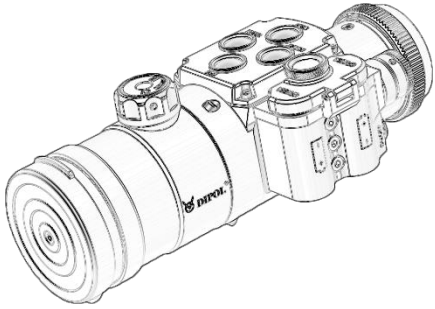
DIPOL

Explore Your Night



TFA 2.0 SL / 2.8 SL

Thermal imaging

front attachment

MANUAL

EN

CONTENT

ATTENTION!

Before putting the appliance into operation, carefully read the present operating instructions!

SCOPE OF DELIVERY

- TFA device
- Kordura pouch
- Lens cleaning cloth
- Manual
- USB cable with locking cap

IMPORTANT NOTES & WARNINGS

Never look with the device in the sun or other intense heat sources, this can lead to damage of the sensor!

- Protect the device from strong side impacts.
- Only use optical cleaning cloths when cleaning glass surfaces.
- Remove the batteries to store.
- Use batteries and power supplies from reputable manufacturers.
- Wait 20 seconds before switching the device on again.

APPLICATION

The monocular is designed to observe moving and immovable objects in different lighting conditions as well as limited visibility (fog, dust, etc.). The device can be used to display locations and objects of a temperature different from the environment. It can e.g. used by guardians, tourists, hunters, fishermen to explore the terrain, detection and recognition of different objects and nature observation.

Please note that the use of the device on a riflescope is restricted in many European countries without a special permit. Follow state laws and applicable legislation!

DESIGN

1. ON/OFF button
2. Onjective rubber cover
3. Focusing knob
4. MENU controller
5. Battery compartment
6. Power-on indicator
7. INVERT button
8. REC button
9. TABLE button
10. PALETTE/PROGRAMM button
11. Micro USB sloth
12. Jack 2.1 sloth
13. Support weaver rail
14. Eyepiece (optional)
15. Locking ring
16. Clamp adaptor (optional).


3
14
6
5
1
2


3
13
REC
8
CR123A
5
7
9
11
INVERT
TABLE
CR123A
10
12
PALETTE
4
6
15


16

TECHNICAL DATA	2.0 SL / 2.8 SL
Sensor, pixel/pitch	384x288, 17µm
Micro display, pixel	OLED 1024x768
Focal length/ aperture ratio	F40, 1,0 / F55, 1,0
Exit pupil, mm	30
Magnification	1x
Field of view	9,3° x 7,0°/7,5° x 5,6°
Detection range (for objects 0.5x1.8m), m	up to 2000/ 2800
Spectral range, micrometre	8-14
Frequency, Hz	50
Colours / Inversion	10 / yes
Max. impact load, G	600
Batteries, type	2 x CR123A
Accumulators, type	2 x LC16340
Outer supply: Jack 2.1	9,5 - 14,5 V
Outer supply: micro USB	5 V
Working time with full batteries (+20°)	4 hours
Operational temperature, °C	-20 ... +50
Videorec. temperature, °C	-15 ... +50
Degree of protection	IP66
Dimensions, mm	175x76x105/201x76x105
Weight, kg	0,57 / 0,6
Manual adjustment of sensor sensitivity	+
Manual adjustment of sensor amplification	+
Manual adjustment of display brightness	+

PERFORMANCE CONTROL

Insert the batteries according to the polarity shown on the battery compartment (5) and remove the lens cover (2). Switch on the device by pressing the ON / OFF button (1). The control indicator (6) now lights up red. The complete switching on process should not take longer than 3-5 seconds. The device is completely ready for operation after the following view appears.
If the light indicator does not light up or blinking and the battery status indicator at the bottom right of the display is not visible or blinking, the battery charging or charging of external power sources must be checked.

If the power supply taking place via the micro USB slot, a USB symbol will be displayed instead of the battery status sign.

While using rechargeable elements instead of batteries, the battery indicator changes its colour to blue.

To be able to use the thermal imaging monocular with other optical devices you may need a suitable adapter.
First, loosen the locking screw on the locking ring (15) on the ocular side of the device with the enclosed key. Now screw the adapter (16) on, place it into desired position and fixe it

with the locking ring (16). The locking ring have to be tightened again after that.
After using the device, close the objective with the lens rubber cover (2) and switch off the device by pressing the ON/OFF button.

OPERATION & QUICK SETTINGS

Use as stand-alone device
With the optional eyepiece (16) you can use your TFA device as an independent observation device. First, attach an eyepiece to the ocular part of the device with a suitable adaptor. After that, adjust the sharpness of all display indications with the eyepiece (14). Then point the device at the object to be observed and adjust the sharpness of it with the focusing knob (3).
Use with day optics
To be able to use your TFA device with other (day) optics, the suitable adapter is required with inside diameter corresponding to the outside diameter of the day optics' objective. As described above, firsts the display sharpness has to be adjusted with daytime optics. After that, the observed objects' sharpness to be adjusted with the focusing knob (3).
Changing colour palettes
Hot black / hot white colours are usual default setting. To change these settings, press and hold the INVERT button (7) for 3-5 seconds

until the PLx display appears (where "x" - the number of the colour group, from 0 to 9). The desired colour can now be selected by pressing the INVERT button (7) again. To save this setting, press the MENU controller (4). Note that the device settings do not change after switching the device off.

Colour inversion

Briefly press the INVERT button (7) to select the required image polarity: e.g. "hot black" or "hot white". All existing colours can be inverted. The selected polarity is shown on the display for a moment ◆ (normal) or ◆ (inverted).

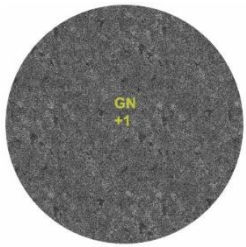
Micro display stand-by mode:

To switch off the display temporarily (to save power) shortly press ON/OFF button (4). To activate it, press the ON/OFF button again.

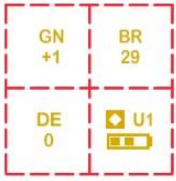
Quick settings: display & thermal sensor

With the MENU controller (4) you can adjust the *brightness of the display* (Display Brightness / BR), the *sensor sensitivity* (Thermomatrix Sensitivity / SN), *digital image enhancement* (Image Detail Enchancement / DE) and *sensor performance level* (Thermal Image Gain / GN).

The individual setting modes can be seen on the display as shortcuts (here e.g. GAIN):



To adjust the *brightness* of the display (BR), choose the suitable value from 1 to 30, turn the MENU controller (4).
To set the optimal *sensor sensitivity* (values from 40 to 80), turn the MENU controller (4) in the selected sensor sensitivity mode (SN).
To set the optimal level of *contrast/digital image enhancement* (values from 0 to 7), turn the MENU controller (4) in the selected (DE) mode.
To set the optimal *sensor performance* (GN), choose the suitable value from -10 to +10 by turning the MENU controller (4).
An alternative way to make settings is to use the Quick settings table. To enter it, shortly press TABLE button (9).



Press the TABLE button (9) to open the Quick menu. By pressing and turning the multifunction button (4) you can switch

between the individual settings and change their values.
Read about the user profiles (User Profiles / U) in the following chapter.

BASIC MENU

To call up the main menu, keep the MENU multifunction button (4) pressed until the main menu appears in the field of view.

To move up and down in the menu, turn the MENU controller (4) in each direction. Choose menu lines by briefly pressing the MENU controller (4). Exit menu lines by pressing the MENU controller (4) again.
To exit the main menu, press and hold the MENU controller (4). The main menu also disappears automatically after 15 seconds of inactivity.
The selected setting modes with their current values are shown at the bottom of the status bar.

User Profile

The four sensor and image quality settings described above can be saved along with the selected Colour palette and Colour polarity as *individual unser profiles*.

The TFA device already has three pre-installed profiles: Fix 1 Woods, Fix 2 City, Fix 3 Mountains. If one of these profiles is selected, the difined individual settings made previously are no longer available.

However, each profile (User 1, User 2, User 3) can be customized. Press and turn the MENU controller (4) to access the corresponding positions and sub-positions of the main menu. The selected settings or their changes are saved automatically in the respective profile.

Colour palette

You can choose from 9 (plus standard setting) available colour palettes, which are displayed when you first call up the "Colour palette" menu item. Note that the settings of the selected palette are saved after the device is switched off.

Change of Colour palette
(Palette on button USER)

In this way, you can quickly select a different colour palette than defined in the basic setting (Colour Palette).

Thermal image gain

Here you can determine the performance of the thermal imaging sensor. This setting

process is also described in detail in the *operation & quick settings* chapter.

Display brightness

The brightness setting of the micro display can be made in this menu item. This setting process is also described in detail in the *operation & quick settings* chapter.

Thermal sensitivity

The settings for the sensitivity of the thermal sensor can be adjusted here. To set the optimal sensor sensitivity (values from 40 to 80), turn the MENU controller (4).

Image Detail Enhancement (IDE)

Settings for increasing the general image quality and detail. This setting process is also described in detail in the *operation & quick settings* chapter.

Super contrast display mode

Increases the contrast and image quality, especially with insignificant temperature differences for observed objects or backgrounds.

USB transfer mode

Enables the copying and deletion of video files from the built-in memory card. If you select this menu item and the words "Connection is being established ..." appears on the screen, the device will soon be visible as a flash drive when it connect to a PC.

Video recording mode

You can choose either a normal start or a quick start for video recording.

In *normal start* mode, the video recording starts with a slight delay (up to 10 seconds) after the "REC" button (8) is pressed to switch on the corresponding module and load the software.
In the *quick start*, modules and software loading are activated just after the pressing the "REC" button. Videos are recorded up to 5 seconds faster after the REC button is pressed.
The following indicators are visible in the status bar during video recording:
REC (blinking) - Recording module active
REC – ready to record
REC • 00:01:20 - recording
REC Saving - internal storaging running.

Note, that the battery consumption is greater in the video recording mode as well as during the quick start.
To reduce power consumption, you can press and hold the “REC” button (8) for a few seconds and turn off the video module.
After that, it takes some time for to start recording video again, similar as during the normal start mode.
Please note that video recording is not possible if the internal or external power sources are not sufficiently charged. Due to that reason, the recording also can stop automatically.

Date and time stamp

Using the date and time stamp, the date and time of the video recording can be displayed on the internal memory card.

Adaptation to the ambient temperature:

For better contrast when observing the objects ans surroundings with very similar thermal patterns, the thermal imaging sensor can be adapted to the average ambient temperature in this mode.

Automatic pixel correction

After an automatic correction of defective pixels, press and hold the MENU controller (4) to save changes or briefly press the MENU controller (4) to cancel the changes.

Please note, that the lens must be closed by the device during the pixel correction!

Manual pixel correction

In this mode, individual defective pixels or pixel groups can be corrected manually. Please note that the correction of a pixel group from its edges to the center must be done by gradually reducing the radius of the group.

By turning the MENU controller (4), the marking cross can be moved over the field of view (note: with constant rotation, the increment of the shift increases!).

The coordinate axis of the cross movement can be changed by briefly pressing the MENU controller (4). After the cursor is positioned as

precisely as possible over the defective pixel, briefly press the ON / OFF button (1). The pixel then changes colour.
Repeat the process with other defective pixels if necessary. To save the changes, press and hold the MENU controller (4).

Programming the buttons
(User button function)

In this mode, you can select one of the available menu functions for quick access via the buttons on the top of the device: colour palette, user profile, super contrast display mode.

Position of the status bar

Allows positioning of the status line/bar in the field of view or return it back to factory settings.

Delay time of the status bar

Here you can set the inactive time (in seconds), after which the status bar disappears from the screen.

OSD transparency

Allows transparent menu display while the screen is in a static state.

Automatic switch-off

Allows the device to turn off automatically after a period of inactivity (in minutes).

Position profile

This MENU mode allows quick switch between *Image position* and *Table position* setting pairs (each setting pair = *correction/sight in profile*). There are 5 profiles avaliable.

Important: here you do not change your User profiles (s. page 13).

Important: all correction profiles are saved automatically after changing them!

Image position correction
Here you can move the image on the micro display according to the sight in of your day optics (see chapter ADJUSTMENT).
Table position correction
Here you can place the quick settings table in the position on the micro display, which allows your to check the mounting correctness of the re-attached TFA device (see chapter ADJUSTMENT).
Reset position setting.
Allows to reset Image position and Table position to factory defaults.
Date
In this section you can set the date to be displayed during video recording or video transmission. The setting is made by pressing and turning the MENU controller (4).
Please note that the date and time settings are not lost after the power elements are switched off or removed.
However, if the device has been switched off for a longer period (longer than 4 months), the date and time settings may need to be made again.

Time setting

Here you can set the time that is displayed during video recording or video transmission. The setting is made by pressing and turning the MENU controller (4).

Clear internal memory

Here you can delete ALL video recordings from the internal SD memory card without having to connect the device to a PC.

Language

Allows you to select the language for the user interface. Russian, English, German, Spanish are available.

Software version

Displays the version of the installed device software.

Carry out a reset

Here the current device settings can be reset to the factory settings. Please note that the quick settings of the image and sensor, as well as the settings in the user profiles remain unchanged!

Briefly press the MENU controller (4) and select “Yes” by turning. Briefly press the controller to confirm.

Please note that a reset is not possible during video recording!

ADJUSTMENT

Make sure that your day optic is sighted in at 100 m.

• Point your day optic exactly at a relatively small warm object (e.g. a hand warmer) at a distance of approx. 100 m and fix it solidly in this position e.g. in a vice.

• Mount the TFA device on the objective of your day optics using a high-quality clamp adapter (e.g. SmartClip).

• Switch on the TFA device, open the objective cover and look through the whole system again.

• If the observed object is no longer in the centre of the reticle, it must be “moved” back there.

• To do so, press and hold the MENU controller (4) and select the ***"Image position correction"*** in the main menu.

• In the «correct» mode that appears, first move the object along the X-axis (horizontal directional arrows) by turning the MENU controller (4) and confirm the correction.

• Now move the object along the Y-axis (vertical directional arrows) in the same way and confirm the correction.

• Go back to the main menu (press and hold the MENU controller (4) and select the menu line ***"Table position correction"***.

• In the same way as described above, move the complete quick settings matrix that

appears so, that its centre lies exactly above the object/reticle.
• Confirm and exit the main menu.

For repeatability control, the quick settings table can be called up briefly every time you re-attach your TFA device, the adapter opened and device moved slightly so, that the four-field matrix lies on the marking of the day optics. The adapter must then be closed up again. This control procedure is usually not necessary though, with a good adapter the devices are repeatable.

ACCESSOIRES

The device offers the possibility of connecting an external power source with 9.5-14.5 V with a JACK 2.1 connector (12).
It is also possible to supply the device with an external power source via the micro USB connector (11) with a voltage of 5 V.

POSSIBLE ERRORS & TROUBLESHOOTING

Your device is a complex optomechanical device. A repair or maintenance may only be carried out under the conditions of the manufacturer.
If the display does not appear or flash after switching on and the image is missing or flashing, the batteries may be dead or the

contacts in the battery compartment may be broken.
Replace the batteries and check the contacts to the battery compartment cover (11) and contacts in the battery compartment for traces of corrosion and dirt.
If the device still does not work as intended after the batteries have been replaced and cleaning the contacts does not help, do not attempt to disassemble and repair the device yourself, even if other defects or faults occur. This can be cause major failures and loss of warranty. Please contact the seller or the manufacturer.
Make sure that the maximum operating time of the device is achieved by using batteries of known manufacturers with a temperature of + 20° C. Using batteries of unknown manufacturers and during the wintertime, the operating time of the device may be reduced, and it does not indicate a technical defect.

STORAGE & TRANSPORT

The device should be stored in a dry, warm and ventilated room with a relative humidity of up to 80% at a temperature of 5° C - 30° C. There should be no acid fumes, alkali and other aggressive airborne contaminants in the room. Even if the device is only to be stored for a relatively short time, remove the batteries from the battery compartment.

The transport conditions depend on climatic factors (temperature from -50° C to + 50° C, relative humidity not more than 98% at 25° C). The device can be transported with any type of covered vehicles according to the transport regulations of the respective mode of transport.

QUALITY CERTIFICATE

Thermal imaging front attachment
TFA2.0 ☐ /2.8 SL ☐

Serial № ……

Sensor № ……

Release date ……

Quality control department

……

WARRANTY

- The manufacturer guarantees that the quality of the thermal monocular meets the technical requirements, if the rules and conditions for storage, transport and operation are observed.
- The warranty period is 24 months.
- The manufacturer repairs the unit or changes it in the event of a manufacturer's fault during the warranty period.

MANUFACTURER & SALES:

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COMPLIANCE NOTE

CE This device complies with the EMC Directive and Waste Electrical and Electronic Equipment Directive, as well as other applicable European directives, in accordance with the essential requirements and other regulations.


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