

Roof Measuring for Solar Panels with a Leica DISTO™ D8



DISTO™ D8 laser measure

- 200 metre range
- accuracy within 1mm
- digital viewfinder with high-resolution colour display and 4x zoom
- integrated 360° angle sensor
- comprehensive measuring functions
- Bluetooth data transfer

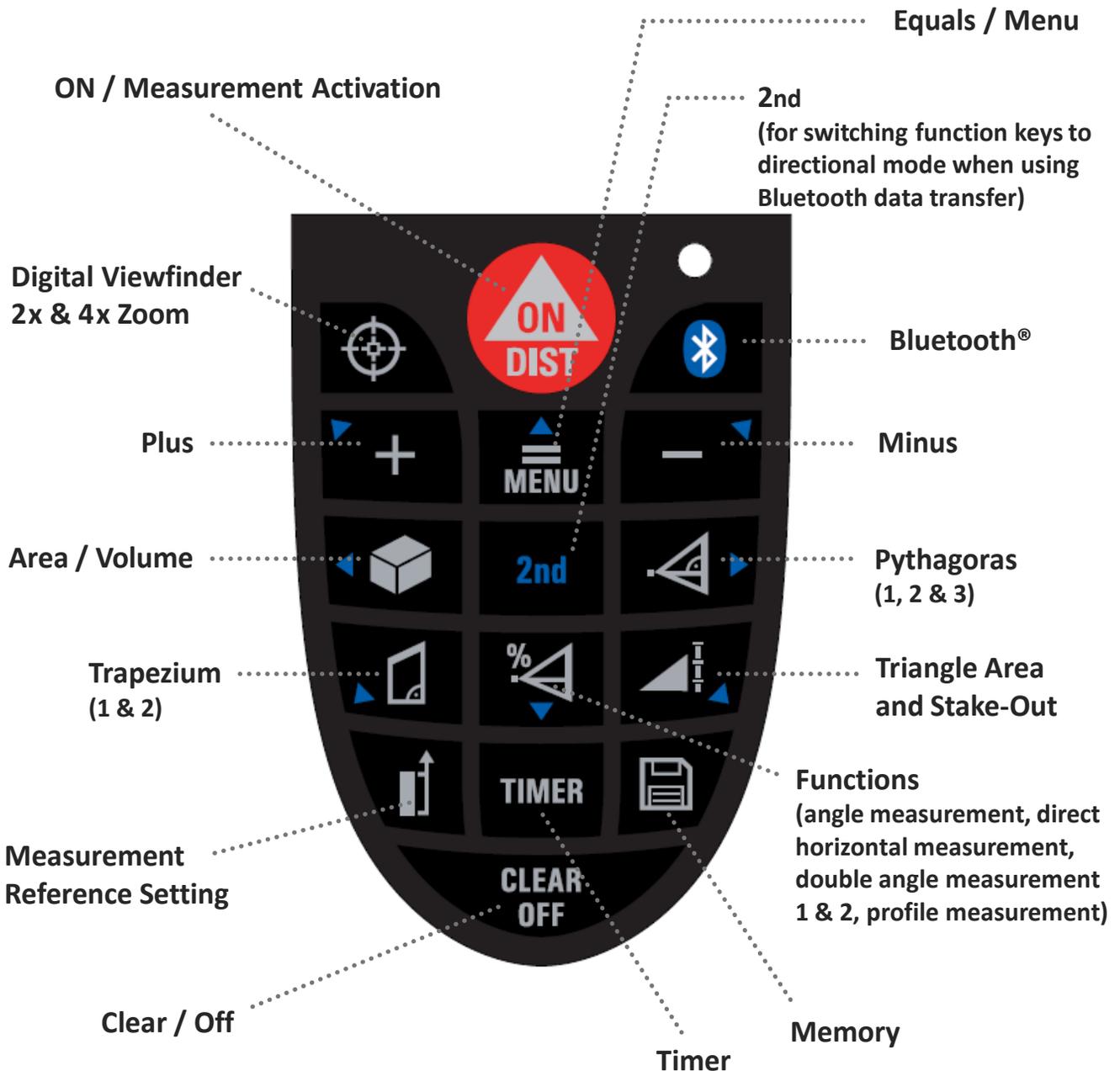


DISTO™ D8 with Tri100 tripod & TA360 adaptor bracket

- when it has to be right

Leica
Geosystems

DISTO™ D8 Keypad



When using the DISTO™ D8, all measurements can be taken from a safe position on the ground without the need for the use of ladders, eliminating any associated health & safety risk.

Roof Depth and Pitch Measurement (ridge to gutter line)

Option 1: (double tilt measurement 2 in user manual)

- Mount the DISTO™ D8 on the Leica Tri100 tripod, for stability and ease of measuring, using the TA360 (or LSA360) adaptor bracket. The adaptor bracket ensures the measurement point (the back of the DISTO™) is always in the same position.
- Position the D8 & tripod in front of the building with the slope of the roof coming down towards you.
- With the D8 at 90° to the building, switch on the unit and select the roof / slope measurement function (press the key directly below the “2nd” key 4 times, the roof / slope function symbol will appear directly above the DISTO™ symbol on the left hand side of the screen).
- The first measurement is to the ridge of the roof.
- Use the digital viewfinder (one press on the key positioned to the left of the “On/Dist” key) and align the cross-hairs on the viewer to the desired measurement point on the ridge.
- Use the zoom function by pressing the viewfinder key to get 2 times or 4 times magnification, ensuring the measurement point is accurately targeted.
- Press the “On/Dist” key to take the measurement, or to maintain stability, use the “Timer” key to initiate the measurement process, waiting until the bleep confirms completion of the measurement.
- Rotate the D8 downwards keeping in a vertical plane, again using the digital viewfinder to accurately target the lower edge of the roof.
- Press the “On/Dist” key (or again use the “Timer” key) to take the second measurement.

The DISTO™ screen will show the angle & distance measurement to the roof ridge and the angle & distance measurement to the lower edge of the roof. At the bottom of the screen will be the roof measurement.

The small red triangle symbol in the bottom left corner of the D8 screen, signifies an additional screen of information is available behind the one currently being viewed. Press and hold the roof / slope measurement function key (directly below the “2nd” key) until the bleep sounds.

This new screen will give additional information including the roof slope angle. By again pressing and holding this same key the screen will revert to the previous information.

Option 2: (trapezoid measurement 1 & 2 in user manual)

- This is used where it is not possible, safe or practical to position the D8 & tripod in front of the building with the slope of the roof coming down towards you.
- With this option it isn't necessary to mount the D8 on the tripod.
- Access is required to the gable-end of the property.
- Switch on the DISTO™ D8 and select the gable-end measuring function (forth key down from top left hand side). There are two alternative methods of measuring for this function, the first requires three distance measurements, by pressing the function key again the alternative is accessed, this requires two distance measurement and an angle measurement.
- Select whichever option is more convenient or appropriate and take the measurements as indicated by the red line adjacent to the symbol on the top left hand side of the screen.
- Having taken the required measurements, the roof length will be displayed at the bottom of the screen.
- The roof slope angle can be accessed on the supplementary screen by pressing and holding the gable measuring function key until the bleep sounds. The area of the half gable is also shown on this screen.

Roof Width Measurement

Direct Measurement Option:

- The width of the roof can be measured direct across the property, measuring from one edge of the building (or from a position in line with the edge of the roof) to a target plate attached or held at the opposite edge of the building (or in line with the edge of the roof)
- Sometimes this may not be easy due to shrubs or trees etc blocking the line of sight, requiring the DISTO™ D8 to be moved away from, but still in line with the edge of the property / roof, to a point where the laser has a clear path. The target plate will also have to be similarly moved outwards.

Indirect Measurement Option: (Pythagoras)

- As an alternative the roof width can be measured indirectly using one of the two Pythagoras calculations, this function key being immediately to the right of the “2nd” key.
- The first press is a simple two measurement Pythagoras function, the second press is a three measurement Pythagoras function. A third press of the key gives a partial height/length Pythagoras function, not relevant to this particular process.

a) Pythagoras Calculation 1 (two measurements required)

- Mount the DISTO™ D8 either directly on the tripod or use the TA360 adaptor bracket (the LSA360 bracket is not suitable for this function). If mounted directly on the tripod, enter the D8 menu and change the point of measurement to measure from the tripod thread (see user manual). This is not necessary when using the TA360 bracket.
- Position the D8 & tripod at 90° to one edge of the building or roof, aligning by sight. Using the digital viewfinder will help.
- Select the relevant function by a single press of the key to the right of the “2nd” key.
- Use the digital viewfinder to target the far edge (opposite edge to where the D8 is positioned) of the building/roof and take a measurement.
- Rotate the D8 back towards the adjacent building/roof edge (at 90°).
- Use the viewer to accurately target the measurement point.
- Take a measurement ensuring that the measurement is in the same horizontal plane as the first measurement. Measuring along the gutter will help maintain the same height and will also allow more precise targeting of the roof edge, as the gutter overhangs the roof .
- The building/roof length across the property is displayed at the bottom of the D8 screen.
- Again the red triangle symbol signifies a second screen of information, although this additional information is not particularly relevant to this process.

b) Pythagoras Calculation 2 (three measurements required)

- Mount the DISTO™ D8 either directly on the tripod or use the TA360 adaptor bracket (the LSA360 bracket is not suitable for this function). If mounted directly on the tripod, enter the D8 menu and change the point of measurement to measure from the tripod thread (see user manual). This is not necessary when using the TA360 bracket.
- Position the D8 & tripod at a convenient point in front of the property, such that a measurement can be made to both edges as well as at 90° to the property. All three measurements must be in the same plane across the building.
- Select the relevant function by two presses of the key to the right of the “2nd” key.
- Use the digital viewfinder to target one edge of the building/roof and take a measurement.

- Rotate the D8 to a position so that it is at 90° to the building. This can be done either by sight (use the viewfinder for greater accuracy), or by pressing and holding the “On/Dist” key as the instrument is being rotated, but before it reaches the 90° position.
- Release the key once the bleep sound commences, the instrument will continue to bleep as it searches / tracks for the shortest distance to the property (this will occur when the D8 is at 90°).
- “Min” appears on the screen adjacent to where the second measurement is shown. Whilst the D8 is in this mode it is important that the laser is kept at the same height across the property and in the same plane. Measuring along the gutter will help maintain the same height and will also allow more precise targeting of the roof edge, as the gutter overhangs the roof .
- Also it is important not to rotate the instrument too fast, as on poor reflective surfaces the D8 will take longer to register the measurements in this mode.
- Once the D8 has past the 90° point (visible by sight) press and release the measurement (On/Dist) key.
- The instrument will put the minimum distance shown on the screen into the Pythagoras calculation.
- Continue to rotate the D8 to the opposite edge of the building/roof using the viewfinder to accurately target the measurement point and take the third measurement.
- The building/roof length across the property is displayed at the bottom of the D8 screen.
- Again the red triangle symbol signifies a second screen of information, although this additional information is not particularly relevant to this process.

Roof Area Calculation

- The roof area can be calculated by multiplying the roof depth by the roof width, using either a separate calculator or by using the area function in the D8 instrument.
- Select the area function on the D8 by a single press of the function key to the left of the “2nd” key.
- Press the memory recall key (right hand side of the “Timer” key) twice to enter the memory function which automatically saves the last 30 measurements or calculations (the first press of the memory key takes you into a constant memory function, for saving of a constant measurement used in a number of similar calculations, e.g. ceiling heights used in room volume calculations, where the ceiling height is the same in each room).
- Using the “+” key navigate to the memory position where the roof length / width is stored (usually position 1 or 2 unless further measurements have been taken since)
- Press and release the “= / Menu” key to pull the relevant measurement from the memory into the area calculation (a long press of the “= / Menu” key will access the D8 menu function) .
- Repeat the above process for the second relevant measurement.
- The D8 will automatically display the area calculation.
- Although this process may seem longer than using a calculator, with practice it is relatively quick, without the need for a separate calculator. Also by using the D8 in this way the roof area is stored in the D8 memory for easy recall, or immediate download into a suitable PC via the built-in Bluetooth data transfer function.

Dormer or Velux windows, chimneys, hip roofs, etc, can be measured using the above described functions (providing there is line of sight to the various measurement points).

The DISTO™ D8 has other functions, not described here, which can be useful when measuring for solar panels, these include “direct horizontal distance”, “double tilt measurement 1” and “profile measurement”. See the user manual for more information.