

DÖRR

DIGITAL NIGHT VISION BINOCULARS WITH RANGEFINDER

GB OPERATING INSTRUCTIONS



ZB-500 PVE

ILLUSTRATION PARTS



ILLUSTRATION PARTS



GB | OPERATING INSTRUCTIONS

THANK YOU for choosing a quality product by DÖRR.

Please read the operating instructions and safety instructions carefully before using the device for the first time.

Keep the operating instructions together with the device for reference. If other people use this device, provide them with these instructions. If you sell the unit, this manual forms an integral part of the device and must be supplied with it.

DÖRR is not liable for damage caused by improper use or failure to observe the operating and safety instructions.

In the event of damage caused by improper handling or by external influence, the guarantee or warranty claim becomes void. Any manipulation, structural modification of the product or opening of the housing by the user or an unauthorised third party shall be considered improper handling.

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01 | ⚠ SAFETY INSTRUCTIONS

⚠ **Never look directly into the sun with the night vision device! There is a risk of blindness!**

⚠ **The night vision device is not a toy. Keep the device, accessories and packaging materials away from children and pets to prevent accidents and suffocation.**

- Only use the device with a suitable, high-quality **Lithium-Ion type 18650 3.7V 3200mAh battery** that is protected against overvoltage or undervoltage and against short-circuit and wrong polarity.
- If the device is not to be used for a long time, it is advisable to charge the batteries to about 75% before storage. Storing a battery when it is fully drained or fully charged will shorten its life. If the batteries are not used for long periods, we recommend charging them every 3 months to avoid completely draining the battery. Regular charging prolongs the life of the batteries.
- Switch off the device after use.
- Protect the device from rain, moisture, direct sunlight and extreme temperatures.
- Do not use or touch the device with wet hands.
- Protect the device from impacts. Do not use the device if it has been dropped. In such case, have it checked by a qualified electrician before switching the device on again.
- If the device is defective or damaged, do not attempt to disassemble or repair it yourself. **Danger of electrocution!** Please contact your specialist dealer.
- Do not use the device in the direct vicinity of devices that generate strong electromagnetic fields.
- People with physical or cognitive disabilities should operate the device under guidance and supervision.
- Persons with a pacemaker, defibrillator or with other electrical implants should maintain a minimum distance of 30 cm from the device, as it generates magnetic fields.
- Protect the device from dirt. Do not clean the device with petrol or strong detergents. We recommend a lint-free, slightly damp microfibre cloth to clean the external components of the device. Switch off the device before cleaning.
- Store the device in a dust-free, dry, cool place.
- Please dispose of the device in accordance with the European Waste Electrical and Electronic Equipment (WEEE) Directive when it is defective or no further use is to be made of it. If you have any questions, please contact the local authorities responsible for disposal.








02 | ⚠ BATTERY WARNINGS

Only use high-quality brand batteries. **When inserting the battery, pay attention to the correct polarity (+/-).** The battery should be removed when not in use for a long period of time. Do not throw batteries into a fire, do not short-circuit them and do not take them apart - **risk of explosion!** Remove leaking batteries from the device immediately. There is a risk of burns from battery acid! Clean the contacts before inserting a new battery. In the event of contact with battery acid, immediately rinse the affected areas with plenty of clean water and contact a doctor immediately. Batteries can be life-threatening if swallowed. **Keep batteries out of the reach of children and pets.** Batteries must not be disposed of in household waste (see also chapter "Battery/Accumulator Disposal").

03 | PRODUCT DESCRIPTION

- **Binocular night vision device with integrated rangefinder**
- **Visibility up to 500 m by day and up to 200 m in the dark**
- **Electronic rangefinder for use up to 200 m**
- **Switchable 7-level infrared illumination**
- **Photo and video recording function** (only with micro SD card, not included)
- **Extra-large LCD display for sharp colour images during the day and high-contrast black and white images when it is dark**
- **Photo preview and video playback in the display**
- **Built-in rechargeable Lithium ion batteries, including USB charging cable**
- **¼ inch tripod connection**
- **Bag and shoulder strap included**

04 | COMPONENTS DESCRIPTION

- | | | | |
|----|--|----|----------------------------|
| 1 | Digital zoom button  | 11 | LCD Display |
| 2 | Rangefinder button  | 12 | Eyelets for shoulder strap |
| 3 | Mode selection button  | 13 | Microphone |
| 4 | On/Off button  | 14 | ¼ inch tripod connection |
| 5 | Raising IR button  | 15 | Battery holders |
| 6 | Depressing IR button  | 16 | Rangefinder module |
| 7 | Activating button/OK  | 17 | Infrared lighting |
| 8 | Rubber cover | 18 | Objective |
| 9 | Micro SD memory card slot | 19 | Focusing |
| 10 | Micro USB port | | |

05 | COMMISSIONING

05.1 Charging the pre-installed batteries

The **pre-installed batteries** should be fully charged before the first use of the device.

Open the rubber cover (08). Connect the included USB cable to the micro USB port (10) and connect the night vision device to a USB charging source (e.g. laptop).

ATTENTION: Only use a suitable USB 5V 2A power supply unit (not included in the scope of delivery) to charge via the mains socket. Do not leave the night vision device unattended while charging. After charging, disconnect the night vision device from the power supply.







During charging, the LCD display (11) shows the symbol .

Note:

If the batteries are not used for long periods, we recommend charging them every 3 months to avoid completely draining the battery. Regular charging prolongs the life of the batteries.

05.2 Battery status display

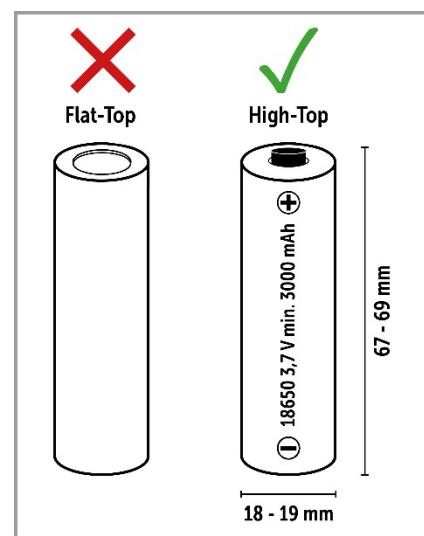
After you have switched on the night vision device with the On/Off button (03), the battery status indicator for the respective battery appears at the bottom right and left of the LCD display (11). The battery indicator shows you the remaining operating time during **normal use as binoculars during the day (without infrared illumination)**, in the following gradations:

-  100%, up to approx. 18 hours
-  90%, up to approx. 16 hours
-  60%, up to approx. 9 hours
-  40%, up to approx. 5 hours
-  25%, up to approx. 1.5 hours
-  18%, you should charge the batteries immediately

05.3 Replacing the pre-installed batteries

If the built-in rechargeable batteries have reached the end of their service life (the batteries can no longer be charged, the device can no longer be switched on), the following specifications should be observed when purchasing new rechargeable batteries:

- Rechargeable Lithium ion batteries type 18650 3.7 V
- With raised positive pole (high-top/button-top)
- Recommended minimum capacity 3,000 mAh
- Diameter 18 - 19 mm, height 67 - 69 mm



ATTENTION: Only use high-quality brand batteries that are protected against overvoltage, undervoltage, short-circuits and incorrect polarity. When inserting the batteries, pay attention to the correct polarity (+/-). Batteries must not be disposed of in household waste (see also chapter 12.1.)

Unscrew the battery compartments (15) with a screwdriver. Insert new batteries **according to the +/- marking** in the battery compartment. Screw the battery compartment cover back on.

05.4 Inserting/removing micro SD memory card

A **micro SD/SDHC/SDXC memory card is required** in order to be able to take photos and record videos with the device (not included in the scope of delivery). Recorded files are saved on the card. We recommend using a **micro SD/SDHC/SDXC card from 4 GB up to max. 512 GB** (optionally available in stores).

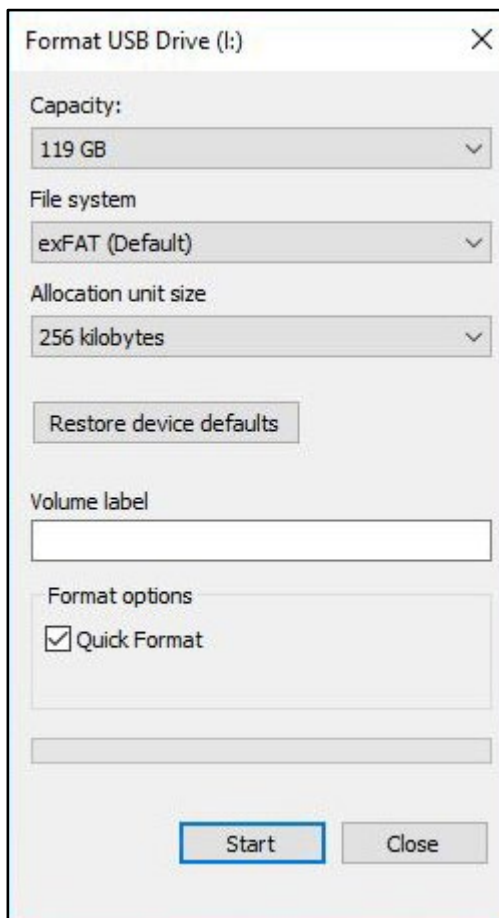
IMPORTANT:

Due to their standard formatting, SDXC memory cards from 64 GB must be formatted in the following format before use:

File system: **exFAT (Default)**

Allocation unit size: **256 kilobytes**

Example with SDXC card 128 GB:




Note:

If you want to use a micro SD memory card that still has files on it, we recommend saving them to your computer and formatting the micro SD card before use. To format the card with the unit, please refer to chapter 08.

ATTENTION: To insert or remove the micro SD memory card, the night vision device must be switched off (no indication in the display)!

Open the rubber cover (08) and insert a micro SD memory card into the micro SD memory card slot (09) until it clicks into place. **The labelled side of the micro SD memory card should be facing upwards.**

If the micro SD memory card is not inserted correctly or if the card is missing or defective, the symbol  appears in the top left of the LCD display (11) after switching on the night vision device.

To **remove** the micro SD memory card, push the card further into the micro SD card slot until it pops out slightly with a click. The micro SD memory card can now be pulled out completely.

When the memory card is full, the warning "**Memory Full**" appears in the LCD display (11). In this case, you should transfer all files to your computer (see chapter 07.4) and delete the files on the card.

05.5 Attaching the shoulder strap

To protect the night vision device from falling, we recommend attaching the **included neck strap**. To do so, pull the two loops of the neck strap through the eyelets (12) on the night vision device and fasten them with the buckles.

05.6 Mounting on a tripod (optional)

The night vision device can be mounted on a tripod (optionally available from DÖRR) using the **¼ inch tripod connection** (14).


06 | OPERATION

ATTENTION: Never look directly into the sun with the night vision device! There is a risk of blindness!



Note for people who wear glasses:


We recommend that people who wear glasses keep their glasses on during use to get the best image result.

06.1 Daytime use (as binoculars)

Press the On/Off button  (04) to switch on the binoculars. A **coloured live view** appears in the LCD display (11). To **focus** the image, turn the focus ring (19) to the left or right until the live view is in focus. For daytime use, ensure that the infrared lighting is switched off (live view must be in colour).





06.2 Night-time use (as a night vision device)

Press the On/Off button  (04) to switch on the binoculars. For use in the dark, switch on the **infrared light** (17). To do so, press the IR button **once**  (05). At the top left of the LCD display (11), the symbol **IR0** appears and you see a **black and white live view**. To focus the image, turn the focus ring (19) to the left or right until the live view is in focus.



To **increase the brightness of the infrared illumination**, press the IR button  (05) repeatedly until the desired brightness is reached. The device can be set up to **IR7**.

To **switch off the infrared lighting**, press the IR button  (06) repeatedly until the symbol in the display goes out.


06.3 Digital zoom

To zoom in on the picture in the LCD display (11), press the zoom button  (01). At the bottom right of the LCD display (11), the symbol  appears with the **minimum zoom factor of 1.07**. By repeatedly pressing the zoom button  (01), the view can be enlarged **step by step up to 3 times**. To return to the 1:1 view, press the zoom button  (01) repeatedly until the symbol in the display goes out.


06.4 Adjusting the brightness of the LCD display

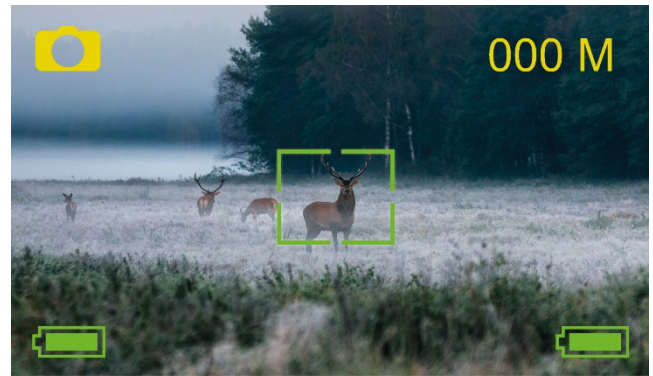
To **increase the brightness of the live view in the LCD display** (11), briefly press the On/Off button  (04) until the desired brightness is reached. The brightness can be set from **0 - 8**. The value is shown at the bottom left of the LCD display (11), e.g.  **1**.

06.5 Measuring the distance

To **measure the distance**, press the rangefinder button  (02). A green box appears in the LCD display (11). Take a bearing on the object to be measured by pointing the box at the centre of the object to be measured. The measured distance is shown in **metres** at the top right of the display.

To display the distance in **yards**, press and hold the rangefinder button  (02) for approx. 3 seconds.



To exit the measurement mode, briefly press the rangefinder button  (02) and the green box goes out.





07 | TAKING PHOTOS AND RECORDING VIDEOS

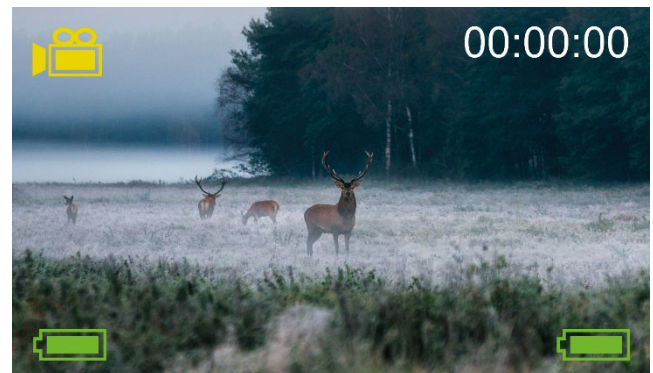
ATTENTION: Make sure that you have inserted a micro SD/SDHC/SDXC memory card into the night vision device as described in chapter 05.3.


07.1 Recording Videos

Use the On/Off button  (04) to switch on the night vision device. The night vision device is in **video mode** by default. You will see the symbol  at the top left of the LCD display (11).



Use the focusing ring (19) to focus. For night shots, switch on the infrared illumination (see chapter 06.2).

To **start video recording**, press the shutter/OK button  (07). During recording, a red dot flashes at the top centre of the LCD display (11) . At the top right of the LCD display, the length of the video recording is shown **00:00:00**.



Press the shutter/OK button  (07) again to end the video recording.

07.2 Taking photos

Use the On/Off button  (04) to switch on the night vision device. The night vision device is initially in video mode. To access **photo mode**, press the mode button **M** (03). You will see the symbol  at the top left of the LCD display (11).

Use the focusing ring (12) to focus. For night shots, switch on the infrared illumination (see chapter 06.2).

To **take the photo**, press the Shutter/OK button  (07).



07.3 Viewing Photos/Video Playback, Deleting Videos/Files


To view or play back your recordings in the LCD display (11), press the mode button **M** (03) until the following symbol appears at the top left of the display (**depending on whether your last recording was a photo or a video**):

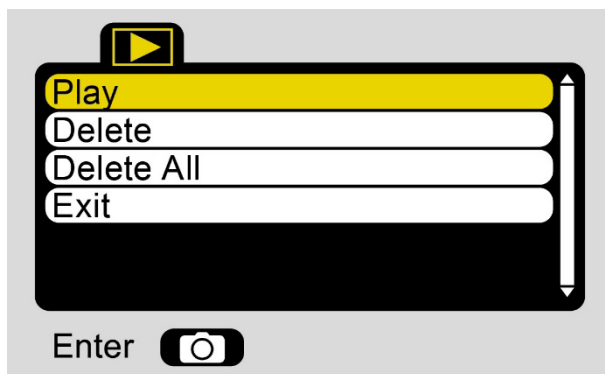
 **[2MHD]** = Photo

 **[FHD]** = Video




To scroll to the next file, press the IR button **IR↑** (05). To go to the previous file, press the IR button **IR↓** (06).

To **play a video** or **delete files**, press the shutter/OK button  (07) once in playback mode. Various menu items appear in the display:




Play	Play video
Delete	Delete the selected file
Delete All	Delete all files that are on the memory card
Exit	Back to the last recorded file

To scroll through the menu items, press the IR button **IR↓** (06) or **IR↑** (05). **The selected menu item is highlighted in yellow.** Press the shutter/OK button  (07) to confirm the menu item.

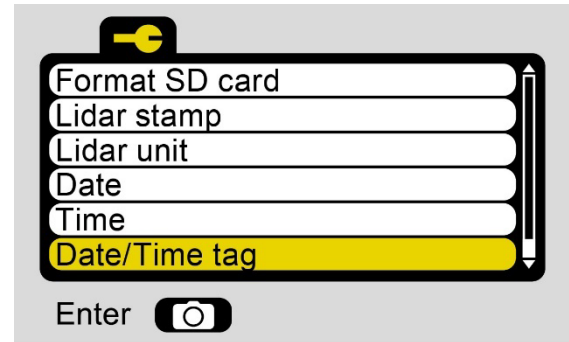
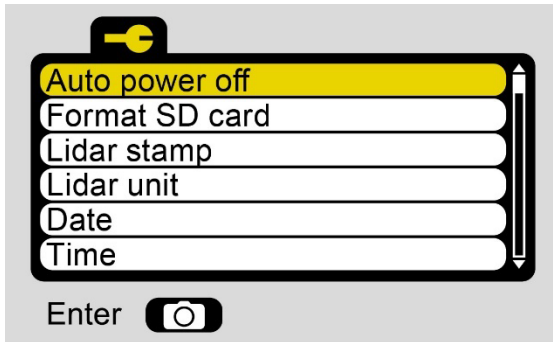
07.4 Transferring Your Recordings to a Computer

To transfer your photo and video recordings to your computer, remove the micro SD memory card and use a suitable micro SD card reader (optionally available from DÖRR) to read it on your computer/laptop.

Attention: To remove the micro SD memory card, the night vision device must be switched off (no indication in the display)!

After use, the night vision device should be switched off. To do so, press and hold the On/Off button  (04) for approx. 3 seconds.

You have the option of changing the default settings of the night vision device. To do so, press the mode button **M** (03) until various menu items appear in the display:



To scroll through the menu items, press the IR button **IR↓** (06) or **IR↑** (05).

The selected menu item is highlighted in yellow. Pressing the shutter/OK button **☑_{OK}** (07) takes you to the following settings:

MENU POINT	FUNCTION	SELECTION OPTIONS
AUTO POWER OFF	Select the time period after which the night vision device automatically switches off without any action.	Off = no automatic switch-off 10 minutes 30 minutes 60 minutes Cancel = back to main menu
FORMAT SD CARD	Deletes all files from the SD memory card and re-formats the card.	Yes = Yes, delete No = back to main menu Before formatting, ensure that there are no more files that you still need on the memory card!
LIDAR STAMP	Select whether the distance measurement result is displayed on your photographs.	Off = off On = on Default setting = On
LIDAR UNIT	Select whether the distance measurement should be in metres or yards.	M = Metre YD = Yards Default setting = Metres
DATE		YY = Year, MM = Month, DD = Day Press the shutter/OK button (07) to enter the year . Use the IR ↑ (05) and IR ↓ (06) keys to set the number. Confirm your selection with the shutter/OK button (07). Press the IR ↓ key (06) to scroll to the month . Press the shutter/OK button (07) to enter the month. Use the IR ↑ (05) and IR ↓ (06) keys to set the number. Confirm your selection with the shutter/OK button (07). Press the IR ↓ key (06) to scroll to the day . Press the shutter/OK button (07) to enter the day. Use the IR ↑ (05) and IR ↓ (06) keys to set the number. Confirm your selection with the shutter/OK button (07).
TIME		hr = hour, min = minutes, sec = seconds Press the shutter/OK button (07) to enter the hour . Use the IR ↑ (05) and IR ↓ (06) keys to set the number. Confirm your selection with the shutter/OK button (07). Press the IR ↓ key (06) to scroll to the minutes . Press the shutter/OK button (07) to enter the minutes. Use the IR ↑ (05) and IR ↓ (06) keys to set the number. Confirm your selection with the shutter/OK button (07). Press the IR ↓ key (06) to scroll to the seconds . Press the shutter/OK button (07) to enter the seconds. Use the IR ↑ (05) and IR ↓ (06) buttons to set the number. Confirm your selection with the shutter/OK button (07).
DATE/TIME TAG	Select whether the date and time should be shown on your recordings.	Off = no time stamp On = time stamp on Default setting = Off

09 | CLEANING AND STORAGE

Do not clean the device with petrol or strong detergents. We recommend a lint-free, slightly damp microfibre cloth to clean the external components of the device. **Before cleaning, switch off the device and disconnect the power supply and remove the batteries.** Store the device in a dust-free, dry, cool place. The device is not a toy - **keep it out of the reach of children!** Keep the device away from pets.

10 | TECHNICAL SPECIFICATIONS

Display	16:9 3 inch HD screen
Brightness display	8 brightness settings
Infrared lighting	IR LED 850 nm, 7 brightness settings
Lens diameter approx.	38 mm
Image sensor	2 MP
Viewing angle approx.	10.5°
Visibility approx.	500 m by day, 200 m by night
Optical magnification	6x
Digital zoom	up to 3x
Focussing	Manual
Aperture	f/5.5 by day, f/1.3 by night
Recording option	Image / video with sound
Image resolution	2 MP (1920x1080)
Video resolution	Full HD 1080P (1920x1080)
Image format	JPG
Video format	AVI
Range finder	Electronic View Finder
Measuring distance up to approx.	200 m
Measuring angle approx.	up to 80°
Memory card	micro SD/SDHC/SDXC 4 GB up to max. 512 GB (not included)
Power supply	2x Li-Ion 18650 3.7 V 3200 mAh pre-installed
Operating time approx.	10 h by day/6 h with infrared illumination
Tripod connection	1/4"
Housing	ABS, rubberised
Dimensions approx.	21 x 14 x 7.5 cm
Weight approx.	604 g

Dörr GmbH reserves the right to make technical changes without notice.

11 | SCOPE OF DELIVERY

- 1x Night vision binoculars with rangefinder ZB-500 PVE
- 1x USB charging cable
- 1x Shoulder strap
- 1x Bag
- 1x Safety hints

12 | DISPOSAL, CE MARKING



12.1 DISPOSAL OF BATTERY/ACCUMULATOR

Batteries and rechargeable batteries are marked with the symbol of a crossed-out waste bin. This symbol indicates that empty batteries or rechargeable batteries that can no longer be recharged must not be disposed of in household waste. Old batteries may contain harmful substances that can cause damage to health and the environment. As the end user, you are legally obliged to return used batteries (under German battery law, Section 11 Act Revising the Law of Waste-Related Product Responsibility for Batteries and Accumulators). You can return batteries free of charge after use at the point of sale or in your immediate vicinity (e.g. at municipal collection points or in shops). You can also return batteries to the seller by post.



12.2 NOTE ON WEEE

The WEEE (Waste Electrical and Electronic Equipment) Directive, which came into force as European law on 13 February 2003, led to comprehensive changes in the disposal of discarded electrical equipment. The primary purpose of this directive is to prevent e-waste while promoting reuse, recycling and other forms of reprocessing in order to reduce

waste. The WEEE logo (dustbin) shown on the product and on the packaging indicates that the product must not be disposed of in normal household waste. You are responsible for delivering all discarded electrical and electronic equipment to appropriate collection points. Sorting waste for separate collection and sensible recycling of packaging waste helps to use natural resources more sparingly. Furthermore, e-waste recycling is a contribution to preserving our environment and thus also people's health. Further information on the disposal of electrical and electronic equipment, recycling and collection points can be obtained from local authorities, waste disposal companies, specialist retailers and the manufacturer of the device.



12.3 CONFORMITY WITH RoHS

This product complies with the European RoHS Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment and variations thereof.



12.4 CE MARK

The imprinted CE mark complies with the applicable EU standards and indicates that the device meets the requirements of all EU directives applicable to this product.

Night Vision Binoculars + Rangefinder ZB-500 PVE

Item-No. 490339

Made in China

DÖRR GmbH

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