VECTRONIX
SHOOTING
SOLUTIONS.

USER MANUAL: VECTOR X

Laser rangefinder binoculars

Thank you for purchasing this product from VECTRONIX SHOOTING SOLUTIONS. We hope you enjoy using your new VECTOR X.

Read this user manual before use to ensure that you can take full advantage of all the features of this versatile, high-quality laser rangefinder.

If you have any questions, please do not hesitate to contact your dealer or contact us directly at www.vectronix-shooting-solutions.com.

TABLE OF CONTENTS

1 INTRODUCTION

Your VECTOR X is an innovative laser rangefinder with integrated Applied Ballistics Elite software that was developed for demanding applications and competitions.

Use your VECTOR X for distance measurement, target data acquisition, navigation, and determining ballistic solutions.

NOTICE

Please read the enclosed safety information for the laser rangefinder or the safety chapter in this user manual before using the VECTOR X.

VECTRONIX SHOOTING SOLUTIONS

We produce state-of-the-art optronic observation devices for discerning precision shooters and hunters. Through our products, we help our customers quickly and reliably achieve first-shot accuracy when hunting or competing.

Our products combine unsurpassed performance, exceptional user friendliness, and connectivity with a wide range of devices and apps from specialized third-party providers.

Our products are characterized by uncompromising quality and longevity, and they reflect our company's many years of experience in the defense industry.

2 GENERAL INFORMATION

For simplicity, this manual shows the VECTOR X 8×42 model from the VECTOR X series.
Operations with multiple steps are written in numbered order (1, 2, 3, etc.).
⇨ This symbol indicates the result of an action or additional information regarding operation.
▶ This symbol indicates countermeasures to avoid danger.
▸ This symbol indicates page references.

2.1 Meaning of symbols

General warning symbol to identify safety information involving the risk of injury.

Laser radiation warning to identify related safety information.

Optical radiation warning to identify related safety information.

Battery warning to identify related safety information.

General mandatory action sign for information to avoid damage to property.

Symbol for useful information and notes.

Mandatory action sign to read user documentation and safety information.

Symbol for recycling batteries and used devices.

2.2 User documentation and software

This user manual is part of the VECTOR X user documentation. It is normally only available in electronic form as a PDF download.

Safety information for laser rangefinders	Included in the scope of supply.
Quick Start Guide	Included in the scope of supply and available as a download.
User manual for the Range Enhancers, optional accessory	Supplied with the Range Enhancers and also available as a download.
Instructions for the Anti-Reflection Devices (ARD) (optional accessory)	See the FAQs on the website of Armament Technology Incorporated: www.armament.com
VECTRONIX SHOOTING SOLUTIONS app	Smartphone app available for download.
VECTOR X operating system	The VECTRONIX SHOOTING SOLUTIONS app makes it possible to run updates.

NOTICE

Our website has the latest downloads and information related to the VECTOR X:
www.vectronix-shooting-solutions.com

3 SAFETY INFORMATION

The safety information for laser rangefinders, which comes with the VECTOR X, contains all the basic safety information from this chapter.

NOTICE

We recommend keeping the safety information for laser rangefinders together with the VECTOR X.

Safety notices in the user manual are marked with a warning symbol (see "Meaning of symbols" [▶ 11]) and identified by specific signal words and colors based on the hazard level.

⚠SAFETY INSTRUCTIONS

Countermeasures to avoid hazards related to general safety information are listed in a section with the banner above.

Hazard levels of safety notices

⚠DANGER

Danger to life

This safety notice indicates the most severe hazard level. It indicates an immediately dangerous situation. If this situation is not avoided, death or serious injury will result.

⚠WARNING

Risk of injury

This safety notice indicates a potentially dangerous situation. If this situation is not avoided, death or serious permanent injury could result.

⚠CAUTION

Injury

This safety notice indicates a potentially dangerous situation. If this situation is not avoided, minor to moderate temporary or permanent injury could result.

3.1 Personal responsibility

Safety information cannot account for all possible hazardous situations that could occur when using the VECTOR X. Safety information is therefore not exhaustive.

- Become familiar with the VECTOR X before use.
  - You will only be able to use all device functions quickly and correctly if you read the user documentation and try the examples described.
- Using the VECTOR X in any manner not described in the user documentation or for any purpose outside of the intended purpose described is strongly discouraged. Safran Vectronix AG assumes no liability for injuries or damages caused by such use.

3.2 Intended use

The VECTOR X is intended for use as

- A binocular laser rangefinder with digital magnetic compass and inclinometer
- A portable or stationary observation and measuring device

3.2.1 Intended use (detail)

The VECTOR X is also used with other devices or apps to

- Measure distances
- Transmit location data
- Take measurements for ballistic calculations
- Calculate and indicate ballistic solutions
- Determine distances to objects and their dimensions using two-point measurements

Applications of the VECTOR X are in the civil sector in

- Hunting and outdoor sports
- Shooting sports (e.g., competition shooting, long-range precision shooting)

3.2.2 Usage restrictions

Do not use the VECTOR X in the following conditions:

- In explosive environments or underground (mining, cave exploration, etc.)
  - The rubber reinforcement of the housing and the plastic parts can generate electrostatic discharge that can lead to ignition.
- Near sensitive electrical equipment, devices, or implants (hospitals, pacemakers, hearing aids, etc.)
  - The same restrictions apply as for smartphones.
- Near strong electromagnetic fields (transmitters, power lines, thunderstorms, etc.)
  - These can reduce the measurement accuracy.
  - Special requirements apply to the digital magnetic compass – see "Factors influencing azimuth measurement accuracy and compass calibration" [▶ 110].
- Do not use the VECTOR X as an independent measuring device. The target coordinates found must always be evaluated to make sure they make sense and will not pose a hazard to the user or others.

3.2.3 Foreseeable misuse

Misuse of the VECTOR X can cause serious injury, damage to property, malfunction of equipment, or measurement errors. Safran Vectronix AG assumes no liability for any such occurrences.

Examples of misuse

- Use of the device before reading the user documentation and safety information
- Use of the device as an independent instrument for determining distances or object locations without verifying measurements via other instruments or techniques
- Measurements within close range of mirrors, mirror-like surfaces, or highly reflective objects, which can lead to incorrect measurement results or destruction of the VECTOR X
- Measurements through glass or water, which can lead to incorrect measurement results
- Use outside the specified application limits (see "Technical specifications" [▶ 45])
- Exposure to extreme environmental influences (physical impact, temperature fluctuations, etc.) – see "Technical specifications" [▶ 45]
- Unauthorized changes and modifications
- Use of accessories that are not expressly approved by Safran Vectronix AG
- Continued use of a defective device, such as misuse with obvious damage or defects
- Opening of the device (except the battery compartment) and repairs by unauthorized personnel and workshops
- Use of a damaged, leaking battery or an unspecified battery type
- Connection to an external power supply

This list is not exhaustive, and possible misuse is not limited to the examples.

3.3 Eye safety

The VECTOR X has a laser diode and magnifying lenses.

3.3.1 Laser safety instructions

The VECTOR X is categorized as one of two laser classes based on country-specific regulations:

Class 1 laser product
The VECTOR X is categorized as a Class 1 laser product per IEC/EN 60825-1.

Class 1M laser product
The VECTOR X is categorized as a Class 1M laser product per IEC/EN 60825-1.

The laser class is indicated on the underside of the device (see "Device overview" [▶ 36]).

Note for the US

This product corresponds to the requirements for laser products per 21 CFR 1040.10 and 1040.11, except for the deviations necessary for compliance with IEC 60825-1 Ed. 3.0 – see “Laser Notice No. 56” from May 8, 2019.

Technical specifications of the laser

Laser class per IEC/EN	1 (Europe)	1M
Wavelength, nominal	905 nm	905 nm
Pulse duration	17 ns	16 ns
Maximum average power	0.55 mW	2.7 mW
Beam divergence, typical	0.6 × 0.1 mrad (8×42 / 10×42) 0.5 × 0.1 mrad (12×42)	1.8 × 0.1 mrad (8×42 / 10×42) 1.5 × 0.1 mrad (12×42)

Safety information for Laser Class 1

The VECTOR X is a laser rangefinder that is safe for eye exposure and is rated laser Class 1. No safety precautions are required to protect against the laser radiation emitted by the device during use (see "Intended use" [▶ 15]).

Safety information for Laser Class 1M

⚠WARNING

Risk of eye injury from the invisible laser beam

Due to the use of optical components (e.g., lenses), Class 1M lasers can be dangerous for the eyes.

⚠SAFETY INSTRUCTIONS

- ▶ Never aim at people.
- ⇨ This is especially important for people who are currently using an optical instrument (binoculars, scope, telescopic sight, surveying instrument, etc.).
- ▶ Never look into the laser emission lens (see "Device overview" [▶ 36]) while triggering a measurement.
- ▶ Never point the VECTOR X at other people, particularly their faces or eyes, from a short distance while pressing the Measurement button.
- ▶ Never look into the laser beam of the VECTOR X with optical instruments.
- ▶ Never open the device housing. The laser in the device can cause eye injuries.

3.3.2 Risk of temporary blinding

⚠WARNING

Risk of eye injury and temporary blinding

- ▶ Never look directly into the sun with the VECTOR X.
- ▶ Never look into strong light sources with the VECTOR X.
- ▶ Never look into visible or invisible laser beams (e.g., laser pointers) with the VECTOR X.
- ▶ Never use the VECTOR X where laser beams can be expected.

3.4 Mechanical hazards

⚠WARNING

Risk of injury from mechanical hazards

- Risk of injury to the eyes and face from the eyepieces
- Risk of strangulation and injury from the neck strap
- Risk of choking and injury by swallowing small parts (e.g., battery)

⚠SAFETY INSTRUCTIONS

- ▶ Be careful when holding the VECTOR X in front of your face. Avoid injury to the eyes or eye area caused by unexpected movements.
- ▶ Do not use the VECTOR X while walking or moving. This presents a higher risk of falling and getting injured.
- ▶ Do not hang the VECTOR X around your neck during athletic activities (e.g., walking quickly, climbing). The neck strap can become tangled or caught and cause strangulation.
- ▶ Check the neck strap and its attachment points regularly and replace damaged parts.
- ▶ Do not place the VECTOR X on the dashboard or under the rear windshield. There is a risk of injury if the vehicle brakes or accelerates heavily.
- ▶ Do not crush your fingers between the two parts of the housing when adjusting the interpupillary distance.
- ▶ Do not leave the VECTOR X with unsupervised children. Keep the accessories and packaging of the VECTOR X out of the reach of children.

3.5 Battery hazards

⚠DANGER

Risk of thermal and chemical burns

The rechargeable or non-rechargeable lithium-ion battery in the VECTOR X can overheat if it becomes damaged. This will release toxic fumes and caustic electrolyte and, in extreme cases, cause explosion.

Lithium reacts with water and humidity at high temperatures and releases toxic fumes.

⚠SAFETY INSTRUCTIONS

- Only use the battery types permitted – see "Suitable batteries" [▶ 61].
- Never touch a damaged or leaking battery with your bare hands.
- Keep batteries away from children and pets. There is a risk of ingestion.
- The fumes released from a battery that is damaged or burning are harmful and caustic to the respiratory system. In the event of danger, immediately go outdoors. Seek medical care if respiratory problems occur.
- If a battery is swallowed, do not induce vomiting. Seek medical care immediately.
- Take the following first aid measures after contact with the contents leaked from a battery:
  If the battery was swallowed, rinse the mouth and surrounding skin with large amounts of lukewarm water and remove residue. Seek medical care immediately.

After contact with the eyes, immediately rinse the affected eye with large amounts of water and seek medical care.

After contact with the skin, first remove contaminated clothing. Thoroughly cleanse the affected skin with soap and water. Seek medical care if skin irritation or pain persists.

⇨ Also follow the instructions on the battery manufacturer's safety data sheet as part of first aid.

3.6 Hazards during shooting

⚠DANGER

Fatal or serious injuries from gunshot wounds

Using the VECTOR X does not mean that important safety guidelines related to handling firearms may be ignored or neglected.

NOTICE

Gunshot damage to property

Misdirected projectiles can damage other people's property.

⚠SAFETY INSTRUCTIONS

- ▶ Become familiar enough with the VECTOR X that you can effectively manage or avoid stressful situations.
- ▶ Check the field of fire before shooting:

⇨ Is there an adequate safety range behind the target and beside the direction of fire?

⇨ Is there an effective backstop behind the target?

- ▶ Never rely exclusively on the measurement data provided by the VECTOR X. Always ensure when shooting that there is no risk to people or property.
- ▶ Only shoot at a clearly identified target.

3.7 Outdoor hazards

⚠WARNING

Weather-related hazards

When using the VECTOR X with the VECTRONIX SHOOTING SOLUTIONS app for navigation

- ▶ Take the current environmental conditions and related risks into account before commencing outdoor activities.
- ▶ Pay attention in particular to dangerous weather events (storms, blocked passages, etc.).
- ▶ Ensure that you have suitable equipment and sufficient supplies before navigating unfamiliar terrain.

3.8 Substance hazards

The VECTOR X contains SVHCs (substances of very high concern) per Article 33 of the EU REACH Regulation (1907/2006).

- Alloys with a lead concentration above 0.1% w/w are present.

There is no risk to the user's health because bare skin will not touch the lead-containing component in question.

3.8.1 Allergens

⚠CAUTION

Housing components can contain allergens

People with sensitive skin can have an allergic reaction after touching the rubber reinforcement or eyecups of the device.

▶ Seek medical care immediately if you have an allergic reaction after using the device (rash, itching, swelling).

We recommend that you always wear suitable protective eyewear and gloves to protect yourself.

3.9 Environmental hazards

NOTICE

Avoid environmental hazards

Do not dispose of used batteries in household waste.

At the end of the service life of the VECTOR X or its parts or accessories, do not dispose of these items in household waste.

- ▶ Dispose of used batteries at a suitable collection point in compliance with legal regulations.
- ▶ Observe the disposal instructions for the VECTOR X (see "Disposal" [▶ 136]).

4 PROTECTION AGAINST DAMAGE

Observe the following instructions to ensure that your VECTOR X will remain your reliable and faithful companion for a long time to come.

The device components, setting elements, and operating elements described in this manual are shown in the "Device description" [▶ 33] chapter.

4.1 Storage and transport instructions

- Clean and dry the VECTOR X if it is wet or dirty (see "Care and cleaning" [▶ 127]).
- Store and transport the VECTOR X in its case with the eyepiece cap attached and the objective lens caps closed.
- Keep the VECTOR X out of reach of children in a dry, cool, well-ventilated place.
- In high humidity, store the VECTOR X in a sealed container with a desiccant such as silica gel.
- If the VECTOR X will be stored for a long time, remove the batteries and store them in accordance with the battery manufacturer's instructions.
- During transport, do not subject the VECTOR X to extreme temperature fluctuations or strong mechanical vibration. Condensation can form, or the lenses can be damaged.
- Use a case suitable for transport or equivalent shockproof packaging when shipping the device.

4.2 Instructions for use

- Do not adjust the following setting elements of the VECTOR X beyond their end positions: Risk of damage
  - Focus wheel
  - Diopter adjustment ring
  - Display adjustment ring
  - Hinge for adjusting the interpupillary distance
- Screw down the battery compartment cover carefully to prevent damaging the threads.
- Ensure that
  - No dirt enters the battery compartment
  - No grease or oil gets on the control buttons
- When installing the optional Range Enhancers, screw them down lightly (hand-tight). Overtightening can misalign the lenses. Risk of damage

4.3 Extreme environmental conditions

- Protect the VECTOR X from extreme weather as much as possible.
- Rapid temperature fluctuations can misalign and damage the lenses.
  - Before entering or leaving heated or air-conditioned rooms, attach the eyepiece cap and close the objective lens caps. This enables the VECTOR X to gradually adapt to the temperature change and prevents fog formation on the glass.

- When using the device in a very cold environment, make sure that your breath does not condense and freeze on the glass surfaces. If there are long intervals between measurements, keep the VECTOR X near your body so the warmth can prevent an excessive drop in the battery capacity.
- If the surrounding air contains sand, dust, or salt, attach the eyepiece cap and close the objective lens caps whenever possible. Clean the VECTOR X carefully after use (see "Care and cleaning" [▶ 127]).

4.4 Notes on the lenses

NOTICE

Risk of fire and damage

If strong sunlight shines directly into the objective lenses

- Components in the VECTOR X can overheat and become damaged.
- Flammable objects close behind the eyepieces can ignite.

▶ Therefore, protect the VECTOR X from exposure to strong sunlight.

▶ Close the objective lens caps when the device is not in use.

▶ Store the VECTOR X in the shade or in the case.

- If possible, use the neck strap. The lenses of the VECTOR X can become misaligned and damaged if the device is accidentally dropped or bumped.
- Keep the glass surfaces free of dirt, oil, and grease. Do not touch them with your fingers.
  - Scratches, dirt, and fingerprints can affect distance measurements (maximum range).
  - The optical coating can be damaged by residue from sunscreen, insect repellent, lotion, etc.
- Observe the cleaning instructions for the lenses (see "Care and cleaning" [▶ 127]).

4.5 Notes on the battery

The terms “battery” and “lithium-ion battery” are used as general terms for all battery sizes and types that are suitable for the VECTOR X.

A primary lithium-ion battery is a non-rechargeable battery. A rechargeable lithium-ion battery can be recharged.

NOTICE

The VECTOR X can be seriously damaged by a defective battery.

A defective battery can overheat, spontaneously combust, or even explode.

⚠SAFETY INSTRUCTIONS

After being dropped or subjected to impact, the VECTOR X could start making strange noises, or the battery compartment could release an unusual smell or smoke. If this happens

- ▶ Do not inhale smoke or escaping fumes. This presents the risk of chemical burns.
- ▶ Unscrew the battery compartment cover. If the battery compartment cover is hot, grab it through a piece of cloth.
- ▶ Shake the battery out of the battery compartment. Do not touch the battery. It presents a burn hazard.
- ▶ Place the overheated battery on a fireproof surface outdoors, keeping it away from combustible materials.
- ▶ Wait until the battery no longer presents a hazard. Then dispose of the battery residue.

NOTICE

The VECTOR X can be seriously damaged by a leaking battery.

The leaking electrolyte can destroy the electrical contacts in the battery compartment through corrosion.

- ▶ Do not touch escaped electrolyte. This presents the risk of chemical burns.
- ▶ Remove the leaking battery and dispose of it properly (see "Disposal" [▶ 136]).
- ▶ Clean the battery compartment and battery compartment cover with cotton swabs and a damp cloth.

NOTICE

The VECTOR X can be seriously damaged by using the incorrect battery.

If the VECTOR X has the long 18650 battery compartment cover (see "Replacing the battery compartment cover" [▶ 64]), only the 3.7 V 18650 rechargeable lithium-ion battery may be used.

Never insert two CR123A lithium-ion batteries or other prohibited types of batteries into the battery compartment.

Handling the battery properly

- Prevent the risk of explosion. Never
  - Short-circuit the battery
  - Throw the battery into fire or expose it to temperatures above +70°C/160°F
  - Heat the battery in a microwave or a pressure cooker
  - Puncture, mechanically alter, or disassemble the battery

- Only use name-brand batteries of the specified battery types (see "Suitable batteries" [▶ 61]).
- Do not use a damaged, deformed, bulging, or leaking battery.
- Do not use expired batteries.
- Never try to charge a non-rechargeable, primary lithium-ion battery in a charger. This presents the risk of explosion.
- Transport and store batteries separately from metal parts. Otherwise, there is a risk of short circuit and fire.
- Keep batteries out of the reach of children in a dry and cool place.
- Do not expose unprotected batteries to direct sunlight or high humidity for prolonged periods.

Notes on rechargeable lithium-ion batteries

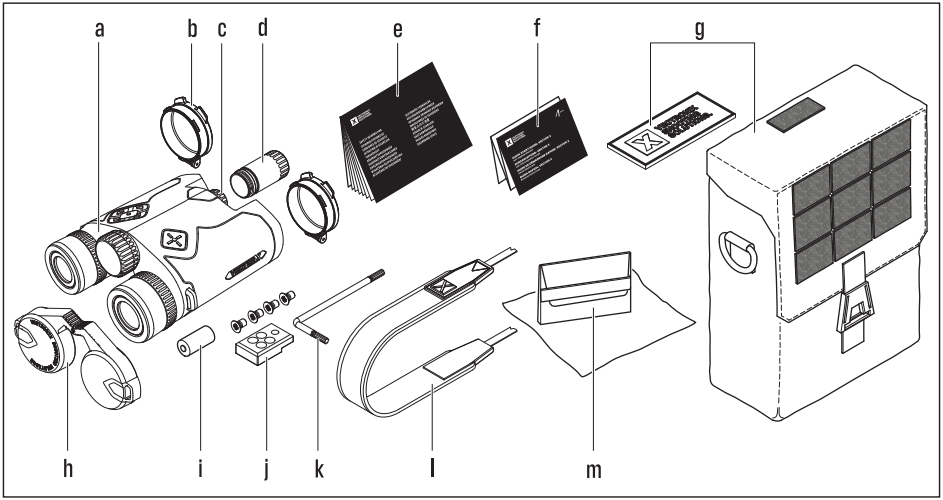
- Only use a rechargeable lithium-ion battery with the following characteristics:
  - Complies with IEC 62133-2
  - Has an integrated protective circuit and deep-discharge protection
- Dispose of a deep-discharged rechargeable lithium-ion battery. Do not attempt to recharge it.
- Only charge the rechargeable lithium-ion battery with a charger intended for this.
- Use the charger as close to a smoke/fire detector as possible and keep it away from flammable materials or objects.
- To detect potential danger quickly
  - Stay near the charger while the battery is charging.
  - Do not charge the rechargeable lithium-ion battery while sleeping.

5 DEVICE DESCRIPTION

The VECTOR X is easy to handle and use. It has the following features:

- Binoculars
  - Powerful binoculars with reticle
  - Water-repelling coating on the outer lenses (objective and ocular lenses)
  - Tough, rubber-reinforced magnesium housing
  - Tripod connection
- Laser rangefinder
  - Laser Class 1 laser (Europe) measures from 2 m/3 yd to 4000 m/4400 yd (depending on type, size, and reflectiveness of target)
  - Laser Class 1M laser measures from 2 m/3 yd to 6400 m/7000 yd (depending on type, size, and reflectiveness of target)
- Digital compass
  - Displays magnetic north or azimuth in degrees (°), mrad, or mil
- Environmental sensors
  - Inclinometer
  - Brightness sensor
  - Temperature sensor
  - Air pressure sensor
  - Humidity sensor
- Integrated ballistic functions
  - Applied Ballistics Elite
- Bluetooth connection capability
  - VECTRONIX SHOOTING SOLUTIONS smartphone app
  - External devices from third-party manufacturers such as weather gauges and ballistic calculators
- Available accessories
  - Range Enhancers
  - Anti-Reflection Devices (ARD)

5.1 Scope of supply



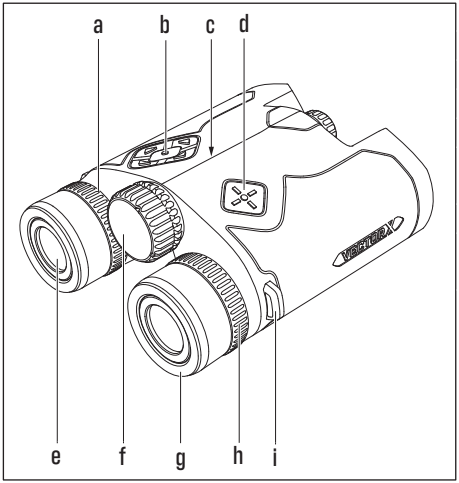
a) Complete VECTOR X (see also "Reticle types" [▶ 39])
   Objective lens caps (2×)
b) CR123A battery compartment cover
c) 18650 battery compartment cover
d) Safety information for laser rangefinders
e) VECTOR X Quick Start Guide
f) Case (Protective Case 42) with
g) VECTRONIX SHOOTING SOLUTIONS logo patch
h) Eyepiece cap
i) 3 V CR123A primary lithium-ion battery
j) Tripod mount (with 2 spare screws)
k) Torx key
l) Neck strap
m) Lens cleaning cloth

Available for download are

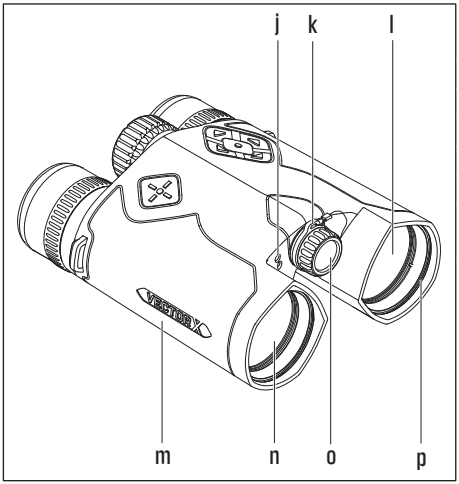
- User manual in multiple languages at www.vectronix-shooting-solutions.com
- VECTRONIX SHOOTING SOLUTIONS app in the App Store or Google Play Store

For information on replacement parts, see "Spare parts" [▶ 134].

5.2 Device overview



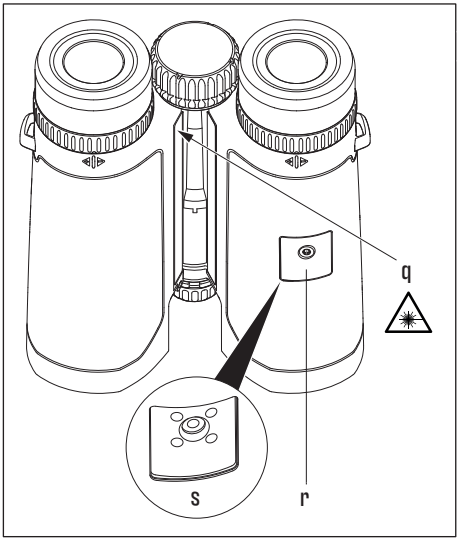
a) Diopter adjustment ring, left
b) Multi-selector with arrow keys and Menu button
c) Hinge
d) Measurement button
e) Eyepieces (2×)
f) Focus wheel with laser-engraved model code (e.g., 10×42) and serial number
g) Eyecups (2×), adjustable with click latch
h) Diopter adjustment ring, right (for focusing heads-up display and reticle)
i) Neck strap attachment point (2×)



j) Two openings in the housing for brightness, temperature, air pressure, and humidity sensors
k) Attachment clip with retention strap
l) Objective lens, laser beam inlet opening
m) Barrel with integrated reticle and display
n) Objective lens, laser beam outlet opening
o) CR123A battery compartment cover (standard)
p) Objective lens thread (M46×0.75) for attaching accessories*

* The following optional accessories can be screwed onto the objective lens thread:

- Range Enhancers
- Anti-Reflection Devices (ARD)



q) Laser class specification
r) Cover
s) Tripod connection

5.2.1 Reticle types

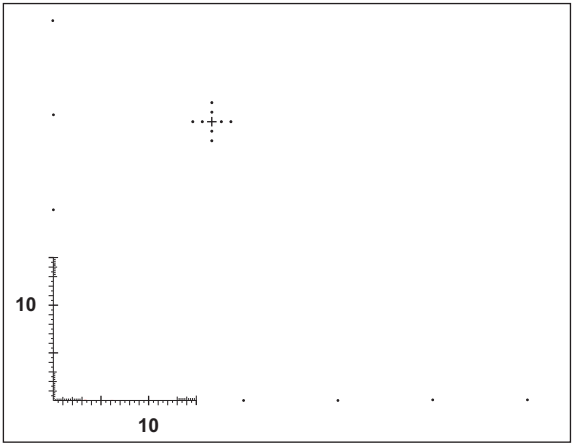
Each VECTOR X has one of the following reticles:

- MSR-SMR reticle (single magnification reticle)
- MSR-DMR reticle (dual magnification reticle)
  - Optimized for using the Range Enhancers

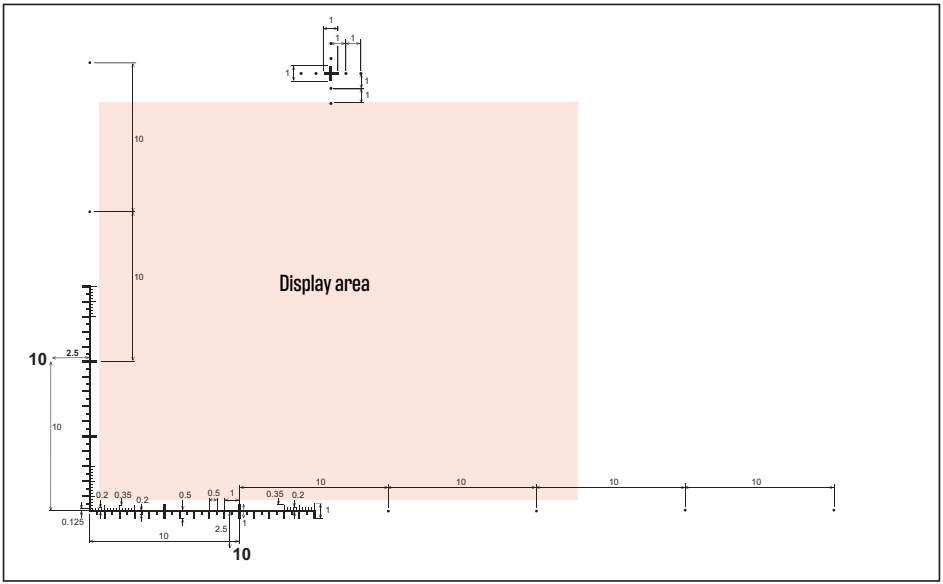
The integrated reticle is designed based on the magnification of the device and cannot be changed later.

See our website for a detailed view of the reticles with notes for use:
www.vectronix-shooting-solutions.com

MSR-SMR reticle



The MSR-SMR milliradian reticle is coordinated to the base magnification of the VECTOR X model it's installed in.



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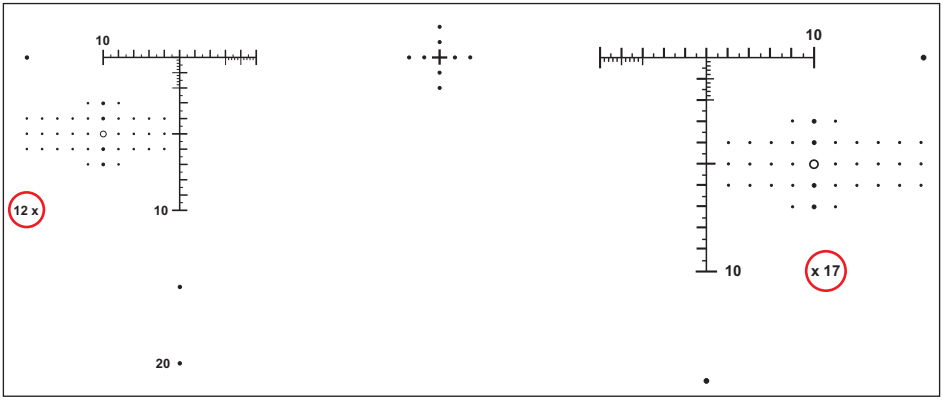
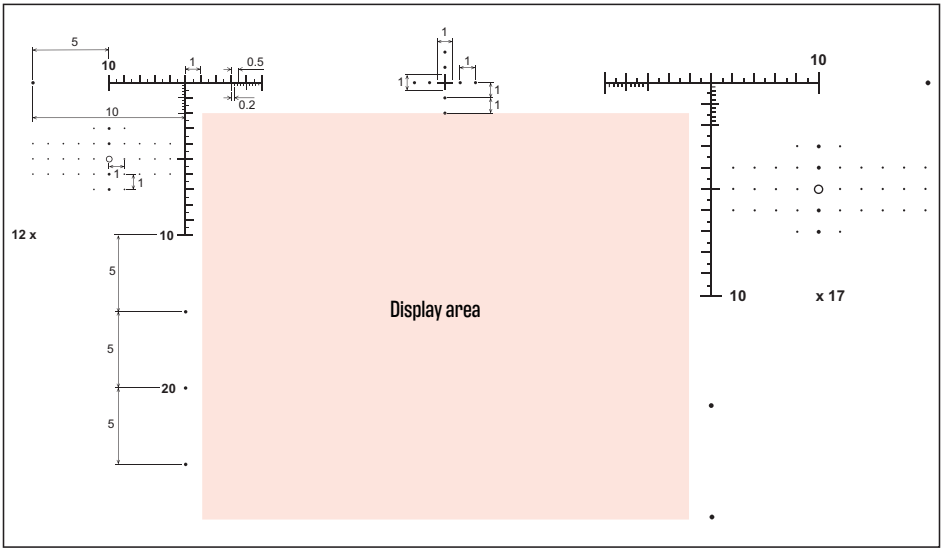
MSR-DMR reticle



The MSR-DMR milliradian reticle has two parts. The left side of the reticle is coordinated with the base magnification of the VECTOR X. If the Range Enhancers are attached, use the right side of the reticle. The respective magnification values can be seen on both sides below the reticle (circled in red).



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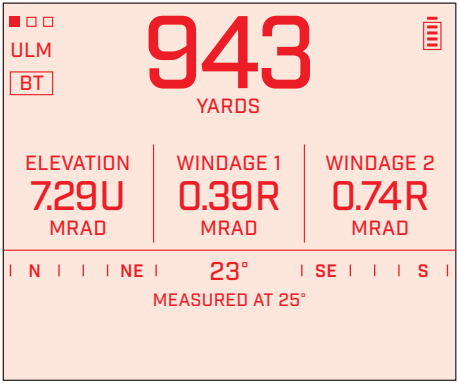
5.2.2 Heads-up display (HUD)



This HUD screen appears after the Measurement button is pressed. Its location is

- To the right on the MSR-SMR reticle
- In the center of the MSR-DMR reticle

The display brightness automatically adjusts to the ambient brightness. It can also be set manually (see "Settings" [▶ 99]).

For more information about the heads-up display, see "Menu description" [▶ 85].

5.3 Technical specifications

Optics

Model name	VECTOR X 8×42	VECTOR X 10×42	VECTOR X 12×42
Observation	Optical viewfinder, binocular		
Objective lens diameter	42 mm		
Magnification	8×	10×	12×
Reticle	MSR-SMR, or MSR-DMR for Range Enhancers		
Field of view in m/ft at 1000 m/1000 yd	130 m/387 ft	110 m/330 ft	91 m/272 ft
Field of view in degrees	7.4°	6.3°	5.2°
Field of view with Range Enhancers in m/ft at 1000 m/1000 yd	92 m/277 ft	79 m/236 ft	65 m/194 ft
Field of view with Range Enhancers in degrees	5.3°	4.5°	3.5°
Exit pupil diameter	5.25 mm	4.2 mm	3.5 mm
Exit pupil distance	18 mm	17 mm	17 mm

Model name	VECTOR X 8×42	VECTOR X 10×42	VECTOR X 12×42
Interpupillary distance	58 mm to 78 mm		
Close focus	8 m/9 yd		
Diopter adjustment	±4 diopters		
Twilight factor	18.3	20.5	22.45

Laser rangefinder – Laser Class 1

Laser type (Europe)	905 nm, Class 1 per IEC/EN 60825-1
Range information	
Maximum range	From 2 m/3 yd to 4000 m/4400 yd
Tree	From 2 m/3 yd to 2500 m/2740 yd
Deer	From 2 m/3 yd to 1800 m/1970 yd
Specified range	2650 m/2900 yd to target of 2.3 m × 2.3 m Albedo: 0.6; Range: 10 km Capture probability: >90%
Accuracy	±1 m from 9 m to 100 m ±2 m from 100 m to 500 m <0.5% for distances over 500 m

Error rate	<2%
Beam divergence (changes slightly with focus)	
VECTOR X 8×42 / 10×42	0.6 × 0.1 mrad
VECTOR X 12×42	0.5 × 0.1 mrad
Acquisition time	<0.25 s

Laser rangefinder – Laser Class 1M

Laser type	905 nm, Class 1M per IEC/EN 60825-1
Range information	
Maximum range	From 2 m/3 yd to 6400 m/7000 yd
Tree	From 2 m/3 yd to 2800 m/3000 yd
Deer	From 2 m/3 yd to 2200 m/2400 yd
Specified range	2650 m/2900 yd to target of 2.3 m × 2.3 m Field of view: 10 km; albedo: 0.6 Capture probability: >90%
Accuracy	±1 m from 9 m to 100 m ±2 m from 100 m to 500 m <0.5% for distances over 500 m

Error rate	<2%
Beam divergence (changes slightly with focus)	
VECTOR X 8×42 / 10×42	1.8 × 0.1 mrad
VECTOR X 12×42	1.5 × 0.1 mrad
Acquisition time	<0.25 s

Mechanical specifications

Model name	VECTOR X 8×42	VECTOR X 10×42	VECTOR X 12×42
Housing	Magnesium die casting		
Housing coating	Rubber reinforcement, shock absorbing		
Color	TAC gray		
Tripod connection	¼" 20 UNC standard tripod adapter, detachable		
Dimensions (L × W × H)	163 mm × 130 mm × 65 mm	156 mm × 130 mm × 65 mm	169 mm × 130 mm × 65 mm
Weight (without battery)	~ 1013 g/~ 35 oz	~ 977 g/~ 34 oz	~ 1015 g/~ 36 oz
Objective lens thread for accessories	M46×0.75		

Data transmission

Wireless	Bluetooth® 5.1 Low Energy

Ballistic functions

Built-in ballistic functions	Applied Ballistics® Elite
Compatible with external ballistic apps	Applied Ballistics®, Hornady 4DOF®, Trasol
Device compatible with	
Kestrel	5700 Elite AB 5700X Elite 5700 Hornady 4DOF®
Garmin smartwatches with tactical functions	Foretrex® 701/901 Tactix® Delta Tactix® 7 Instinct® 2x Descent Mk 2i Marq Commander Carbon D2 Mach 1 Pro, etc.

The list of compatible devices is continually updated on our website:
www.vectronix-shooting-solutions.com

Additional programs for smartphones (apps)

VECTRONIX SHOOTING SOLUTIONS app	For Android, iOS
Supported map services for integrated map navigation	Google Maps, Basemap, CivTAC (plug-in required)

Digital magnetic compass with inclinometer

Units	360°/6283 mrad/6400 mil
Azimuth accuracy (1σ)	±5°
Maximum inclination	±89°/±1553 mrad/±1582 mil
Declination, adjustable	±179°

Environmental sensors

Temperature sensor	-20°C/-4°F to +50°C/122°F
Air pressure sensor	300 hPa to 1100 hPa
Humidity sensor	0% to 100% RH (relative humidity)

Heads-up display

Type	AMOLED microdisplay
Brightness setting	Automatic/manual

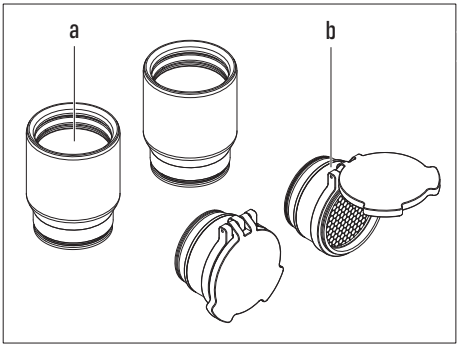
Battery supply

Standard, as supplied	(1) 3 V CR123A primary lithium-ion battery
Battery capacity (CR123A)	>10,000 measurements (at 20°C/68°F)
Optional, rechargeable	(1) 3.7 V 18650 rechargeable lithium-ion battery
Battery capacity (18650)	>18,000 measurements (at 20°C/68°F)

Environmental conditions

Protection class	IP67 (waterproof up to 1 m/3.3 ft for 30 min)
Operating temperature	-20°C/-4°F to +50°C/122°F
Storage temperature	-40°C/-40°F to +70°C/158°F
Impact resistance	60 g/6 ms per ISO 9022-30-7-1
Vibration resistance	2 g from 10 Hz to 150 Hz

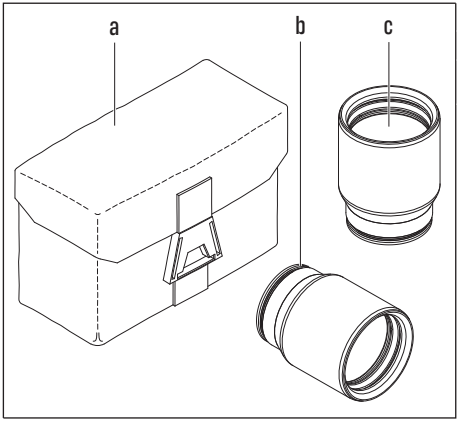
5.4 Available accessories



a) 917 239 Range Enhancers 42
b) 917 806 Anti-Reflection Devices (ARD) 42

Model-specific accessories have an additional designation (e.g., 42).

5.4.1 Range Enhancers



a) Storage case
b) Connection thread (M46×0.75)
c) Range Enhancers (2×)

The Range Enhancers:

- Increase the magnification of the VECTOR X
- Slightly improve the performance of the laser for distance measurement

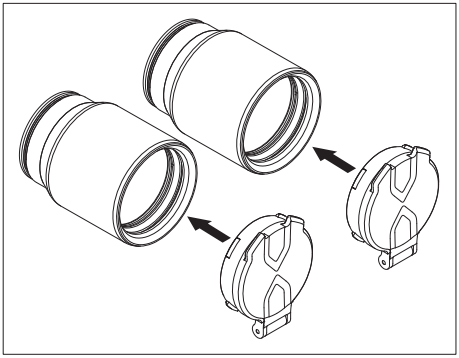
Range Enhancers are an original VECTRONIX SHOOTING SOLUTIONS accessory and are not included in the scope of supply.

These magnification values can be achieved with the Range Enhancers 42:

Model designation (magnification × objective lens diameter)			New magnification
VECTOR X	8×42	+ Range Enhancers 42 =	11×42
	10×42		14×42
	12×42		17×42

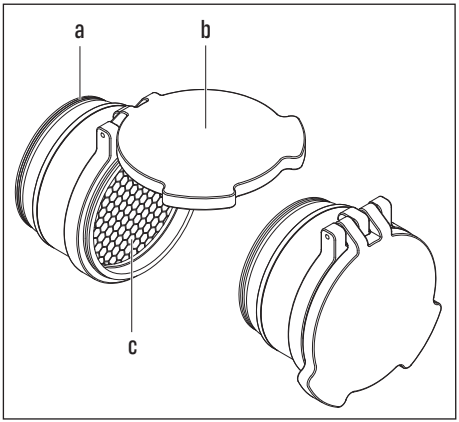
Attachment of the Range Enhancers is described here: "Attaching/removing the Range Enhancers" [▶ 123].

A VECTOR X with the MSR-DMR reticle (see "Reticle types" [▶ 39]) enables optimal use of the Range Enhancers.



The objective lens caps can also clip onto the Range Enhancers.

5.4.2 Anti-Reflection Devices (ARD)



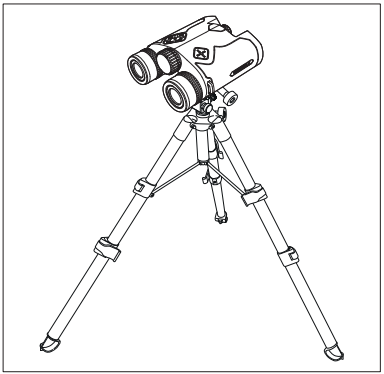
a) Connection thread (M46×0.75)
b) Objective lens cap
c) Honeycomb filter

The installed Anti-Reflection Devices

- Reduce incident light
- Prevent sunlight or other light sources from reflecting into the objective lenses of the VECTOR X and revealing its location

Attachment of the Anti-Reflection Devices is described here: "Attaching/removing the Anti-Reflection Devices (ARD)" [▶ 122].

5.4.3 Tripod



The VECTOR X has an attachment point for a tripod connection (see "Attaching the tripod adapter" [▶ 125]).

NOTICE

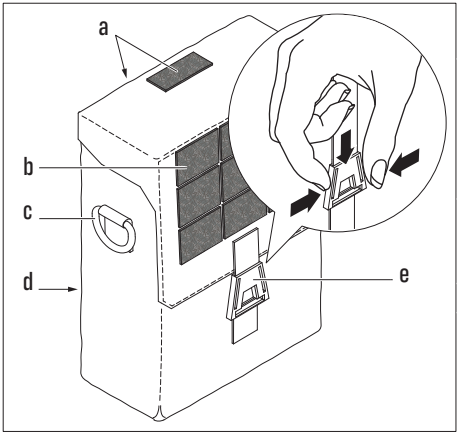
Azimuth measurement error due to tripod

Metal parts on the tripod can affect the magnetic compass of the VECTOR X.

- ▶ Only use a tripod made of nonmagnetic/non-magnetizable materials (carbon, aluminum).

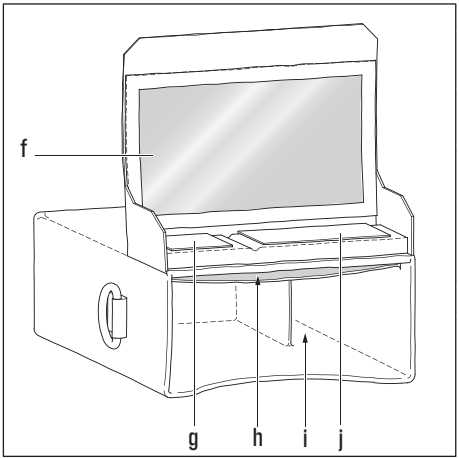
6 QUICK START

6.1 Using the case effectively



a) Detachable protective covers for hook-and-loop closures.
b) Hook-and-loop surface for name patch and VECTRONIX SHOOTING SOLUTIONS logo patch. Includes MOLLE-compatible system for attaching the storage case for the Range Enhancers (optional – see end of section).
c) D-rings for neck strap. You can use the included neck strap or a suitable third-party neck strap for binoculars.
d) MOLLE-compatible attachment loops on the back.
e) Case closure (normally closes with a click).

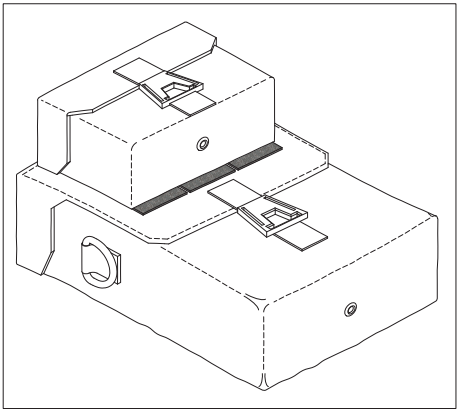
For silent case closure (see image detail): Push the two sides of the closure clip together, insert the clip into the case closure (e) as far as it will go, and then release.



f) Viewing window for target card or range card.
g) Spare battery pouch for CR123A primary lithium-ion battery, with two retention loops.
h) Pouch for safety information and Quick Start Guide.
i) Side slot for additional device (Kestrel 5700 Elite AB/5700X Elite, 5700 Hornady 4DOF®, etc.).
j) Spare battery pouch for 18650 rechargeable lithium-ion battery, with five retention loops for additional CR123A primary lithium-ion batteries.

After removing the protective covers (a), the hook-and-loop closures hold the case's lid in the open position. This makes it easier to read a target card or range card inserted in the viewing window when shooting prone.

You can create and print a target card or range card with the VECTRONIX SHOOTING SOLUTIONS app.

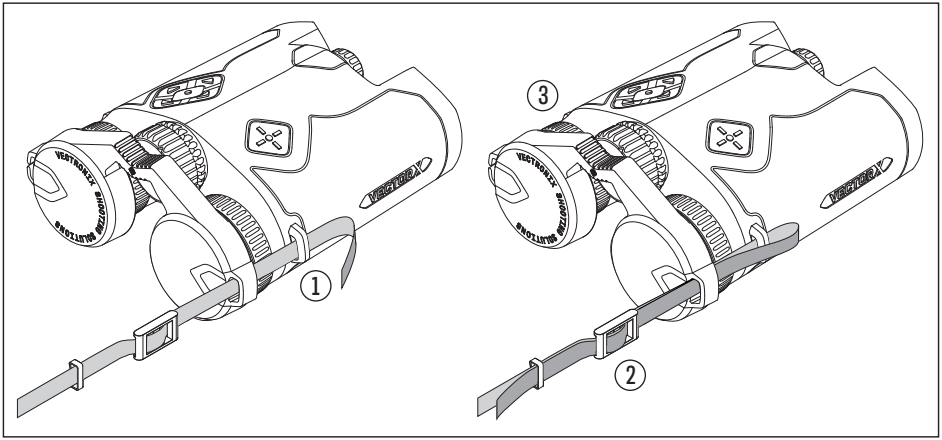


The storage case for the optional Range Enhancers can be attached to the hook-and-loop surface of the case using the MOLLE-compatible attachment loops.

Attaching the storage case

1. Place the storage case in front of the hook-and-loop surface of the case.
2. Undo the snaps of the attachment loops.
3. Alternately thread the attachment loops through the openings in the hook-and-loop surface and the bracket on the back of the storage case.
4. Align the storage case on the hook-and-loop surface.
5. Pull the attachment loops tight and secure them with the snaps.

6.1.1 Fastening the neck strap



1. Guide the end of the neck strap through the brackets on the eyepiece cap and VECTOR X housing.
2. Thread the end of the strap into the adjustment loop as shown.
3. Repeat the previous steps for the other end of the neck strap.
4. Adjust the length of the neck strap.

The neck strap can also be fastened to the case.

6.2 Changing the battery

NOTICE

Azimuth measurement error after battery change

The battery affects the magnetic compass of the VECTOR X. Changing the battery changes the magnetic field, especially if the new battery is a different type.

- ▶ Recommendation: To ensure azimuth measurement accuracy, recalibrate the magnetic compass after changing the battery (see "Performing compass calibration (Chicken Dance)" [▶ 118]).

The menu settings remain unchanged after replacing the battery.

6.2.1 Suitable batteries

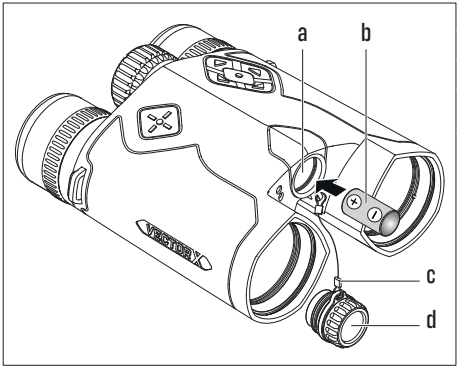
- **3 V CR123A primary lithium-ion battery**
  - Dimensions (diameter × L) 17 mm × 34.5 mm
  - Not rechargeable
  - Recommended standard battery – included in the scope of supply

- **3.7 V 18650 rechargeable lithium-ion battery (optional, not included in the scope of supply)**
  - Dimensions (diameter × L) 18 mm × 65 mm
  - Rechargeable
  - Only compatible with the 18650 battery compartment cover
  - Longer VECTOR X operating time (depending on battery capacity)

The 18650 rechargeable lithium-ion battery requires a charger specifically designed for this type of battery.

Some models of 18650 rechargeable lithium-ion battery are thicker because of the integrated protective electronics. These might barely fit in the battery compartment or not fit at all.
To avoid this problem, visit our website for a list of suitable name-brand 18650 rechargeable lithium-ion batteries: www.vectronix-shooting-solutions.com

6.2.2 Inserting/replacing a CR123A primary lithium-ion battery



a) Battery compartment with battery symbols
b) 3 V CR123A primary lithium-ion battery
c) Retention strap
d) CR123A battery compartment cover

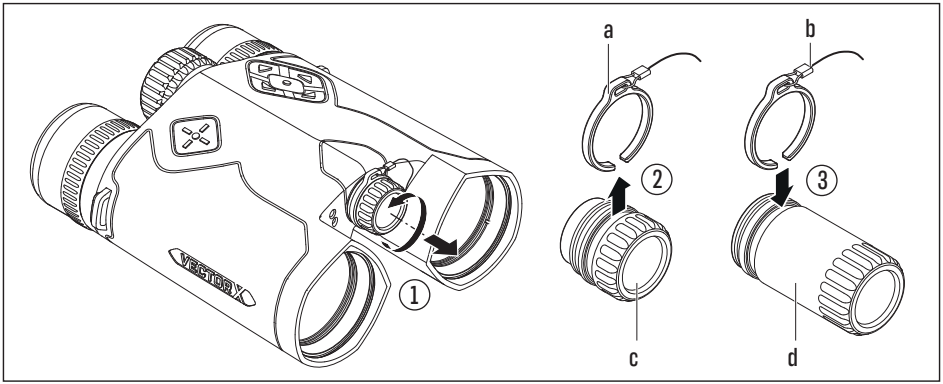
1. Turn the battery compartment cover counter-clockwise by hand and take it off the battery compartment.
2. Remove the used battery from the battery compartment and dispose of it (see "Disposal" [▶ 136]).
3. Insert a new 3 V CR123A primary lithium-ion battery into the battery compartment with the positive terminal first.
4. Screw the battery compartment cover back on by hand.

The VECTOR X continuously monitors the battery level and indicates the remaining battery capacity via a symbol on the heads-up display (see "Menu symbols and abbreviations" [▶ 85]).

6.2.3 Preparing, inserting, and replacing the 18650 rechargeable lithium-ion battery

The VECTOR X comes with a CR123A battery compartment cover. This must first be replaced to enable use of a 18650 rechargeable lithium-ion battery.

6.2.3.1 Replacing the battery compartment cover



a) Attachment clip
b) Retention strap
c) CR123A battery compartment cover
d) 18650 battery compartment cover

The 18650 battery compartment cover is considerably longer than the standard CR123A battery compartment cover.

1. Turn the CR123A battery compartment cover counterclockwise by hand and take it off the battery compartment.
2. Pull the attachment clip off the CR123A battery compartment cover. Store the CR123A battery compartment cover somewhere it won't be lost.
3. Attach the attachment clip to the 18650 battery compartment cover.

NOTICE

Risk of damage

When using the long 18650 battery compartment cover,

- ▶ never insert two CR123A primary lithium-ion batteries or other prohibited types of batteries into the battery compartment.

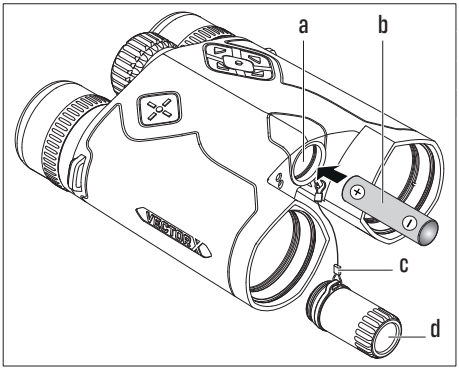
6.2.3.2 Inserting/replacing a 18650 rechargeable lithium-ion battery

NOTICE

Risk of damage

- ▶ Only use a rechargeable lithium-ion battery that complies with IEC 62133-2 and has an integrated protective circuit (PCB/IC protection) and deep-discharge protection.

The VECTOR X continuously monitors the battery level and indicates the remaining battery capacity via a symbol on the heads-up display (see "Menu symbols and abbreviations" [▶ 85]).

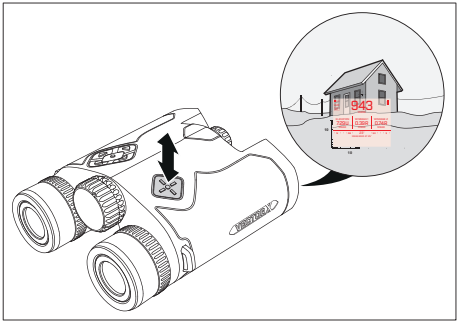


a) Battery compartment with battery symbols
b) 3.7 V 18650 rechargeable lithium-ion battery
c) Retention strap
d) 18650 battery compartment cover

1. Turn the 18650 battery compartment cover counterclockwise by hand and take it off the battery compartment.
2. If applicable, remove the dead rechargeable lithium-ion battery from the battery compartment.
3. Insert a fully charged 3.7 V 18650 rechargeable lithium-ion battery into the battery compartment with the positive terminal first.
4. Screw the 18650 battery compartment cover back on by hand.
5. Manage the setting for the battery type in the Settings menu.

The default setting for the battery type is CR123A – see "Settings" [▶ 99].
So that the correct battery charge level is displayed on the heads-up display, select the battery type “18650” in the Settings menu under the “Battery” menu option.

6.3 Turning on the device/automatic power-off



1. Sight an object with the reticle.
2. Briefly press the Measurement button.

⇨ The heads-up display lights up.

3. Briefly press the Measurement button again.

⇨ The distance measurement is triggered and the heads-up display shows the current measurement.

⇨ The heads-up display turns off (standby) after a preset time (e.g., 10 s). See “Display time” under "Settings" [▶ 99].

4. The VECTOR X turns off automatically after a few minutes if no button is pressed in standby mode.

⇨ This deletes the current measurement data and ballistic data.

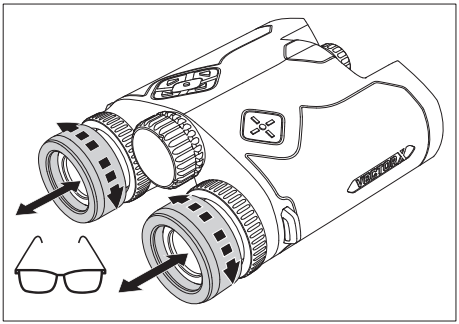
While the VECTOR X is in standby, the last indication on the heads-up display can be called up by pressing an arrow key or the Menu button.

Bluetooth connection to a smartphone or external device is automatically terminated after a few minutes of inactivity.

6.4 Personal settings

After another person has used the VECTOR X or if it is not used for a long period of time, enter or check the personal settings again, especially the diopter setting.

6.4.1 Adjusting the eyecups



The rotating eyecups can be used to adjust the eye relief to the eyepiece.

1. Make the following initial adjustment first:

⇨ For use without glasses or with contact lenses, first rotate the eyecups fully counterclockwise.

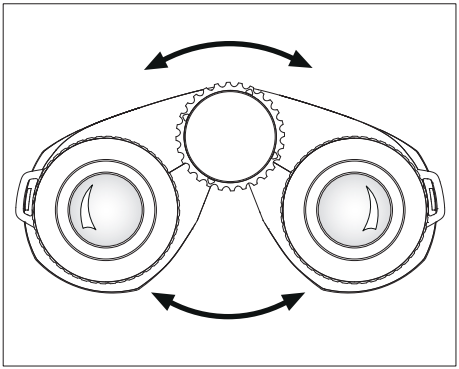
⇨ For use with glasses, first rotate the eyecups fully clockwise.

2. Now adjust each eyecup for the optimal eye relief.

If the eye relief to the eyepiece is too close or too far, you will not be able to see the entire field of view.

To thoroughly clean or replace a damaged eyecup, see "Cleaning/replacing the eyecups" [▶ 129].

6.4.2 Setting the interpupillary distance

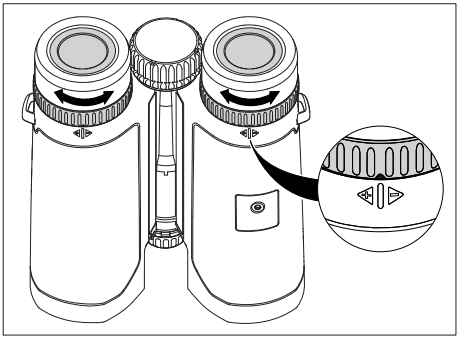


1. Look through the VECTOR X and sight something, such as a feature in the landscape.
2. Slowly pivot both barrels of the binoculars around the center axis (hinge).
3. Adjust the interpupillary distance until the left and right fields of view merge into a circular image without any interfering shadows at the edge.

The interpupillary distance setting can affect the position of the reticle. For example, the reticle appears tilted slightly to the left when the interpupillary distance is set to maximum.

6.4.3 Setting the diopters

Basic setting for equal focus of both eyes



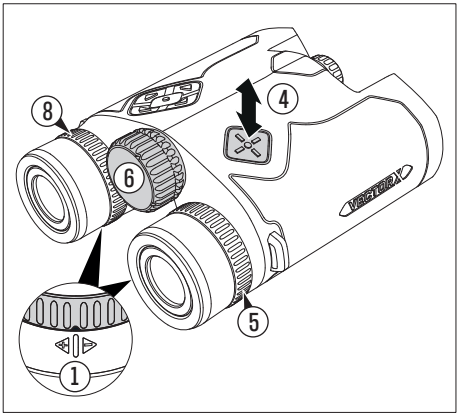
There are adjustment marks on the bottom of the eyepieces (see image detail).

1. Turn the VECTOR X over.
2. Turn both diopter adjustment rings to their zero positions.

Diopter adjustment

Adjust the diopters to

- Compensate for focal differences between the left and right eyes
- Enable use of the VECTOR X without glasses (if you normally wear glasses)
  - You can adjust the diopter by up to ±4 diopters to compensate for your eyesight.



1. Turn both diopter adjustment rings to their zero positions (see basic setting on previous page).
2. Sight an object farther than 100 m/100 yd.
3. To improve the accuracy of what you see, close your left eye or cover the left objective lens with your hand or with the objective lens cap.
4. Briefly press the Measurement button.

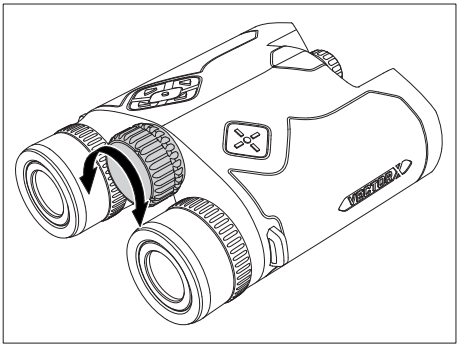
⇨ The heads-up display lights up.

5. Turn the right diopter adjustment ring until the reticle and heads-up display are as sharp as possible.

⇨ If the heads-up display turns off, press the Measurement button again.

6. Focus the image seen through the lens using the focus wheel.
7. Uncover the left objective lens and close your right eye or cover the right objective lens.
8. Focus the image for your left eye using the left diopter adjustment ring.

6.4.4 Adjusting the focus



1. Sight an object with the VECTOR X.
2. Turn the focus wheel until the object looks as sharp as possible.

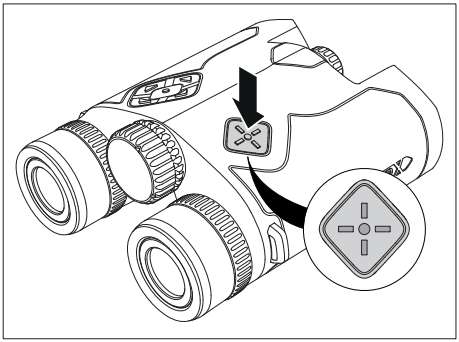
The focus wheel can focus from 8 m/9 yd to infinity.

6.5 Using the device

The buttons on the top of the VECTOR X housing can be used to call up all device and menu functions.

Many settings can also be made easily and conveniently in the VECTRONIX SHOOTING SOLUTIONS app and sent to the VECTOR X via Bluetooth.

6.5.1 Measurement button



Single measurement

Briefly pressing the Measurement button activates the VECTOR X when it is off and makes the heads-up display light up.

Pressing the Measurement button again triggers a distance measurement.

Scan mode

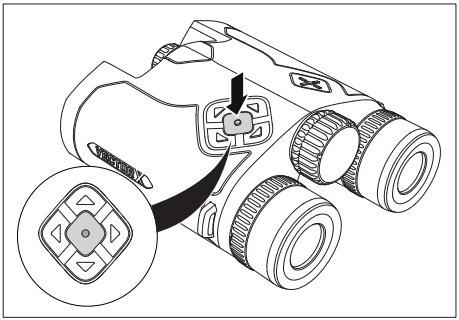
If the Measurement button is held down for longer than one second, the VECTOR X switches to scan mode. In this mode, the distance is measured and displayed every 0.25 seconds.

Scan mode is intended for use with moving objects – see "Scan mode" [▶ 113].

Scan mode consumes more battery power. It automatically turns off after 20 seconds. Scan mode can then be restarted.

6.5.2 Multi-selector

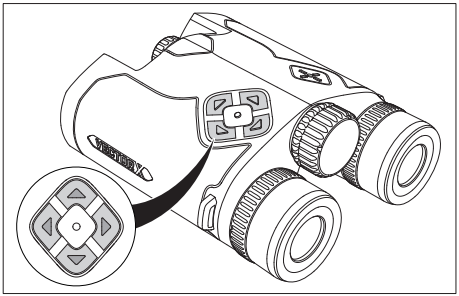
6.5.2.1 Menu button on the multi-selector



Use the center Menu button to

- Display or hide the menu bar in the active main menu
- Confirm entries or menu settings
- Cancel a shortcut

6.5.2.2 Arrow keys on the multi-selector



Use the arrow keys to navigate the menus, adjust settings, and activate shortcuts.

6.6 Using shortcuts

Pressing and holding an arrow key on the multi-selector enables the following functions:

Arrow key		Shortcut	Arrow key		Shortcut
	Up arrow	Stopwatch/timer		Left arrow	Activating/deactivating Bluetooth
	Down arrow	Changing the laser mode		Right arrow	Creating a target card

The shortcuts make important functions and menu settings easy to access.

6.6.1 Stopwatch/timer

This shortcut is beneficial in time-sensitive situations in competitions.

After exiting the shortcut, the elapsed or remaining time is displayed in the Measurement menu.

Using the stopwatch/timer

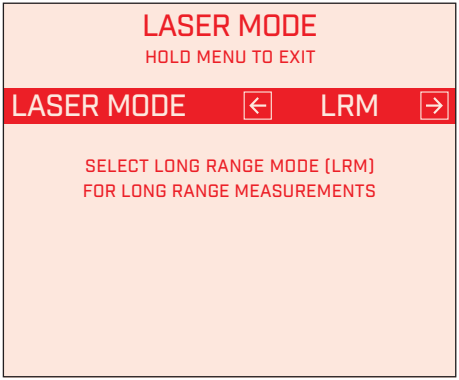
1. Press and hold the up arrow key to call up the shortcut.
2. Enter the start time for the timer using the up/down arrow keys.

⇨ The timer then counts down from the specified time to 0 seconds.

⇨ If you don't specify a start time, the shortcut functions as a stopwatch.

3. Briefly press the Menu button to start or stop the clock.
4. Press and hold the up arrow key to reset the time.
5. Press and hold the Menu button to exit the shortcut.

6.6.2 Changing the laser mode



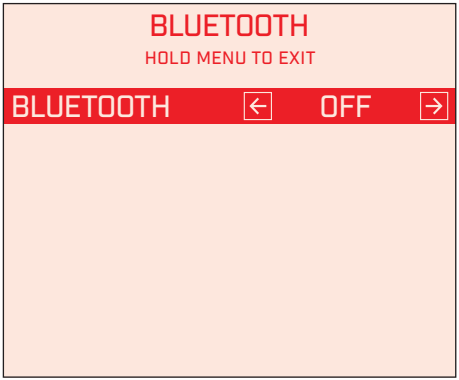
This shortcut enables you to adapt the measurement algorithm to the target distance. This will optimize the results of distance measurement.

After exiting the shortcut, an abbreviation for the selected setting is displayed in the Measurement menu.

Procedure

1. Press and hold the down arrow key to call up the shortcut.
2. Select the desired laser mode with the left/right arrow keys:
   - ULM (universal laser mode) – ideal setting for unobstructed objects with average reflectiveness
   - LRM (long range mode) – for long distances and objects with low reflectiveness
3. Press and hold the Menu button to exit the shortcut.

6.6.3 Activating/deactivating Bluetooth



An active Bluetooth connection is indicated in the Measurement menu via an abbreviation:

- APP: connection to VECTRONIX SHOOTING SOLUTIONS app on smartphone
- BT: connection to an external device – see "Menu symbols and abbreviations" [▶ 85]

Procedure

1. Press and hold the left arrow key to call up the shortcut.
2. Activate Bluetooth (ON) with the right arrow key.
3. Activate Bluetooth on a compatible device and initiate a device search.

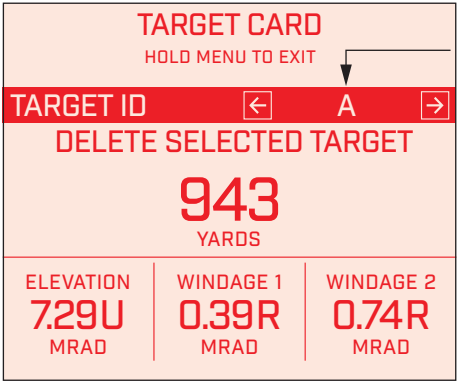
⇨ The device to be paired with must be near the VECTOR X for this process to work.

4. When the search is complete, select the VECTOR X in the device list and initiate pairing.

⇨ The VECTOR X will send a pin code to the VECTRONIX SHOOTING SOLUTIONS app. This needs to be entered in the device being paired with upon initial pairing – see "Downloading the VECTRONIX SHOOTING SOLUTIONS app and connecting it to the VECTOR X" [▶ 81].

5. Deactivate the Bluetooth connection (OFF) with the left arrow key when the connection is no longer needed.
6. Press and hold the Menu button to exit the shortcut.

6.6.4 Creating a target card



The measurement and ballistic data for a specific target can be transferred to the target card with this shortcut.

The target card you created can be viewed in the Target Card main menu and in the VECTRONIX SHOOTING SOLUTIONS app.

- "Target ID"
  - A specific letter or number is assigned to each target. The letter or number for the target ID can be selected in the "Settings" [▶ 99] menu.
  - The next/previous entry with the associated target data can be displayed with the left/right arrow keys.
- "Delete selected target"
  - Select the deletion command with the red selection field.
  - Briefly press the Menu button to confirm.

Procedure

1. Press and hold the right arrow key to call up the shortcut.
2. Use the left/right arrow keys to select a specific target ID or the next empty target ID.
3. Perform the distance measurement.

⇨ The current target data will appear in the target card under the selected target ID.

4. If desired, select a new target ID and adopt the next distance measurement in the target card.
5. When you are finished with the target card, press and hold the Menu button to exit the shortcut.

You can also enter target data into the target card with the VECTRONIX SHOOTING SOLUTIONS app by remotely triggering a distance measurement.

Export the target card created with the VECTRONIX SHOOTING SOLUTIONS app (e.g., to an E-DOPE card from Down Range Systems), save it as a PDF, and print it. Alternatively, download a target card template from www.vectronix-shooting-solutions.com.
Cut the target card printout or template to size and store it in the case for quick reference without a device ("Using the case effectively" [▶ 57]).

When creating a new target card, first delete all old target entries saved in the device. To do so, use the deletion command “Delete all targets” in the "Target Card" [▶ 97] main menu.

6.7 Downloading the VECTRONIX SHOOTING SOLUTIONS app and connecting it to the VECTOR X

Procedure

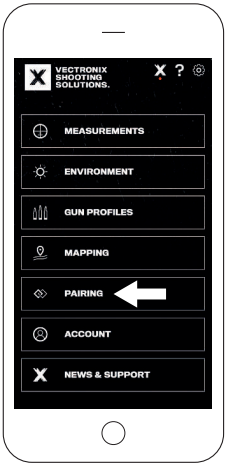
1. Download the free VECTRONIX SHOOTING SOLUTIONS app onto your smartphone or tablet.

⇨ The app is available in the following app download stores, based on the operating system of your device:

Operating system	App download store
Apple iOS	Download on the App Store
Android	GET IT ON Google Play

Check your app download store regularly for updates to ensure that you can always use the VECTRONIX SHOOTING SOLUTIONS app to its fullest potential.

2. Activate Bluetooth on your smartphone or tablet.
3. Activate Bluetooth on the VECTOR X – see "Activating/deactivating Bluetooth" [▶ 78].
4. Launch the VECTRONIX SHOOTING SOLUTIONS app.



5. Start the pairing process.

6. Select the VECTOR X in the device list.

7. A two-digit pin code will appear on the heads-up display of the VECTOR X.

If the VECTOR X is in standby, briefly press the Measurement button to activate the heads-up display.

In the app, a pop-up will appear with the following text:

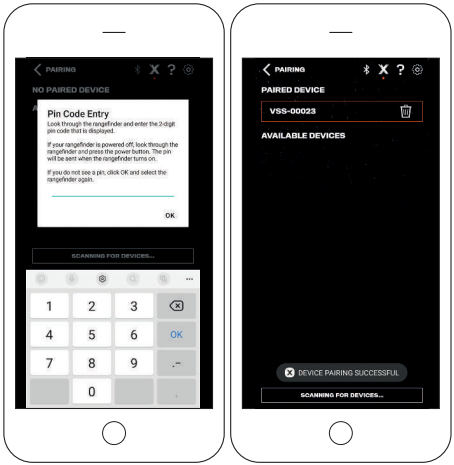
Pin Code Entry

Look through the rangefinder and enter the 2-digit pin code that is displayed.

If your rangefinder is powered off, look through the rangefinder and press the Power button/Measurement button. The pin will be sent when the rangefinder turns on.

If you do not see a pin, click OK and select the rangefinder again.

Use the number pad to enter the pin code.



8. Enter the pin code and confirm by tapping “OK.” The pairing process is complete.

After pairing, synchronization between the smartphone and VECTOR X can take up to 15 seconds. All features of the VECTRONIX SHOOTING SOLUTIONS app are available only after synchronization.

Troubleshooting connection problems

Please check the following if there are issues establishing a connection:

- Charge the smartphone or tablet before it gets too low, and pay attention to the battery display on the VECTOR X. The energy management program might turn Bluetooth off when the battery level is too low.
- Make sure the smartphone or tablet is close enough to the VECTOR X.
- Ensure there are no devices that could interfere with establishing a connection during this process (e.g., Wi-Fi/WLAN router or microwave-emitting device).

7 MENU DESCRIPTION

7.1 Menu symbols and abbreviations

Menu symbols

■□□ Page indicator in Measurement menu (HUD screens 1 through 3)


Lithium-ion battery, full charge


Lithium-ion battery, sufficient charge


Lithium-ion battery, low charge


Lithium-ion battery, very low charge – only a few more measurements possible


Compass calibration (Chicken Dance) required

Abbreviations

BT Bluetooth is active and ready for connection
BT Bluetooth connection to external device
APP Bluetooth connection to VECTRONIX SHOOTING SOLUTIONS app on smartphone
CLPS Bluetooth connection to external Calypso Instruments device (e.g., Ultrasonic Portable AB Mini wind meter)
GRMN Bluetooth connection to external Garmin device (e.g., tactix 7 AMOLED)
KSTL Bluetooth connection to external Kestrel device (e.g., Kestrel 5700 Elite AB)
ULM = “Universal Laser Mode” – ideal setting for unobstructed objects with average reflectiveness
LRM = “Long Range Mode” – laser mode for long distances or objects with low reflectiveness

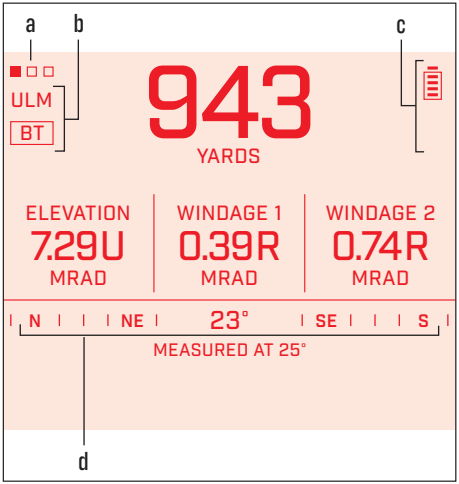
7.2 Measurement menu

HUD screen 1 with the Measurement menu appears after pressing and releasing the Measurement button.

Use the left/right arrow keys to switch between HUD screens 1 through 3.

If no ballistic data is saved or selected, the VECTOR X cannot send any ballistic output values (see "Gun Profiles" [▶ 98]).

7.2.1 Special features of the Measurement menu

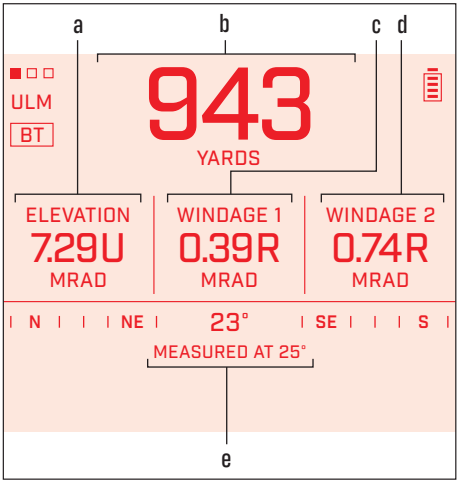


a. Page indicator with three squares. The marked square indicates the current HUD screen (1 through 3).
b. Abbreviation of the active device function(s) – laser mode and Bluetooth connection (see "Menu symbols and abbreviations" [▶ 85]).
c. Indication area for menu symbols.
d. Compass indication (on HUD screen 1).

7.2.2 Measurement menu/HUD screens

The data and information related to the current distance measurement are displayed on three HUD screens.

Measurement menu – HUD screen 1



a. “Elevation”/height adjustment value
b. Target distance
c. “Windage 1” – lateral correction value 1, applies to wind measurement 1
d. “Windage 2” – lateral correction value 2, applies to wind measurement 2
e. Azimuth value at the time of measurement

The lateral correction values 1/2 (Windage 1/2) are calculated and displayed based on the associated wind measurements 1/2.

Wind measurements are taken with an external device (e.g., Kestrel or Calypso Instruments).

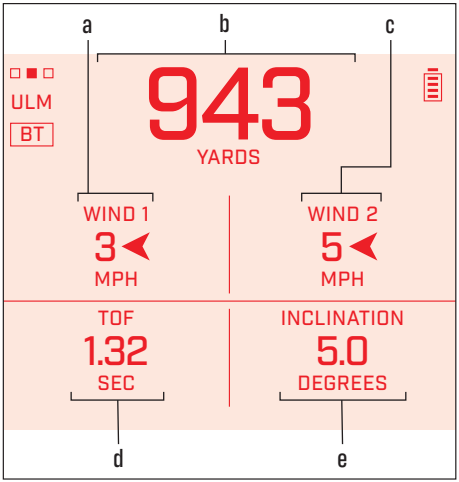
Alternatively, the values for wind direction and wind speeds 1/2 can also be entered in the "Environmental Conditions" [▶ 96] menu.

The scale of the compass indication and azimuth (degrees (°)/mrad/mil) can be selected in the "Settings" [▶ 99] menu.

Use the arrow keys (up/down) to change the brightness of HUD screen 1. This will also change the brightness of HUD screens 2 and 3. For information about the brightness setting, see "Settings" [▶ 99].

The glossary has descriptions of the abbreviations and terms used in the HUD screens.

Measurement menu – HUD screen 2



a. “Wind 1”/wind measurement 1: average wind speed with wind direction arrow
   - The value displayed can be adjusted with the up/down arrow keys.

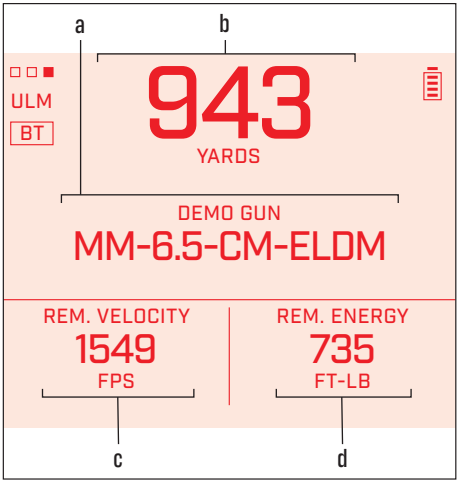
b. Target distance

c. “Wind 2”/wind measurement 2: maximum wind speed with wind direction arrow

d. “TOF”/flight time for projectile to reach target

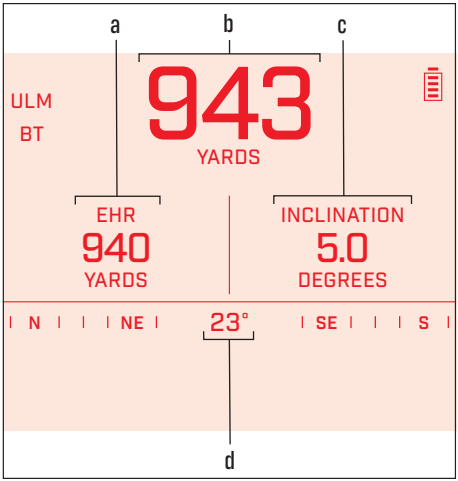
e. “Inclination”/angle of inclination to target

Measurement menu – HUD screen 3



a. “DEMO GUN”/selected gun profile
b. Target distance
c. “Rem. velocity”/remaining projectile velocity at target
d. “Rem. energy”/remaining projectile energy at target

Measurement menu – HUD screen without ballistics



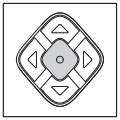
a. “EHR”/horizontal range
b. Target distance
c. “Inclination”/angle of inclination to target
d. Azimuth

Only a HUD screen without ballistic data is shown in the following cases:

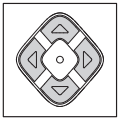
- If the entry “Ballistics” is set to “OFF” in the "Settings" [▶ 99] menu
- Or if no “gun profile” was selected – see "Gun Profiles" [▶ 98] menu

7.3 Main menus

7.3.1 Buttons used with the main menus



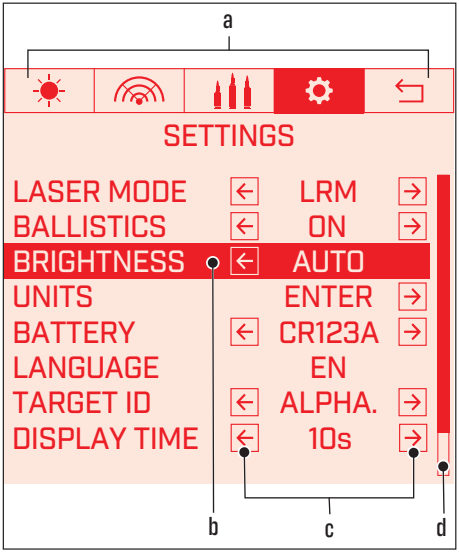
Pressing and holding the Menu button brings up the menu bar with the current main menu.
Briefly press the Menu button to confirm an entry, setting, or selection.



Use the four arrow keys on the multi-selector to navigate through the menu and adjust settings.

Exit button: Highlight this button in the menu bar and briefly press the Menu button to exit the main menu and display HUD screen 1 of the Measurement menu.

7.3.2 Special features of the main menus



a. Menu bar (current main menu is highlighted)
b. Selection field
c. Indication of the arrow keys used for selection
d. Scroll bar if there are more entries (scroll up/ down with the arrow keys)

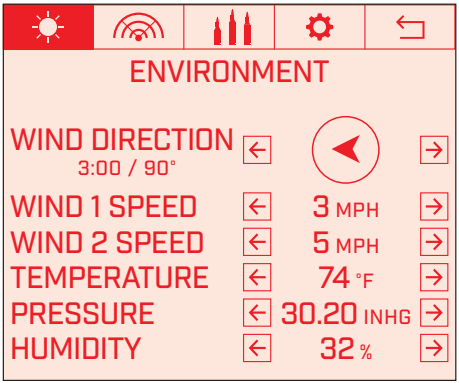
7.3.3 Menu bar

The menu bar has icons for all available main menus and an exit button.

The active main menu is highlighted in red in the menu bar.

Icon	Main menu/button
	Environmental Conditions
	Target Card
	Gun Profiles
	Settings
	Exit button (back to HUD screen 1)

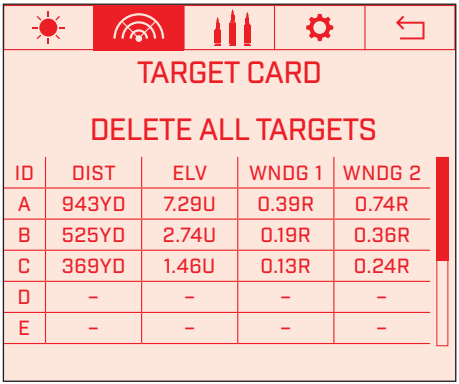
7.4 Environmental Conditions



Environmental data for ballistic calculations are entered in this main menu or transmitted via the VECTRONIX SHOOTING SOLUTIONS app.

- "Wind direction"
  - The wind direction entered is displayed in the Measurement menu/HUD screen 2 with a direction arrow.
- "Wind1 speed"/wind speed 1
  - Entry of the average wind speed
- "Wind2 speed"/wind speed 2
  - Entry of the maximum wind speed
- "Temperature"
  - Measurement of the air temperature with the internal sensor
  - See "Settings" [▶ 99] to select the units
- "Pressure"
  - Measurement of the ambient air pressure with the internal sensor
  - See "Settings" [▶ 99] to select the units
- "Humidity"
  - Measurement of the relative humidity with the internal sensor

7.5 Target Card

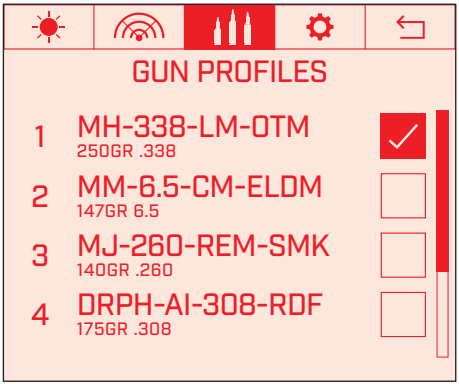


This main menu displays the target card with all distance measurements saved and the associated ballistic data.

- “Delete all targets”
  - Select the deletion command with the red selection field.
  - Briefly press the Menu button to confirm.
- “(Target) ID”
  - A specific letter or number is assigned to each target in the table.
- The scroll bar on the right side of the menu indicates that there are more entries.
  - Scroll up/down with the arrow keys.

For entering target data into the target card, see "Creating a target card" [▶ 79].

7.6 Gun Profiles



All gun profiles saved in the VECTOR X are listed in this main menu.

- The gun profile most recently used is indicated by a checked box.
  - Use the right arrow key to set the check mark.
- The scroll bar on the right side of the menu indicates that there are more entries.
  - Scroll up/down with the arrow keys.

The gun profiles are compiled from projectile databases and are transferred to the VECTOR X via the VECTRONIX SHOOTING SOLUTIONS app.

The VECTOR X comes with a demo gun profile (“DEMO GUN”) with an example load for demonstration purposes.

NOTICE

Misses due to incorrect correction values

An incorrect gun profile or selecting the wrong gun profile can lead to incorrect ballistic output values and miscalculations, for which Safran Vectronix AG assumes no liability.

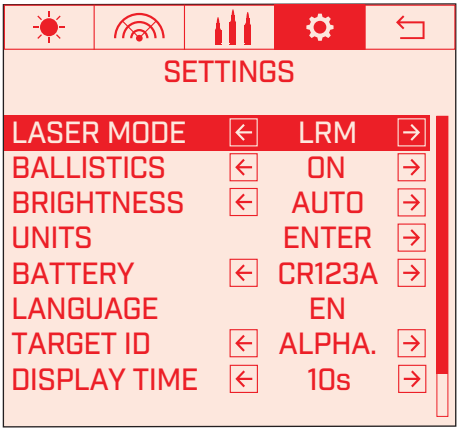
- ▶ The user is responsible for the proper gun profile configuration and selection.
- ▶ The preloaded demo gun profile (“DEMO GUN”) is not coordinated with your weapon.

7.7 Settings

Before using the VECTOR X for the first time, if it has not been used for a long time, or if someone else used the VECTOR X

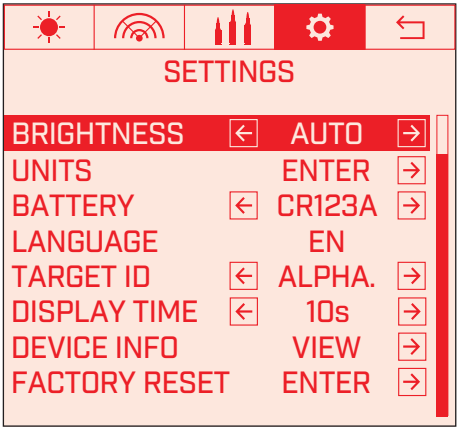
- ▷ Check the settings in this menu.
- ▷ Check the units settings – see "Units submenu" [▶ 102].

All settings in this menu are retained even after replacing the battery or performing a software update.



The "Units submenu" [▶ 102] is described in its own chapter.

- "Laser mode": LRM/ULM
  - Indicated in the Measurement menu
  - See "Changing the laser mode" [▶ 77]
- "Ballistics": ON/OFF
  - When OFF, the VECTOR X does not send ballistic output values
- "Brightness": Auto/NV 1, NV 2, 3 – 15
  - Brightness of the heads-up display
  - "Auto": automatic based on brightness sensor
  - "Manual": levels from minimum NV 1 (NV = night vision) to maximum 15
- "Units": Enter
  - Calls up the submenu for selecting the units
- "Battery": CR123A/18650
  - For the correct battery level indication in the Measurement menu
  - Default setting: CR123A



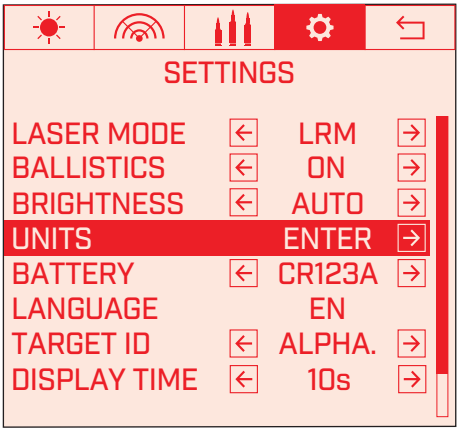
These submenus are described in their own chapters:

- "Device Info submenu" [▶ 104]
- "Factory Reset submenu" [▶ 106]

Scroll down with the arrow keys to display the last submenu.

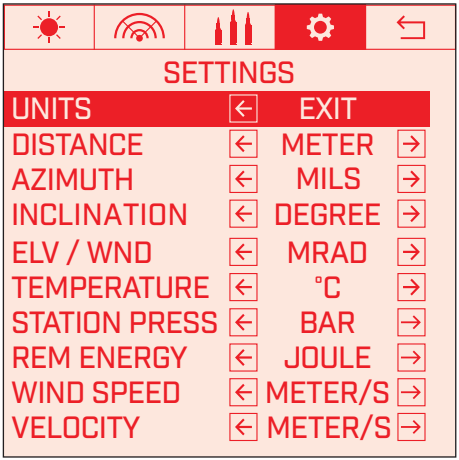
- "Language": EN (English)
  - Language for the heads-up display.
- "Target ID": Alpha./Numer.
  - Indicate targets on the target card with letters or numbers.
- "Display time": 5 s / 10 s / 20 s / 60 s
  - Display time of the Measurement menu (HUD screens 1 through 3). The VECTOR X switches to standby after this time.
  - Default setting: 10 s.
- "Device info":
  - Calls up the submenu for specifications regarding the software version installed and more.
- "Factory reset":
  - Calls up the submenu with a confirmation prompt.
  - Resets the VECTOR X to factory settings.

7.7.1 Units submenu



To call up this submenu

1. Use the up/down arrow keys to place the red selection field on “Units.”
2. Briefly press the right arrow key.

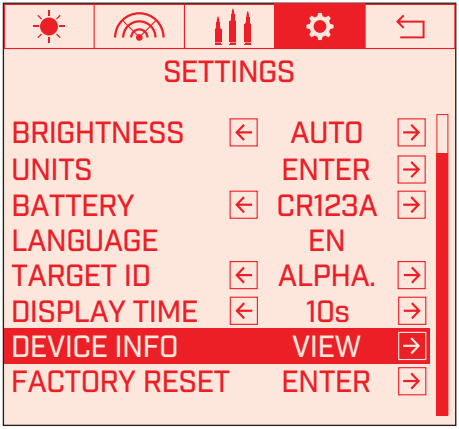


- "Units": Exit
  - Exit the submenu and return to the Settings menu by pressing the left arrow key.
- "Distance": m/yd
- "Azimuth": degrees (°)/mil/mrad
- "Inclination": degrees (°)/mil/mrad
- "Elv/wnd"/height correction value/lateral correction value: mrad/mil
- "Temperature": °C/°F
- "Station press.": bar/inHg
- "Rem. energy"/remaining projectile energy at target: Joule/ft-lb
- "Wind speed": m/s / kph / mph
- "Velocity"/projectile velocity at target: m/s / fps

"Mil" unit definition

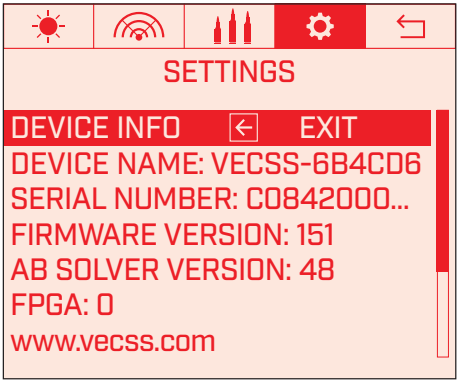
- The unit "mil" corresponds to NATO mils.
  - A full circle has 6400 mils.
- Calculation: 1 mil = 0.98 mrad = 0.05625°.

7.7.2 Device Info submenu



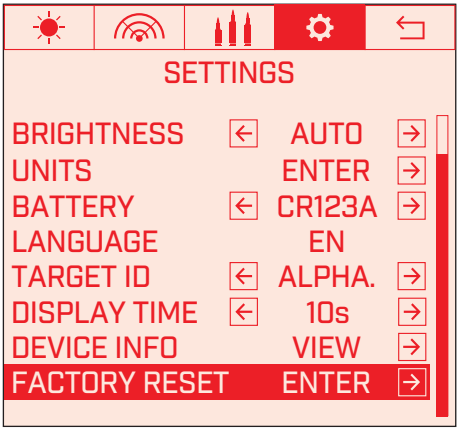
To call up this submenu

1. Use the up/down arrow keys to place the red selection field on “Device info.”
2. Briefly press the right arrow key.



- “Device info”: Exit
  - Exit the submenu and return to the Settings menu by pressing the left arrow key.
- “Device name”
- “Serial number"
- “Firmware version”/software version
- “AB solver version”/Applied Ballistics solver version
- “FPGA” (Field Programmable Gate Array)/programmable integrated circuit

7.7.3 Factory Reset submenu



To call up this submenu

1. Use the up/down arrow keys to place the red selection field on “Factory reset.”
2. Briefly press the right arrow key to call up the submenu.

The submenu has a confirmation prompt:

- “Cancel”
  - Cancel the process and return to the Settings menu.
- “Confirm”
  - The VECTOR X will be reset to factory settings.
  - The device’s software will be reset to how it was when it was delivered.
  - The target card will be deleted.
  - No gun profile will be used – see "Gun Profiles" [▶ 98], “No ballistics” setting.
  - The Settings menu will be displayed again at the end.

8 MEASUREMENTS

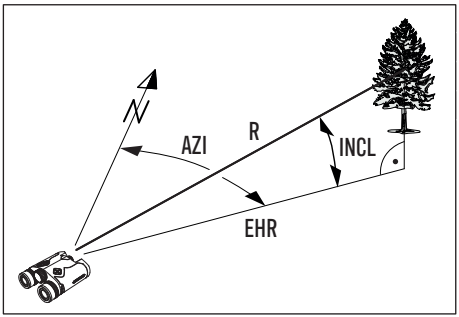
NOTICE

Risk of damage to the laser diode

The laser diode can be overloaded by performing distance measurements close to mirrors, mirror-like surfaces, or highly reflective objects.

- ▶ Never aim at reflective surfaces/objects.

8.1 Measurement parameters



AZI	Azimuth
INCL	Inclination
EHR	Equivalent horizontal range
N	North
R	Range/line-of-sight range

8.2 Preparing for measurement

Compass calibration

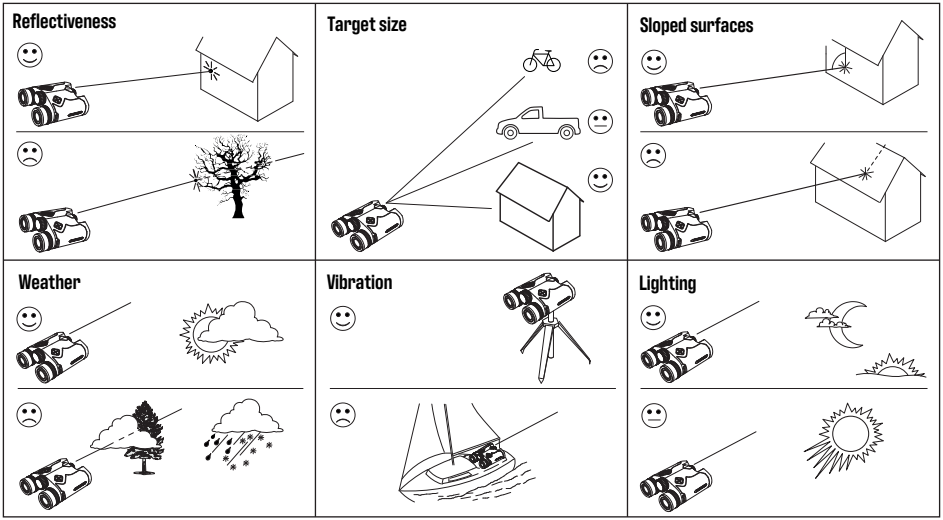
It is a good idea to calibrate the compass before measuring in a new environment (see "Compass calibration (Chicken Dance)" [▶ 117]). Otherwise, potential compass deviations can cause incorrect azimuth values and incorrectly calculated ballistic values.

Tips for steady distance measurements

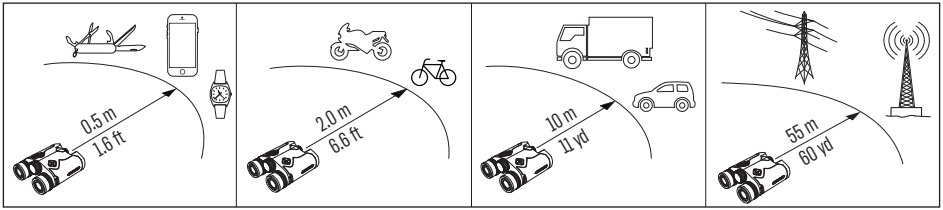
- In a steady position, hold the VECTOR X with both hands and support your elbows against your body.
- Hold the VECTOR X as relaxed as possible, keeping it well balanced in your hands.
- A stable body position reduces shake, which can be achieved by
  - Leaning against a tree, wall, etc.
  - Supporting your arms or setting the VECTOR X down
- Use a tripod with
  - High magnification
  - Range Enhancers
  - Long-term observation

8.3 Factors influencing measurement accuracy

8.3.1 Factors influencing distance measurement



8.3.2 Factors influencing azimuth measurement accuracy and compass calibration

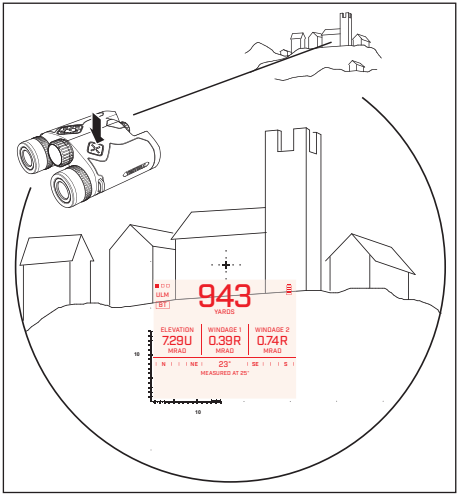


The VECTOR X has a digital compass that works like a magnetic compass.

Metal objects, magnetic fields, and electronic devices (e.g., smartwatches, smartphones, tablets) can cause errors during azimuth measurement or compass calibration.
Non-magnetic metals and alloys do not affect the compass.

Note the minimum measurement distances above for azimuth measurement or compass calibration.

8.4 Single measurement



Procedure

1. Sight the object with the reticle.
2. Briefly press the Measurement button.

⇨ The heads-up display lights up.

3. Briefly press the Measurement button again.

⇨ The distance measurement is triggered and the heads-up display shows HUD screen 1 with the current measurements.

4. Press the right arrow key to display HUD screens 2 and 3 with additional measurement data and ballistic data – see "Measurement menu" [▶ 86].
5. The heads-up display turns off (standby) after a preset time (e.g., 10 s). See “Display time” under "Settings" [▶ 99].
6. The VECTOR X turns off automatically after a few minutes if no button is pressed in standby mode. This deletes the current measurement data and ballistic data.

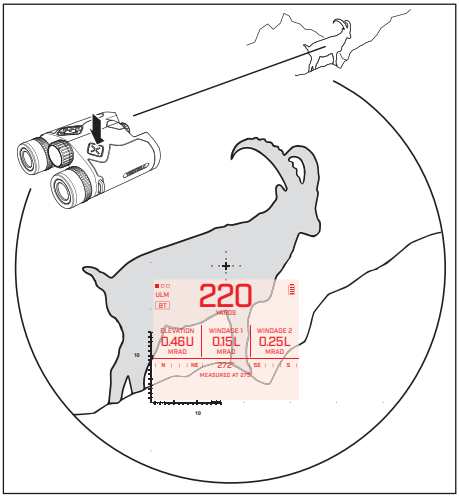
While the VECTOR X is in standby, the last indication on the heads-up display can be called up by pressing an arrow key or the Menu button.

8.4.1 Additional measurement functions

The following additional measurement functions are available with the VECTRONIX SHOOTING SOLUTIONS app:

- Remote measurement triggering
- Measurement and display of the equivalent horizontal and vertical distance
- Measurement and display of the azimuth and line-of-sight range between two objects

8.5 Scan mode



The distance to a moving object is continually measured in scan mode.

Procedure

1. Briefly press the Measurement button.

⇨ The heads-up display lights up.

2. Press the Measurement button for longer than 1 second and then release it.

⇨ Scan mode is activated.

⇨ The Measurement menu shows the distance measured every 0.25 seconds.

3. Follow the moving object with the reticle.

⇨ Scan mode automatically turns off after 20 seconds.

4. If needed, restart scan mode via the Measurement button.

Scan mode consumes more battery power.

9 DATA TRANSMISSION

The VECTOR X can transmit measurement data by communicating with

- A smartphone or tablet with the VECTRONIX SHOOTING SOLUTIONS app
- Certain models of Kestrel or Garmin devices (see ballistic functions in "Technical specifications" [▶ 45])

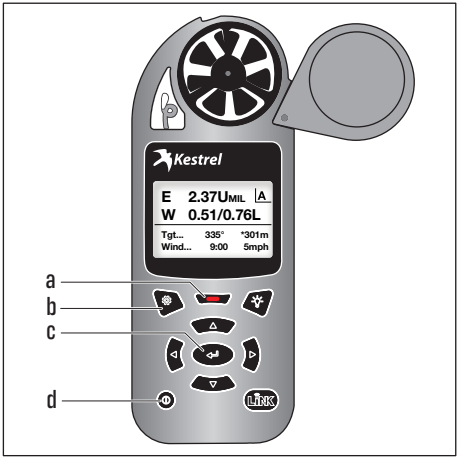
The list of compatible devices is continually updated on our website:
www.vectronix-shooting-solutions.com

Follow the device manufacturer's instructions for configuration.

All you need to do with the VECTOR X is activate Bluetooth via the shortcut – see "Activating/deactivating Bluetooth" [▶ 78]. Making the connection then takes places on the device being paired with.

It is only possible to establish a Bluetooth connection with the VECTRONIX SHOOTING SOLUTIONS app or a single device that can be paired with.

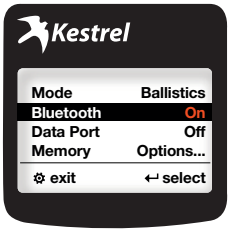
9.1 Establishing a data connection to a Kestrel device



a) Red button
b) Options button
c) Enter button
d) On/off button

Procedure

1. Activate Bluetooth on the VECTOR X – see "Activating/deactivating Bluetooth" [▶ 78].
2. Keep the Kestrel device near the VECTOR X for the following steps.
3. Turn on the Kestrel device using the On/off button.
4. Press the Options button.



5. Select “Bluetooth” and activate this using the Enter button.

6. Select “New” under “Device” and confirm using the Enter button.

⇨ The Bluetooth search will start.

7. Select “VECTOR X” in the search results list and confirm with the Enter button.

8. Press the Options button to exit the menu.

9. Select “Lock” and set it to “On.”
10. Press the Options button twice to exit the menu.

⇨ The Bluetooth symbol will appear on the Kestrel device’s display.

After the VECTOR X is turned on, it tries to reestablish the most recent Bluetooth connection.

It can take up to 10 seconds to establish the connection. Connection is indicated by the abbreviation “KSTL” in the Measurement menu.

10 COMPASS CALIBRATION (CHICKEN DANCE)

Perform compass calibration

- After each battery change
- When the Chicken Dance icon appears in the Measurement menu
- If azimuth values are outside specifications during test measurements – see "Technical specifications" [▶ 45]
- If the device status is unknown (borrowed device)

10.1 Notes on compass calibration

Suitable locations for compass calibration

Compass calibration must be performed in an open outdoor area far away enough from buildings and metal objects – see "Factors influencing azimuth measurement accuracy and compass calibration" [▶ 110].

Pastures, fields, and woods are particularly suitable for this.
Avoid locations with varying magnetic fields.

Preparing for measurement

- Check whether you are carrying or wearing objects that could interfere with compass calibration.
  - Examples: glasses with metal frames, rings, wristwatches, smartphones, belt buckles, helmets, etc.
- Place all objects that could interfere with magnetic waves elsewhere before compass calibration.

10.2 Performing compass calibration (Chicken Dance)

The Chicken Dance icon appears in the Measurement menu/HUD screen 1 to prompt compass calibration. Compass calibration should be performed at the next opportunity. This process occurs in two stages:

- Various rotating motions will need to be performed with the VECTOR X (see Fig. 1).
- The VECTOR X will then need to be placed on a horizontal surface in various positions (see Fig. 2).

Procedure

1. Find a suitable location.
2. If necessary, turn the VECTOR X back on by briefly pressing the Measurement button once.
3. Hold the VECTOR X in front of your body, horizontally and in the neutral position.
4. Rotate the VECTOR X in each of the directions shown, one after the next (see Fig. 1).
5. Perform each rotating motion continuously for about two seconds.
6. Bring the VECTOR X back to the neutral position before performing the next rotating motion.
7. Proceed with the second stage of compass calibration after completing the rotating motions.

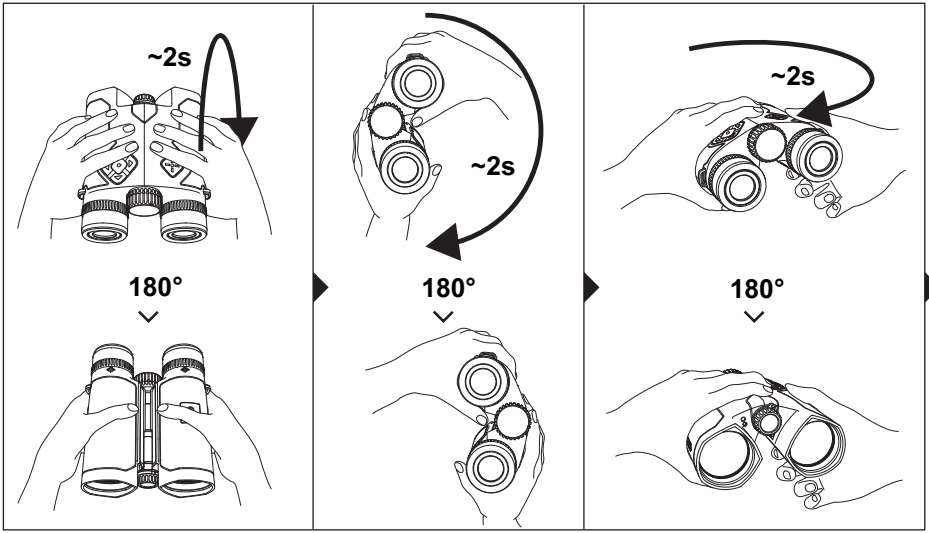


Fig. 1: Compass calibration – first stage

Do not rotate the VECTOR X more than 90° to 180° per second during calibration.

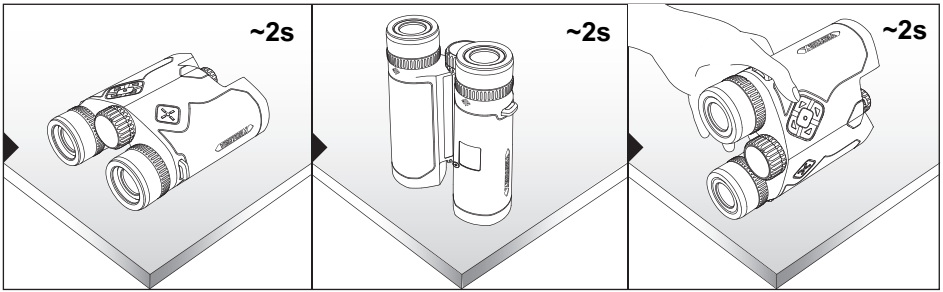


Fig. 2: Compass calibration – second stage

8. Find a horizontal surface or a suitable place on the ground.
9. Perform each of the following with the VECTOR X for about 2 seconds each:

⇨ Lay it flat.

⇨ Stand it up on the objective lenses.

⇨ Set it on its side, supporting it with your hand.

Compass calibration is complete.

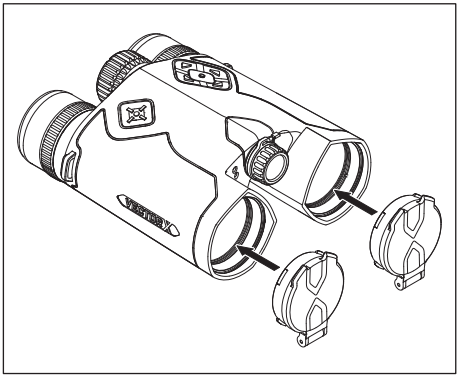
10. After compass calibration, briefly press the Measurement button to turn on the heads-up display.

⇨ If the Chicken Dance icon disappeared, compass calibration was successful.

11. Perform a test measurement with a known target and check the azimuth measurement.

11 USING THE ACCESSORIES

11.1 Attaching/removing the objective lens caps



Attachment information

1. Clip an objective lens cap onto each objective lens of the VECTOR X or the optional Range Enhancers.
2. Rotate the objective lens caps so that the flip caps will open in the direction desired (e.g., downward).
3. When using the device, open the two objective lens caps fully and fold them against the housing of the VECTOR X.

Removal information

- Remove the objective lens caps carefully.
- Check them for dirt and clean them if necessary.
- Store them in the case.

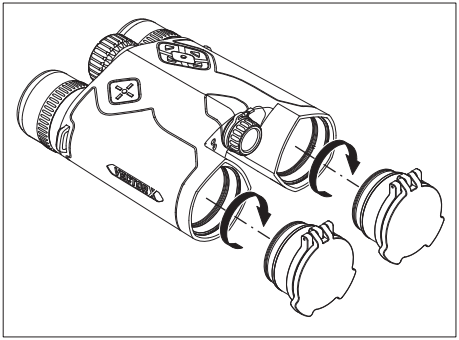
NOTICE

Risk of damage

Protect the open objective lens caps against physical impact.

▶ Close the objective lens caps when the VECTOR X is not in use or during long intervals between measurements.

11.2 Attaching/removing the Anti-Reflection Devices (ARD)



Attachment information

1. Screw one Anti-Reflection Device onto each objective lens of the VECTOR X.
2. Rotate the Anti-Reflection Devices such that the flip caps will open in the direction desired.
3. When using the device, open the two flip caps fully and fold them against the housing of the VECTOR X.

NOTICE

Risk of damage

Protect the sensitive Anti-Reflection Devices (ARD) against physical impact and dust.

- ▶ Close the flip caps when the VECTOR X is not in use or during long intervals between measurements.

The Anti-Reflection Devices reduce the maximum possible range for distance measurement.

Removal information

1. Close the flip caps on the Anti-Reflection Devices.
2. Carefully unscrew one Anti-Reflection Device and then the other.
3. Check the Anti-Reflection Devices for dirt and clean them if necessary.
4. Store the Anti-Reflection Devices in the case.

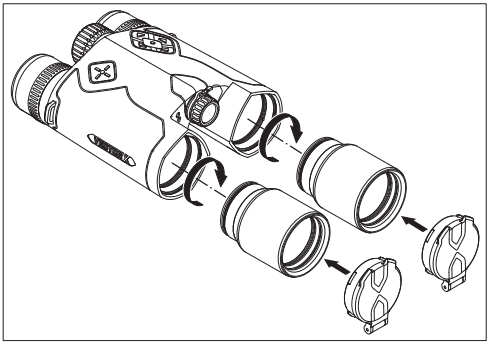
11.3 Attaching/removing the Range Enhancers

NOTICE

Risk of damage

Damaged or misaligned optics of the VECTOR X and Range Enhancers.

- ▶ Only tighten the Range Enhancers lightly (hand tight) when screwing them onto the objective lenses of the VECTOR X.



Attachment Information

1. Screw one Range Enhancer to each objective lens of the VECTOR X.
2. Install the objective lens caps to protect the Range Enhancers (see "Attaching/removing the objective lens caps" [▶ 121]).
3. When using the device, open both objective lens caps fully and fold them against the Range Enhancers.

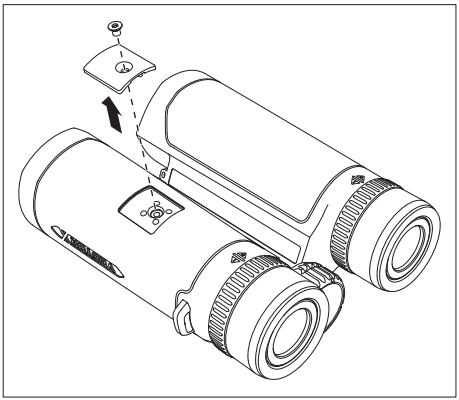
The Range Enhancers make the VECTOR X heavier and shift its center of gravity forward.

Removal Information

1. Close the objective lens caps.
2. Carefully unscrew one Range Enhancer and then the other.
3. The objective lens caps can be removed and attached to the VECTOR X if desired.
4. Check the Range Enhancers for dirt and clean them if necessary.
5. Store the Range Enhancers in the storage case.

11.4 Attaching the tripod adapter

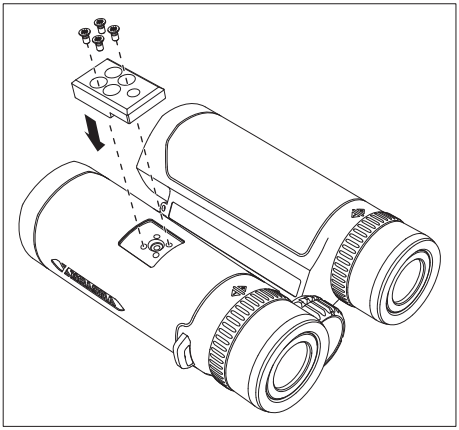
To use the VECTOR X with a tripod, a tripod adapter with a ¼" 20 UNC tripod mount (included in the scope of supply) must be installed on the underside of the device.



Attachment information

1. Unscrew the cover on the underside of the VECTOR X using the Torx key supplied. Store the cover somewhere it won't be lost.

⇨ The tripod connection can now be used.



2. Attach the tripod adapter to the tripod connection with four screws.

⇨ Use the supplied Torx key to do so.

3. Place the VECTOR X with the tripod adapter on the tripod head and screw it down.

Two spare screws are included in the scope of supply.

12 MAINTENANCE

12.1 Care and cleaning

NOTICE

Risk of damage to the lens surfaces

Do not use cleaning fluids or solvents other than water.

Never use chemically treated cleaning cloths such as those used for eyeglasses.

The supplied cleaning cloth

- ▶ May only be used for cleaning the glass lenses
- ▶ Must be kept clean and stored in the case
- ▶ Must be immediately washed and dried or replaced with a new microfiber cloth if soiled

The VECTOR X does not require any special cleaning agents. However, a soft lens cleaning brush is a useful accessory.

12.1.1 Cleaning the lenses

1. First, blow off all loose dirt from the lens surfaces.
2. Remove the remaining dirt with a lens cleaning brush (if available).

⇨ When using the brush, sweep over the lenses with light, quick movements. Tap the brush out frequently.

3. Finally, gently wipe the lens surfaces with the lens cleaning cloth.

More information about cleaning

- Wipe heavily soiled lenses with a damp lens cleaning cloth using light pressure.
- Rinse off salt water residue with fresh water if possible.
- Wipe off fingerprints by first using a circular motion with a damp part of the lens cleaning cloth. Then remove the fingerprints completely with the dry part.

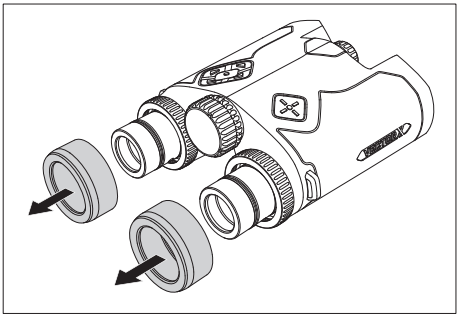
12.1.2 Cleaning the housing/rubber reinforcement

- Wipe the housing with a damp cloth. Take particular care to clean dirt or grease on and near the control buttons.

If the housing is heavily soiled, first rinse it under running water.

- Remove heavily soiled eyecups and clean them separately.
- Allow the VECTOR X to dry completely before putting it away.

12.1.3 Cleaning/replacing the eyecups



Cleaning information

- Wipe the eyecups with a soft, lint-free cloth.
- If the eyecups are heavily soiled, first remove them and clean them thoroughly under running water.
- Replace damaged, porous, or torn eyecups.

Removal information

1. Unscrew the eyecups completely.
2. Lift up the rear edge of the eyecups with your pointer finger.
3. Carefully pull the eyecups off the eyepieces.

Attachment information

The rear edges of the eyecups must lie against the eyepieces evenly.

12.2 Troubleshooting

There are no parts in the device that can be serviced by the user.
Repair and service work may only be performed by customer service or directly by Safran Vectronix AG.

Problem	Potential cause	Solution
The field of view through the eyepieces isn't perfectly circular.	The eyecups aren't properly set for use with or without glasses.	See "Adjusting the eyecups" [▶ 68].
The heads-up display doesn't work.	The lithium-ion battery is missing or dead.	See "Changing the battery" [▶ 61].
	The battery contacts are corroded.	Clean the battery contacts – see "Notes on the battery" [▶ 30].
	A low outdoor temperature is reducing the battery capacity.	Hold the VECTOR X against your body.
The heads-up display is blurry.	The diopter isn't set properly.	See "Setting the diopters" [▶ 70].
The heads-up display is difficult to read.	The manual brightness setting is too low.	Set the desired brightness – see "Settings" [▶ 99].

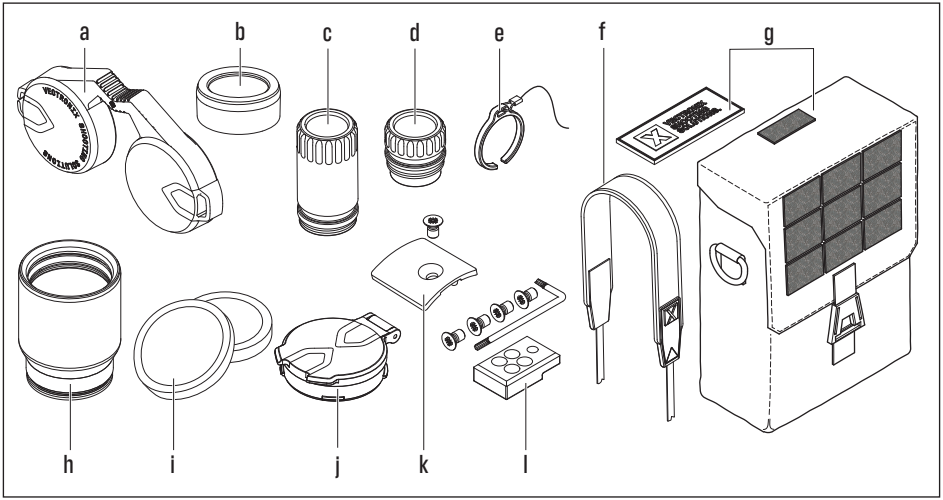
Problem	Potential cause	Solution
The heads-up display is difficult to read (continued).	The brightness sensor is covered.	When the brightness level is set to automatic mode, clean the opening in the housing for the sensor – see "Device overview" [▶ 36], point (k).
The heads-up display is too bright.	The manual brightness setting is too high.	Set the desired brightness – see "Settings" [▶ 99].
After a distance measurement, "- - -" appears on the heads-up display (HUD screens 1 through 3).	The minimum or maximum measurement range was overshot or undershot.	Take the range information into account – see "Technical specifications" [▶ 45].
	The reflectiveness of the target object is too low.	See "Factors influencing distance measurement" [▶ 109].
The Chicken Dance icon appears on the heads-up display.	The digital compass must be calibrated.	See "Performing compass calibration (Chicken Dance)" [▶ 118].
The multi-selector or Measurement button doesn't work.	There is a problem with the electronics or software.	Contact the dealer or customer service.

Problem	Potential cause	Solution
The azimuth measurement is inaccurate.	There was magnetic interference during compass calibration.	Repeat the compass calibration process in a new, interference-free location – see "Factors influencing azimuth measurement accuracy and compass calibration" [▶ 110].
	The magnetic state of the VECTOR X has changed, such as after replacing the batteries.	Recalibrate the digital compass – see "Performing compass calibration (Chicken Dance)" [▶ 118].
	There was magnetic interference during measurement.	Change the measurement location – see "Factors influencing azimuth measurement accuracy and compass calibration" [▶ 110].
Data transfer via Bluetooth doesn't work.	The device to be paired with is off, or its Bluetooth is off.	Turn on the device to be paired with and activate its Bluetooth.
	The device to be paired with isn't paired with the VECTOR X.	Establish a Bluetooth connection to the device to be paired with – see "Data transmission" [▶ 114].

Problem	Potential cause	Solution
The Bluetooth connection was broken.	The battery in the VECTOR X or the device to be paired with is dead.	If the battery is not rechargeable, replace it. If the battery is rechargeable, replace or charge it.
	The device to be paired with is too far from the VECTOR X, or the connection was faulty.	Place the device to be paired with closer to the VECTOR X.

For other issues, please contact customer service, which can be done for example through the VECTRONIX SHOOTING SOLUTIONS app.

12.3 Spare parts



a) 919 004 Eyepiece cap
b) 919 007 Eyecups for 8×42
919 008 Eyecups for 10×42/12×42
c) 919 052 18650 battery compartment cover
d) 919 003 CR123A battery compartment cover
e) 919 009 Attachment clip with retention strap for battery compartment cover (attached by customer service)
f) 917 231 Neck strap
g) 917 801 Case (Protective Case 42) with VECTRONIX SHOOTING SOLUTIONS logo patch
h) 918 795 Range Enhancers 42 (1.4×)
i) 919 011 Objective lens set for Range Enhancers 42
j) 917 232 Objective lens caps 42
k) 919 050 Cover for tripod connection, VECTOR X
l) 917 802 Tripod connection with mounting screws and Torx key

12.4 Customer service

For spare parts orders or repairs, please contact the dealer you purchased the device from. The dealer will contact our country representative and take the necessary steps.

Our customer service is otherwise always happy to help:

Safran Vectronix AG
Max-Schmidheiny-Strasse 202
9435 Heerbrugg, Switzerland

Email: info@vectronix-shooting-solutions.com

Website: www.vectronix-shooting-solutions.com

13 DISPOSAL

The following information applies per the Waste from Electrical and Electronic Equipment (WEEE) Directive within the EU and for other European countries with waste sorting systems.

- The VECTOR X contains electrical and/or electronic components and may therefore not be disposed of in normal household waste.
  It must be disposed of at a recycling collection point designated by the responsible local authority. This is usually free of charge.
- If there is still a battery in the device, the battery must first be removed and disposed of at a battery disposal point in accordance with regulations.

For further information on this topic, contact your local municipal office, the local waste disposal contractor, or the store where you purchased the VECTOR X.

14 LEGAL INFORMATION

14.1 Disclaimer

The user documentation has been carefully compiled taking the applicable standards and regulations into account. However, it is not possible to exclude all errors.

Safran Vectronix AG therefore reserves the right to periodically revise the user documentation and to modify the content without prior notification.

In the interest of our customers, we reserve the right to make software modifications to incorporate technical developments.

Safran Vectronix AG therefore provides

- Software updates for the VECTOR X
- VECTRONIX SHOOTING SOLUTIONS app updates in app download stores

14.2 Copyright

The user documentation for the VECTOR X – safety information, Quick Start Guide, and this user manual in electronic form – is protected by copyright.

The device software and the VECTRONIX SHOOTING SOLUTIONS app are protected by copyright.

14.3 Protected trademarks

Download on the App Store	Apple® and the Apple logo are trademarks of Apple Inc., registered in the US and other countries. App Store® is a service trademark of Apple Inc., registered in the US and other countries.
APPLIED BALLISTICS THE SCIENCE OF ACCURACY	Applied Ballistics® is a trademark of Applied Ballistics Inc.
	Bluetooth® is a trademark of Bluetooth SIG Inc.
CALYPSO instruments	Calypso Instruments Ultrasonic Portable Mini AB wind meter, certified by Applied Ballistics Inc.

	E-Dope® is a trademark of Down Range Systems LLC.
	The MSR reticle design is the property of Finnaccuracy Oy.
	Garmin® is a trademark of Garmin Ltd.
	Google Play® and the Google Play logo are trademarks of Google LLC.
	Kestrel® is a trademark of Nielsen-Kellerman Co.
	Tenebræx® is a trademark of Armament Technology Incorporated.
	VECTOR X is a brand of Safran Vectronix AG.

14.4 Declaration of conformity

CE	Safran Vectronix AG hereby declares that VECTOR X of the types A002a and A002b comply with EU directives.

Our website contains the complete EU declaration of conformity: www.vectronix-shooting-solutions.com

14.5 FCC/ISED regulations

The VECTOR X transmits radio frequency signals (e.g., via Bluetooth) and is therefore subject to the following regulations.

14.5.1 FCC regulations in the US

This device was tested per Part 15 of the FCC Rules and found to comply with the limits for a Class B digital device. These limits are designed to provide reasonable protection against harmful interference in residential areas.

This device generates, uses, and can emit radio frequency energy. If it is not used as described in the user documentation, it may interfere with radio communications. It cannot be guaranteed, however, that interference will not occur with a particular system.

Should this device cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user must try to correct the interference by one or more of the following measures:

- Move or realign the receiving antenna.
- Increase the distance between the device and receiver.
- Contact the dealer or an experienced radio and television technician if assistance is required.

FCC warning

To ensure continued compliance with provisions, see the "Usage restrictions" [▶ 16] chapter. If any changes or modifications are made to the device that are not expressly approved by the party responsible for compliance with provisions, this could result in revocation of the user's permit to use the device.

Trade name	VECTOR X	
Type numbers	A002a Laser Class 1M	A002b Laser Class 1
Responsible company, support contact	EuroOptic Ltd. 1203 Lycoming Mall Circle Muncy, PA 17756 USA Phone: +1 (570) 368-3920	

This device complies with Part 15 of the FCC Rules.

	Type numbers: A002a Laser Class 1M A002b Laser Class 1 Tested for compliance with FCC standards.
For home or office use.*	

* This equipment classification includes outdoor use.

Use of the device is subject to the following two restrictions:

- This device may not cause harmful interference.
- This device must tolerate any interference received, including interference that could cause unwanted operating conditions.

FCC ID T7V1740 for the internal Bluetooth module

Installing or operating this transmitter with any other antenna or transmitters is prohibited.

This device complies with FCC radio frequency radiation exposure limits specified for an uncontrolled environment and meets FCC radio frequency radiation exposure limits. The amount of radio frequency energy in this device is very low and is regarded as compliant even without testing the specific absorption rate (SAR).

14.5.2 ISED regulations for Canada

CAN ICES-3 (B)/NMB-3 (B)

This device complies with the RSS-210 standard of the IC regulations.

Use of the device is subject to the following two restrictions:

- This device may not cause harmful interference.
- This device must tolerate interference received, including interference that may cause functional disturbances to the device.

This device complies with IC radiation exposure limits specified for an uncontrolled environment and meets the requirements of standard RSS-102 of the IC radio frequency exposure limits.

The amount of radio frequency energy in this device is very low and is regarded as compliant even without testing the specific absorption rate (SAR).

14.6 Warranty conditions

The scope and duration of the warranty depend on the legal regulations of the country where the device was purchased.

In general, an extended warranty that is valid beyond the period of the statutory standard warranty is granted upon device registration. The duration of the extended warranty depends on the applicable regulations of the country where the device was purchased.

Device accessories as well as wear parts such as eyecups and rubber reinforcement are excluded from the warranty.

Warranty claims are rendered invalid in the event of proven misuse (see "Foreseeable misuse" [▶ 16]) or if the serial number has been made unrecognizable.

15 GLOSSARY

Term	Definition	Description
Azimuth	Azimuth direction angle [°/mrad/mil]	The angle between magnetic north and the target, measured clockwise
EHR	Equivalent horizontal range [m/yd]	Angle-corrected horizontal distance
Elevation	Height correction [mrad/MOA]	Height correction to hit the target at the specified distance
FOV	Field of view	Observable width of terrain at a distance of 1000 m/ 1000 yd
Inclination	Inclination angle [°/mrad/mil]	Angle of inclination between horizontal and the target
LRM	Laser mode for long ranges	Setting for long distances and objects with low reflectiveness
Range/distance	Distance [m/yd]	Distance to target
Rem. energy	Remaining energy [Joule]	Projectile energy at the target
Rem. velocity	Remaining velocity [m/s / fps]	Projectile velocity at the target
TOF	Time of flight [s]	Flight time for the projectile to reach the target

Term	Definition	Description
ULM	Universal laser mode	Setting for unobstructed objects with average reflectiveness
Wind 1	Wind (average), [km/h / mph]	Average wind strength
Wind 2	Wind (max.), [km/h / mph]	Peak value of wind strength (gusts)
Windage 1	Lateral correction value for Wind 1 [mrad/MOA]	Lateral correction value for the average wind speed to hit the target at the specified distance
Windage 2	Lateral correction value for Wind 2 [mrad/MOA]	Lateral correction value for the peak wind speed to hit the target at the specified distance

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