RUNPOMETER

HAND-HELD LASER DISTANCE METER

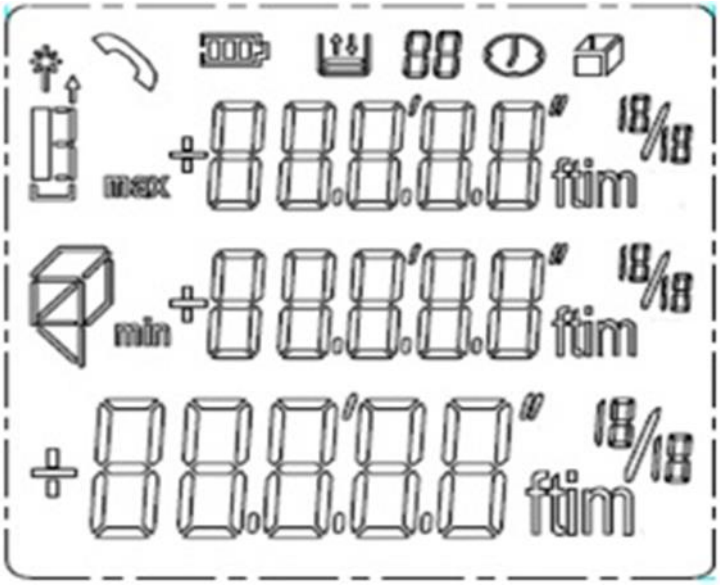
Up to 80 m

USER MANUAL

A


ON/DIST
TIME
UNITS
CLEAR
OFF
1
2
3
4
5
6
7
8
9

B


max
min
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Secondary line 2
Secondary line 1
Summary line

User Manual

English

Congratulations on the purchase of your RUNPOMETER 80 m.

  Carefully read the Safety Instructions and the User Manual before using this product.

Safety instructions

Symbols used

The symbols used in the Safety Instructions have the following meanings:

 **WARNING:**
Indicates a potentially hazardous situation or an unintended use which, if not avoided, will result in death or serious injury.

 **CAUTION:**
Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor injury and/or in appreciable material, financial and environmental damage.

☞ Important paragraphs which must be adhered to in practice as they enabled the product to be used in a technically correct and efficient manner.

Use of the instrument

Permitted use

- Measuring distances
- Computing functions, e.g. areas and volumes
- Storing measurements

Prohibited use

- Using the instrument without instruction
- Using outside the stated limits
- Deactivation of safety systems and removal of explanatory and hazard labels
- Opening of the equipment by using tools (screwdrivers, etc.), as far as not specifically permitted for certain cases

- Carrying out modification or conversion of the product
- Use after misappropriation
- Use of accessories from other manufacturers without the express approval of original manufacturer.
- Deliberate or irresponsible behavior on scaffolding, when using ladders, when measuring near machines which are running, or near parts of machines or installations which are unprotected
- Aiming directly into the sun
- Deliberate dazzling if third parties; also in the dark
- Inadequate safeguards at the surveying site (e.g. when measuring on roads, construction sites, etc.)

Limits of use

☞ See section “Technical Data”.

Product is designed for use in areas permanently habitable by humans, do not use the production explosion hazardous areas or in aggressive environments.

Areas of responsibility

Responsibilities of the manufacturer of the original equipment: original manufacturer is responsible for supplying the product, including the User Manual and original accessories, in a completely safe condition.

Responsibilities of the person in charge of the instrument:

⚠ **WARNING**

The person responsible for the instrument must ensure that equipment is used in accordance with the instructions. This person is also accountable for the deployment of personnel and for their training and for the safety of the equipment when in use.

The person in charge of the instrument has the following duties:

- To understand the safety instructions on the product and the instructions in the User Manual.
- To be familiar with local safety regulations relating to accident prevention.
- To inform original manufacturer immediately if the equipment becomes unsafe.

Hazards in use

⚠ **CAUTION:**

watch out for erroneous distance measurements if the instrument is defective or if it has been dropped or has been misused or modified.

Precautions:

Carry out periodic test measurements. Particularly after the instrument has been subject to abnormal use, and before, during and after important measurements. Make sure the RUNPOMETER 80 m optics is kept clean and that three is no mechanical damage to the bumpers.

⚠ **CAUTION:**

In using the instrument for distance measurements or for positioning moving objects (e.g. cranes, building equipment, platforms, etc.) unforeseen events may cause erroneous measurements.

Precautions:

Only use this product as a measuring sensor, not as a control device. Your system must be configured and operated in such a way, that in case of an erroneous measurement, malfunction of the device or power failure due to installed safety measures (e.g. safety limit switch), it is assured that no damage will occur.

⚠ **WARNING:**

Dispose of the product appropriately in accordance with the regulations in force in your country. Always prevent access to the product by unauthorized personnel.

⚠ **CAUTION:**

Aiming the telescopic viewer directly at the sun or at the reflected laser beam (reflected off metallic or mirroring surfaces, prisms, etc.) is hazardous to the eyes.

Precautions:

Never aim the telescopic viewer directly at the sun or at highly reflecting surfaces (metallic or mirroring surfaces, prisms, etc.).

Electromagnetic Compatibility（EMC）

The term “electromagnetic compatibility” is taken to mean the capability of the product to function smoothly in an environment where electromagnetic radiation and electrostatic discharges are present, and without causing electromagnetic interference to other equipment.

⚠ WARNING:

The RUNPOMETER 80 m conforms to the most stringent requirements of the relevant standards and regulations. Yet, the possibility of it causing interference in other devices cannot be totally excluded.

⚠ WARNING:

Electromagnetic radiation can cause disturbances in other equipment, in installations (e.g. medical ones such as pacemakers or hearing aids) and in aircraft. It can also affect humans and animals.

Precautions:

Although this product conforms to the most stringent standards and regulations，original manufacturer cannot totally exclude the possibility of harm to people and animals.

- Do not use the product near petrol stations, chemical plants, in areas with a potentially explosive atmosphere and where blasting takes place.
- Do not use the product near medical equipment.
- Do not use the product in airplanes.
- Do not use the product near your body for extended periods.

⚠ CAUTION:

Never attempt to repair the product yourself. In case of damage, contact the local dealership.

Laser classification

The RUNPOMETER 80 m produces a visible laser beam which emerges from the front of the instrument.

It is a Class 2 laser product in accordance with:

- IEC60825-1:2007 (Safety of laser products)
- GB 7247.1-2001 (Safety of laser products)

Laser Class 2/Ⅱ products:

Do not stare into the laser beam or direct it towards other people unnecessarily. Eye protection is normally afforded by aversion responses including the blink reflex.

⚠ WARNING:

Looking directly into the beam with optical aids (e.g. binoculars, telescopes) can be hazardous.

Precautions:

Do not look directly into the beam with optical aids.

⚠ CAUTION:

Looking into the laser beam may be hazardous to the eyes.

Precautions:

Do not look into the laser beam. Make sure the laser is aimed above or below eye level (particularly with fixed installations, in machines, etc.).

Inserting / Replacing Batteries

1 Remove the battery compartment lid.

2 Insert the batteries. Pay attention to correct polarity.

3 Close the battery compartment. When the battery voltage is too low, the batteries should be replaced as soon as possible.

- ✓ Batteries should be removed if the device will not be used for a long time (danger of corrosion).
- ✓ Use alkaline batteries (AAA).

End-piece

The instrument can be adapted for the following measuring situations:

Measure from edge, fold out the positioning bracket until it first locks in place.

- ✓ The sensor automatically detects the orientation of the positioning bracket and automatically calculate the distance (3 cm).

Measure from corner, push the positioning bracket lightly to the right to fold it out fully.

- ✓ The sensor automatically detects the orientation of the positioning bracket and adjusts the zero point of the instrument accordingly.

Keypad

See figure A.

1 ON / Measuring button
2 Area / Volume button
3 Pythagoras button
4 Plus (+) / Timer button
5 Minus (-) / Units button
6 Storage button
7 Angle / stake out function button
8 Reference / Illumination button
9 Clear / off button

Operation

Swtich on and off

ON/DIST Switch on the instrument and laser.

CLEAR OFF Pressing this button for longer switches the instrument off.

The instrument switches off automatically after 3 minutes of inactivity.

Clear button

CLEAR OFF The last action is cancelled. While making area or volume measurements, each single measurement can be deleted and remeasured in series.

Refernce setting

The default reference setting is from the rear of the instrument.

Press this button to set the reference the front or the rear. There is a special beep sound when changing the reference.

When the end-piece is floded out fully, the reference is set. Press key, the front edge can be set.

Display illuminations

Pressing this button for longer switches the illuminations on or off. This function also can be set in the function menu.

Selecting Units

UNITS Press this key until the desired unit is displayed.

Optional units:

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
0.00 ft	0.00 ft^2	0.00 ft^3
$0.00^{1/16}$ ftin	0.00 ft^2	0.00 ft^2
0' 0" $^{1/16}$	0.00 ft^2	0.00 ft^3
0.0 in	0.00 ft^2	0.00 ft^2
0 $^{1/16}$ in	0.00 ft^2	0.00 ft^3

Measuring

Single distance measurement

ON/DIST Press to activate the laser. When in continuous laser mode, press this button to trigger the distance measurement directly.

ON/DIST Press again to trigger the distance measurement. The result is displayed immediately.

Minimum/ Maximum measurement

This function allows the user to measure the minimum or maximum distance from a fixed measuring point. It is commonly used to measure room diagonals (maximum values) or horizontal distances (minimum values).

ON/DIST Press and hold down this button. Then slowly sweep the laser back and forth and up and down over the desired target point-(e.g. into the corner of a room).

ON/DIST Press to stop continuous measurement. The values for maximum and minimum distances are shown on the display as well as the last measured value in the summary line.

Functions

Arithmetic

+ TIME The previous measurement (result) adds to the next one.

− UNITS The previous measurement (result) subtracts to the next one.

ON/DIST Press this button and the result will be shown in the summary line.

CLEAR OFF The last step will be cancelled.

✓ The parameters that participate in the calculating must have the same physical significance.

Area

Press this button until this symbol  appears on the display.

ON/DIST Press this button to take the first length measurement (e.g. length).

ON/DIST Press it again to take the second length measurement (e.g. width).

The result is shown in the summary row.

Press and hold the button to display other information (e.g. perimeter).

Volume

Press this button until this symbol  appears on the display.

ON/DIST Press this button to take the first length measurement (e.g. length).

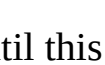
ON/DIST Press this button to take the second length measurement (e.g. width).

ON/DIST Press this button to take the third length measurement (e.g. height).

The result is shown in the summary row.

Press and hold the button to display other information (e.g. ceiling /floor area, surface area of the walls, circumference).

Indirect horizontal distance *

[%] Press this button until this symbol  appears on the display.

[ON/DIST] Press this button to measure tilt and distance. The summary line displays the result as the horizontal distance.

✓ The instrument should be held without a transverse tilt (max. 10°).

Staking out funcion

The distance a can be set and can then be used to mark off defined measured lengths.

Input staking out distances:

[%] Press this button until this symbol  appears on the display.

Distance flashes on the display.

By using [+ TIME] and [− UNITS] button, you can adjust the values to suit the desired stacking out distance. Press [ON/DIST] key to confirm it.

[ON/DIST] Press this key to take the stack out measurement.

The display shows required stake out distance in the summary line between the stake out point and the instrument (refer to the reference).

If the instrument is then moved slowly along the stake out line the displayed distance decreases. The instrument starts to beep at a distance of 0.1m from the next stake out point.

Indirect measurement

By using Pythagoras' theorem, the instrument can calculate distances. This function is helpful, if the distance to measure can not be reached directly.

Make sure you adhere to the prescribed sequence of measurement:

✓ All target points must be in a horizontal or vertical plane.

✓ The best results are achieved when the instrument is rotated about a fixed

point (e.g. with the positioning bracket fully folded out and the instrument placed on a wall) or the instrument is mounted on a tripod.

✓ The minimum / maximum function can be used. The minimum value must be used for measurements at right angles to the target; the maximum distance for all other measurements.

Pythagorean calculation

It is helpful to use a tripod when measuring heights that require the measurement of two or three measurements.

Single Pythagorean calculation

E.g. measure the height or width of a building.

 Press this button until this symbol  appears on the display.

 Aim at the upper point  and trigger the measurement. Then the value is adopted. Keep the instrument as horizontal as possible.

 Press this button to trigger the measurement  . Then the value is adopted. You can also press and hold down this button  to trigger continuous measurement, sweep the laser back and forth and up and down over the ideal target point.

The result is displayed in the summary line, the partial results in the secondary line.

Double Pythagorean calculation

E.g. using 3 measurements to determine a distance  .

 Press this button until this symbol  appears on the display.

 Press this button to trigger the measurement. Then the first value is adopted.

 Press this button to trigger the measurement. Then the second value is adopted. You can also press and hold down this button  to trigger continuous

measurement, sweep the laser back and forth and up and down over the ideal target point. Press to stop the measurement then the minimum value is adopted.

ON/DIST Press this button to trigger the measurement. Then the third value is adopted.

The result is displayed in the summary line, the partial results in the secondary lines.

Storage of constant / historical storage

Storage of constant

You can store and recall a frequently used value (e.g. height of a room). Measure the desired distance, press and hold the ↑↓ button until the device beeps to confirm storage.

Recalling the constant

↑↓ Press this button once to recall the constant and then press the ON/DIST button to enter it into your calculation.

History storage

↑↓ Press this button twice and the previous 30 results (measurements or calculated results) are shown in reverse order.

+ TIME and − UNITS buttons can be used for navigation.

ON/DIST Press this button to use the result from the summary line for further calculations.

Timer

Press and hold down this button to set a 5-second time delay.

By using 

and 

button, you can adjust the value until the desired time delay reached.

Once the key is released with the laser activated, the remaining seconds until measurement (e.g. 59, 58, 57...) are displayed in a countdown. The last 5 seconds are counted down with a beep. After the last beep the measurement is taken and the value is displayed.

Appendix

Message codes

All message codes are displayed with either “Info” or “Error”.

Info	Cause	Remedy
204	Calculation overflow	Repeat procedure
252	Temperature too high	Cool down instrument
253	Temperature too low	Warm up instrument
255	Receiver signal too weak	Use target plate
256	Received signal too strong	Use target plate (grey side)
205	Ranging transfinite	Use in allowed ranging
206	Wrong parameter	When measuring by Pythagoras, the length of hypotenuse should greater than the other two legs The parameter calculated must have the same unit
156*	Transverse tilt greater than 10°	Hold the instrument without any transverse tilt

Error	Cause	Remedy
Err	Hardware error	Switch on/off the device several times and check if the symbol still appears. If so please call your dealer for assistance

Technical data

Range (use target plate for longer)	0.05m to 80m 0.02 ft to 262 ft
Measuring accuracy up to 80m（in the room）	Typ. : ±1.5mm**
Smallest unit displayed	1 mm
Laser class	2
Laser type	620-690 nm, <1 mW
Automatic switch off	3 minutes of inactivity
Display illumination	√
Minimum/ Maximum measurement, Continuous measurement	√
Addition/Subtraction	√
Pythagoras measurement	√
Area / volume calculation	√
Trapezoid measurement	√
Triangular area measurement	√
Historical storage	√ (99)
Measure range of tilt sensor*	360°
Accuracy of tilt sensor *	±0.3° ***
Battery life, Type AAA，4×1.5V	up to 5000 measurements

IP rating	IP 54
Dimension	122×46×26 mm
Weight	105g
Temperature range	-25° to +70°

** Maximum deviation occurs under unfavorable conditions such as bright sunlight or when measuring to poorly reflecting or very rough surfaces. For distances over 80m – without using a target plate – the maximum deviation may increase to a maximum of ±10mm.

*** This is the typical value. For the limiting conditions (e.g. limiting temperature), the deviation increases a little.

Measuring conditions

Measuring range

As for the measure range limit, please refer to the technical specification.

At night, at dusk and when the target is shadowed the measuring range without target plate is increased.

Use a target plate to increase the measurement range during daylight or if the target has a bad reflection.

Measuring Surfaces

Measuring errors can occur when measuring toward colorless liquids (e.g. water) or dust free glass, styrofoam or similar semi-permeable surfaces.

Aiming at high gloss surfaces deflects the laser beam and measurement errors can occur.

Against non-reflective and dark surfaces the measuring time can be increased.

Care

Do not immerse the unit in water. Wipe off dirt with a damp, soft cloth. Do not use aggressive cleaning agents or solutions. Treat the optical surfaces with the same care that you would apply to eyeglasses and cameras.