hypotenuse and the angle.**



Press 4x on the Function – Back button [3], when the hypothenuse (a) of the triangle is blinking. Press the Measure – ON button [2] to measure the length of the hypothenuse (a) and to calculate the angle (α) between bevel and the bottom at the same time. The device will calculate the horizontal distance (b) and the vertical height (h).

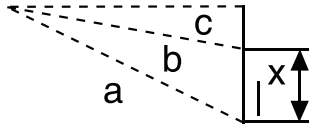


2) **Calculate the hypotenuse by measuring the length of two legs.**



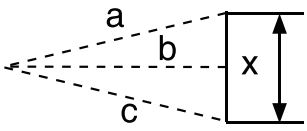
Calculate the hypothenuse by measuring the length of two legs. Press the Function – Back button [3] 5x till one leg of the triangle is blinking on the screen.
Press the Measure – ON button [2] to measure the length of one leg (a).
Press the Measure – ON button [2] again to measure the length of the other leg (b).
The device will calculate the length of hypothenuse (x).

3) **Press the Function – Back button [3] six times till one side of the triangle is blinking on the screen.**



Press the Function – Back button [3] 6x till one side of the triangle is blinking on the screen.
Press the Measure – ON button [2] to measure the length of one side (a).
Press the Measure – ON button [2] again to measure the length of the median line (b).
Press the Measure – ON button [2] a third time to measure the length of another side (c).
The device will calculate the length of the length of the leg (x).

4) **Press the Function – Back button [3] seven times till the hypotenuse of the triangle is blinking on the screen.**



Press the Function – Back button [3] 7x till the hypotenuse of the triangle is blinking on the screen.
Press the Measure – ON button [2] to measure the length of one hypothenuse (a).
Press the Measure – ON button [2] to measure the length of another hypothenuse (b).
Press the Measure – ON button [2] to measure the length of one leg (c).
The device will calculate the length of the leg (x).

The legs must be shorter than the hypothenuse otherwise an “err” will be shown on the screen. In order to guarantee the accuracy, please make sure that all measurements are performed from the same starting point.

7. Addition/ subtraction

The device can be used for length addition and subtraction.

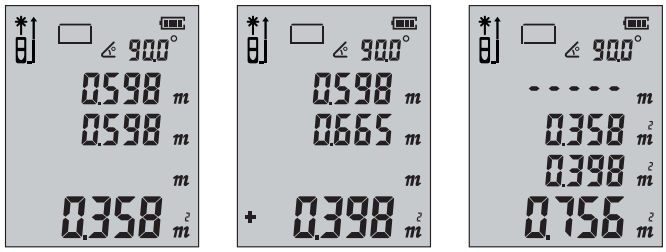
Press the Addition/ Subtraction – Next button [5] to select the function once you have the length measuring result. Press the Addition/ Subtraction – Next button [5] and a "+" will be shown in the major display. The + shows that the addition mode is activated. The value of the last measurement and the result of the cumulation will be showed on the screen.

Press the Addition/ Subtraction – Next button [5] again and a "-" shows in the major display. The – shows that the regressive mode is activated. The value of the last measurement and the result of the cumulation will be showed on the screen.

By pressing the Addition/ Subtraction – Next button [5], you can switch between the addition and subtraction mode.

Not only the length can be calculated in the addition or subtraction mode, but it can also calculate the area and volume.

An example with calculating the area:



PIC1 PIC2 PIC3

Area cumulative function:
Measure the first area as showing in PIC1.
Then press the Addition/ Subtraction – Next button [5] and measure the second area as showing in PIC2. A + is showing in the left bottom of the screen.
At last, press the Measure – ON button [2] to get the summation result of the two areas. This result is showed in PIC3.

- Memory Function

Hold the Memory- Save button [8] for 3 seconds to record your measuring result. You can also record the result in the Function indicator [b]. All those calculations can be saved by the device.

1. *Read and delete the records*

Press the Memory- Save button [8], then you can read the records by pressing the Function – Back button [3] and the Addition/ Subtraction – Next button [5]. Press the Clear – OFF button [7] to delete the recent records and hold to clear all the records. Press the Memory- Save button [8] or the Measure – ON button [2] to exit the record mode.

When the storage is full, the screen will show a "FUL" mark.

2. *Angle measurement*

The angle information is displayed at the top of the screen. The angle measurement range is -90.0° to 90.0°.

- Self-calibration

This function ensures that the precision of the device is maintained.

Power off and press the Clear – OFF button [7] and the Measure – ON button [2] till " CAL" appears. The user can adjust the figure, that appeared on the screen, with the Function – Back button [3] or the Addition/ Subtraction – Next button [5], according to the accuracy of the meter.

Adjusting range: -9 to 9mm, then press the Measure – ON button [2] to save the calibration result.

- Tips

You may get some warning information as below:

Info message	Cause	Solution
Err	Out of distance measurement range	Use the device within the range.
Err1	Signal is too weak	Chose the surface with stronger reflectance. Use the reflecting plate.
Err2	Signal is too strong	Chose the surface with weaker reflectance. Use the reflecting plate.
Err3	Low battery voltage	Change the power supply
Err4	The working temperature is out of working range	Use the device in the specified temperature
Err5	Pythagoras measuring error	Re-measure and ensure that Hypotenuse is bigger than Cathetus.
Err6	Angle sensor error	Depot repair

- Technology specifications

ITEM	SPECIFICATIONS		
	DISTY 40R	DISTY 60G	DISTY 80R
Working range	40m	60m	80m
Distance measurement precision	±2mm (*)		
Continuous measurement function	Yes		
Area measurement function	Yes		
Volume measurement function	Yes		
Pythagorean proposition measurement function	Full mode		
Painter function	Yes		
Angle function	Yes		
Add and subtract measurement function	Yes		
Min/max value	Yes		
Self-calibration	Yes		
Laser class	Class 2		
Laser type	630-670nm,<1mW	500-535nm,<1mW	630-670nm,<1mW
Max storage	99 units		
Automatically cut off laser	20s		
Automatic shutdown	150s		
Battery life	8000 times for single measurement		

Buttons/keys sound	Yes	
Storage temperature	-20°C~60°C	
Working temperature	0°C~40°C	
Storage humidity	20%~80% RH	
Battery	3x1.5V AAA (or optional 1x 3,7V LI-ion battery)	1x 3,7V LI-ION battery (or 3x1.5V AAA)
Angle Range	±90°	
Dimension	118 x 52 x 27 mm	

Note: Use a target plate to increase the measurement range during daylight or if the target has poor reflection properties.

(*) Typical Tolerance: ±2mm, when reflectivity 100% (white surface), environment light <2000 LUX. 25° Tolerance is usually affected by the distance, reflectivity and environment light etc. It probably gets tolerance around ± (2mm+0.2mm/m).

- Instrument maintenance

The meter should not be stored in high temperatures and strong humidity environments for too long. If it is not used often, please take out the battery and place the meter in the allocated bag. Store the bag in a cool and dry place.

Please keep the device surface clean. Use a wet soft cloth to clean dust. Never use erosion liquid for the meter maintenance. Laser output window and its focus lens can be maintained according to maintenance procedures for optical device.