USER’S MANUAL
Volk Pictor Plus
Digital Imaging Device
THIS SALES PACKAGE INCLUDES:

Pictor Plus camera with optics lenses and accessories:

<table>
<thead>
<tr>
<th>Model:</th>
<th>Description:</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retina Module (VP2RET)</td>
<td>Module for eye fundus imaging</td>
<td>eye cup, quick user guide</td>
</tr>
<tr>
<td>Anterior Module (VP2ANT)</td>
<td>Module for exterior ophthalmic imaging</td>
<td></td>
</tr>
<tr>
<td>Imaging handset (VP2HAND)</td>
<td>Handset for general imaging</td>
<td></td>
</tr>
<tr>
<td>Cradle (VPCRADLE)</td>
<td>For data transmission and battery charging</td>
<td>USB cord, power unit</td>
</tr>
</tbody>
</table>

In addition, the sales case includes:
- Cleaning cloth
- User manual

NOTE: Refer to the Instructions for Use page on the Volk website for the most current version of the user manual: [www.volk.com/ifu](http://www.volk.com/ifu)
- Batteries

The following accessory can be purchased separately:
- Pictor Plus Slit Lamp Adapter (VP2SLM) that enables the camera to be used as stationary imaging tool.

QUICK START GUIDE

What to do before the first use:

1. Remove the Volk Optical Pictor Plus from the sales package and check that all parts are undamaged.
2. Install Battery as instructed in Appendix B of this manual.
3. Place the cradle on a desk next to the PC (personal computer).
4. Connect the other end of the USB cable to the PC.
5. Connect the power unit to the wall plug (mains).
6. Place Pictor Plus on the cradle. Battery starts to charge. Charge battery for four hours before the first use. When device is not used, it may be stored in the cradle.

Guideline for placing the camera to the cradle:

The camera will fit into the cradle when it is held straight while placing it. Excessive force must be avoided in order to prevent the camera and cradle connectors from breaking.

Guideline for battery and device storage:

If the battery is stored out of the camera for a long period of time, ensure that the battery is fully charged before storage. During storage, the battery must be re-charged occasionally (e.g., every 3 - 9 months).

If the battery is stored in the camera, then the camera must be placed in the cradle with the cradle power cable connected.

Normal battery life time is expected to be 1 - 2 years.
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1 INDICATIONS FOR USE

Pictor Plus is a medical digital camera that is used with dedicated optic lenses intended to take images of the eye fundus, and surface of the eye.

Supported optic lenses and their intended uses are:

<table>
<thead>
<tr>
<th>Component:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP2RET</td>
<td>Module for fundus imaging. The Pictor Plus VP2HAND digital camera with the VP2RET optics module is intended to capture digital images and video of the fundus of the human eye.</td>
</tr>
<tr>
<td>VP2ANT</td>
<td>Module for exterior ophthalmic imaging. The Pictor Plus VP2HAND digital camera with the VP2ANT optics module is intended to capture images and video of the surface of the human eye and surrounding areas.</td>
</tr>
</tbody>
</table>

2 CONTRAINDICATIONS FOR USE OF THE EYE OPTICS RETINA MODULE VP2RET AND THE EYE OPTICS ANTERIOR MODULE VP2ANT

Because prolonged intense light exposure can damage the retina, the use of the device for ocular examination should not be unnecessarily prolonged, and the brightness setting should not exceed what is needed to provide clear visualization of the target structures.

The retinal exposure dose for a photochemical hazard is a product of the radiance and the exposure time. If the value of radiance were reduced in half, twice the time would be needed to reach the maximum exposure limit.

While no acute optical radiation hazards have been identified for direct or indirect ophthalmoscopes, it is recommended that the intensity of light directed into the patient's eye be limited to the minimum level which is necessary for diagnosis. Infants, aphakes, and persons with diseased eyes will be at greater risk. The risk may also be increased if the person being examined has had any exposure with the same instrument or any other ophthalmic instrument using a visible light source during the previous 24 hours. This will apply particularly if the eye has been exposed to retinal photography.

Pictor Plus VP2RET and VP2ANT are classified as Class 2 based on standard ISO 15004-2:2007. The daily usage time and maximum allowed number of pulses is calculated based on optical classification results according to standard ISO 15004-2:2007.

CAUTION:

The light emitted from this instrument is potentially hazardous. The longer the duration of exposure and the greater the number of pulses, the greater the risk of ocular damage. Exposure to light from this instrument when operated at maximum output will exceed the safety guideline after:

- Maximum number of pulses (still images) allowed daily:
  - VP2RET: 6300 pulses (still images) / eye
  - VP2ANT: 250 pulses (still images) / eye

- Total daily usage time for continuous light (video usage time and aiming light duration) shall be limited to:
  - VP2RET: 1 hour 30 minute video usage / eye
  - VP2ANT: 8 minute video usage / eye
3 WARNINGS AND CAUTIONS

Use only the accessories and battery provided by Volk Optical with this product.

Place PC and cradle outside of the patient environment (at least 4 feet distance from the patient).

Connection between the camera and the workstation is USB and/or Wi-Fi. Any authorization procedures should be carried out in the workstation.

Images and videos can be copied from camera to workstation via USB and/or Wi-Fi, and then viewed in the workstation.

USB write protection is on by default. When protection is on, this feature will prevent writing to the camera memory card from the PC when connected to the cradle. In case device has Wi-Fi functionality, USB write protection must be turned off.

No modification of this equipment is allowed.

4 IMPORTANT SYMBOLS

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![CE]</td>
<td>The CE mark on this product indicates it has been tested and conforms to the provisions noted within the 93/42/EEC Medical Device Directive.</td>
</tr>
<tr>
<td>![CE] 0086</td>
<td>CE mark with notified body identification number indicates a Class IIa product.</td>
</tr>
<tr>
<td>![i]</td>
<td>Read accompanying user documentation indicates that important operating instructions are included in this User’s and Maintenance Manual. Failure to follow these instructions could place the patient or operator at risk.</td>
</tr>
<tr>
<td>![!]</td>
<td>Indicates the need for the user to consult the instructions for use for important cautionary information such as warnings and precautions that cannot, for a variety of reasons, be presented on the device itself.</td>
</tr>
<tr>
<td>![man]</td>
<td>Type BF applied parts. Applied part is a part of Pictor Plus that in normal use necessarily comes into physical contact with the patient.</td>
</tr>
<tr>
<td>Symbol</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>[Image]</td>
<td>Charger polarity symbol, voltage, and power.</td>
</tr>
<tr>
<td>[Image]</td>
<td>The symbol indicating that the device is capable of wireless data communication based on the 802.11 IEEE network standard.</td>
</tr>
<tr>
<td>[Image]</td>
<td>Sticker at the front of the device indicating Volk Optical’s address, integrated general imaging optics focal length, and F-number.</td>
</tr>
</tbody>
</table>

5 PARTS OF THE DEVICE

1. Bayonet connector
2. Bayonet hole
3. Optics release button
4. Dual action shutter
5. Snap for opening battery cover
6. System connector

7. Connection LED
8. Reset button
9. Power LED
10. Right soft key
11. Left soft key
12. Middle key
13. Arrow keys

**CRADLE:**

14. System connector
15. USB cord
16. Power cord

SOFT KEY INDICATORS:

<table>
<thead>
<tr>
<th>Position</th>
<th>Indicator</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left soft key</td>
<td><img src="image" alt="(Device Icon) " /></td>
<td>To power on the device&lt;br&gt;To power off the device, with long press</td>
</tr>
<tr>
<td>Right soft key</td>
<td><img src="image" alt="(Device Icon) " /></td>
<td>Open menu with long press</td>
</tr>
</tbody>
</table>

LED INDICATORS:

The recharging and connection to PC is indicated with green (charging) and blue (connection) LED-lights:

<table>
<thead>
<tr>
<th>Position</th>
<th>Indicator</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left LED-indicator Green</td>
<td><img src="image" alt="(Device Icon) " /></td>
<td>Active when device is powered on, blinking when charging in cradle</td>
</tr>
<tr>
<td>Right LED-indicator Blue</td>
<td><img src="image" alt="(Device Icon) " /></td>
<td>Active when device is placed to the cradle and connected to a PC</td>
</tr>
</tbody>
</table>
GRAPHICAL INDICATORS:

These indicators are displayed on the top row of the display during imaging:

1. S=Still, V=Video
2. Patient ID
3. Optics: RET (eye), ANT (eye surface), DF (no lens)
4. Battery indicator
5. Time
6. Variable indicator (changes with optics module according to middle key function)
7. Variable indicator with ANT optics attached: W=white light, B=blue light
8. Zoom indicator
9. Dioptr compensation indicator in manual focus mode with RET optics attached
10. Brightness indicator
11. Variable indicator (changes with optics module according to left soft key function)
12. Variable indicator with RET optics attached: Target hi, Target low, Target off
13. Focus: Manual/Auto/AF Assist with RET optics attached

6 USAGE ENVIRONMENT REQUIREMENTS

CAUTION:

Pictor Plus is not suitable for use in the presence of flammable anesthetics.

Pictor Plus is intended to be used inside; within a normal room temperature and a normal humidity environment. Do not use Pictor Plus in an environment where there is a possibility for water to condense on or inside the Pictor Plus. The type of power supply required is indicated in the Technical Description section.
CAUTION:

It is only allowable to attach the USB cable and power source provided in the sales package into the cradle. If you need replacements to the USB cable or power source, then please contact the Manufacturer or your own Retailer.

The USB cable must be connected only to the USB port of a PC computer that complies with the IEC 60950 standard. Avoid using excessive power or twisting the connector when connecting the USB cord to a PC.

Place PC and cradle outside of the patient environment (at least 4 feet distance from the patient).

To transfer patient image data, the device must be used together with a computer running either Microsoft Windows, Macintosh, or Linux. The device does not need any drivers to be installed on the computer.

Writing to the SD card from a PC is not enabled.

The device can be used with all major patient database applications supporting both textual and image data recording.

The device must be used according to this manual, quick reference guide, and/or information found on Volk Optical’s website www.volk.com.

Electromagnetic compatibility information and recommended separation distances between portable and mobile RF communications equipment and the Volk Optical Pictor Plus are given in Appendix A.

7 OPERATING INSTRUCTIONS

This chapter gives instructions for using the device. More specific instructions for using optics lenses are given in the optics lens specific chapters.

7.1. Preparations

Pictor Plus is both charged and connected to a PC using the provided cradle. When Pictor Plus is not used, it may be stored in the cradle. Storing the device in the cradle is not harmful for the battery because the battery is charged only when the charge has dropped below a certain limit.

To connect Pictor Plus to the cradle, gently place it into the connector hole. The device can be connected to the cradle with optics attached.

7.2. Connection to a PC

Image data transfer method to a PC is similar as with a digital camera.

When connected to a PC running Microsoft Windows, the operating system displays query for AutoPlay. It is possible to select the appropriate image viewing program, or simply open the folder to view and then store files to the hard disk of the PC.

Writing to the SD card from a PC is not enabled.
7.3. Basic use – starting up, shutting down, and taking an image

The device is powered on by pressing the left soft key.

Pictor Plus verifies if image data is to be erased when:
- Device is powered on from power off mode or power save mode
- Device is removed from the cradle

It is recommended that image data storage is always erased with a new patient.

The device offers the possibility to edit the current patient information.

It is possible to capture both still images and video. Image capture mode is changed from the camera menu that opens by pressing the right soft key for 1 second.

Still image is captured using the dual action shutter to the second position. When set to Video mode, video is captured by keeping the dual action shutter pressed down in the second position.

A taken image will stay on the display until it is cleared by pressing the right or left soft key. The image can be zoomed in instant preview by pressing the middle key. There are four zoom levels. Pressing the middle key activates the next level. Move around the image by using arrow keys.

To transfer images to a PC, place the device into the cradle. The image transfer and charging is indicated with green and blue LED lights and text on the LCD screen.

The device is powered off by keeping the left soft key pressed down for over 1 second.

7.4. Attaching and detaching optics module

⚠️ CAUTION: ⚠️

Optic modules used with Volk Optical Pictor Plus must include text “PICTOR PLUS” or “PICTOR”. It is not allowed to attach other objects to the bayonet connector.

Optics are attached by placing it in front of the bayonet area of the device. Three bayonet legs are placed on the holes and optics is pressed firmly to the device.

1. Bayonet legs
2. Bayonet holes
3. Optics release button

7.5. Device Menu

The menu is opened by pressing the right soft key \( \boxed{\text{Menu}} \) for 1 second.

The menu has six tabs. One is for device settings, such as language selection. There is one tab for retinal imaging (RET), anterior eye imaging (ANT), and general imaging (DF).

The arrow keys are used to move between tabs: use arrow key up until tab is active and use left and right arrow keys to change active tab. A light blue color indicates an active tab.

The arrow keys change values in the menu. An active value is indicated with a light blue color. Changed values are saved by using the left soft key (“Ok”) and cancelled by pressing the right soft key (“Cancel”). Some values are confirmed by pressing the middle key.

The table below includes explanations of the device settings tab:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values (default bolded)</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preview images</td>
<td>Ok</td>
<td>To preview the images on the camera, press the middle button.</td>
</tr>
<tr>
<td>New patient folder</td>
<td>Ok</td>
<td>To create a new patient folder, press the middle button. A new patient folder can also be created in live view by long pressing the middle key.</td>
</tr>
<tr>
<td>Erase image memory</td>
<td>Ok</td>
<td>Select the middle button to erase images and videos from the camera SD card.</td>
</tr>
<tr>
<td>Edit patient list</td>
<td>Ok</td>
<td>Press the middle key to edit patient list.</td>
</tr>
<tr>
<td>Patient information</td>
<td>On/Off</td>
<td>Enable or disable patient information linking.</td>
</tr>
<tr>
<td>Display brightness</td>
<td>Low-Med-High</td>
<td>Use left and right arrow keys to adjust display brightness.</td>
</tr>
<tr>
<td>Icons</td>
<td>On/Off</td>
<td>Show graphical icons when imaging.</td>
</tr>
<tr>
<td>Sounds</td>
<td>On/Off</td>
<td>When enabled, sound is played during image capture.</td>
</tr>
<tr>
<td>Keyboard backlight</td>
<td>On/Off</td>
<td>When enabled, keyboard illumination is on.</td>
</tr>
<tr>
<td>Setting</td>
<td>Values (default bolded)</td>
<td>Purpose</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Select language</td>
<td>ENG-FIN-FRA-GER-ITA-JPN-POR-SPA-ZHO</td>
<td>Use left and right arrow keys to select camera language.</td>
</tr>
<tr>
<td>USB write protection</td>
<td>On/Off</td>
<td>When enabled, writing to SD card is not allowed when the device is in the cradle. This feature helps prevent any viruses getting from the PC to the camera. Note that if the device contains a Wi-Fi card, during its setup or updating of its firmware, USB write protection needs to be temporarily set off.</td>
</tr>
<tr>
<td>Video file format</td>
<td>MPEG4/MPEG1</td>
<td>Use left and right arrow keys to select video file format.</td>
</tr>
<tr>
<td>Image transfer method</td>
<td>UMS/WIA</td>
<td>Use WIA for automatic and UMS for end-user activated image transfer. UMS can be used in most cases.</td>
</tr>
<tr>
<td>Restore factory Setting</td>
<td>Ok</td>
<td>To restore all settings menus to factory defaults. Activate using the middle key.</td>
</tr>
<tr>
<td>Date</td>
<td>DD-MM-YYYY</td>
<td>Use up and down arrow keys to set date.</td>
</tr>
<tr>
<td>Time</td>
<td>HH:MM</td>
<td>Use up and down arrow keys to set time.</td>
</tr>
<tr>
<td>Camera SW version</td>
<td>Show camera SW version</td>
<td>Browse version information with left and right arrow keys.</td>
</tr>
<tr>
<td>Start query</td>
<td>Era./Fol./None</td>
<td>Choose the startup query between memory erase, new patient folder, or no query at all.</td>
</tr>
<tr>
<td>Set data cable type</td>
<td>CRA/SLI</td>
<td>This feature is currently not available.</td>
</tr>
<tr>
<td>Remote trigger</td>
<td>On/Off</td>
<td>This feature is currently not available.</td>
</tr>
</tbody>
</table>

**Preview images**

Image preview is opened by selecting “Preview files” with the middle key. Images are browsed by using arrow keys. The display gives information about usage of the image preview.

The image can be zoomed while previewing by pressing the middle key. Move around the image by pressing arrow keys. Change between the four zoom levels by pressing middle key.

Patient ID information can be edited in image browser.

**New Patient Folder**

A new patient folder is created by pressing the middle key when the “New patient folder” selection is active on the device menu. A new patient folder can also be created by pressing the middle key for 3 seconds when in the live view. If the current patient folder is empty, then a new folder cannot be created. Patient ID information can be edited after creating a new patient folder.

**Erase Image Memory**

Image memory can be erased by selecting “Erase image memory” in the device menu. This selection is activated by pressing the middle key. The camera also prompts the question “Erase image memory?” when the camera is powered on or removed from the cradle.

**Edit patient list**

User can add or remove patients from patient list.

**Patient information**

Enable or disable patient information linking.
Display brightness
The display brightness selection has three options: low, medium, and high. Choose the suitable level of display brightness according to, for example, how the examination room is lit up.

Icons
The icons shown on the camera screen can be enabled or disabled to the user’s liking. The most essential icons, such as the menu icon, are always visible.

Sounds
By default, the camera makes a sound during image capture. This sound can be turned off from the device menu.

Keyboard backlight
By default, the camera keys have a backlight lit up when the camera is turned on. This light can be turned off from the device menu if it disturbs the user while taking images.

Language
The camera has nine different languages that the user can choose from. The default language is English and the language selection is always shown in English on the menu.

USB write protection
USB write protection is recommended to be turned on by user. When protection is on, this feature will prevent any virus from entering the camera from a PC when connected to the cradle.

Video file format
The camera has two file formats that the user can choose for videos: MPEG4 and MPEG1. MPEG4 is a higher quality file format but may not be viewed with all video players. MPEG1 format is more widely supported by different software applications.

Image transfer method
There are two options for the image transfer method: UMS (USB Mass Storage) or WIA (Windows Image Acquisition).

Restore factory settings
By selecting “Activate” in the device menu, “Restore factory defaults” selection, the original factory settings will be returned.

Date
The date can be set using the left and right arrow keys. Move between day, month, and year by pressing the middle key. The date format is DD MM YYYY for English, Finnish, German, French, Italian, Spanish, and Portuguese. The date format is MM DD YYYY for Japanese.

Time
Time can be set using the left and right arrow keys. Move between hours and minutes by pressing the middle key.

Camera SW version
This item in the device menu tells the camera software version.
**Start query**

The user can choose start-up query between erasing images, creating new patient folder, or no query at all. When erasing images is chosen as the query, the camera will prompt the user on start-up whether all images and videos shall be deleted. When new patient folder query is chosen, the camera will ask if a new patient folder shall be created upon start-up to prevent from mixing images with previous patient. If no query is selected, then the camera will go directly to live view upon start-up.

**7.6. Patient editor**

Patient information usage can be enabled and disabled. There can be maximum 500 patients on the list. The name of the patient is shown in the lower right hand side above the right soft key if the current folder is linked to a patient.

**7.6.1. Adding new patient**

The user can add a new patient from the device menu by selecting Edit Patient list. The user can add the patient ID and patient name after choosing new patient. A new patient can also be added after creating a new folder.

**7.6.2. Patient folder linking**

The user can link or unlink a patient to and from a current folder (not earlier ones). It is possible to link 5 folders to each patient.

Linking can be done by:

1. Answering yes when prompted during the power on or lifting the device from the cradle,
2. Selecting erase image memory from menu,
3. Choosing link in the image browser, when folders and files are visible. The link key is grey and unresponsive if the current folder is not chosen. After a folder is linked to a patient, the folder is named by the patient,
4. Creating a new folder by long pressing the middle key or from the menu.

**NOTE:** Exiting from image browser is done by pressing left key.

**7.6.3. Patient list exporting**

The user can export a patient list via Wi-Fi. A new file is created containing a patient list with 16 kBytes of padding bytes added to the end of file. The file is named pehhmmss.jpg (hh is current hours, mm minutes, and ss seconds). The file is written under the DCIM folder in the SD card. The file is exported over Wi-Fi.

A patient list can also be exported via USB. A patient list is written as a text file (patexp.txt) to the SD card root. If a patient list is modified in the camera (e.g., new patient created) or the SD card is erased, then the patient list is updated.

**7.7. Adjusting focus and automatic focus**

The camera has an autofocus function when the camera finds a correct focus place automatically. For VP2RET, a square indicator appears when focusing is finished. For VP2ANT, the focus window turns green when focusing is finished. Automatic focusing starts when the shutter is pressed half-way down. The focus mode can be changed by pressing the right soft key.

Image focus can be adjusted manually by pressing arrow keys up and down. When the focus mode is set to manual, a diopter scale is visible on the screen.
7.8. Patient Information Editor

What Is Patient Information Entry?

The Pictor Plus has a feature that allows entry and editing of patient information (e.g., patient name, ID number, or other identifier information).

- The patient information can contain a maximum of 32 characters, including letters (upper or lower case), numbers, and some special characters: ( ), : - @ / and space.
- Which patient eye is being imaged – left or right – can also be set.
- Additionally, the type of image saved (IR illuminated, normal color, red-free, or color corrected) is also saved automatically.
  - IR illuminated = IR
  - Normal color = Co
  - Red-free = RF
  - Color corrected = CC
  - Anterior Segment = Co

Where Is The Patient Information Saved?

The patient information is saved as part of the jpeg image file in two different locations:

- Location 1: the Exif data field (Exif = exchangeable image file format)
  - The Exif data field is embedded inside the jpeg image file. It can be accessed using typical EMR software that is set up to read the Exif field or by using Exif viewing software (e.g., Exif Pilot).
  - For example, if “John Doe 123” were entered for the patient information, then the Exif field would contain:
    Patient ID:John Doe 123
  - If the Left setting were selected for John Doe, then the Exif field would also contain:
    Side:Left
  - If the particular image for John Doe were a color corrected image, then the Exif field would also contain:
    Image type:CC
    The entire Exif data field would be:
    Patient ID:John Doe 123,Side:Left,Image type:CC
- Location 2: the jpeg filename
  - The jpeg filename has 8 characters with a “.jpg” extension.
  - The naming convention is dependent on whether the setting for mark side is active
  - The first two characters are used either for marking the side or the type of image taken.
  - The last two characters of the jpeg filename are reserved for the module used to produce the image:

<table>
<thead>
<tr>
<th>Module</th>
<th>Image type</th>
<th>File name structure - mark side active (left)</th>
<th>File name structure - mark side inactive (right)</th>
<th>File name structure - mark side active (right)</th>
<th>Exif data code</th>
</tr>
</thead>
<tbody>
<tr>
<td>RET</td>
<td>Normal</td>
<td>OSxxxxRE</td>
<td>ODxxxxRE</td>
<td>IMxxxxRE</td>
<td>Co</td>
</tr>
<tr>
<td>RET</td>
<td>Red Free</td>
<td>SRxxxxRE</td>
<td>DRxxxxRE</td>
<td>RFxxxxRE</td>
<td>Rf</td>
</tr>
<tr>
<td>RET</td>
<td>Low Red</td>
<td>SCxxxxRE</td>
<td>DCxxxxRE</td>
<td>CCxxxxRE</td>
<td>Cc</td>
</tr>
<tr>
<td>RET</td>
<td>Infrared</td>
<td>SIxxxxRE</td>
<td>DIxxxxRE</td>
<td>IRxxxxRE</td>
<td>Ir</td>
</tr>
<tr>
<td>ANT</td>
<td>Normal</td>
<td>OSxxxxAN</td>
<td>ODxxxxAN</td>
<td>IMxxxxAN</td>
<td>Co</td>
</tr>
</tbody>
</table>

- The middle 4 characters are reserved as a counter for the number of images taken: 0000 to 9999, and then rolling over to 0000 again.
How Is Patient Information Entered?

Patient information is entered in the patient information screen. The patient information screen allows setting of which eye will be imaged (left or right). It also allows access to the patient information editing screen.

The current patient information entered will be displayed to the right of the patient ID icon. The default value is “ABC12345.”

- Selecting patient side: left or right
  - In the patient information entry screen, use the arrow keys to navigate to the patient side icon.
  - Select the patient side icon using the middle key.
  - Use the left or right arrow keys or the middle key to toggle between the left or right side icons.
  - Use the up or down arrow keys to navigate out of the patient side setting, which saves your selection.

- Editing the patient information
  - Use the up and down arrows to navigate to the patient ID icon, and select it using the middle key.
    - This will open the patient information editor screen.
  - The patient information editor screen includes a simple, on-screen keyboard in ABC-123 order, as well as the special characters mentioned above. It also includes a white editing field at the top of the screen.
    - The 4 arrow keys are used to navigate to the desired character or up to the white editing field.
    - The middle key is used to select that character, which will then appear at the top of the patient information editor screen in the editing field.
  - Toggle between upper or lower case characters by using the left soft key below the A/a icon.
  - Exit the editor screen by using the right soft key below the exit icon. This saves the entered patient information.
  - To delete a character:
    - Arrow up to the white editor field at the top of the screen.
    - Use the left or right arrow keys to navigate the blinking cursor to the position at the IMMEDIATE RIGHT of the character you want to delete.
    - Press the middle button to delete the character.

In the patient information screen:

- Use the left soft key under the OK icon to save the patient information settings and exit the patient information screen, or
- Use the right soft key under the cancel icon to discard any changes and exit the patient information screen.
How To Access The Patient Information Screen

When powering on the Pictor Plus:

- When the Pictor Plus starts up after being powered on or being removed from its charging cradle, it automatically presents an option to “Edit current patient information?” in the startup screen.
  - Select Yes (left soft button) to proceed to the patient information entry screen.
  - Select No (right soft button) to proceed to the live view screen.
- This will set the patient information for the next images taken.

When in the camera live view screen, using the menu button (right soft key, long press):

- Use the right soft key (long press) to access the menu screen
- Under the device tab, the patient information entry screen can be accessed from either the preview images icon or the new patient folder icon.
- From the preview images icon, you can use the patient information entry screen to edit patient information on images you have already taken.
  - You can edit patient information for ALL of the images in a selected folder, or
  - You can edit patient information for a single, selected image file.
    - Arrow to the preview images icon and select with the middle key to access the image browser screen.
    - In the image browser screen, use the arrow keys to navigate to a specific folder or a specific image file.
      - When only a folder is selected, the folder name will be highlighted with white text (the filenames will be dark).
      - When an image file is selected, that filename and its folder name will be highlighted with white text.
    - When your selected folder or image file is highlighted, press the right soft key under the edit icon to access the patient information entry screen and edit the patient information per the above instructions.
- From the new patient folder icon, you can use the patient information entry screen to set patient information for images that you are going to take next.
  - Arrow to the new patient folder icon and select with the middle key.
  - The device will prompt “Create a new patient folder for new patient images?”
    - Select Yes (left soft key) if you also wish to create a new patient folder in which to save your next images.
    - Select No (right soft key) if you do not want a new patient folder.
  - Next, the device will prompt “Edit current patient information?”
    - Select Yes (left soft key) to enter the patient information entry screen.
    - Proceed to edit patient information per the above instructions.
    - Your next images will have the new patient information.
    - Select No (right soft key) to return to the device tab without editing patient information.

REMEMBER:
IF YOU ARE EDITING PATIENT INFORMATION FOR A FOLDER, ALL OF THE IMAGE FILES IN THAT FOLDER WILL BE CHANGED TO THE NEW PATIENT INFORMATION.

IF YOU ARE EDITING A SINGLE IMAGE FILE, ONLY THAT IMAGE FILE WILL BE CHANGED TO THE NEW PATIENT INFORMATION.
7.9. Reset button

Reset button can be used if device behavior is abnormal.

The reset button is located in a small opening under the display. The button is marked with circle ○.

The reset button can be pressed with a thin object, such as a paper clip. The button needs to be pressed for over 7 seconds.

8 RETINAL IMAGING USING OPTICS MODULE VP2RET

The Pictor Plus Retina digital ophthalmic camera is intended to capture digital images and video of the fundus of the human eye. The device set for retinal imaging consists of:

- Camera handset
- Attachable ophthalmic lens, Retina
- Eye cup for Retina
- Cradle for charging and image transfer

Pictor Plus Retina is intended for non-mydriatic imaging. This means that infrared is used for targeting an image to the eye fundus, and visible light is flashed when the image is taken. The pupil does not respond to the infrared light so the examination is convenient for the patient. Constant illumination can be selected under the RET tab if mydriatic drops are used. Pictures can also be taken using infrared light for both aiming and capturing.

Pictor Plus Retina has 9 internal fixation targets for the patient to fixate on while imaging. Below, will guide how to control the fixation lights.

8.1. Steps for Retinal Imaging:

8.1.1. The examination room should be as dark as possible.

8.1.2. It is recommended that both the patient and the examiner should be seated while taking the images.

8.1.3. Either autofocus or manual focus can be used. Autofocus range is -11 to +3 diopters, manual focus range is -20 to +20 diopters.

If patient has a refractive error and autofocus is off, the focus needs to be adjusted:

- Hyperopia: camera is focused to distance by pressing arrow key up. One click of the key is approximately 1 diopter.
- Myopia: camera is focused closer by pressing arrow key down. One click of the key is approximately 1 diopter.
8.1.4. The aiming light is automatically turned on when the camera enters live view.

8.1.5. The middle fixation target is lit when pressing the left soft key and it provides a macula centered image. To change the fixation target press the left soft key and use arrow keys to navigate between the 9 targets as shown in the graphics in the lower left corner of the display. If the fixation target is not required, ask the patient to look at a target on a wall 6 - 9 feet (2 - 3 meters) behind the operator.

8.1.6. Exposure is adjusted using left and right arrow keys. There are brightness levels from 0 to 10, the default value is 5, and typical levels are from 2 to 8. There are also low brightness levels 0.2, 0.4, 0.6, and 0.8 if brightness level 1 is too bright.

8.1.7. When using IR/White capture mode, changing the illumination brightness affects only the white capturing flash. If using IR/IR or White/White capture modes, both aiming and capturing light are changed.

8.1.8. The aim guidance circle on the screen guides the user when to take an image. When the retina is not fully in view the circle is red. Once the aim is good and the retina fully appears on the screen, the circle turns green indicating a good position for capturing the image.

8.1.9. Approaching the eye starting from a 4 inch (10 centimeters) distance. If the internal fixation target is not used, the patient is asked to look at a target on a wall 6 - 9 feet (2 – 3 meters) behind the operator (patient’s eye targets to infinity and stays still). The pupil is approached until the reflection from the eye fundus can be seen. The right imaging distance is about 0.8 inch (2 cm). The eye cup must be compressed approximately half-way down. The aim guidance circle on the display guides the user to take an image once it turns from red to green.

The camera is stabilized by keeping the outer side of the hand against the patient’s forehead. An example of the correct usage position is shown below:

![Example Usage Position](image)

8.1.10. A still image is captured by pressing the shutter button all the way down. If half-press capture is enabled, a still image can be captured by pressing shutter button half-way. The captured image is displayed on the screen until the user clears the image by pressing the shutter button, left soft key, or right soft key.

Instant review can be enabled/disabled in the Pictor Plus optics menu.

8.1.11. An image can be zoomed in the instant preview by pressing the middle key. There are four zoom levels (1, 2, 4, and 8). Pressing the middle key activates the next zoom level. Move around the image by using the arrow keys. Scroll between images by using left and right arrow keys.
8.1.12. Video is captured by keeping the shutter button down. If half-press capture is enabled, video can be captured by pressing shutter button half-way. Video capturing is finished by pressing the shutter button all the way down.

8.1.13. If multiple patients are examined during one session, a new file folder is created for each patient by pressing the middle key for 3 seconds.

8.1.14. Transfer images to a PC after capturing images. Images are transferred to the PC when the camera is placed to the cradle. Pictor Plus works as any other digital camera.

8.1.15. To erase the image/video manually, choose menu, then preview images. There is the option to erase a specific image or a specific folder.

8.1.16. When the camera is removed from the cradle it verifies image data storage erase. It is recommended that image data storage is always erased before images are captured of a new patient.

The camera keys function as shown in the image below when the Pictor Plus Retina optics module is attached:

1. Short: Target low, target high, target off  
   Long: Power on, power off  
2. Focus manually, move fixation target  
3. Short: Auto/MF/AF assist, move between tabs  
   Long: Menu  
4. Decrease brightness, move fixation target  
5. Increase brightness, move fixation target  
7. Focus manually, move fixation target
The table below provides explanations for the key functions:

<table>
<thead>
<tr>
<th>Key</th>
<th>Press</th>
<th>Function</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left soft key</td>
<td>Short</td>
<td>Control fixation target level and selection</td>
<td>The fixation target is off by default and can be turned on by pressing the left soft key. The fixation target light has two levels: Low and High. If the patient cannot see the light on low level, then turn it up to high.</td>
</tr>
<tr>
<td></td>
<td>Long</td>
<td>Power On / Off</td>
<td>The camera is powered on and off by pressing the left soft key for longer than 2 seconds.</td>
</tr>
<tr>
<td>Right soft key</td>
<td>Short</td>
<td>Manual / Auto</td>
<td>Switch between focus modes by pressing the right soft key. Manual focus is on by default. Autofocus range is -11 to +3 diopters.</td>
</tr>
<tr>
<td></td>
<td>Long</td>
<td>Open menu</td>
<td>Enter the camera menu by pressing the right soft key for longer than 1 second.</td>
</tr>
<tr>
<td>Middle key</td>
<td>Long</td>
<td>New patient folder</td>
<td>If multiple patients are examined during the same session, it is recommended to create a new file folder for each patient’s images. A new folder is created by pressing the middle key for 3 seconds. The P icon at the top of the screen indicates the number of the current patient folder. If the current folder does not have any images in it, a new folder cannot be created.</td>
</tr>
<tr>
<td>Left / Right arrow</td>
<td>-</td>
<td>Change brightness</td>
<td>Use left and right arrow keys to adjust capture light brightness. The icon above the left soft key must be selected (lighter color) to change brightness.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Select fixation target</td>
<td>Move between 9 internal fixation targets. The icon above the left soft key turns to a lighter color when the fixation target selection mode is active.</td>
</tr>
<tr>
<td>Up / Down arrow</td>
<td>-</td>
<td>Focus manually</td>
<td>When manual focus is active, use the up and down arrow keys to focus. Press the arrow key up when the patient has myopia. Press the arrow key down when the patient has hyperopia.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Select fixation target</td>
<td>Move between 9 internal fixation targets. The icon above the left soft key turns to a lighter color when the fixation target selection mode is active.</td>
</tr>
</tbody>
</table>

The table below includes explanations of the RET settings tab for retinal imaging:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values (default bolded)</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capture mode</td>
<td>Still/Video</td>
<td>Use left and right arrow keys to move between still capture and video capture.</td>
</tr>
<tr>
<td>Half-press capture</td>
<td>On/Off</td>
<td>Enable capture by pressing shutter button half-way.</td>
</tr>
<tr>
<td>Mark side</td>
<td>On/Off</td>
<td>Mark side of the eye to the image data.</td>
</tr>
<tr>
<td>IR brightness</td>
<td>Low/High</td>
<td>Aiming light brightness.</td>
</tr>
<tr>
<td>Red-free</td>
<td>On/Off</td>
<td>Saves a copy of an eye image using green color channel only.</td>
</tr>
<tr>
<td>Save IR image</td>
<td>On/Off</td>
<td>Saves an image taken with IR light in addition to white light image when turned on.</td>
</tr>
<tr>
<td>Low red</td>
<td>On/Off</td>
<td>Capture red reduced copy in addition to normal fundus image.</td>
</tr>
<tr>
<td>Setting</td>
<td>Values (default bolded)</td>
<td>Purpose</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Illumination mode</td>
<td>IR/Wh, IR/IR, Wh/Wh</td>
<td>Use left and right arrow keys to select aiming and capture light source.</td>
</tr>
<tr>
<td>Automatic IR contrast</td>
<td>On/Off</td>
<td>Enable automatic IR contrast.</td>
</tr>
<tr>
<td>Target blinking</td>
<td>On/Off</td>
<td>Fixation target light can be set to constant if needed.</td>
</tr>
<tr>
<td>Capture setting in image</td>
<td>On/Off</td>
<td>Enable or disable writing of capture settings to image.</td>
</tr>
<tr>
<td>Instant Review</td>
<td>On/Off</td>
<td>Instant review can be ON/OFF according to user need, as available in the RET optics menu. Instant review image can be changed from left and right arrow keys.</td>
</tr>
</tbody>
</table>

**Capture mode**
Both still images and video can be taken with the Pictor Plus camera. The shutter button must be held down while taking the video. The video recording will stop once the shutter button is released.

**Half-press capture**
It is possible to take images and video by pressing shutter button half-way.

**Marking side**
It is possible to mark which eye was imaged. Marking side is enabled from the menu. Side is marked to the file name and to the image, as well as the image data. For video files, side is always marked only to the file name.

When marking side is enabled, the camera asks to select the side after each captured image. The identifiers used for eye images are OS for left and OD for right.

**IR brightness**
IR brightness can be set to high or low depending on the color of the retina. For dark eyes, use high IR brightness.

**Save Red-free**
If red-free image is enabled from the menu, then the camera will save a picture using only green channel at the same time when saving the original picture.

**Save IR image**
If save IR image is enabled from the menu, then the camera will save an image taken with IR image in addition to saving a color image taken with white light.

**Low red**
It is possible to capture a red reduced image.

**Illumination mode**
Illumination mode can be set to IR/Wh, IR/IR, or Wh/Wh. In IR/Wh mode, aiming is done using infrared light and image is captured using white light. The pupil does not react to infrared light and thus it is recommended to use IR/Wh mode whenever possible. In IR/IR mode, both aiming and image capture are done with infrared light. In Wh/Wh mode, aiming and image capture are done with white light.
**Automatic IR contrast**
Automatically adjust infrared live view brightness and contrast according to image content. Improves visibility of fundus features during aiming. Same contrast and brightness settings are applied to IR still captures.

**NOTE:** In IR/IR mode, IR brightness adjustment does not always directly affect the brightness on the screen when automatic contrast is enabled. This happens because the automatic contrast feature always tries to adjust the screen brightness to same level. The IR brightness setting still works, but the effect is only visible when the adjustment range of automatic contrast adjustment runs out. It is advisable to use the highest brightness that does not cause image saturation (pink or white “washed out” effect).

**Target blinking**
By default, the fixation target light is on with blinking illumination. If the patient cannot keep their eye targeted, then the light can be changed to constant to help focus on the target light.

**Capture setting in image**
It is possible to write brightness and diopter settings to an image.

**Instant review**
Instant review can be ON/OFF according to user need, as available in RET optics menu. When the reviewing zoom level is 1x, the user can change the image to be reviewed with left and right arrow keys. Images are in showing order Normal, Low-red, Red-free, IR.

**NOTE:** The camera stores selected menu settings when it is powered off.

**9 EYE IMAGING USING ANTERIOR OPHTHALMIC MODULE VP2ANT**

The Pictor Plus Anterior digital ophthalmic camera is intended to capture images and video of the surface of the human eye and surrounding areas. The device set for anterior imaging consists of:
- Camera handset
- Attachable ophthalmic lens, Anterior
- Cradle for charging and image transfer

Pictor Plus Anterior optics module has two light sources, white and cobalt blue light. The user can choose between the light sources by pressing the left soft key when the Anterior module is attached. Cobalt blue light enables taking fluorescent pictures of the surface of the eye to reveal any cuts or defects.

**9.1. Steps for Eye Surface Imaging:**

9.1.1. Once the Anterior optics module is attached, the light source is chosen by pressing the left soft key.

9.1.2. Still or video image selection is made in the ANT menu.

9.1.3. It is recommended to use autofocus.

9.1.4. The aiming light is turned on by pressing the shutter key (in front of the device) half-way down.

9.1.5. Light is adjusted using left and right arrow key. There are brightness levels from 0 to 10, the default value is 5, and typical levels are from 2 to 8.
9.1.6. Place the optics module cup on the patient’s eye. The patient can be asked to look in different directions depending on what area of the eye needs to be captured. The camera is stabilized by keeping the outer side of the hand against the patient’s forehead. An example of the correct usage position is shown below:

![Image](image_url)

9.1.7. A still image is captured by pressing the shutter key all the way down. If half-press capture is enabled, a still image can be captured by pressing shutter button half-way. The captured image is displayed on the screen until the user clears the image by pressing the shutter button, left soft key, or right soft key.

Instant review can be enabled/disabled in the Pictor ANT optics menu.

9.1.8. An Image can be zoomed in the instant preview by pressing middle key. There are four zoom levels (1, 2, 4, and 8). Pressing the middle key activates the next zoom level. Move around the image by using arrow keys. Scroll between images by using left and right arrow keys.

9.1.9. Video is captured by keeping the shutter button down. If half-press capture is enabled, video can be captured by pressing shutter button half-way. Video capturing is finished by pressing shutter button all the way down.

9.1.10. If multiple patients are examined during one session, a new file folder is created for each patient by pressing middle key for over 3 seconds.

9.1.11. Transfer images to a PC after capturing images. Images are transferred to the PC when the camera is placed to the cradle. Pictor Plus works as any other digital camera.

9.1.12. Manually erase the image or video by choosing menu, and then preview images. The specific image or the specific folder can be selected to be erased.

9.1.13. When the camera is removed from the cradle it verifies image data storage erase. It is recommended that image data storage is always erased before images are captured of a new patient.
The camera keys function as shown in image below when the Pictor Plus Anterior optics module is attached:

1. **Short**: Focus window, zoom, move between tabs  
   **Long**: Power on, power off
2. **Focus manually, zoom in, move focus window**
3. **Short**: Focus Auto/Manual, move between tabs  
   **Long**: Menu
4. **Decrease brightness, move focus window**
5. **Increase brightness, move focus window**
6. **Short**: White/Cobalt blue illumination  
   **Long**: New patient folder
7. **Focus manually, zoom out, move focus window**

The table below provides explanations for the key functions:

<table>
<thead>
<tr>
<th>Key</th>
<th>Press</th>
<th>Function</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left soft key</td>
<td>Short</td>
<td>Edit focus window, activate zoom</td>
<td>When the focus window is visible, it is possible to move it using the arrow keys to better capture the wanted area. Digital zoom can be used for close-up of features and image focus. Zoom value is saved to camera memory.</td>
</tr>
<tr>
<td></td>
<td>Long</td>
<td>Power On / Off</td>
<td>Camera is powered on and off by pressing the left soft key for longer than 2 seconds.</td>
</tr>
<tr>
<td>Right soft key</td>
<td>Short</td>
<td>Manual / Auto / Activate Zoom</td>
<td>Switch between Auto and Manual focus by pressing the right soft key. Press the right soft key to activate the zoom function. Digital zoom can be used for close-up of features and image focus. Zoom value is saved to camera memory.</td>
</tr>
<tr>
<td></td>
<td>Long</td>
<td>Open menu</td>
<td>Enter the camera menu by pressing the right soft key for longer than 1 seconds.</td>
</tr>
</tbody>
</table>
### Key Press Function Explanation

<table>
<thead>
<tr>
<th>Key</th>
<th>Press</th>
<th>Function</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle key</td>
<td>Short</td>
<td>White / Blue</td>
<td>Choose between white and blue illumination by pressing the left soft key. Blue light can be used with fluorescent applied on the eye to reveal any cuts or defects.</td>
</tr>
<tr>
<td></td>
<td>Long</td>
<td>New patient folder</td>
<td>If multiple patients are examined during the same session, it is recommended to create a new file folder for each patient’s images. A new folder is created by pressing the middle key for 3 seconds. The P icon at the top of the screen indicates the number of the current patient folder. If the current folder does not have any images in it, a new folder cannot be created.</td>
</tr>
<tr>
<td>Left / Right arrow</td>
<td>-</td>
<td>Change brightness</td>
<td>Use left and right arrow keys to adjust capture light brightness.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Move focus window</td>
<td>Move the focus window left and right after pressing the middle key to activate. The window returns to the original position when the camera is put onto cradle, turned off, or the optics module is detached.</td>
</tr>
<tr>
<td>Up / Down arrow</td>
<td>-</td>
<td>Focus manually</td>
<td>Use up and down arrows to focus manually.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zoom In / Out</td>
<td>Zoom in using the arrow key up. Zoom out using the arrow key down. There are four zoom levels: 1, 2, 4, and 6. The zoom value is saved to the camera memory.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Move focus window</td>
<td>Move the focus window left and right after pressing the middle key to activate.</td>
</tr>
</tbody>
</table>

The table below includes explanations of the ANT settings tab for anterior eye imaging:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values (default bolded)</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capture mode</td>
<td>Still/Video</td>
<td>Use left and right arrow keys to choose between still capture and video capture.</td>
</tr>
<tr>
<td>Half-press capture</td>
<td>On/Off</td>
<td>Enable capture by pressing shutter button half-way.</td>
</tr>
<tr>
<td>Focus windows</td>
<td>Visible/Hidden</td>
<td>Use left and right arrow keys to choose between having the focus window visible or hidden.</td>
</tr>
<tr>
<td>Mark side</td>
<td>On/Off</td>
<td>Mark side of the eye to the image data.</td>
</tr>
<tr>
<td>Zoom cropping</td>
<td>On/Off</td>
<td>When turned on, the camera will save the zoomed area only. When turned on, the camera will save the whole image area even when zoom is used.</td>
</tr>
<tr>
<td>Instant Review</td>
<td>On/Off</td>
<td>Instant review can be ON/OFF according to user need, as available in the ANT optics menu. Instant review image can be changed from left and right arrow keys.</td>
</tr>
</tbody>
</table>

**Capture mode**
Both still images and video can be taken with the Pictor Plus camera. The shutter button must be held down while taking the video. The video recording will stop once the shutter button is released.

**Half-press capture**
It is possible to take images and video by pressing shutter button half-way.
Focus Window
The focus window helps user position the image. The focus window can be moved on the screen by first pressing the middle key until the F icon appears in up right corner of display, and then using the arrow keys when aiming.

Shoot mode
The shoot mode function can be used when autofocus is enabled. There are two shoot modes to choose from: normal and auto.

In normal mode, the camera will focus when the shutter button is pressed half-way down and takes a picture when the shutter button is pressed all the way down.

In auto mode, when the shutter button is pressed, the camera will focus and take a picture automatically.

Marking side
It is possible to mark which eye was imaged. Marking side is enabled from the menu. Side is marked to the file name and to the image, as well as the image data. For video files, side is always marked only to the file name.

When marking side is enabled, the camera asks to select the side after each captured image. The identifiers used for eye images are OS for left and OD for right.

Zoom cropping
With zoom cropping on, the camera will save the zoomed area instead of the whole image area. By default, zoom cropping is turned off and the camera will save the whole image area instead of the area that is visible on the camera screen when the user has zoomed in.

Instant review
Instant review can be ON/OFF according to user need, as available in ANT optics menu. When the reviewing zoom level is 1x, the user can change the image to be reviewed with left and right arrow keys. Images are in showing order Normal, Low-red, Red-free, IR.

NOTE: The camera stores selected menu settings when it is powered off.

10 GENERAL IMAGING WITHOUT OPTICS MODULE

It is possible to take pictures using Pictor Plus without any optics module. When taking images without additional optics, integration time that corresponds to the brightness of the image is adjusted using left and right arrow key. Indicator for integration time is shown at the bottom of the display.
The picture below shows the functions of the camera keys when there are no optics attached:

1. **Short:** Focus window, zoom  
   **Long:** Power on, power off
2. Focus manually, zoom in, move focus window
3. **Short:** Focus Auto/Manual  
   **Long:** Menu
4. Decrease brightness, move focus window
5. Increase brightness, move focus window
6. **Short:** Still/Video  
   **Long:** New patient folder
7. Focus manually, zoom out, move focus window

The table below provides explanations for the key functions:

<table>
<thead>
<tr>
<th>Key</th>
<th>Press</th>
<th>Function</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Left soft key</strong></td>
<td><strong>Short</strong></td>
<td>Edit focus window, activate zoom</td>
<td>When the focus window is visible, it is possible to move it using the arrow keys to better capture the wanted area. Digital zoom can be used for close-up of features and image focus. The Z icon is displayed in the up right corner of display when active.</td>
</tr>
<tr>
<td></td>
<td><strong>Long</strong></td>
<td>Power On / Off</td>
<td>Camera is powered on and off by pressing the left soft key for longer than 2 seconds.</td>
</tr>
<tr>
<td><strong>Right soft key</strong></td>
<td><strong>Short</strong></td>
<td>Auto / Manual</td>
<td>Switch between Auto and Manual focus by pressing the right soft key.</td>
</tr>
<tr>
<td></td>
<td><strong>Long</strong></td>
<td>Open menu</td>
<td>Enter the camera menu by pressing the right soft key for longer than 1 second.</td>
</tr>
<tr>
<td><strong>Middle key</strong></td>
<td><strong>Short</strong></td>
<td>Still / Video</td>
<td>Choose between still image and video shooting by pressing the left soft key.</td>
</tr>
<tr>
<td></td>
<td><strong>Long</strong></td>
<td>New patient folder</td>
<td>If multiple patients are examined during the same session, it is recommended to create a new file folder for each patient’s images. A new folder is created by pressing the middle key for 3 seconds. The P icon at the top of the screen indicates the number of the current patient folder. If the current folder does not have any images in it, a new folder cannot be created.</td>
</tr>
<tr>
<td>Key</td>
<td>Press</td>
<td>Function</td>
<td>Explanation</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------</td>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Left / Right arrow</td>
<td>-</td>
<td>Change brightness</td>
<td>Use left and right arrow keys to adjust capture light brightness.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Move focus window</td>
<td>Move the focus window left and right after pressing the middle key to activate. The window returns to the original position when the camera is put onto cradle, turned off, or the optics module is detached.</td>
</tr>
<tr>
<td>Up / Down arrow</td>
<td>-</td>
<td>Focus manually</td>
<td>Use up and down arrows to focus manually.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zoom In / Out</td>
<td>Zoom in using the arrow key up. Zoom out using the arrow key down. There are four zoom levels: 1, 2, 4, and 6.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Move focus window</td>
<td>Move the focus window left and right after pressing the middle key to activate.</td>
</tr>
</tbody>
</table>

The table below includes explanations of the DF settings tab for general imaging:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values (default bolded)</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capture mode</td>
<td>Still/Video</td>
<td>Use left and right arrow keys to choose between still capture and video capture.</td>
</tr>
<tr>
<td>Half-press capture</td>
<td>On/Off</td>
<td>Enable capture by pressing shutter button half-way.</td>
</tr>
<tr>
<td>Focus window</td>
<td>Visible/Hidden</td>
<td>Use left and right arrow keys to choose between having the focus window visible or hidden.</td>
</tr>
<tr>
<td>Zoom cropping</td>
<td>On/Off</td>
<td>When turned on, the camera will save the zoomed area only. When turned on, the camera will save the whole image area even when zoom is used.</td>
</tr>
</tbody>
</table>

**Capture mode**
Both still images and video can be taken with the Pictor Plus camera. Capture mode can be chosen in the DF menu and using the left soft key when in live view. The shutter button must be held down while taking the video. The video recording will stop once the shutter button is released.

**Half-press capture**
It is possible to take images and video by pressing shutter button half-way.

**Focus Window**
The focus window helps user position the image. The focus window can be moved on the screen by first pressing the middle key until the F icon appears in up right corner of display, and then using the arrow keys when aiming.

**Shoot mode**
The shoot mode function can be used when autofocus is enabled. There are two shoot modes to choose from: normal and auto.

In normal mode, the camera will focus when the shutter button is pressed half-way down and take a picture when the shutter button is pressed all the way down.

In auto mode, when the shutter button is pressed, the camera will focus and take a picture automatically.
Zoom cropping
With zoom cropping on, the camera will save the zoomed area instead of the whole image area. By default, zoom cropping is turned off and the camera will save the whole image area instead of the area that is visible on the camera screen when the user has zoomed in.

NOTE: The camera stores selected menu settings when it is powered off.

11 ERROR MESSAGES

The Pictor Plus will display error messages about the limitations of the usage. An error message is always displayed with an explanatory message providing information about possible actions.

List of the all possible error messages:

<table>
<thead>
<tr>
<th>Error message:</th>
<th>What to do:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autofocus calibration needed</td>
<td>Please hold camera horizontal and press OK to calibrate.</td>
</tr>
<tr>
<td>Battery failure</td>
<td>Remove battery completely from camera. Re-install or replace.</td>
</tr>
<tr>
<td>Charging failure</td>
<td>Please remove and reconnect device to cradle.</td>
</tr>
<tr>
<td>Image counter full</td>
<td>Copy images to safe location and then choose Erase image memory from device menu.</td>
</tr>
<tr>
<td>Image storage not found</td>
<td>Please contact service for more information.</td>
</tr>
<tr>
<td>Light source temperature too high</td>
<td>Please wait for camera to cool down. Cooling may take several minutes.</td>
</tr>
<tr>
<td>Memory erasing failed</td>
<td>Please contact service for more information.</td>
</tr>
<tr>
<td>Memory full</td>
<td>Memory is full, store images and erase memory card.</td>
</tr>
<tr>
<td>Optic type not detected</td>
<td>Please re-attach optic.</td>
</tr>
<tr>
<td>Optic communication failed</td>
<td>Please re-attach optic.</td>
</tr>
<tr>
<td>Optic control failed</td>
<td>Please detach optic and restart camera.</td>
</tr>
<tr>
<td>Patient list upload failed</td>
<td>Please verify list against instructions.</td>
</tr>
<tr>
<td>System flash memory not available</td>
<td>Please contact service for more information.</td>
</tr>
</tbody>
</table>

12 CLEANING INSTRUCTIONS

Volk Optical Pictor Plus is a precision optics instrument that should be handled with care. Please note following cleaning instructions:

- Shut down device before cleaning it
- Remove cradle from mains before cleaning it
- Disinfect housing with soft cloth moistened with alcohol (e.g. 70% ethanol). Avoid touching System connectors in the handset and cradle.
- If acetone based product are used, wait for cleaning agent to dissolve before starting up the device or connecting cradle to the mains.
- Lenses may be cleaned with cleaning cloth. Also moist-cleaning tissue such as Hama Pro-Optic® cleaning tissue can be used.

Volk Optical Pictor Plus is not intended to be sterilized.
Clean Eye optics and Eye surface optics, eye cup, before each use on a new patient:

- disinfect eye cup with soft cloth moistened with alcohol (e.g. 70% ethyl alcohol), or
- soak eye cup in glutaraldehyde based solution, or hydrogen peroxide and peracetic acid solution such as Erisan OXY+
- rinse the eye cup under running water
- dry the eye cup (e.g. with clean paper towel) before subsequent use

If replacement for the eye cup is needed, please contact Volk Optical or your own retailer.

Eye cup should be replaced if/when:

- the eye cup is discolored
- the eye cup form is deteriorated
- the eye cup is shattered, cracked or disintegrated

**CAUTION:**

Clean eye cup before each use on a new patient to avoid contamination.

### 13 DEVICE MAINTENANCE

Pictor Plus contains a rechargeable Ni-MH battery pack. Service life of the battery is approximately 1-2 years. Battery needs to be replaced on planned intervals. When battery is at end of its service life, usage time of the device goes down.

Appendix B gives instructions for battery replacement.

There are no other maintenance procedures that can be carried out by the user. All servicing and repairs other than replacing the battery must be carried out by Volk Optical or Volk Optical certified service facilities and service personnel. Volk Optical will make available work instructions to repair those parts of medical electrical equipment that Volk Optical has designated as repairable by service personnel.

**CAUTION:**

If there are breaks in the device covers or other visual defects, contact Volk Optical or a Volk Optical certified service facility.
14 TECHNICAL DESCRIPTION

CAMERA:

Type: PICTOR Plus Handset (VP2HAND)
Image sensor: CMOS, 5.0 Megapixels
Image memory type (pre-May 2015): 4 GB, micro SD card
Image memory type (post-May 2015): 8 GB, micro SD card
NOTE: Devices with activation code on inside of battery compartment have 4 GB memory.
Display: 2.4", TFT-LCD, 262 000 million colors, antireflective coating
Image format: JPEG (file extension: jpg)
Video format: MPEG-4 and MPEG-1
Connectivity: PC with USB port
Wi-Fi through EyeFi X2 card (pre-May 2015)
Wi-Fi through EyeFi mobi card (post-May 2015)
Operating systems: Windows XP®, Windows Vista®, Windows 7, Windows 8
No driver installation needed
Dimensions: 82,30(w) x 166,50(h) x 66,50(d) mm
Weight: 400 g
Battery: Rechargeable Ni-MH Cylinder cell, HR4U 700 AAA, 4.8 V, 1.0 Ah
User can change battery. Batteries provided by Volk Optical.
Usage time: 1h 30min with full battery

CHARGING CRADLE:

Type: PICTOR Plus Cradle (VPCRADLE)
Dimensions: 170(w) x 35(h) x 150(d) mm
Weight: 380 g

SWITCHING POWER SUPPLY CONNECTED TO CRADLE:

Type: CINCON TR10R090
Input: 100-240 V ~0.4A 47-63 Hz
Output: 9V, 1.1A, 10W
USB cable: Type A to mini B, high-speed, unshielded, length 1.8 m

CAUTION:

It is only allowed to attach the battery and power source provided in the sales package into the cradle. If you need a replacement for the battery or power source, please contact Volk Optical or your own retailer.
NON-MYDRIATIC OPHTHALMIC MODULE VP2RET CONNECTED TO THE PICTOR PLUS HANDSET VP2HAND:

Type: Pictor Plus Retina (VP2RET)
Intended use: Intended to capture digital images and video of the fundus of the human eye.
Illumination: Infrared LED for targeting
Visible white LED for photographing
10 illumination brightness levels
9 red internal fixation target LEDs

Maximum Luminance output level towards eye: 95.8 cd/cm²
Field of view: 40°
Diopter compensation: -20 D to +20 D
Image resolution: 1536 x 1152 px (total 1.8 Mpix, informational area 1.41 Mpix)
Dimensions: 160x73 mm
Weight: 310 g

EXTERNAL OPHTHALMIC MODULE VP2ANT CONNECTED TO THE PICTOR PLUS HANDSET VP2HAND:

Type: Pictor Plus Anterior (VP2ANT)
Intended use: Digital eye anterior optics module. Intended to capture digital images and video of the surface of the human eye and surrounding areas.
Illumination: Visible white and cobalt blue LED for photographing
10 illumination brightness levels

Maximum Luminance output level towards eye: 192 cd/cm²
Image resolution: 2560 x 1920 px
Dimensions: 79 x 70 mm
Weight: 90 g
ENVIRONMENTAL CONDITIONS FOR USE, STORAGE AND TRANSPORTATION:

**IP Code:** IPX0 (Equipment not protected against the ingress of water)

**NOTE:** Intended to be use indoors.

**Temperature, use:** + 10 °C to 35 °C  
**Relative humidity, use:** 10 % to 80 %  
**Atmospheric pressure:** 800 hPa to 1060 hPa  
**NOTE:** EMC information given in Annex A.

**Temperature, storage:** - 10 °C to 40 °C  
**Relative humidity, storage:** 10 % to 95 %  
**Atmospheric pressure:** 500 hPa to 1060 hPa  
**NOTE:** If stored over 1 month, it is recommended to remove battery. Appendix B gives instructions for removing the battery.

TRANSPORTED IN PROTECTIVE ALUMINIUM CARRYING CASE:

**Temperature:** - 40 °C to + 70 °C  
**Relative humidity:** 10 % to 95 %  
**Atmospheric pressure:** 500 hPa to 1060 hPa  
**Sinusoidal vibration:** 10 Hz to 500 Hz: 0,5 g  
**Shock:** 30 g, duration 6 ms  
**Bump:** 10 g, duration 6 ms

**CAUTION:**  
Do not leave the eye cup in direct sunlight as it may warm up and burn a patient’s head when taking an image.

SERIAL NUMBERING:

The sticker indicating the serial number of the handset is attached to the warranty certificate, and is the sticker next to the system connector. The warranty certificate is part of this user’s manual.

The serial number of the cradle is on a sticker attached to the underside of the cradle.

Serial numbers of the attachable optics modules are attached to the modules and also to the warranty certificate.

The year of manufacture can be found from the serial number (digits 3 and 4).

The software version is displayed in the menu under the device tab.

EXPECTED USAGE LIFE OF THE PICTOR PLUS:

There are no strict limitations on expected usage life of the Pictor Plus. Usage life is expected to be approximately five years.
INTELLECTUAL PROPERTY RIGHT INFORMATION:

Windows XP, Windows Vista, Windows 7, and Windows 8 are trademarks of Microsoft Corporation.

Hama Pro-Optic is a trademark of Hama GmbH & Co KG.

Erisan OXY+ is a trademark of Farmos Ltd.

DISPOSING OF THE VOLK OPTICAL PICTOR PLUS:


For more specific information, please contact Volk Optical or your own retailer.

CONTACT:

If you wish to contact your local support personnel please call 800-345-8655 or email service@volk.com.

15 WARRANTY

Volk Optical provides this device with a 1 year warranty for the parts and labor. The warranty for the battery is 6 months. Additional warranty is available for purchase from Volk Optical.

SUBMITTING CLAIM:

Any claim under this warranty must be submitted in writing before the end of the warranty period to Volk Optical. The claim must include a written description of the device failure that occurred.

WARRANTY DOES NOT COVER:

Products that have been subjected to abuse, accident, alternation, modification, tampering, misuse, faulty installation, lack of reasonable care, repair, or service in any way that is not contemplated in the documentation of the product, or if the model or serial number has been altered, tampered with, defaced or removed are not covered under warranty. The warranty does not cover damage caused by dropping the device or damage caused by normal wear. Any issue related to the stickers attached to the device coming off are not covered by warranty. Repair or service done by a non-Volk Optical certified service facility is not covered by warranty.

For customer support, please email service@volk.com.
APPENDIX A  ELECTROMAGNETIC COMPATIBILITY INFORMATION

Medical electrical systems need special precautions regarding EMC, and need to be installed and put into service according to the EMC information provided.

Portable and mobile RF communications equipment can affect medical electrical systems.

Pictor Plus should not be used adjacent to or stacked with other equipment, and that if adjacent or stacked use is necessary, the equipment or system should be observed to verify normal operation in the configuration in which it will be used.
MANUFACTURER’S DECLARATION – ELECTROMAGNETIC IMMUNITY:

The Pictor Plus is intended for use in the electromagnetic environment specified below. The customer or the user of the Pictor Plus should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity test</th>
<th>IEC 60601 test level</th>
<th>Compliance level</th>
<th>Electromagnetic environment – guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD)</td>
<td>±6 kV contact ±8 kV air</td>
<td>±2 kV, ±4 kV, ±6 kV indirect contact</td>
<td>Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>±2 kV, ±4 kV, ±6 kV contact</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>±2 kV, ±4 kV, ±8 kV air</td>
<td></td>
</tr>
<tr>
<td>IEC 61000-4-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical fast transient/burst</td>
<td>±2 kV for power supply lines ±1 kV for input/output lines</td>
<td>±2 kV for AC power supply +1 kV for serial cable</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surge</td>
<td>±1 kV line(s) to line(s) ±2 kV line(s) to earth</td>
<td>±1 kV for AC power supply, 1 phase without protective earth</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage dips, short interruptions, and voltage variations on power supply input lines</td>
<td>&lt;5% U_T (&gt;95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles &lt;5% U_T (&gt;95% dip in U_T) for 5 sec</td>
<td>Manufacturer’s test shows conformance to the requirements of the IEC 61000-4-11/EN 61000-4-11</td>
<td>Mains power quality should be that of a typical commercial or hospital environment. If the user of the Pictor Plus requires continued operation during power mains interruptions, it is recommended that the Pictor Plus be powered from an uninterruptible power supply or a battery.</td>
</tr>
<tr>
<td>IEC 61000-4-11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power frequency (50/60 Hz) magnetic field</td>
<td>3 A/m</td>
<td>3 A/m</td>
<td>Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: U_T is the A.C. mains voltage prior to application of the test level.
GUIDANCE AND MANUFACTURER’S DECLARATION – ELECTROMAGNETIC IMMUNITY:

The Pictor Plus is intended for use in the electromagnetic environment specified below. The customer or the user of the Pictor Plus should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity test</th>
<th>IEC 60601 test level</th>
<th>Compliance level</th>
<th>Electromagnetic environment – guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducted RF</td>
<td>IEC 61000-4-6</td>
<td>3 Vrms</td>
<td>Portable and mobile RF communications equipment should be used no closer to any part of the Pictor Plus, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</td>
</tr>
</tbody>
</table>
| IEC 61000-4-6                | 3 Vrms 150 kHz to 80 MHz | 3 Vrms         | Recommended separation distance
|                              |                      |                 | d = 1.2 \sqrt{P}                                                                                       |
|                              |                      |                 | d = 1.2\sqrt{P} 80 MHz to 800 MHz                                                                  |
|                              |                      |                 | d = 2.3\sqrt{P} 800 MHz to 2.5 GHz                                                                   |
| Radiated RF                  | IEC 61000-4-3        | 3 V/m            | Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.                              |
| IEC 61000-4-3                | 3 V/m 80 MHz to 2.5 GHz | 3 V/m           | Interference may occur in the vicinity of equipment marked with the following symbol:                      |

NOTE: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

a) Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless), telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Pictor Plus is used exceeds the applicable RF compliance level above, the Model 006 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Pictor Plus.

b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.
MANUFACTURER’S DECLARATION – ELECTROMAGNETIC EMISSIONS:

The Pictor Plus is intended for use in the electromagnetic environment specified below. The customer or the user of the Pictor Plus should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Emissions test</th>
<th>Compliance level</th>
<th>Electromagnetic environment – guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions CISPR 11</td>
<td>Group 1</td>
<td>Uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</td>
</tr>
<tr>
<td>RF emissions CISPR 11</td>
<td>Class B</td>
<td>Is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.</td>
</tr>
<tr>
<td>Harmonic emissions IEC 61000-3-2</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Voltage fluctuations / flicker emissions IEC 61000-3-3</td>
<td>Complies</td>
<td></td>
</tr>
</tbody>
</table>

RECOMMENDED SEPARATION DISTANCES BETWEEN PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT AND THE VOLK OPTICAL PICTOR PLUS:

The Pictor Plus is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Volk Optical Pictor Plus can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Volk Optical Pictor Plus as recommended below, according to the maximum output power of the communications equipment.

<table>
<thead>
<tr>
<th>Rated maximum output power of transmitter W</th>
<th>Separation distance according to frequency of transmitter m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150 kHz to 80 MHz</td>
</tr>
<tr>
<td></td>
<td>d = 1.2√P</td>
</tr>
<tr>
<td>0.01</td>
<td>0.12</td>
</tr>
<tr>
<td>0.1</td>
<td>0.38</td>
</tr>
<tr>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>100</td>
<td>12</td>
</tr>
</tbody>
</table>

For transmitters rated at a maximum output power not listed above, the recommended separation distance in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
APPENDIX B  REPLACING THE BATTERY

A battery pack is specially designed and manufactured for this device. Volk Optical and Volk Optical’s retailers provide suitable battery packs. The labels on the battery and the label inside the battery cover display the following information:
- NiMH battery
- 4/HR-4U AAA
- 4.8V/1000 mAh

THE PROCEDURE FOR REPLACING THE BATTERY IS AS FOLLOWS:

1. Open the battery compartment cover by pushing and tilting the snap through the hole next to the connector in the bottom of the device. A pen, screw driver or similar pointy small device can be used to assist in opening the cover.

2. Remove the battery compartment cover by lifting it up.

3. Remove old battery. Squeeze battery wires with fingers and pull the connector out from its socket.

4. Put the new battery in the same position and attach the connector to its socket.

5. Replace the battery compartment cover and secure it in place by snapping it firmly to place.
APPENDIX C INSTRUCTIONS FOR UPDATING PICTOR PLUS TO LATEST AVAILABLE VERSION OF DEVICE FIRMWARE

READ BEFORE CONTINUING

- It is important to complete all steps to ensure update contains necessary calibration data to provide the best results post update.
- It is important that the file used is specific to the Pictor Plus being updated. The update file contains calibration settings specific to that camera and the serial number must match.
- This update only applies to the Pictor Plus and not the Pictor Gen 1 camera.

PREPARATIONS

- Ensure Pictor Plus has charged for at least 30 minutes prior to update process.
- Ensure the following settings in the device menu are set:
  - USB write protection to Off
  - Image Transfer Method to UMS

UPDATE PROCEDURE

1. Extract zip file to your hard drive by:
   - Windows
     - Save the zip file on the email to a local folder on your hard drive.
     - Locate the folder where the zip file is saved.
     - Right-click the folder, click Extract All, and then follow the instructions.
   - OS X
     - Save the zip file on the email to a local folder on your hard drive.
     - Locate the folder where the zip file is saved.
     - Double click the zip to extract.
2. Locate the contents of the unzipped folder in Explorer (windows) or Finder (OS X). You will find the following contents:
   - Pictor Plus Firmware Update File (xxxxxxx.sys).
   - Change notes for most recent firmware version.

3. Place Pictor Plus in cradle with USB connected to PC and power cable connected.

4. Check that the serial number provided in the email subject matches the Pictor Plus to be updated.

5. Open the Pictor drive on the PC or Mac.

6. Copy the folder named system to the Pictor Plus root folder.

7. Remove the Pictor Plus from cradle to begin update process.

8. Wait for Pictor Plus to display red update notification.

9. Pictor will turn off once update process is complete.

10. After the Pictor Plus has shut down, wait at least 30 seconds before replacing it in the cradle.

11. Open the Pictor Plus root folder and copy the folder named system a second time to Pictor Plus camera to copy calibration data.

12. If the PC or Mac asks you if you want to replace folder already named system, click yes.

13. Remove the Pictor Plus from cradle to begin secondary update process.

The Pictor Plus will now be updated to the latest firmware version. Changes can be found in the Pictor Plus IFU and in the provided change notes.
APPENDIX D  WI-FI INSTALLATION GUIDE AND SETUP

You must first determine which kind of Wi-Fi card you have installed.

If you open up the battery compartment and see an activation code, use the setup guide provided on the EyeFi mobi card. If the battery compartment cover does not contain an activation code, use the EyeFi center setup guide.

- Information about WI-FI functionality
- Installation
- Set up
- Problem solving

Information about Wi-Fi functionality

- Wi-Fi feature is implemented by using Eye-Fi card. More information about the card can be found in Eye-Fi internet pages: www.eyefi.com/products.

System requirements:

- Pictor Plus with WI-FI card
- Computer running Windows 7 or 8 Pro with Wi-Fi capability, 10 MB of free disk space and a minimum 2GB of RAM
- Previous versions of Eye-Fi desktop software must be removed before installing the Mobile Desktop Transfer

EYEFI MOBI CARD SETUP GUIDE

Installation

1. Install Eyefi Mobi Desktop Transfer for Windows from EyeFi website.

2. Run the provided setup.exe.
   - Enclosed pop up window will open.
3. Select “Next.”

4. Accept license agreement.

5. Select “Next.”
6. Select “Install.”

7. Select “Finish.”
8. Your Windows Firewall may ask (depending on your computer setting) Allowance for Eye-Fi helper.
   - Select “Allow access.”

Set up

14. Enter 10-digit activation code.
   - Activation code can be found under camera battery cover.
15. Type activation code.

16. Select “Next.”

17. Select folder where to transfer images and videos.

18. “Create subfolders” are selected by default. Please remove selection from check boxes at the right side.

19. Select “Next.”

20. Power on your camera.
21. Take some images and wait for the images to transfer.

22. Select “Done.”

23. Set up is completed and Wi-Fi transfer is enabled to your computer.
Troubleshooting

   - Verify that your computer's Wi-Fi is enabled. Instructions can be found from your operating system help.
   - Select "Back" and select "Next" again.
   - Take more images.
   - Wait for images to transfer.

2. Computer is connected to camera, but images don’t transfer.
   - Go to your computer's Network and Sharing Center.
   - Verify that Network type is "Work" instead of "Public."
   - Change Network type by clicking blue Public Network text.
**EYEFI CENTER SETUP GUIDE**

**Pictor Plus Wi-Fi: Overview**

- The Wi-Fi feature of Pictor Plus is an optional feature that allows wireless transfer of images and videos from the Pictor Plus to your computer.
  - You do not need to use Wi-Fi in order to utilize the Pictor Plus.
  - Transfer of images and videos from the Pictor Plus is always possible via the Pictor Plus cradle and USB cable when connected to your computer.
- The Wi-Fi feature of Pictor Plus is provided using the Eye-Fi SD card already installed in your Pictor Plus.
  - The Eye-Fi SD card is an SD memory card with Wi-Fi capabilities.
- The Eye-Fi card requires two companion software called Eye-Fi Center & Eye-Fi Helper to be installed on your Windows or Mac computer.
  - All Eye-Fi card and account settings are managed using Eye-Fi Center.
  - Image and video transfers are managed automatically with Eye-Fi Helper.
  - A single downloaded file installs both software items.

Below are the main steps to use Pictor Plus Wi-Fi:

- Install the Eye-Fi software.

  ![Eye-Fi](image1)

  ![PC or Mac](image2)

- Connect your Pictor Plus to your computer via its USB cradle.

  ![USB](image3)

  ![PC or Mac](image4)

- Use the Eye-Fi Center software to set up the Pictor Plus Eye-Fi card.

  ![Eye-Fi](image5)

  ![Eye-Fi Center](image6)

  ![8GB + WiFi](image7)

- Use the Pictor Plus Wi-Fi to transfer images via the Eye-Fi Helper software.

  ![Pictor Plus](image8)

  ![WiFi](image9)

  ![PC or Mac](image10)
Eye-Fi Center Software: Overview

What software is installed on your computer?

Eye-Fi Center:

- Is a user application
- Creates and manages Eye-Fi user account
- Manages Eye-Fi card settings for your Pictor Plus Eye-Fi card

Eye-Fi Helper:

- Runs in the background on your computer
- Transfers images and videos

A single Eye-Fi user account can have multiple cards.

A single Eye-Fi card can be on only one account.

An Eye-Fi Card must be removed from a given Eye-Fi account before it can be used with another Eye-Fi account.

IMPORTANT

- The Pictor Plus must be docked in its charging cradle with the USB cable connected to your computer to complete the Wi-Fi setup instructions using the Eye-Fi Center software.
- As with any networking device, your computer firewall may need to be configured to allow the Pictor Plus to communicate with your computer.
  - The Windows and Mac native firewalls are included as examples in these instructions.
  - Consult your user instructions for any 3rd party firewall software you may use.
Eye-Fi Center Installation: Windows

Download Eye-Fi Center for Windows from www.eyefi.com/support.

- Run Setup.exe.
- Select next.

1. Check the License agreement box and click next.
2. Select folder where the program will be installed. It is recommended to use the default folder.

3. Click Install for software installation.
4. Click finish and installation is ready.

Allow Eye-Fi Helper to communicate through firewall. Check “Private networks” box and click Allow access button.
Test firewall settings with Firewall Tuning. Click Next button.

- After Firewall Tuning is done click Finish.

NOTE: If Firewall tuning fails please check your internet connection.
Eye-Fi Center Installation: Mac

Download Eye-Fi Center for Mac from [www.eyefi.com/support](http://www.eyefi.com/support).

- Open the downloaded Eye-Fi.dmg file.
- Double-click the Eye-Fi.mpkg icon.

- Select Continue.
Select Continue.

Select Agree.

Select Install.
- Authorize installation on your Mac as needed.

- Select Close.

Firewall setup

1. Go to System Preferences -> Security & Privacy / Firewall.
2. Select Firewall Options.
3. Confirm the Eye-Fi Helper app is listed and set to “Allow incoming connections” with a green indicator.

**Eye-Fi Set up: Windows & Mac**

After installing Eye-Fi Center:

- Power on the Pictor Plus.
  - Enter Menu using a long press on the right soft key.
  - Under the Device tab, arrow down to the **USB write-protection** icon and confirm it is **OFF**.
- Connect cradle to AC power via power cable and computer via USB cord.
- Place Pictor Plus in the cradle.
- Wait until the Eye-Fi Helper software establishes connection with the Eye-Fi card and initializes it.

You will see prompts indicating the Pictor Plus Eye-Fi card has been found.

Eye-Fi Helper software will recognize the Eye-Fi card in your Pictor Plus.

- Open the Eye-Fi Center application to begin Eye-Fi card setup.
• Open Eye-Fi center software.
• Login window is opened automatically.
• Select “Create new account.”
• If you already have an Eye-Fi account you can add the Pictor Plus Eye-Fi card to that account by selecting Login.

1. Create Eye-Fi account. Fill your email address and create a password.
2. For destination select “My computer” and uncheck the box that enables sending images to Eye-Fi servers.

- Eject symbol is present if Eye-Fi card is connected to Eye-Fi Center software.
  - Eye-Fi card settings can then be changed.

Eye-Fi card is connected to Eye-Fi Center software.

Eye-Fi card is not connected to Eye-Fi Center software.
Next steps are to setup the network connection. The mode can be direct mode or network mode.

- Direct mode (recommended):
  The Pictor Plus Eye-Fi card functions as a Wi-Fi “hotspot” and creates its own Wi-Fi network to which the PC connects.
  - Direct mode is recommended if Wi-Fi network signal is low or Wi-Fi network does not work reliably.
  - Direct mode can be set to start if network connection fails or it can be on by default.
- Network mode:
  The Pictor Plus Eye-Fi card is connected to a known Wi-Fi network (e.g., is a company or hospital network).

**Wi-Fi Overview: Direct Mode**

- Connect the cradle power supply to AC power.
- Connect the cradle USB cable to your computer.
- Place the Pictor Plus in its cradle.

1. Open the Eye-Fi Center software.
2. Select the settings “gear” icon to open the Eye-Fi card settings manager.
Direct mode: Windows & Mac

1. Select the amount of time you want the Eye-Fi card to attempt to connect to your defined Private Networks.

2. Select the amount of time you want the Eye-Fi card to wait to “go to sleep” after transferring images. The card wakes up again when there are new images to transfer.

3. Select Start Direct Mode Network to turn on the Eye-Fi card Wi-Fi network.

4. Use your computer’s Wi-Fi settings to find and connect to the Eye-Fi card using the SSID and password here. Confirm your computer is set to automatically connect to the Eye-Fi card.
Wi-Fi Overview: Network Mode

- Connect the cradle power supply to AC power.
- Connect the cradle USB cable to your computer.
- Place the Pictor Plus in its cradle.

1. Open the Eye-Fi Center software.
2. Select the settings “gear” icon to open the Eye-Fi card settings manager.
NOTE: Computer must be connected to Internet at this stage.

- Wi-Fi network can be added at the initial setup or later from the settings.
- Available Wi-Fi networks can be found from the drop down menu.
- Select desired Wi-Fi network and enter password.

Added networks are displayed at the bottom of the networks tab.

- Networks can be removed from the list by selecting a network and then clicking the Remove button.
Set “Save To” Locations: Windows & Mac

Images

Select the computer folder where you want to save your photos and videos.

- Set remaining “Subfolder options” to your preferences.

Transfer Images via Wi-Fi

Eye-Fi setup is completed – now start transferring images!

- When you use your Pictor Plus to take images or videos, the Eye-Fi card will connect to the Eye-Fi Helper software and transfer them to your computer via Wi-Fi.
- As the images are transferred, the Eye-Fi Helper software will display a pop-up window showing each image being transferred.
- When the Eye-Fi card has completed transferring images, its Wi-Fi will “go to sleep” to conserve battery power.
- When you take more new images or videos, the Eye-Fi card will recognize the new activity and “wake up” its Wi-Fi and start transferring the images or videos.
How To Remove an Eye-Fi Card From Your Eye-Fi Account

If needed, you can remove your Pictor Plus Eye-Fi card from your Eye-Fi account.

1. Confirm your computer is connected to the Internet.

2. Pictor Plus must be placed in docking cradle and connected to your computer via the USB cable.

3. Open Eye-Fi Center.

Follow prompts to remove the Eye-Fi card from your account.
### Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification saying that Eye-Fi card is write protected</td>
<td>Verify from Pictor Plus Device menu that USB write protection is disabled (OFF)</td>
</tr>
<tr>
<td>Eye-Fi card initialization fails</td>
<td>Try to use different USB port and reboot PC</td>
</tr>
<tr>
<td>Computer cannot connect to Pictor Plus in Direct Wi-Fi mode</td>
<td>Verify that Wi-Fi network is enabled in the Windows firewall. Select either home or work network.</td>
</tr>
<tr>
<td>Eye-Fi account creation does not succeed</td>
<td>Verify that your computer is connected to Internet</td>
</tr>
<tr>
<td>Cannot add Wi-Fi network</td>
<td>Verify that your computer is connected to Internet</td>
</tr>
<tr>
<td>Computer cannot connect to Internet</td>
<td>In direct mode computer cannot connect to Internet by using Wi-Fi. Connect to Ethernet cable for Internet connection.</td>
</tr>
<tr>
<td>Eye-Fi center does not detect Pictor Plus when connected from cradle USB cable</td>
<td>Reboot Pictor Plus and/or reboot computer.</td>
</tr>
<tr>
<td>Cannot create account or change settings</td>
<td>Eye-Fi lift and place Pictor Plus back to cradle and wait for Eye-Fi Helper to recognize the Eye-Fi card. Computer must be connected to Internet.</td>
</tr>
<tr>
<td>Deactivating Eye-Fi card from the account does not succeed</td>
<td>Computer must be connected to Internet.</td>
</tr>
</tbody>
</table>
Ordering Information:

Orders may be placed with the Authorized Volk Optical Distributor in your region. Authorized Distributor contact information is available directly from Volk Optical.

Volk Optical Inc.
7893 Enterprise Drive
Mentor, Ohio 44060
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Toll free within the United States: 1-800-345-8655
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The Volk authorized representative based in the European Union (EU) is:
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NOTE: This product complies with current required standards for electromagnetic interferences and should not present problems to other equipment or be affected by other devices. As a precaution, avoid using this device in close proximity to other equipment.

Members of the European Union should contact their authorized Volk Distributor for disposal of this unit.

Certificate
FM 71461