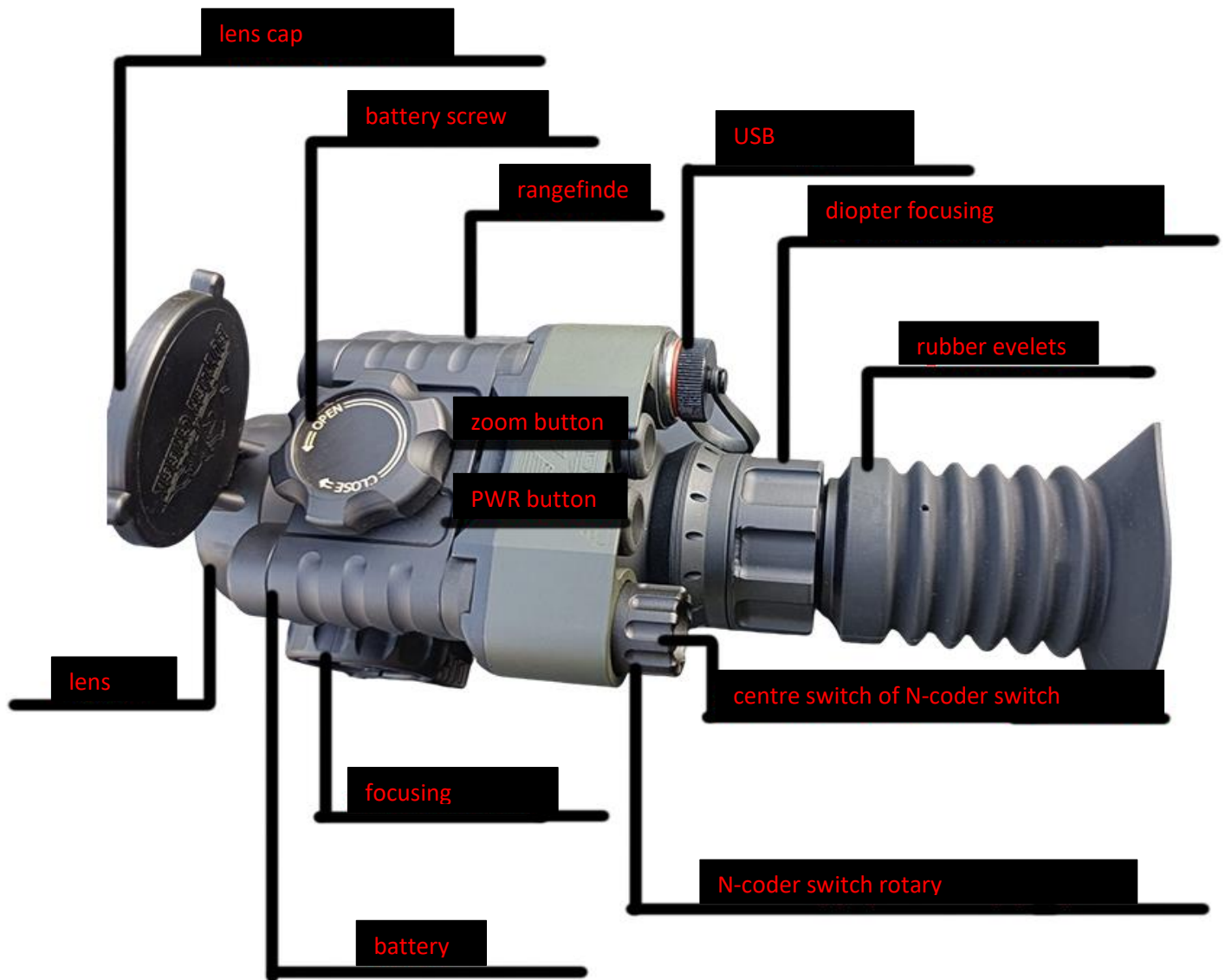




TSV-16 ZAMĚŘOVAČ



TURN - ON:

Press the PWR switch until the LED indicator (in the lower right corner below the dioptre fingerboard) flashes. After the LED indicator flashes, release the switch. The device will turn on within 3 seconds.

TURN - OFF:

Press the PWR switch until the LED indicator flashes. After the LED indicator flashes, release the switch. The device turns off.

Correct procedure after the thermovision has been turned on:

1. **Focus the eyepiece** so that all the words on the display are sharp (clearly legible).
2. **Focus the lens** - according to the distance of the observed object.
3. **Changing other menu settings** - according to individual needs (brightness, contrast...)

Note: the device is set to optimal values by the manufacturer. It is not necessary to change the settings until you are completely familiar with the device.

Laser rangefinder

If your device is equipped with a laser rangefinder, the following procedure must be done to put the device into operation: if there is no battery in the device (in the body of the rangefinder), it must be inserted with a plus side up after the top cover has been unscrewed. Then, screw the cover carefully – be careful about the thread which is very fine. Use only branded lithium or rechargeable CR123 batteries. A new rechargeable battery is always part of the delivery from our company. You can turn on the rangefinder with a single press of the button on the back of the rangefinder. Subsequently, the target outline disappears and an auxiliary measuring point appears, thanks to which the measured distance is shown on the display. The measurement turns off after approximately 10 seconds and the target outline appears again. If you want to continue measuring the distance, you must press this button again. The rangefinder does not require any maintenance except for occasional replacement of the battery which has a relatively long life.

Standby mode / Power saving mode

Press “M” twice. A quick double press of the M switch will put the device into power saving / standby mode. When the device is in standby mode, you can see only a black screen with a cross in the middle and display symbols for battery and range status. The device is brought from standby mode to common operation in the same way (2 x “M”). In common operation, the device will reduce the brightness of the displayed menu items after a few seconds of inactivity. When the N-coder switch is pressed again, the items will be displayed at full intensity.

Menu control - main menu –hold the centre of the N-coder M for more than 3 seconds to get to the main menu.

1. Turn the N-coder switch in the menu to scroll up or down.
2. Press the centre M switch to go to specific menu / submenu item (on which the cursor is currently).
3. Press M to exit the item. Then, you will return to the previous menu / submenu.
4. If you hold the M switch for less than 3 seconds, a short menu for quick control will appear.

Zoom – digital zoom from 1,3x to 4x (shift by 0.1x)

When the zoom button is pressed briefly, the zoom display symbol in the lower left corner turns green. Turn N to change the magnification in 0.1 increments up to a maximum digital magnification of 4x. Press the zoom button to return from zoom mode.

Regulation of the intensity of the target outline (cross)

If the device is in common operation (no item or menu may be selected), turn N to change the intensity of the cross in 10 levels.

The easiest way how to take a thermal image – photos

Taking a picture – photos. To take a thermal image, hold the zoom button until the bar graph appears and starts filling in black colour above the word photo. Release the zoom button at this moment – the photo is ready. The number of saved images is displayed in the lower part of the display.

The easiest way how to make a video

Hold the zoom button and you will see a bar graph on the display. The bar graph gradually fills in black colour above the word photo, and in its second half, it starts filling in white colour above the word record. As soon as the bar graph is filled above the recording part, release the zoom button and the video recording will start – you will see the time displayed in red confirming the recording on the left of the display. Hold the zoom button again until the bar graph is filled above the word record to turn off recording. At this moment, release the zoom button and the recording will stop. At the same time, the recording time displayed in red in the upper – left corner disappears. You can easily download videos and photos to your computer using a USB cable which is also provided. Note: we recommend you to format an internal SD card with FAT 32 format after videos and photos have been downloaded. It is necessary to select a legal logout of the external storage before the USB cable is pulled out from the computer. Icons on the display: enter / exit a mode change once the PWR button is held.

Range change – colour mode



Hold PWR and the range icon will be marked with a green frame on the right side of the display, and at the same time, the word range will be coloured in green in the lower part of the display. This means the range switching mode is active. Turn the N-coder switch to change the ranges. Press M to confirm the range which you want to be active.

Range change – depiction of living objects



Icon – depiction of living objects. The range icon will be marked with a green frame on the right side of the display, and at the same time, the word range will be coloured green at the bottom of the display when holding PWR. Then press M and the frame will turn white. Turn the n-coder switch N to get into the icon used for depiction of living objects. Press M and the icon is marked with a green frame, which changes the observation range.

Range change – observation of landscape details



Icon – depiction of landscape details. The range icon will be marked with a green frame on the right side of the display, and at the same time, the word range will be coloured green at the bottom of the display when holding PWR. Then press M and the frame will turn white. Turn the n-coder switch N to get into the icon used for depiction of landscape details. Press M and the icon is marked with a green frame, which changes the observation range.

Range change – observation in fog and rain



Icon – observation in fog and rain. The range icon will be marked with a green frame on the right side of the display, and at the same time, the word range will be coloured green at the bottom of the display when holding PWR. Then press M and the frame will turn white. Turn the n-coder switch N to get into the icon used for observation in fog and rain. Press M and the icon is marked with a green frame, which changes the observation range.

Range change - ballistics



Icon – ballistics. The range icon will be marked with a green frame on the right side of the display, and at the same time, the word range will be coloured green at the bottom of the display when holding PWR. Then press M and the frame will turn white. Turn the n-coder switch N to get into the icon used for ballistics. Press M and the icon is marked with a green frame. Turn the n-coder switch to change the ballistics data. Select the data you want to be shown on the display and press the center switch M to confirm. This icon is displayed only if the BAL ON selection is ON in the REKTIKL section. Hold PWR until the green frame around the icon disappears to exit the switching mode.

Short menu on the display

Hold the center switch M of the n-coder for 2 seconds to get into the short menu. The items record, contrast, brightness, exit will be displayed. In this short menu, you can quickly change these items and do not have to enter the main menu.

Recording - video recording – 1. Method - if the cursor is on the item RECORDING, press M and a video will start recording. The recording time in red and a flashing REC symbol are displayed in the upper left corner. Scroll up the short menu and press M to stop recording. The video is saved to the built-in SD card with a size of 16 GB. The SD card icon will appear at the bottom of the screen and the information on the free capacity of the SD card in % is displayed next to the SD card icon. The second line V:000 shows the number of the videos which have been recorded. The third line P:000 shows the number of images.

2. Method (as already described on the previous page): Hold the zoom button and you will see a bar graph on the display. The bar graph gradually fills in black colour above the word photo, and in its second half, it starts filling in white colour above the word record. As soon as the bar graph is above the word RECORD, release the zoom button and the video recording will start. Recording in progress is displayed in red on the left of the display by flashing REC and the recording time is shown. Hold the ZOOM button again until the bar graph is filled above the word RECORD. At this point, release the ZOOM button and recording will stop. At the same time, the recording time displayed in red at the top left disappears.

Contrast, display brightness

If you press M to confirm the CONTRAST or BRIGHTNESS item, the particular word will turn yellow. Turn N – up and down – to change the intensity of the contrast / brightness of the display in the values from 0 to 10.

EXIT – the cursor is on the EXIT item – press M briefly to confirm EXIT / End of work in the short menu.

Basic – main menu

Bolometer settings

Display

BARBA cursor

STYLE cursor

UPLOAD menu

SAVE settings

Battery selection

TSV setting

Distance

RECTICLE (shot)

EXIT

1. **Bolometer settings** - if the cursor is on this item, press M to get to the submenu. In this section, you can change the following settings:
Brightness – contrast
Focus
Calibration
Exit

You are on the item **BRIGHTNESS - CONTRAST**. Press M and you will get to submenu where you can change the brightness and contrast intensity of the microbolometer by turning N - UP - DOWN. The change procedure is the same when adjusting the brightness and contrast. Turn N to get to the item you want to change (brightness or contrast). Press M to confirm. Turn N - UP, DOWN to change the contrast/brightness from 0 - 30. Press M to confirm the set value. Scroll to the EXIT item, press M to return to the submenu. You can change the brightness and contrast for each range separately. In each range, you can achieve the image that suits you best.

You are on the item **FOCUS**. Press M to confirm and you will get to submenu. Focus ON, Focus OFF, focus level, exit. FOCUS ON / FOCUS OFF - You can turn on / off (press M) sharper depicting of the edges (outlines) of the image. FOCUS LEVEL - you can change the intensity of image focus in degrees 0-10. The recommended value for normal observation is 3-5. The setting depends on the temperature and weather conditions which you are observing in. If you select level 0 - edge depicting is OFF.

You are on the item **CALLIBRATION**. Press M and you will get to submenu. In the first line, there is a function of automatic calibration AUTO-CALIBRATION ON. In the next line, there is a TURNING – OFF function of the automatic calibration. This function is marked as AUTO - CALIBRATION OFF with an arrow to the right (set from the factory). After the device is started, a mechanical, slightly audible calibration is performed several times. Furthermore, the device no longer calibrates. If you wish to calibrate the device yourself (for example, in the case of a visible deterioration of the image), press briefly the POWER button (the button closer to the eyepiece), and the device calibrates. The second method of manual calibration - move the cursor to the third line CALLIBRATION - SCENE and press M. The red notice "PROCESSING" will appear on the display and the device will calibrate. Attention - during this function – MANUAL CALLIBRATION, the lens cap must be closed.

2. **DISPLAY** – the display is optimally set from the factory. If any change is needed, it is possible to proceed as follows: Confirm M to get to submenu where you can change the intensity of the brightness, contrast of the display, GAMMY setting and OSD transparency of the menu on the display. The procedure for changing the brightness and contrast settings is the same. Turn N to get to the item you want to change. Press M to confirm. Turn N – UP/DOWN - to change the contrast / brightness from 0 - 10. Press M to confirm the set value. **GAMMA SETTING** - turn N to control the lightening or darkening of the image. **OSD TRANSPARENCY menu** turn N - up and down - from 2 to 10 to change the OSD TRANSPARENCY. You can return to the menu via the EXIT item. You can control the brightness and contrast setting.

3. **CURSOR COLOUR** – confirm M to change the cursor colour. You can select from 5 colours. Turn N – UP / DOWN – to select the desired cursor colour. Press M to confirm the colour. Confirm the EXIT item to return to the menu.

4. **CURSOR STYLE** – confirm M to get to the submenu where you can select a change of the cursor type, or you can turn-off the cursor. Confirm the first item (press M) CURSOR to get to the menu containing 12 cursor types. Turn N – UP / DOWN – to select the type of cursor which suits you. The number of the selected cursor is always displayed at the item CURSOR. Press M to confirm the type you have selected. The second item enables the cursor to be turned OFF or ON. Go to EXIT and return to the main menu.

5. **UPLOAD MENU** – you are on the particular item. Press M to get to the submenu: **START, PRE-RECORDING, STOP, PAUSE, QUALITY, EXIT.**

START – confirm the START item to start recording

STOP – press M to finish recording.

PAUSE – press M to stop recording. Press M again to start recording.

QUALITY – The quality of the video recording is set before the recording is started. You can confirm M to set the quality of recording in four levels. You can select a lower quality LOW (50 frames per second), common quality NORMAL (65 frames per second), excellent quality FINE (85 frames per second), or the best quality BEST (95 frames per second).

6. **SAVE SETTINGS** – if you want to keep all the changes you have made even when the device is turned ON again, it is necessary to save the changes in the settings. Move the cursor on the item SAVE SETTINGS and press M. All the changes you have made will be saved. Confirm the EXIT item to return to the MENU.

7. **BATTERY SELECTION** It is necessary to select the type of batteries which you have used for the thermovision from the menu in order the device to display the current state of the batteries correctly.

The type of batteries which you get from the manufacturer when purchasing the device is already set in the thermovision. You can use 3 types of batteries in the EAGLE type:

4 pcs CR123A (3V primary cell), or

4 pcs rechargeable lithium batteries RCR123A (1,7V)

2 pcs Li-ion 18650 (3,7V).

Press M to confirm the type of batteries you have selected. Press EXIT to return back to the menu.

Important note!

Use only the batteries supplied by the manufacturer. The batteries must be without a protective circuit. Otherwise, the customer loses the right to warranty.

Transport the device without batteries.

Use only the batteries that do not have a damaged insulation layer. If not, there is a risk of fire and loss of warranty. The manufacturer waives all responsibilities if damaged batteries are used.

8. **TSV SETTINGS** - This function is mainly used for service. Confirm M to get to the cyclic / scrolling menu. The user can change only some items. Most items are only informative. Items in the submenu:
- N-CODER DIRECTION** – you can set the movement direction of the n-coder in the menu.
 - ZOOM** – this enables you to change smooth zoom to transition zoom
 - TSV MODE** – switch to TSV 50 conversion lens mode or TSV observation mode.
 - SERVICE KEY** – available only for service. The client can change nothing.
 - HW / SN INFO** – only informative.
 - EYEPIECE DISTANCE** – service item used for EAGLE TSV14-02
 - FACTORY SETTINGS** – it is possible to confirm the factory settings in this item – all your changes you have saved will be deleted. The device settings will be returned to the factory values.
 - GYRO** – this function is not active yet.
 - LANGUAGE** – selection of the language in which the menu will be displayed. You can select from 5 languages: Slovak language, Czech language, English language, Russian language, Croatian language. Press the central switch M to confirm the language you have selected.
 - STATUS LED** - this enables you to turn the LED light off which signals the battery status (this option is mainly used by hunters so that the light does not disturb animals).
 - EXIT** – Press M to return to the submenu.
9. **DISTANCE** – you will get to the submenu where you can turn a ruler on and use it for approximate distance measurement (ON). Hold M and confirm to turn the ruler off (OFF).
10. **SHOT (RETICLE)** – one shot. You can set and save up to 10 shorts in this part.
- NAME 1** – you can name the type of weapon, or add some information about the distance of your shot there. Move to the item NAME and press the button M. A keyboard appears. Turn N – UP / DOWN – to move in this part. Press the centre switch M to confirm the selected letter. Using this way, you can name the SHOT / DISTANCE etc. Go to SAVE SETTINGS and press M to confirm. The name will be saved. Use the item EXIT to return to the submenu where you can set the coordinates of the shot. You can set the shot as follows: Aim at the target and shoot. If the shot has not reached the target, turn N to go the item NASTREL, press M to confirm and a new type of cursor will appear on the display – a circle with a centre point. The new X, Y coordinates for the circular cursor will display in the second time at the same time. You can change the coordinates X and Y in the same way. You are on the X coordinate in the second line (the corresponding coordinate is in green), press M to confirm (the letters turn yellow, which means that the value of the item can be changed). Turn N to change the value of the selected circular cursor coordinate. When the X coordinate is in the correct position, press M and the colour of the letters will turn to white. Turn N to move to the Y coordinate (the corresponding coordinate has a green background), press M to confirm (the letters turn yellow, which means that the value of the item can be changed). If the centre point of the circular cursor overlaps with the real point of the shot, go to ALIGN and press M to confirm. This will set the shot coordinates in the first line according to the coordinates of the circular cursor (the center of the circular cursor overlapped with the center of the reticle). Confirm the item EXIT and you will return to the shot setting submenu. You will return to the position of the currently named shot, or to the named type of weapon. You have information about the set values of the X axis and Y axis for every type of shot. If you want to finish shots setting, go to exit and confirm it to return to the main menu.

If you want to set other shots, go to the item NAME, press M and turn N to see a keyboard. Proceed in the same way when setting the first shot. If you want to see the current weapon type (shot) and its coordinates on the display, go to the RECTICLE item and press M. The line

for setting the shot will appear. Turn N and go to the item BAL.ON / OFF and press M. An arrow will appear, which means the ballistics data is already shown on the display. Use EXIT to return to the main screen. An icon for the ballistic data will appear on the top right of the display.

Hold briefly PWR and the ballistic range icon will be marked with a green frame on the right side of the display while the word RANGE will be colored green at the bottom. Press M and the frame will turn white. Turn the n-coder switch N to go to the ballistics icon. Press M and the icon will be marked with a green frame. Turn the n-coder to change the ballistic data. **Note:** The icon for ballistic data will appear only if the BAL ON option is turned ON. If you do not want to display the shot in the upper part of the display, go back to the main menu to the REKTIKL item and turn the ballistics on/off. Note: for every newly set value, the related changes must be saved - access from the main menu, item: save settings.

EXIT – confirm the EXIT item and press M to finish the work in the menu.

NOTICE

every Eagle device is equipped with an analogue video output.

information to download videos and photos

After the thermovision (must be ON) is connected via the attached cable, the device will enter as a USB removable disk. Open the file and download your videos and thermal images to your PC. After the content of the SD card is downloaded (placed in the thermovision), it is always necessary to format this SD card with the basic FAT32 format. Subsequently, it is very important to disconnect the cable only after you enter the legal termination of the removable storage and after you have received the information: now you can disconnect the device. If you disconnect the device before this message appears, the SD card may be damaged.

If you have also purchased a RECKNAGEL, BLASER or MAK assembly package together with the device, please note that their professional adjustment is necessary so that they are not damaged when they are attached to the bar. Such a damage cannot be the subject of a claim. Do not expose the thermovision to long-term heat effect so that it does not overheat.

Do not look into intense sources of radiation such as the welding arc, the sun, fire, lamps...it may damage the sensor and void the warranty.



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