



Laser Range Finder L-Measure 40 II Metric/Shaku

Item Code 78174

Instruction Manual



Introduction

Thank you for purchasing the Shinwa Laser Range Finder L-Measure 40 II Metric/Shaku. This product is only for indoor use. Even when used indoors, an accurate measurement cannot be obtained for an area into which sunshine shines directly. Before using the product, please read the instructions contained in this manual to ensure correct use. After having read this manual, always keep it with you or in a safe place.

■ Specifications

Measuring Range	0.1~40m
Accuracy	$\pm 2.0\text{mm}^{※1}$
Output	Less than 1mW (JIS class 2)
Wavelength	620~690nm
Operating Temperature	0~40°C
Storage Temperature	-20~70°C
Dustproof, Waterproof	IP40 ^{※2}
Power Source	2×AAA Alkaline batteries ^{※3} (Batteries included are for trial use only and may not last as long.)
Auto Power Off	3 minutes ^{※4}
Body Size	122×46×26mm
Weight	140g(including batteries)

※1 0.1~10m... $\pm 2.0\text{mm}$

More than 10m... $\pm 2.0 \pm 0.05 \times (D - 10)\text{mm}$ (D=measurement distance
Unit: m)

Measurement conditions

① Illuminance of less than 3,000 Lux

② Reflectivity is 90% of white target

③ Measurement temperature 25°C

※2 Dustproof performance: Particles larger than 1.0 mm will not penetrate the device.

Waterproof performance: No special protection.

※3 Can measure more than 5,000 times when using new batteries. (when backlight is off and when using alkaline batteries)

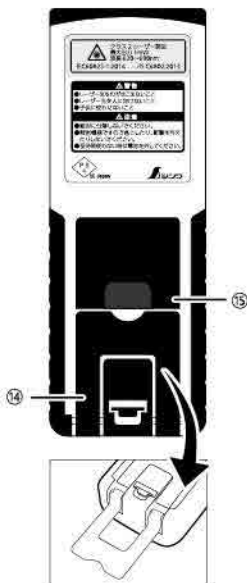
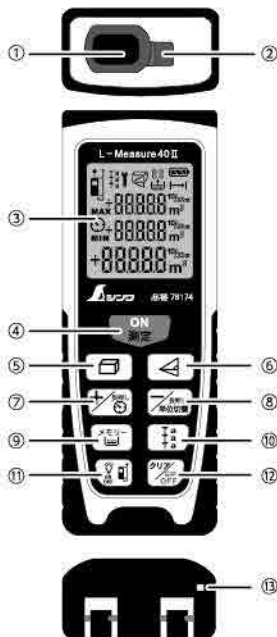
※4 Laser light will turn off after 1 minute passes without an operation.
Also, a beep will sound when it automatically powers off.

■ Accessories

- Soft case
- Strap
- 2×AAA Alkaline batteries for trial use

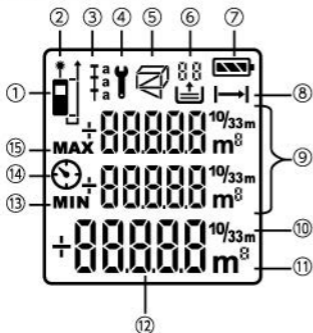


Part Names



- | | | |
|-----------------------------|---|---|
| ① Lens | ⑦ +/Timer button | ⑪ Backlight/Change Measurement Reference button |
| ② Laser light-emitting port | ⑧ -/Change Unit(一・単位切替) button | ⑫ Clear/OFF(クリア・OFF) button |
| ③ Display | ⑨ Memory(メモリー) button | ⑬ Hole to attach strap |
| ④ ON/Measure(ON・測定) button | ⑩ Equal Interval Notification Mode button | ⑭ End piece |
| ⑤ Area/Volume button | | ⑮ Battery cover |
| ⑥ Pythagoras button | | |

Icon Names

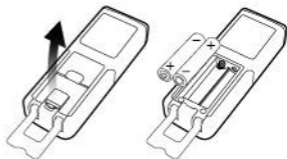


- ① Measurement Reference icon
- ② Laser Status icon
- ③ Equal Interval Notification Mode icon
- ④ Malfunction icon
- ⑤ Area/Volume/Pythagoras icon
- ⑥ Memory icon
- ⑦ Battery Status icon
- ⑧ Continuous Distance Measurement icon
- ⑨ Sub icon
- ⑩ Shaku Conversion Unit icon
- ⑪ Measurement Unit icon
- ⑫ Measured Value icon
- ⑬ Minimum Value icon
- ⑭ Timer Mode icon
- ⑮ Maximum Value icon

Before Using

● Installing the batteries

Open the end piece to the position indicated in the diagram to the right, open the battery cover on the back of the device, and properly install the 2×AAA Alkaline batteries for trial use included in the package.



※When using this product, the Battery Status icon will change as shown above until finally it will just become an empty battery icon. If the battery continues to be used after that point, a beep will sound 4 times and the device will automatically power off.

● About the memory function

Measured values are automatically recorded in the memory in order of measurement up to 99. For recalling the memory, please refer to "■How to Operate (13) Memory Recall."

※Measured values are recorded only during (4) Distance Measurement, (6) Continuous Distance Measurement, (7) Pythagoras (2-point) Measurement, (8) Pythagoras (3-point) Measurement, (9) Area Measurement, (10) Volume Measurement, (11) Addition/Subtraction, and (14) Timer Mode.

Warning



Class 2 laser product

Maximum output 1mW Wavelength 620~690nm

- Do not look into the laser light
- Do not point the laser light at a person
- Not for operation by a child

Caution

- Do not use other than as intended.
- The various accuracies of measuring instruments are predetermined. Use this device in accordance with the usage situation. See the **■ Specifications** section for information about the accuracy of this product.
- Do not drop or subject to strong impact as this may cause the device to operate incorrectly.
- Do not aim the lens directly into sunlight.
- If the device becomes dirty, do not wash with water but rather wipe away any grime with a soft cloth. Do not wipe the device with any alcohol or petroleum product such as thinner.
- Dust and grime on the lens adversely affect the measurement accuracy, so be sure to gently remove any dust that may adhere to the lens with a cotton swab.
- Do not alter or disassemble the device other than as directed in this manual.
- Remove the battery before storing the device when not being used for a long period.
- Avoid getting the device wet as it does not have a waterproof construction.
- We shall not be liable for any consequential, incidental, or indirect damages such as losses and lost profits to the customer as well as a third party resulting from the operation of this product, regardless of whether or not they were foreseeable or the possibility was reasonably foreseeable. However, this shall not apply in the case where there is willful or gross negligence or when the customer is a consumer according to the Consumer Contract Act. In the event that we are liable for the use of this product, we shall be liable for damages limited to an amount equal to the price of the product.

■How to Operate (Use after closing the end piece.)

(1)Turning On/Off



- ①When the device is off, press the ON/Measure(ON・測定) button and the display will be backlit as shown in the diagram below. This is called the Start Screen.

Start Screen



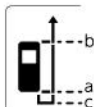
- ②Press and hold the Clear/OFF(クリア・OFF) button to turn off the device.

※The memory contents and measurement unit setting will be saved when the Clear/OFF(クリア・OFF) button is pressed and held and the device is turned off.
(They will be saved even if the batteries are removed.)

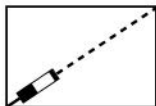
(2)Changing the Measurement Reference



- ①The Start Screen's measurement reference is initially set as the rear edge of the device (a). The device will change between this and the front edge of the device (b) each time the Change Measurement Reference button is pressed.



※When the device is turned off, it will return to the setting of the rear edge of the device (a). When the end piece is fully opened, the measurement reference will change to the edge of the end piece (c).
※Even if the change measurement reference button is pressed, the measurement reference will not change to the rear edge (a) or front edge (b) while the end piece is fully opened.



※End Piece

This is convenient when measuring aspects such as a room's diagonal lines. (Be sure to fully open the end piece.)

(3) Backlight



- ① Each time the Backlight/Change Unit(単位切替) button is pressed and held, the backlight will either turn on or off. It will automatically turn off after approximately 15 seconds pass without any operation.

⚠ Caution

- Begin measuring after confirming that no dust or grime is on the lens or in proximity to it.

(4) Distance Measurement



- ① Press the ON/Measure(ON・測定) button from the Start Screen and the laser pointer will become active.
※ The Laser Status icon will flash when the laser is active.
- ② Shine the laser dot on the object to be measured, and after pressing the ON/Measure(ON・測定) button again the distance from the laser point to the measurement reference (the front edge or rear edge of the device) will be displayed.
- ③ Continuous measurement can be performed by repeating steps ① and ②. The most recent measured value will be displayed on the lower part of the panel, while the previous measured value and value before the previous one will be displayed on the middle and upper parts, respectively.
- ④ Each time the Clear/OFF(クリア・OFF) button is pressed, the most recent measured value displayed will be cleared, and the device will return to the previous condition.



- ◀ Value before previous one
- ◀ Previous
- ◀ Current

(5) Changing Measurement Unit



- ① Press and hold the —/Change Unit(—・単位切替) button and the measurement unit will switch from the m (meter) icon to the 10/33m (shaku conversion) icon. Press and hold again and the device will return to the previous measurement unit.

Meter Icon



10/33m (shaku conversion) Icon



※The 10/33m (shaku conversion) icon can only be used for distance measurement and Pythagoras measurement.

(6) Continuous Distance Measurement



- ① Press and hold the ON/Measure(ON・測定) button from the Start Screen and the Continuous Distance Measurement icon will turn on, and the device will begin continuous distance measurement. During continuous distance measurement the Maximum Value (MAX), Minimum Value (MIN), and current measured value will be displayed in the upper, middle and lower parts of the panel, respectively.
- ② Press the ON/Measure(ON・測定) button once again and the device will stop continuous distance measurement.
※At this point, the measured value will be recorded in the memory.
- ③ Press the ON/Measure(ON・測定) button during step ② above and the Maximum Value and Minimum Value icons will disappear, while pressing once again will cause the device to do usual distance measurement.
- ④ Press the Clear/OFF(クリア・OFF) button and the device will return to the Start Screen.



◀ Maximum value

◀ Minimum value

◀ Current measured value

(7)Pythagoras (2-point) Measurement



◀Upper point

◀Horizontal point

◀Height

- ①From the Start Screen press the Pythagoras button once.
- ②The Pythagoras (2-point) Measurement icon will be displayed and the corresponding side being measured in the Pythagoras (2-point) Measurement icon will blink.
- ③When measuring the upper point and horizontal point in that order, the height will be displayed on the lower part of the panel.
※When using Continuous Distance Measurement during horizontal point measurement, a more accurate horizontal distance can be measured by moving the laser dot up and down around the horizontal position, and incorporating the shortest distance as a measured value. Pressing again will confirm the measured value.
- ④Each time the Clear/OFF(クリア・OFF) button is pressed, the most recent measured value displayed will be cleared, and the device will return to its previous condition.



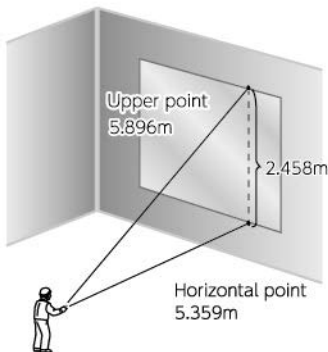
Upper point
(Normal
measurement)



Horizontal point
(Distance
measurement
or continuous
distance
measurement)



Height icon



(8)Pythagoras (3-point) Measurement



Horizontal
point
1.621m
Lower point
1.946m
Height
2.292m

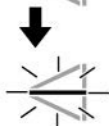
- ①From the Start Screen press the Pythagoras button twice.
- ②The Pythagoras (3-point) Measurement icon will be displayed and the corresponding side being measured in the Pythagoras (3-point) Measurement icon will blink.
- ③After measuring the upper point, horizontal point, and lower point in that order, the height will be displayed on the lower part of the panel.

※When pressing and holding the ON/Measure(ON・測定) button while taking the horizontal point measurement, the device will perform continuous distance measurement. Moving the laser dot up and down near the horizontal position allows it to incorporate the shortest distance as a measured value, yielding a more accurate horizontal distance. Pressing once again will confirm the measured value.

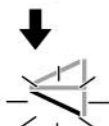
- ④Each time the Clear/OFF(クリア・OFF) button is pressed, the most recent measured value being displayed will be cleared, and the device will return to its previous condition.



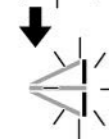
Upper point
(Normal
measurement)



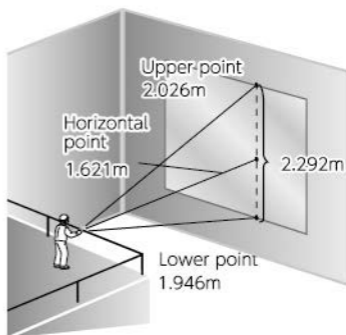
Horizontal point
(Distance
measurement
or continuous
distance
measurement)



Lower point
(Normal
measurement)



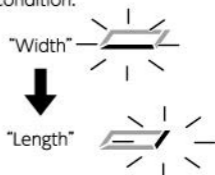
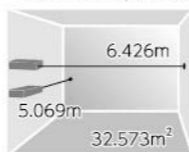
Height icon



(9) Area Measurement



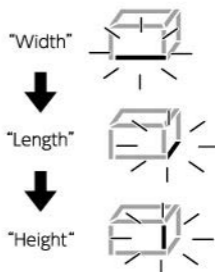
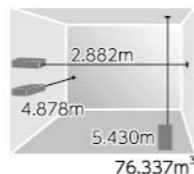
- ① From the Start Screen press the Area/Volume button once.
- ② The Area icon will be displayed and the corresponding side being measured in the Area icon will blink.
- ③ When measuring the width and length in that order, the area will be displayed on the lower part of the panel.
- ④ Each time the Clear/OFF(クリア・OFF) button is pressed, the most recent measured value displayed will be cleared, and the device will return to its previous condition.



(10) Volume Measurement



- ① From the Start Screen press the Area/Volume button twice.
- ② The Volume icon will be displayed and the corresponding side being measured in the Volume icon will blink.
- ③ When measuring the width, length and height in that order, the volume will be displayed on the lower part of the panel.
- ④ Each time the Clear/OFF(クリア・OFF) button is pressed, the most recent measured value displayed will be cleared, and the device will return to its previous condition.



(11) Addition/ Subtraction



Addition



- ◀ Measured value of ①
- ◀ Measured value of ②
- ◀ Sum of ① and ②

Subtraction



- ◀ Measured value of ①
- ◀ Measured value of ②
- ◀ Difference of ① and ②

Addition(Area)



- ◀ Measured value of ①
- ◀ Measured value of ②
- ◀ Sum of ① and ②

Subtraction(Area)



- ◀ Measured value of ①
- ◀ Measured value of ②
- ◀ Difference of ① and ②

● During distance measurement/Pythagoras (2-point/3-point) measurement

- ① Proceed with (4) Distance Measurement, (7) Pythagoras (2-point) Measurement, or (8) Pythagoras (3-point) Measurement.
- ② Press the + button (or the - button), and direct the laser dot at the target to be measured. After that, press the ON/Measure(ON・測定) button again and proceed with distance measurement or press the Pythagoras button and proceed with Pythagoras (2-point or 3-point) measurement.
- ③ Press the ON/Measure button(ON・測定) while the measured value of ② is output and the sum (or the difference) of the upper part (measured value of ①) and the middle part (measured value of ②) will be displayed on the lower part of the panel.
- ④ Press the Clear/OFF(クリア・OFF) button and the device will return to the measured value of ①.

● During area measurement/volume measurement

- ① Proceed with (9) Area Measurement or (10) Volume Measurement.
- ② Press the + button (or the - button), and direct the laser dot at the target to be measured. Then, proceed with area measurement or volume measurement.
- ③ Press the ON/Measure(ON・測定) button while the measured value of ② is output the sum (or the difference) of the upper part (measured value of ①) and the middle part (measured value of ②) will be displayed on the lower part of the panel.
- ④ Press the Clear/OFF(クリア・OFF) button and the device will return to the measured value of ①.

(12) Recording a Specified Measured value



(13) Memory Recall



① Press and hold the Memory(メモリー) button after distance measurement and the Memory icon will briefly turn on, a beep will sound, and the measured value at that point will be recorded as a specified measured value in the number "0" slot of the memory.

※ The measurement reference will not be recorded.

② After a separate distance measurement, doing the same operation as in ① means the specified measured value will be replaced.

③ Press the Memory(メモリー) button from the Start Screen and the specified measurement value recorded in step ① can be recalled. This can be used in (7) Pythagoras (2-point) Measurement, (8) Pythagoras (3-point) Measurement, (9) Area Measurement, (10) Volume Measurement, and (11) Addition/Subtraction modes.

① Press the Memory(メモリー) button from the Start Screen and after the value in the number 0 slot of the memory (specified measurement value) is displayed, pressing the Memory button once again will display the first memory value (most recent measured value).

② Moreover, each time the + button is pressed, the 2nd, 3rd/99th memory value will be displayed (in order of newest measured value). Each time the - button is pressed, the 99th, 98th/1st memory value will be displayed (in order of oldest measured value). 99 readings can be recorded in the memory. ("0.000m" will be displayed when there is no measured value.)

③ Press the Clear/OFF(クリア・OFF) button and the device will return to the Start Screen.

※ When simultaneously pressing and holding the Memory(メモリー) button and the Clear/OFF(クリア・OFF) button during memory recall, a beep will sound, the power will turn off, and all of the data in the memory will be erased.



Specified measurement value



Memory(メモリー) button



3rd newest

2nd newest

Most recent

Oldest

2nd oldest

(14)Timer Mode



①Press and hold the +/Timer button and the Timer Mode icon will turn on, and the device will begin doing a timed measurement. The timer will count down and beep every second starting from the 4-second mark to inform that it is close to measuring.

※When the ON/Measure(ON・測定) button is pressed while in the midst of the count down, the Timer mode will be cancelled and the device will do distance measurement instead.

②When beginning Timer Mode, the timer will be set at 20 seconds, but the timer's set time can be changed up to a maximum of 59 seconds or minimum of 4 seconds by pressing the + button or - button to add or subtract 5-second increments.

※Pressing the + button when there are 3 seconds or less on the timer will cause increments of 1 second to be added. Furthermore, if the - button is pressed when there are 8 seconds or less, the timer will become 5 seconds. (For example, pressing the - button at 3 seconds will return the timer to 5 seconds.)

③Press the Clear/OFF(クリア・OFF) button and the device will return to the Start Screen.

※Timer Mode can be used in the modes of (4) Distance Measurement, (7) Pythagoras (2-point) Measurement, (8) Pythagoras (3-point) Measurement, (9) Area Measurement, (10) Volume Measurement, and (11) Addition/Subtraction.

When starting
Timer Mode



+ button



- button



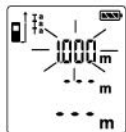
Maximum



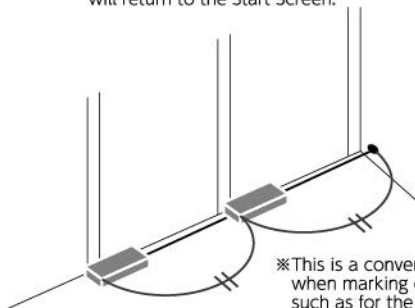
Minimum



(15) Equal Interval
Notification
Mode



- ① From the Start Screen press the Equal Interval Notification Mode button.
- ② The Equal Interval Notification Mode icon will turn on, and 1.000m (the set value when shipped from the factory) will flash in the uppermost part of the panel. After changing the settings, the most recent set value will be displayed. (The most recent set value will not be changed even if the batteries are replaced.)
- ③ Pressing the + button or the - button allows you to increase or reduce the numerical value in units of 0.001m (fast-forwards while either button is held down). After setting the optional numerical value within the distance of 0.001m-40.000m, press the ON/Measure (ON・測定) button to begin measurement. The equal interval unit set value is displayed in the upper part of the panel, the equal interval unit set value \times Integral's value (at the point that this value exceeds one-half of the equal interval unit set value, it will transition to the next value) in the middle part, while the distance from the middle part's numerical value will be displayed in the lower part.
- ④ Direct the laser light at the target, and as it approaches the set value, an alarm will sound intermittently in intervals of ± 0.1 m from the set value. When it is ± 0.001 m from the set value, the intervals of the alarm will become very short. Here you can do marking and continue repeating the measurement in the same interval.
- ⑤ Press the Clear/OFF (クリア・OFF) button and the device will return to the Start Screen.



※ This is a convenient function when marking equal intervals such as for the installation of fluorescent lights.

■Display Error Codes



Info	Cause	Action
204	Outside display range	Measure within a distance of 40m
252	High temperature	Cool down the device to its operating temperature
253	Low temperature	Warm up the device to its operating temperature
255	Received signal too weak	Use a commercially available target board
256	Received signal too strong	
205	Outside measuring range	Use within the measuring range
206	Operation error	·While in Pythagoras Mode, make the diagonal side longer than the horizontal side ·Arrange the unit for addition/subtraction or when using a specified measurement value

Error	Cause	Action
Err	A malfunction has occurred	Turn the power ON/OFF several times and check the contents of the LCD panel