

# VECTOR 50

**SOLA**   
PASSION FOR PRECISION

- DE** Gebrauchsanweisung
- EN** Operating instructions
- FR** Manuel d'instructions
- IT** Istruzioni d'uso
- ES** Instrucciones de uso
- NL** Gebruiksaanwijzing
- RU** Руководство по применению
- PL** Instrukcja obsługi
- LT** Eksploatacijos instrukcija
- LV** Lietošanas instrukcija
- SR** Uputstvo za upotrebu
- CS** Návod k použití
- RO** Manual de utilizare
- BG** Ръководство за употреба
- HU** Használati útmutató





**Included in delivery with the Vector 50**

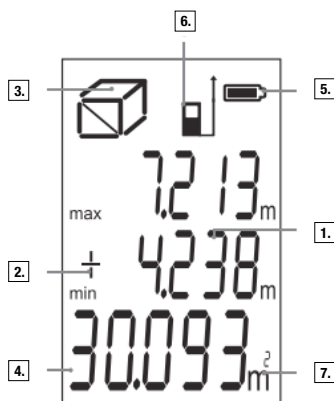
1. Laser distance measurement instrument
2. Belt pouch
3. AAA batteries



## 2.1 Function buttons



## 2.1 Display





## Operating manual

### Vector 50 laser distance meter (original version)

#### About this manual

Congratulations on the purchase of your new Vector 50! You have acquired a SOLA measurement instrument, which can make your work easier, faster and more precise.

To utilize the complete functionality range of this measurement instrument, and to ensure a safe operation, please observe the following instructions:

- Please read this operating manual before commissioning the device.
- Always keep the operating manual near the device.
- Only hand over the device to other persons together with the operating manual.
- Never render the attached warning signs unreadable.

#### Contents

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2. Description
3. Technical data
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7. Operation
8. Maintenance, storage and transportation
9. Delivery contents and accessories
10. Troubleshooting
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## 1. General information

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### 1.1 Signal words and their meaning

#### **DANGER**

For an imminent danger that could lead to serious injury or death.

#### **WARNING**

For a possibly dangerous situation that could lead to serious injury or death.

#### **CAUTION**

For a possibly dangerous situation that could lead to slight injury or property damage.

#### **NOTE**

For application notes and other useful information.

### 1.2 Pictograms and other information

#### 1.2.1 Warning signs



Warning of dangers in general

#### 1.2.2 Symbols



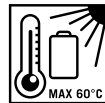
Read the operating manual before use



Batteries and devices must not be disposed of with household waste



Do not throw batteries into the fire



Warning signs on battery Do not heat the battery above 60 °C.



Class 2 laser device



Do not look into the laser beam!



## 2. Description

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### 2.1 Function Buttons

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- 1 Vial
- 2 Display
- 3 ON/Measure button
- 4 Add, subtract/signal
- 5 Function button
- 6 OFF/Delete button
- 7 Belt holder

### 2.2 Display

- 1 Measured values
- 2 Mathematical sign
- 3 Surface, volume, indirect measurement
- 4 Measured value display
- 5 Battery status
- 6 Measurement edge
- 7 Unit

### 2.3 Intended use

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This instrument is designed to measure distances. The measured value, setting, and instrument status can be viewed on the display.

A laser beam is emitted and then sent back to the laser distance measurement instrument from a reflected surface. This is used to calculate the distance. The range depends on the model of the laser distance measurement instrument, on reflectivity, and on the properties of the reflective surface.



### 3. Technical data

#### 3.1 General

Measurement range	0.15–50 m*
Accuracy	± 1.5 mm**
Protection rating	IP 42
Laser class	2
Laser type	650 nm, < 1 mW
Laser auto-shutdown	45 s
Instrument auto-shutdown	180 s
Operating duration	up to 5000 measurements***
Battery type	2 x AAA 1.5 V
Operating temperature	0–40 °C
Storage temperature	-20–60 °C
Dimensions (H x W x D)	105 x 47 x 27
Weight with batteries	85 g

\*When measuring a target with 100% reflectivity (e.g. a painted white wall), with low backlight and an operating temperature of 25 °C. Under unfavorable conditions, e.g. direct sunlight, non-reflective surfaces or measurements on glass or shiny surfaces, the inaccuracy can increase and measuring errors can therefore occur.

The reach of the visible laserpoint always depends on the ambient conditions.

\*\*This degree of precision applies when measuring distances of between 0.2 to 10 m. When measuring distances of between 10 m and 50 m, the maximum tolerance may decrease by 0.1 mm/m.

\*\*\*When operated at room temperature.

#### 3.2 Functions

- Individual measurement
- Min/max measurement
- Continuous measurement
- Area measurement
- Volume measurement
- Indirect 2-point measurement
- Addition
- Subtraction
- 3-part back-lit display



## 4. Safety instructions

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### 4.1 AREA OF RESPONSIBILITY

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#### 4.1.1 Manufacturer

SOLA is responsible for the safe delivery condition of the product, including the operating manual and the original accessories.

#### 4.1.2 Operator

The operator is responsible for using the product as intended, the deployment of his personnel, their training and the operational safety of the product.



- The operator understands the safety information which is stated on the product and the instructions in the operating manual.
- The operator shall comply with the standard local regulations relating to safety and accident prevention regulations as well as worker protection laws and regulations.
- The operator shall immediately notify SOLA if safety-related issues should arise relating to the product or during its utilization.
- The operator shall ensure that the product is not utilized any further if defects become evident, and they will have the product repaired professionally.

### 4.2 Improper Use

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- Use of the device and the accessories without instruction.
- Use of third-party accessories or additional equipment.
- Use outside of the intended limits (see Chapter 3/Technical data).
- Use under extreme temperature fluctuations without an adequate acclimatization.
- Disabling of safety devices and removal of hazard notices and labels.
- Unauthorized opening of the device.
- Performance of modifications or alterations to the device or the accessories.
- Deliberate blinding of third parties.
- Inadequate safeguarding at the installation site.

### 4.3 Utilization limitations

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The VECTOR 50 is suitable for continuous use in an atmosphere which can be inhabited by humans.

- Do not operate the product in explosion-prone or corrosive environments.
- Inform the local safety authorities and safety experts before working in hazardous environments, in close proximity to electrical installations or similar surroundings.





## 4.4 Usage Hazards

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### 4.4.1 General



#### **WARNING**

Missing or incomplete instructions may result in improper or incorrect use. This can cause accidents with serious damage to persons, property, assets and the environment.

- Follow the manufacturer's and operator's safety instructions.
- Protect equipment and accessories from being accessed by children.



#### **WARNING**

Blinding by laser radiation can indirectly lead to serious accidents, especially for people who are driving a vehicle or operating machinery. Do not look into the laser beam.

- Do not set up the laser beam and the laser plane at eye level or aim at people.



#### **CAUTION**

A fall, longer storage, transportation or other mechanical effects can lead to erroneous measurement results. Check the unit for damage before use. Do not use damaged equipment.

- Repairs must only be performed by SOLA.

### 4.4.2 Batteries



#### **DANGER**

Mechanical damage can cause batteries to leak, explode or catch fire or trigger the release of toxic substances.

- Batteries and rechargeable batteries must not be opened or exposed to mechanical loads.
- Repairs must only be performed by SOLA.



**WARNING**

High ambient temperatures and immersion into liquids can cause batteries to leak, explode or catch fire or trigger the release of toxic substances.

- Protect batteries and rechargeable batteries from mechanical damage during transport.
- Do not overheat batteries and rechargeable batteries or expose them to fire.
- Avoid the ingress of moisture into batteries and rechargeable batteries.
- Do not use damaged batteries or rechargeable batteries. Perform a proper disposal (see Chapter 11/Disposal).



**WARNING**

A short-circuiting or unintended use can cause batteries to overheat and create an injury or fire hazard.

- Do not transport or store batteries in the pockets of garments.
- Do not bring the battery contacts in contact with jewellery, keys, or other electrically conductive objects.
- Do not charge the batteries.
- Do not discharge the batteries through short-circuiting.
- Do not solder the batteries in the device.
- Do not mix old and new batteries, and do not mix batteries from different manufacturers or with a differing type designation.



**WARNING**

If disposed of improperly third parties can possibly be seriously injured and the environment polluted. Burning plastic components generates toxic fumes which may impair health. Batteries/rechargeable batteries may explode if they are damaged or heated excessively, and thereby cause poisoning, burning, corrosion or environmental contamination. If disposed of negligently unauthorized persons are able to use the product improperly.

- The product must not be disposed of together with household waste. Dispose of the device and accessories properly (see Chapter 11/Disposal).
- Protect the product against access by unauthorized persons at all times, and especially children.



#### **4.5 ELECTROMAGNETIC COMPATIBILITY (EMC)**

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The electromagnetic compatibility is the ability of the product to function in an environment where electromagnetic radiation and electrostatic discharge are present, without causing electromagnetic interference to other devices.

##### **4.5.1 Interference with other devices by VECTOR 50**

Although the product meets the strict requirements of the relevant directives and standards, SOLA cannot completely exclude the possibility of interference with other devices (for example, when using the product in combination with third-party devices, such as field computers, personal computers, wireless devices, mobile phones, certain cables or external batteries).

- When using computers and radio equipment, be sure to observe to the vendor-specific information about electromagnetic compatibility.
- Only use original SOLA equipment and accessories.

##### **4.5.2 Interference with the VECTOR 50 by other devices**

Although the product meets the strict requirements of the relevant directives and standards, SOLA cannot entirely exclude the possibility that intense electromagnetic radiation in the immediate vicinity of radio transmitters, two-way radios, diesel generators, etc. may distort the measurement results.

- When performing measurements under these conditions, check the plausibility of the results.

## 5. Laser safety / classification

The VECTOR 50 emits a visible laser point.

The product corresponds to Laser Class 2 according to DIN EN 60825-1:2007-03.

### Laser Class 2:

When using Class 2 laser devices, the eye is protected by the blink reflex or aversion reaction in the case of random and short-term exposure.



#### WARNING

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

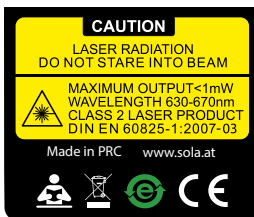


#### CAUTION

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

- Do not look into the laser beam.
- Do not aim the laser beam at other people.

### Labelling on the device:



- Do not remove the type plate!

## 6. Getting Started

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### 6.1 Operation with batteries

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1. Open the battery compartment cover on the rear side of the device.
2. Insert the batteries into the instrument, observing the correct polarity.
3. Close the battery compartment cover.

Only use type 1.5 V AAA batteries!

Remove the batteries if the instrument is not used for an extended period.



### 6.2 Belt clip

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The laser instrument can be stowed in a belt pouch for transport. It must be removed from the pouch when taking measurements.





## 7. Operation

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### 7.1 Getting Started

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#### 7.1.1 Switching the Instrument On and Off

Hold down the ON/Measure button to switch the laser instrument on.

Hold down the OFF/Delete button for 2 seconds to switch the laser instrument off.

#### 7.1.2 Back

Press the OFF/Delete button once to undo the last action. Press the OFF/Delete button twice to exit the current function and return to individual measurement mode.

#### 7.1.3 Setting the measurement plane

Hold down the function button for 2 seconds to toggle between the front and the back of the instrument. The selection is indicated by an arrow on the display. The back of the instrument is set as the measurement edge by default. Each time the instrument is restarted, the back of the instrument is reset as the measurement edge.

#### 7.1.4 Audible signal on/off

Hold down the Add/subtract button for 2 seconds to switch the audible signal on or off.

### 7.2 Applications

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#### 7.2.1 Individual Measurement

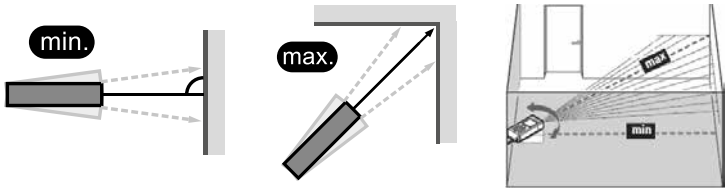
1. Switch on the laser instrument.
2. Direct the laser point at the target.
3. Press the ON/Measure button.

As soon as an audible signal is emitted, the measurement is complete, and the distance can be seen on the display. To calculate additional distances, press the Measure button again.

#### 7.2.2 Min/Max Measurement

1. Switch on the laser instrument.
2. Direct the laser point at the target.
3. Hold down the ON/Measure button for 2 seconds.

The minimum and maximum values are shown on the display. To stop the measurement, simply press the ON/Measure button.



### 7.2.3 Continuous Measurement

1. Switch on the laser instrument.
2. Direct the laser point at the target.
3. Press the Min/Max and continuous measurement button.

The laser instrument measures the distance and shows it on the bottom line of the display.

### 7.2.4 Area Measurement

1. Switch on the laser instrument.
2. Press the Function button until the display for area measurement appears.
3. Measure the length and then the width separately using the individual measurement method. The laser beam remains switched on between the two measurements.

Once the second measurement is complete, the area is automatically calculated and shown on the bottom line of the display. The individual measured values are shown in measured value lines 1 and 2.



### 7.2.5 Volume Measurement

1. Switch on the laser instrument.
2. Press the Function button until the display for volume measurement appears.
3. Measure the length, the width, and then the height separately using the individual measurement method. The laser beam remains switched on between the three measurements.

Once the third measurement is complete, the volume is automatically calculated and shown on the bottom line of the display. The individual measured values are shown in measured value lines 1, 2, and 3.



### 7.2.6 Indirect 2-Point Measurement

1. Switch on the laser instrument.
2. Press the Function button until the display for indirect 2-point measurement appears.
3. Measure the two points separately using the individual measurement method. The laser beam remains switched on between the two measurements.

Once the second measurement is complete, the length is automatically calculated and shown on the bottom line of the display. The individual measured values are shown in measured value lines 1 and 2.

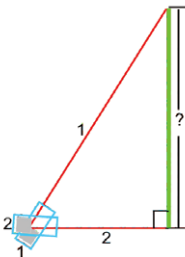


Figure 1





**CAUTION**

The three points measured must run in a line and the second measurement must be taken at a right angle to the measured surface; otherwise measured values may be incorrect.

**7.2.7 Addition**

1. Switch on the laser instrument.
2. Direct the laser point at the target.
3. Take an individual measurement.
4. Press the Add/subtract button to add the next individual measurement.  
(plus symbol + appears on the display).
5. Take an individual measurement.

The laser instrument shows the result on the bottom line of the display. This process can be repeated as many times as required.

**7.2.8 Subtraction**

1. Switch on the laser instrument.
2. Direct the laser point at the target.
3. Take an individual measurement.
4. Press the Add/subtract button twice to subtract the next individual measurement.  
(minus symbol - appears on the display).
5. Take an individual measurement.

The laser instrument shows the result on the bottom line of the display. This process can be repeated as many times as required.

**7.3. Guidance for operation**

The laser instrument must not be moved while measuring. A fixed mounting surface with a stop is therefore recommended. The laser outlet and receiving area must not be covered during measurement.

Depending on the measured surface, it cannot be guaranteed that all measurements are completely accurate. Avoid surfaces that are textured, reflective, transparent, or porous.



## 8. Maintenance, storage and transportation

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### 8.1 Cleaning

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- Wipe off the dirt with a soft damp cloth.
- Check the outlet openings of the laser regularly, and thoroughly clean them if necessary.  
Do not touch the glass with your fingers.
- Do not use aggressive cleaning agents or solvents.
- Do not immerse the device in water!
- Clean and dry wet equipment, accessories and transport containers prior to packaging them. Only pack equipment again when it is completely dry.
- Keep plug connections clean and protected from moisture.

### 8.2 Storage

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#### 8.2.1 General

- The equipment may only be stored within the specified temperature limits  
(see Chapter 3/Technical data).
- After prolonged storage, check the accuracy of the measuring device before using it.

#### 8.2.2 Batteries

- For storage, remove the batteries from the device.
- They should preferably be stored in a dry environment at room temperature (see Chapter 3/Technical data).
- Protect from moisture and humidity. Dry wet or damp batteries before storage before usage.

### 8.3 Transport

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#### 8.3.1 General

The device may be damaged if it falls or is subjected to strong vibrations.

- Never transport the product loose. Always use the original packaging or an equivalent transport container.
- Switch off the measuring device before transporting it.
- Check the unit for damage before use.

#### 8.3.2 Batteries

When transporting or shipping batteries, the operator is responsible for complying with the applicable national and international laws and regulations.

- Before shipping, remove the batteries from the device.



## **9. Delivery contents and accessories**

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### **9.1 Included in delivery with the Vector 50**

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- 1 Laser distance measurement instrument
- 2 batteries
- 1 Belt pouch

### **9.2 ACCESSORIES (optional)**

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- LB RED laser protection goggles
- ZS RED target

Further information on accessories can be found at [www.sola.at](http://www.sola.at)



## 10. Troubleshooting

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<b>Error</b>	<b>Possible Cause</b>	<b>Remedy</b>
301	➤ Distance outside of the measurement range.	➤ Stay inside the measurement range.
302	➤ The reflected signal is too weak.	➤ Measure using a more reflective surface.
303	➤ Range outside the display.	➤ Use the OFF/Delete button to reset to zero.
304	➤ Calculation error in Pythagoras.	➤ Carry out measurement again.
305	➤ Low battery.	➤ Put new batteries in.
306	➤ Temperature too low.	➤ Warm the instrument up.
307	➤ Temperature too high.	➤ Cool the instrument down.
308	➤ Ambient light is too bright.	➤ Carry out the measurement in a darker environment.

## 11. Disposal

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If disposed of improperly third parties can possibly be seriously injured and the environment polluted. Burning plastic components generates toxic fumes which may impair health. Batteries/rechargeable batteries may explode if they are damaged or heated excessively, and thereby cause poisoning, burning, corrosion or environmental contamination. If disposed of negligently unauthorized persons may be able to use the product improperly.

Measuring tools, accessories and packaging must be recycled in an environmentally-friendly manner.



The product as well as the accessories - especially the batteries and rechargeable batteries - must not be disposed of with household waste.

- Dispose of the device and the accessories properly.
- Observe the country-specific disposal requirements.

Your SOLA dealership will accept returned batteries as well as old equipment, and will ensure proper disposal.

### Only for EU countries



Electric tools must not be disposed of with household waste!

According to European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its transposition into national law, electrical and electronic equipment that is no longer usable must be collected separately and recycled in an environmentally friendly manner.



## **12. Manufacturers' guarantee**

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"The manufacturer warrants to the original purchaser stated on the guarantee card, freedom from defects of the device for a period of two years, with the exception of batteries, from such time as the device is handed over. The guarantee is limited to repairs and/or replacements at the manufacturer's discretion. Defects which are caused through improper handling by the purchaser or third parties, natural wear and optical flaws that do not affect the usability of the equipment, are not covered by this guarantee. Claims under this guarantee can only be invoked if the device is submitted along with the guarantee card, completely filled out by the dealer, dated and provided with the company stamp.

If the guarantee claim is justified, the manufacturer shall bear the transport costs. The duration of the guarantee will not be extended through repair or spare parts work which is carried out within the scope of the guarantee.

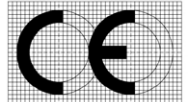
Further claims are excluded, unless these are stipulated by the respective national legislation. In particular the manufacturer shall not be liable for any direct, indirect, incidental or consequential damages, losses or expenses in connection with the use or because of the inability to use the tool for any purpose whatsoever. Implied warranties for the usage or suitability for a particular purpose are expressly excluded."



### 13. EC conformity declaration



**Konformitätserklärung  
Declaration of conformity  
Déclaration de conformité**



Wir/We/Nous **SOLA-Messwerkzeuge GmbH, A-6840 Götzis, Austria**

erklären in alleiniger Verantwortung, dass das Produkt(e)  
declare under our sole responsibility that the Product(s)  
déclarons sous notre seule responsabilité que le(s) produit(s)

**VECTOR 50**

auf das sich diese Erklärung bezieht, mit den folgenden Normen übereinstimmt.  
to which this declarations relates is in conformity with the following standards.  
auquel(s) se réfère cette déclaration est conforme aux normes.

**EN 61326-1: 2013  
EN 61326-2-2: 2013**

Gemäss den Bestimmungen der Richtlinie(n)  
Following the provisions of Directive(s)  
Conformément aux dispositions de(s) Directive(s)

**Electromagnetic compatibility 2014/30/EU**

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