REED

Model R8004

Laser
Distance
Meter

Instruction Manual

www.reedinstruments.com

Table of Contents

Safety

Please carefully read the safety terms and operation guide before using this device. This device might get damaged, produce inaccurate measurement, or cause injury to users if operations specified in this manual are not followed.

- Do not open or repair the device in any way by yourself
- Do not illegally modify or change laser emission performance of the device
- Please keep the device in a proper and safe manner
- Do not store in places easily accessible to children
- Avoid usage by other irrelevant persons
- Do not use laser transmitter of the device to irradiate eyes, other body parts, or high-reflective surfaces

Features

- Designed for one-handed operation
- User selectable unit of measure (imperial/metric)
- Laser target pointer
- Reference point selection (front or rear of instrument)
- Backlit multi-line LCD display
- Area, Volume and Max/Min functions
- Addition, Subtraction and indirect 2/3 point (Pythagoras) calculations
- Integrated bubble level
- Continuous measurement mode
- Internal memory saves up to 30 readings
- Low battery indicator and auto shut off
- Includes carrying case and batteries

Applications

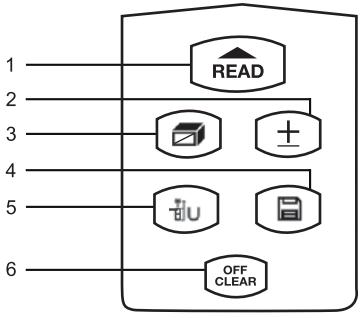
- Measuring conduit and wire lengths
- Light Retrofitting Projects
- Piping/exhausts/ventilation and equipment installation
- Conduit layout and installation
- Air ventilation and duct work positioning
- Air volume calculations
- Hot/cold water piping locations
- Determining wire length and duct sizing
- Floor plans
- Network room layout

Specifications

Measuring Range:	131' (40m)
Accuracy:	±(5.0mm+d x 5/100000)
Measuring Units:	m, in, ft
Sensor Type:	Laser
Laser Type:	630 to 670nm, <1mW
Display:	LCD (multi-line)
Backlit Display:	Yes
Start Point Selection:	Yes (Front/Back)
Reading Mode:	2 (Single/Continuous)
Maximum and Minimum Functions:	Yes
Calculation Functions:	Addition, Subtraction, Area, Volume, Sum of Lengths, 2 point indirect (pythagoras), 3 point indirect
Internal Memory:	Yes (up to 30 readings)
Response Time:	2 seconds
Auto Shut-off:	Yes (after 150 seconds)
Low Battery Indicator:	Yes
Power Supply:	2 x "AAA" Batteries
Laser Class:	Class II
Product Certifications:	CE, RoHS
Operating Temperature:	32 to 104°F (0 to 40°C)
Storage Temperature:	-4 to 140°F (-20 to 60°C)
Operating Humidity Range:	<85% RH
Dimensions:	4.4 x 1.9 x 1.1" (112 x 50 x 25mm)
Weight:	3.5oz (100g)

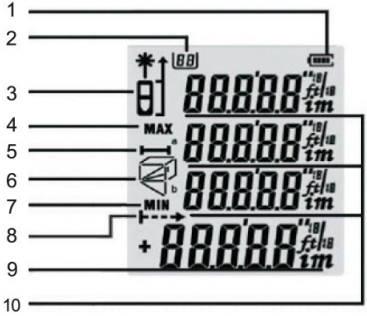
Instrument Description

1. Power ON Button
2. Accumulation and Subtraction
3. Area/Volume/Triangle Mode
4. Storage Button
5. Measurement Point /Unit Selection
6. Power OFF/Clear Button



Display Description

1. Battery Indicator
2. Data Storage Indication
3. Laser Emission Indication
4. Maximum Indication
5. Length Measurement Mode
6. Area, Volume, Triangle
7. Minimum Indication
8. Continuous Measurement Indication
9. Main Display Area
10. Secondary Display Area



Operating Instructions

Power ON/OFF

Press the "READ" button to turn on the device, the laser will also be on at the same time, it will then enter measurement mode. Hold the "OFF CLEAR" button for 3 seconds to turn off the device. The device will power off automatically after idling for 150 seconds.

Unit Setting

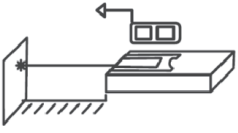
Hold the "U" button or the "U" button to enter measurement unit adjustment mode. The default unit of this device is 0.000m. There are a total of 6 selectable units.

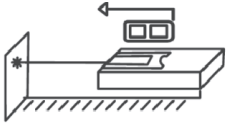
Measurement Units

	Length	Area	Volume
1	0.000m	0.000m^2	0.000m^3
2	0.00m	0.00m^2	0.00m^3
3	0.0in	0.00ft^2	0.00ft^3
4	00"1/16in	0.00ft^2	0.00ft^3
5	0'00"1/16	0.00ft^2	0.00ft^3
6	0.00ft	0.00ft^2	0.00ft^3

Measurement Standard

Press the "U" button or the "U" button to select measurement reference. The R8004 provides front and back end standard.





Turn ON/OFF Backlight

The backlight will turn on after pressing any button, and go off after 15 seconds of idling.

Calibration Function

This device includes a calibration function to ensure accuracy.

1. When the device is powered off, hold the "OFF CLEAR" button and press the "READ" button to power on the device.
2. Release the "READ" button until "CAL" and a number appears on the display to enter calibration mode.
3. Users can use the "±" button and the "🖫" button to adjust error value. The adjustment range is -9~9mm.
   For example, actual distance is 3.780m. If this device's measurement distance is 3.778m, this indicates 2mm less than the actual's. Enter the calibration mode and use the "±" button to add 2mm. If this device's measurement distance is 3.783mm, this is 3mm more than the actual's. Enter the calibration mode and use the "🖫" button to reduce 3mm.
4. After calibration, press the "READ" button to save the calibration result.

Distance, Area, Volume, Pythagorean, Cumulative and Regressive Measurement

Single Measurement

Press the "READ" button in measurement mode to emit laser and lock the measurement point. Press the "READ" button again for single distance data measurement. Measurement result will be displayed on the main display area.

Continuous Measurement

Hold the "READ" button on measurement mode to enter continuous measurement mode. Secondary display area will display the maximum measurement value during continuous measurement mode. Main display area will display the current measurement value. Press the "READ" button or the "OFF CLEAR" button to exit continuous measurement mode.

Area Measurement

Press the "▱" button and the display will show a rectangle. One side of the rectangle will flash. Complete the following operations:

continued ...

1. Press the "READ" button to measure the first side (length)
2. Press the "READ" button to measure the second side (width)

The device will calculate the area automatically and the result will be shown on the main display area.

Secondary display area shows the measurement values of the rectangle's length and width.

During measurement, use the "OFF CLEAR" button to clear the measurement result and restart measurement.

Press the "OFF CLEAR" button twice to exit area measurement mode.

Volume Measurement

Press the "▱" button twice to enter volume measurement mode and a square will flash on the display. Press the "▱" button and the display will show a rectangle. One side of the rectangle will flash. Complete the following operations:

1. Press the "READ" button to measure the first side (length)
2. Press the "READ" button to measure the second side (width)
3. Press the "READ" button to measure the third side (height)

The device will automatically calculate the volume and the result will be shown in the main display area.

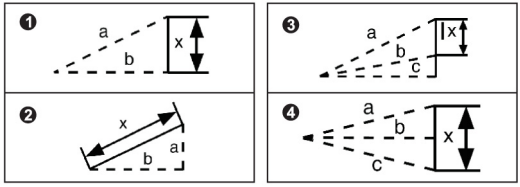
Secondary display area shows the measurement values of the square's length, width, and height.

During measurement, use the "OFF CLEAR" button to clear the measurement result and restart measurement.

Press the "OFF CLEAR" button twice to exit volume measurement mode and enter length measurement mode.

continued ...

The Pythagorean Measurement



There are 4 modes for measuring triangular distance with Pythagorean Theorem. It creates convenience for users to carry out indirect measurement in complex environments.

1. Press the "[▱]" button 3 times or the "[△∪]" button once. The hypotenuse of "◿" will flash on the display. Press the "[READ]" button to measure the length of the dotted hypotenuse (a) according to the instructions on display. Press the "[READ]" button to measure the length of the dotted angle side (base) (b). The device will automatically calculate the length of the solid right-angle side (height) (x).
2. Press the "[▱]" button 4 times or the "[△∪]" button twice. The right-angle side of "◿" will flash on the display. Press the "[READ]" button to measure the length of the dotted right-angle side (b). The device will automatically calculate the length of the solid hypotenuse (x).
3. Press the "[▱]" button 5 times or the "[△∪]" button 3 times. The hypotenuse of "◿" will flash on the display. Press the "[READ]" button to measure the length of the dotted line (a) according to the instructions on the display. Press the "[READ]" button to measure the length of the dotted line on the center (b). Press the "[READ]" button to measure the length of another dotted line (c). The device will automatically calculate the length of one side of the solid triangle (x).
4. Press the "[▱]" button 6 times or the "[△∪]" button 4 times. The hypotenuse of "◁" will flash on the display. Press the "[READ]" button to measure the length of the dotted line as figure (b). Press the "[READ]" button to measure the length of another dotted hypotenuse (c). The device will automatically calculate the length of the solid angle side (x).

continued ...

Note: In the Pythagorean measurement mode, the length of the right-angle side must be less than the hypotenuse, or the wrong signal indicator will be shown on the display. To ensure measurement accuracy, measurement must be taken from the same starting point followed by the hypotenuse, then the angle side.

Cumulative and Regressive Measurement Function

Single distance can be measured by cumulative or regressive operation of plus/minus calculation. Users can use the "(±)" button to enter cumulative and regressive function after getting the single distance measurement result. Press the "(±)" button or the "(+)" button, "+" appears on the main display area and enter cumulative measurement mode. Display shows the cumulative value of last measurement value and current measurement value.

Hold the "(±)" button or press the "(+)" button. On the main display, "-" will appear and enter regressive measurement mode. Display shows the difference value of last measurement value and current measurement value. The area and volume can be accumulated and subtracted, as well as the distance. The following examples illustrate the cumulative and regressive function area, to which cumulative and regressive of volume are similar.

Area accumulation: Measure the first area to get a result as shown in figure 1. Press the "(±)" button or the "(+)" button to measure the second area and get a result as shown in figure 2, and a plus sign will be shown in the left bottom corner. Lastly, press the "(READ)" button to get the sum value of these two areas. The result is shown in figure 3.

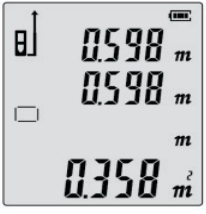


Figure 1

Figure 2

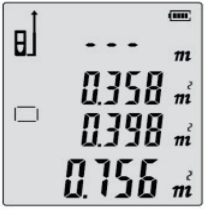


Figure 3

continued ...

Area subtraction: the following example illustrates how to operate area subtraction that subtracts two subtrahends from a minuend.

Step 1: Measure the first area as shown in figure 4 according to area measurement mode. The measured area is 0.311 square meter.

Step 2: Press the "(+)" button or the "(−)" button to measure the second area as shown in figure 5. The measured area is 0.110 square meter.

Step 3: Repeat step 2 to measure the third area as shown in figure 6. The measured area is 0.118 square meter.

Step 4: Press the "READ" button and the display is as shown in figure 7. The first measured area is 0.331, the second measured area is 0.228, and the sum of 0.110 and the third measured area 0.118 is calculated as:
0.083 = 0.31 - 0.228.

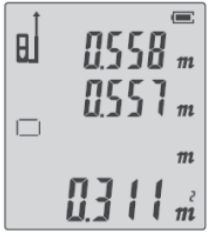


Figure 4

Figure 5

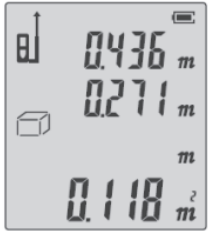


Figure 6

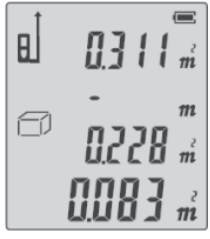


Figure 7

Measurement Record Storage Function

In measurement mode, if current data is valid, hold the "[ ]" button for 3 seconds. The current measurement data will be automatically stored in the device. In area, volume, triangle measurement modes, storage can be carried out when all measurements are completed. The device will save the whole record of this measurement.

Browse/Delete Records

Press the "[ ]" button to check stored measurement data. Press the "[ ]" button to page up records, and press the "[ ]" button to page up records, and press the "[±]" button to page down records. When checking the record, press the "[OFF CLEAR]" button to delete the current record, hold the "[OFF CLEAR]" button to delete all the records. Press the "[ ]" button or the "[READ]" button to exit this mode.

Battery Replacement

1. Open the battery cover on the back of device and install the batteries according to the polarity indication and lock up the battery cover.
2. For this device, 1.5 V AAA batteries are suitable.
3. If this device is not being used for a long period of time, please remove the batteries to avoid corrosion.

Troubleshooting

Information	Reasons	Solution
Err	Reading beyond distance measurement range	Use the device within the specified measuring range
Err1	Signal too weak	Measure target point with strong emission capability
Err2	Signal too strong	Measure target point with less reflectivity
Err3	Battery voltage too low	Replace the battery
Err4	Beyond the operating temperature range	Use the device in specified environment
Err5	Pythagorean Measurement Range	Restart measurement, and ensure the hypotenuse is longer than the right-angle side

When the Hardware Error icon appears on the LCD, turn the meter on and off several times. If the symbol still appears, contact REED Instruments for repair.

Maintenance and Care

- Do not store the device in high temperature and high humidity environments for a long period of time. If the device will not be used for a long period of time, please take out battery and put the device in a portable bag and place it in a cool, dark, dry place.
- Please keep the device surface clean. Use a wet, soft cloth to clean the surface and dry up in time. Do not clean the device with corrosive liquid. Wipe the laser window and focusing lens according to the method of wiping optical devices.

For service or information on this or any other REED product, contact REED Instruments at info@reedinstruments.com.