

ONYX[®] PRO Camera System

User Guide



© 2021 Freedom Scientific, Inc. All Rights Reserved. ONYX® is a trademark of Freedom Scientific, Inc. in the United States and other countries. Information in this document is subject to change without notice. No part of this publication may be reproduced or transmitted in any form or by any means electronic or mechanical, for any purpose, without the express written permission of Freedom Scientific.

Safety and Maintenance

To ensure your safety and obtain the most benefit from ONYX PRO, please review these safety precautions carefully.

ONYX PRO is designed to enlarge and enhance text in high contrast colors and read print aloud in order to improve the quality of life for people who are visually impaired. The extent to which this product can improve the ability to see images depends on a person's individual condition and level of visual impairment.

ONYX PRO is not designed to restore vision, correct eye conditions or halt degenerative vision loss. An eye care professional can determine the usefulness and suitability of ONYX PRO for a patient's individual condition.

Precautions for Use

- Follow all warnings, cautions, and instructions as marked on the product
- Use the device on a stable, level surface such as a solid desk or table, according to its intended design specifications.
- Avoid placing the device on an unstable table, cart or stand. It may fall causing serious damage to the unit or bodily injury.
- Use the device indoors only – it should NOT be exposed to extreme or rapid changes in temperature or humidity. Do not place the device near a radiator, heater or areas exposed to long hours of direct sunlight. Keep the unit away from wet areas, rain, and other sources of liquids. Do not submerge the unit.
- At least once per week, clean the device with a soft dry cloth or an electrostatic dusting cloth. DO NOT use liquid cleaners on its plastic surfaces. No additional methods of sterilization or cleaning are recommended or required. Make sure the power is turned off when using the unit.
- Do not use the device near flammable materials or liquids.
- Read the instructions in this document before attempting to use the unit.
- Do not attempt to repair the unit or open its case. This product contains no user serviceable parts.

Caution: Do not apply excessive pressure to the screen. Do not spray cleanser directly on these items. Also, do not use any cleanser that contains the following agents: acetone, ethyl alcohol, ethyl acid, ammonia, or methyl chloride.

Additional Electrical Safety Precautions

- The power supply cord is a disconnect device for electrical equipment. The socket-outlet should be installed near the equipment and be easily accessible.
- Do not use the device in, near or around water. The device is not designed to offer protection against contact with liquids of any kind.

- Use only the power supply provided with the device. Using unauthorized power supplies may cause serious damage to the device's electronic components and will void the warranty.
- Always place the power cord away from traffic areas to avoid damage of power supply.
- Prevent the risk of electrical shock by NOT attempting to disassemble the unit. Please refer all service to an authorized repair facility.

Additional Mechanical Safety Precautions

Improper handling may cause damage to the device.

Transporting the Device

- Carry the device using the carrying handle.
- Do not swing the device while carrying it.

Regulatory Information

ONYX PRO is tested by a recognized body and independent laboratory for safety and regulatory compliance.

Description	Requirement
FCC / EMC	47 CFR Part 15 FCC Class B Declaration of Conformity
Safety	UL/EN/CSA 62638-1:2014 Safety Certification
Safety (Battery)	IEC62133-2:2017 CB report
CE / EMC	EN 55022:2010 Declaration of Conformity
ICC	CAN/CSA-CISPR22-10 Declaration of Conformity
Environmental	Consumer Product Safety Improvement Act of 2008
Environmental	FDA/OSHA/EPA Regulations for toxic substances
Environmental	California Proposition 65
Transportation (Battery)	UN38.3 6th revision, amend 1 /CNAS/SDS

Table of Contents

Introduction	1
Safety Tips	1
Unpacking Instructions	1
What's in the Box?	2
Customer Supplied Hardware	2
ONYX PRO Setup	3
Inserting and Removing the Tablet.....	3
Charging the Tablet.....	4
Powering On the Unit / Adjusting Volume.....	5
Camera Setup	6
Mounting the Camera.....	6
Camera LED Light.....	7
Rotating the Camera	7
ONYX PRO Software	8
Installing Software	8
Settings Bar	9
Touch Gestures.....	10
Saved Files Page	11
Saved Pictures Menu	11
Saved Videos Menu	12
Brightness and Contrast Panel.....	13
Document Camera	13
Reading.....	15
Application Settings.....	17
Technical Specifications	19
Service and Support	20

Congratulations on your purchase of the ONYX PRO!

ONYX PRO is an advanced tablet-based magnifier with highly accurate reading capabilities allowing the user to listen to printed material in a clear natural sounding voice. It combines the best of a tablet and a magnification system for an all-in-one device that's easy to use and portable. We are excited for you, our valued customers, as you enjoy the possibilities we have imagined!

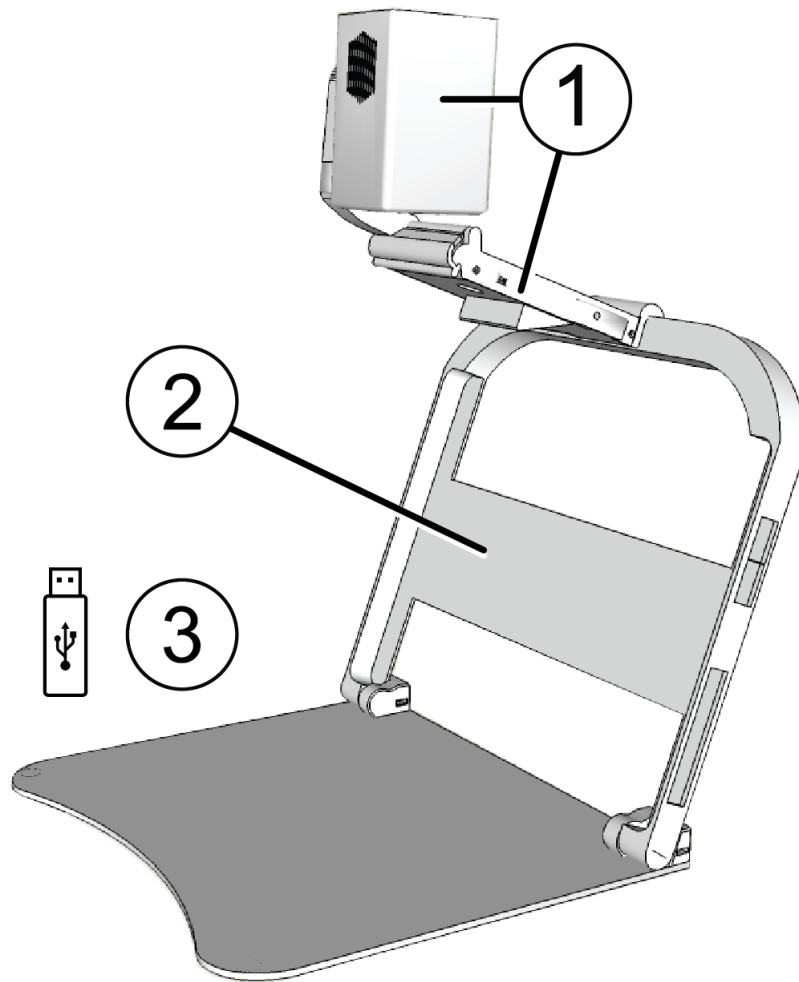
Safety Tips

- Please use the charger supplied with the unit. Using a third-party charger can cause unexpected results and can cause damage to the unit.
- Do not operate the unit if it is wet as it can short circuit.
- Be careful to not trip over the cord when charging the unit.
- Unplug the device and remove all cables when cleaning.
- When moving, remove the main camera, fold the stand, and use the handle.
- Do not use OCR for medical prescriptions and other sensitive information.

Unpacking Instructions

Please see if there is any visible damage to the shipping box. If damage is significant, please take photos and email us at support@freedomscientific.com so we can provide you with further instructions.

What's in the Box?



1. Main Camera Attachment with ONYX PRO camera and document camera
2. Tablet stand
3. USB flash drive with ONYX PRO software

Customer Supplied Hardware

The following items are not included and must be provided by the customer.

1. Surface Pro 7 tablet
2. Surface charger
3. Surface keyboard (optional)

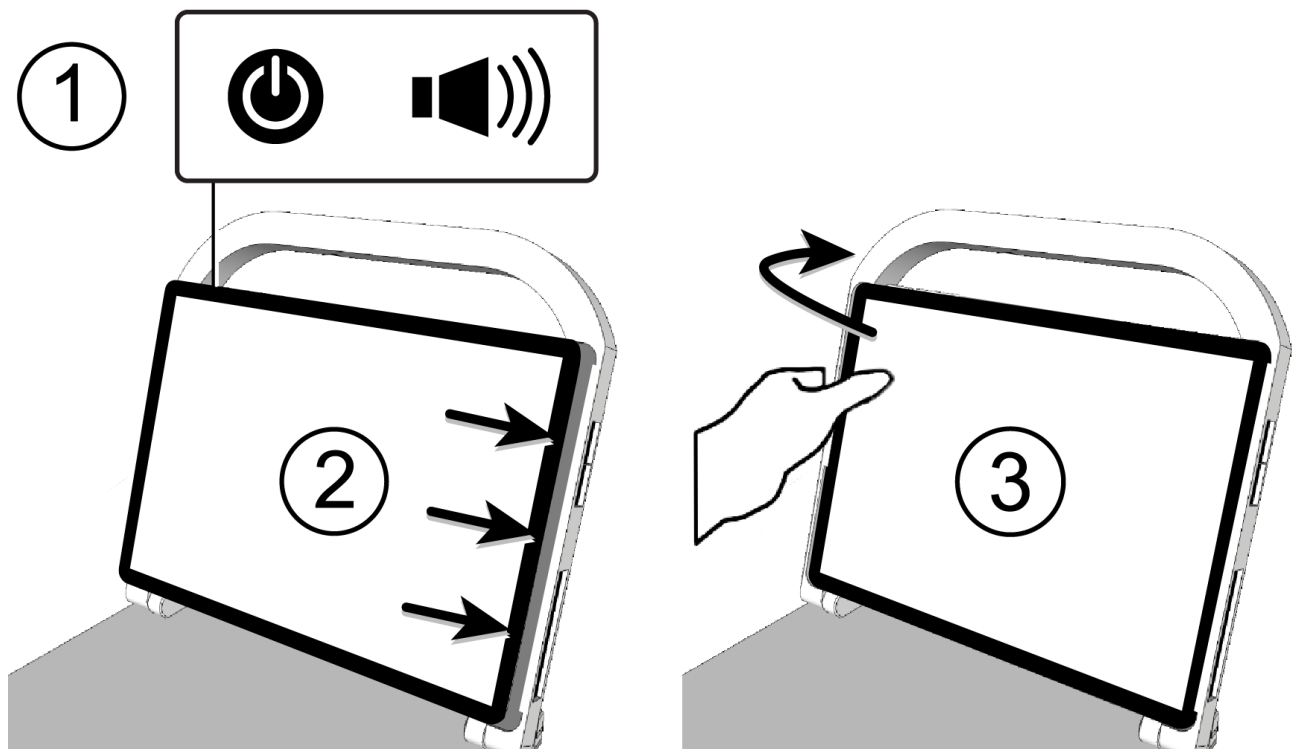
Inserting and Removing the Tablet

Note: You must provide a Surface Pro 7 tablet to use with the ONYX PRO. Before inserting or removing a tablet ensure that the main camera, Surface Pro charger, USB devices, and headphones are unplugged from the tablet.

Place the ONYX PRO on a flat surface and open the stand.

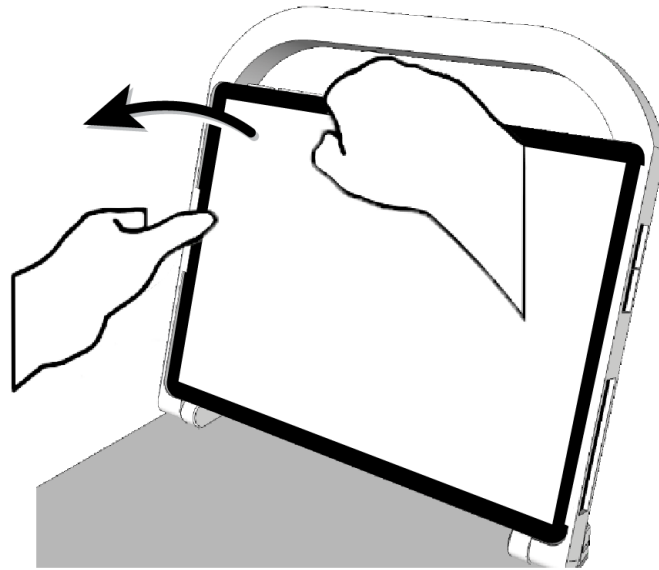
To insert the tablet in the stand, do the following:

1. Make sure you are holding the tablet so that the Power and Volume buttons are located on the top left side of the tablet.
2. Insert the right side of the tablet into the right side of the stand.
3. Gently push the left arm of the stand outwards, and then push the left side of the tablet in until it locks into place on the left arm.



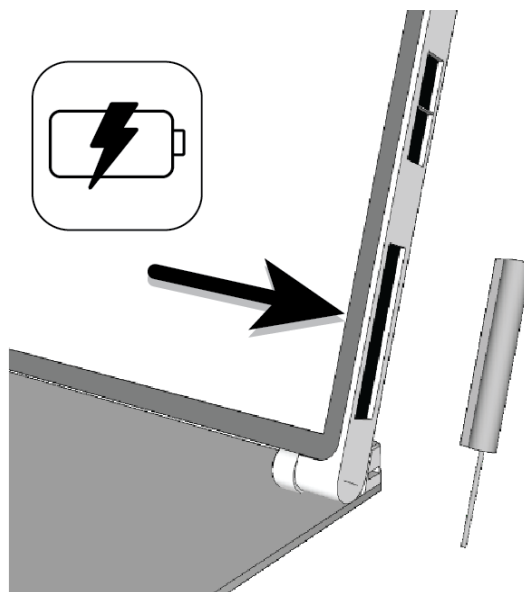
To remove the tablet, do the following:

1. Gently push the lip on the left arm on the stand outwards and pull the tablet out (left side first).



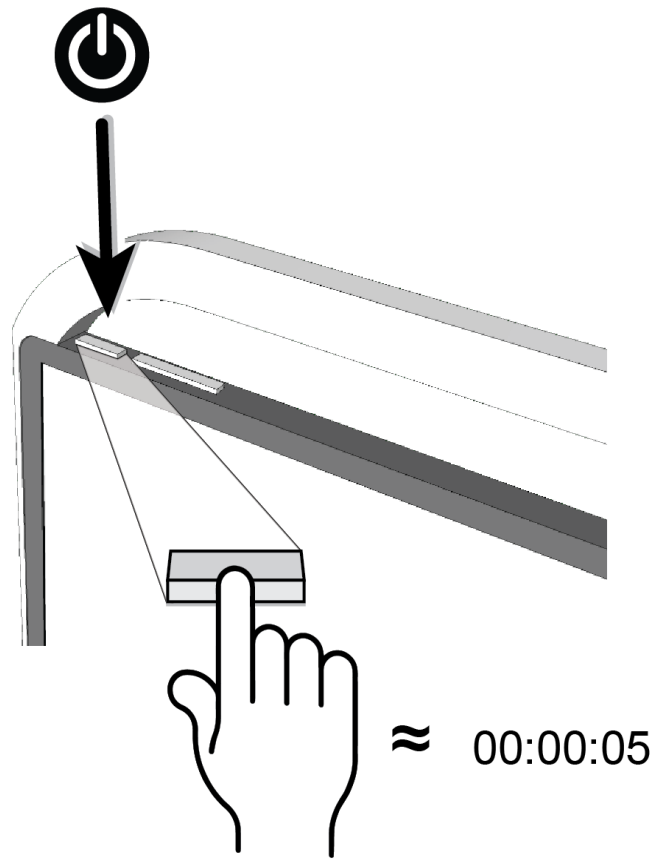
Charging the Tablet

To charge the tablet, connect the charger into the charging port located on the lower right side of the tablet.

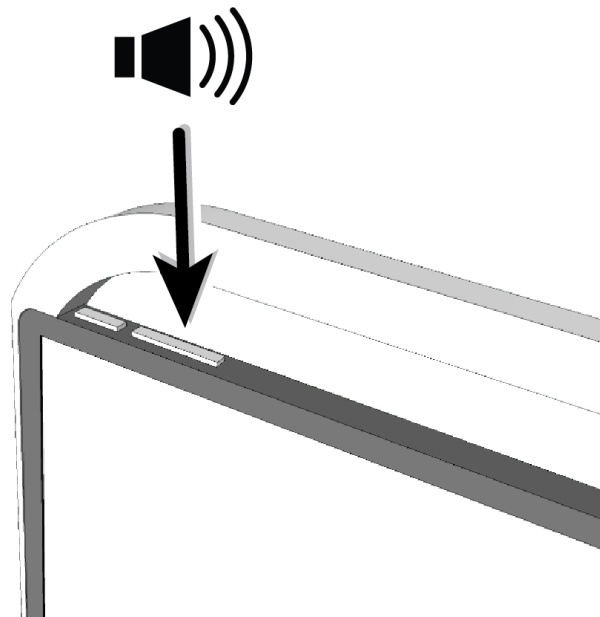


Powering On the Unit / Adjusting Volume

Hold the Power button for approximately five seconds to turn the tablet on and off.



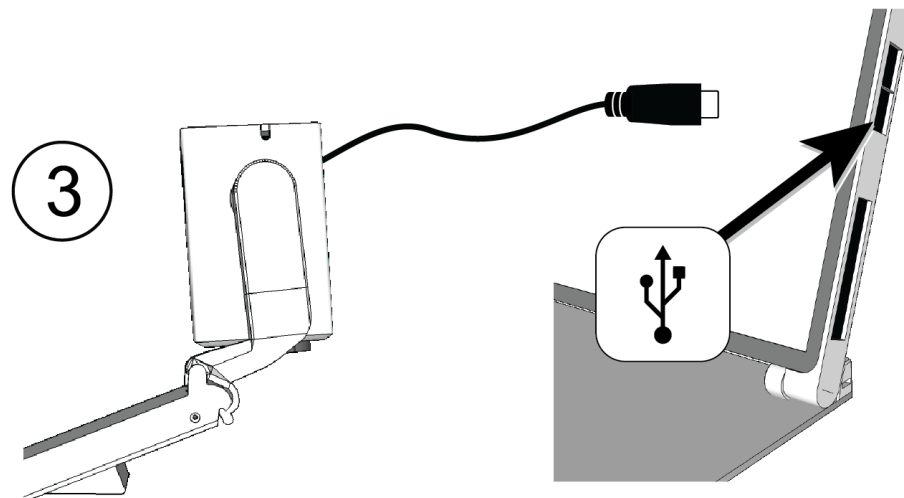
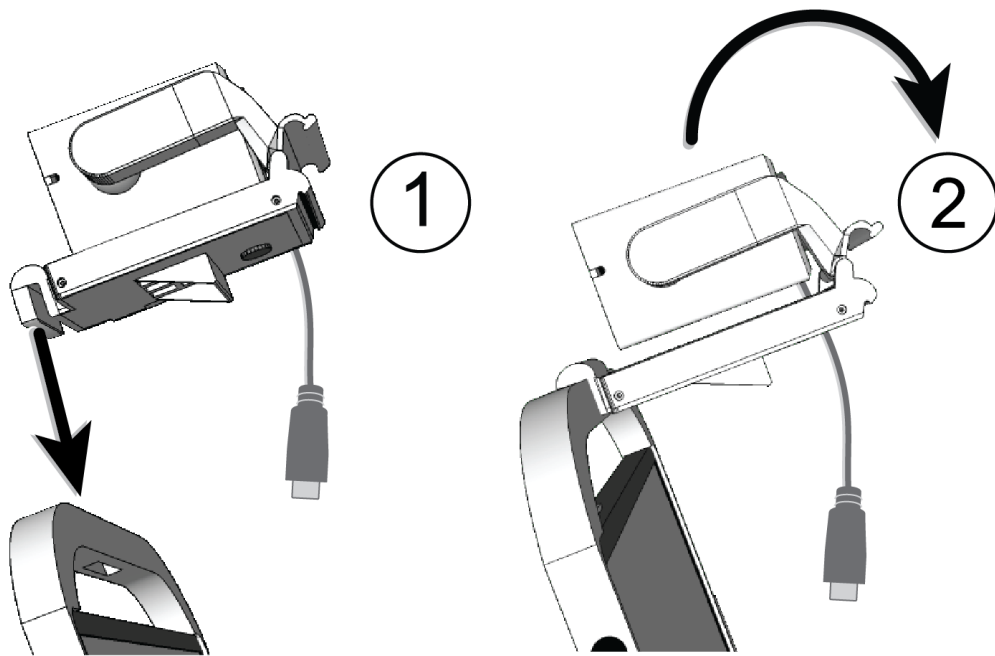
To change the volume, use the Volume button which is located to the right of the Power button.



Mounting the Camera

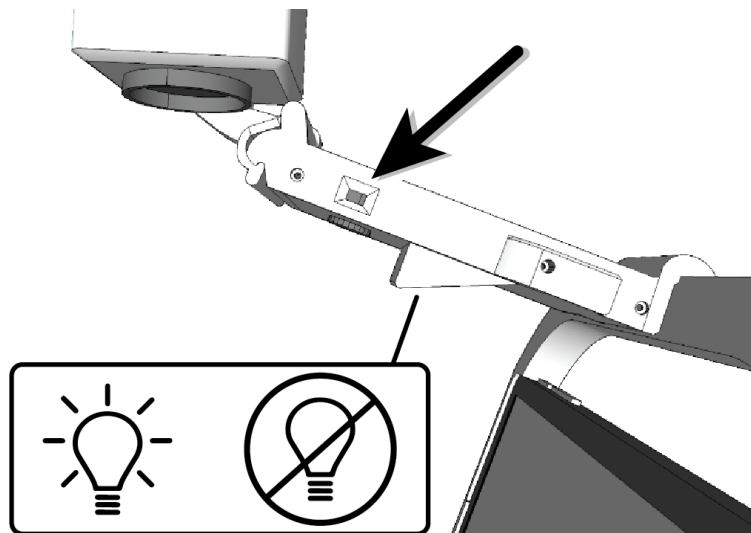
To mount the camera onto the stand, do the following:

1. Align the camera insert above the mounting hole, and carefully slide it down through the mounting hole.
2. Unfold the camera and rotate it forward until the clip snaps onto the latch.
3. Once the camera is latched, plug the camera's USB cable into the USB port on the right side of the tablet. The camera is now ready to use.



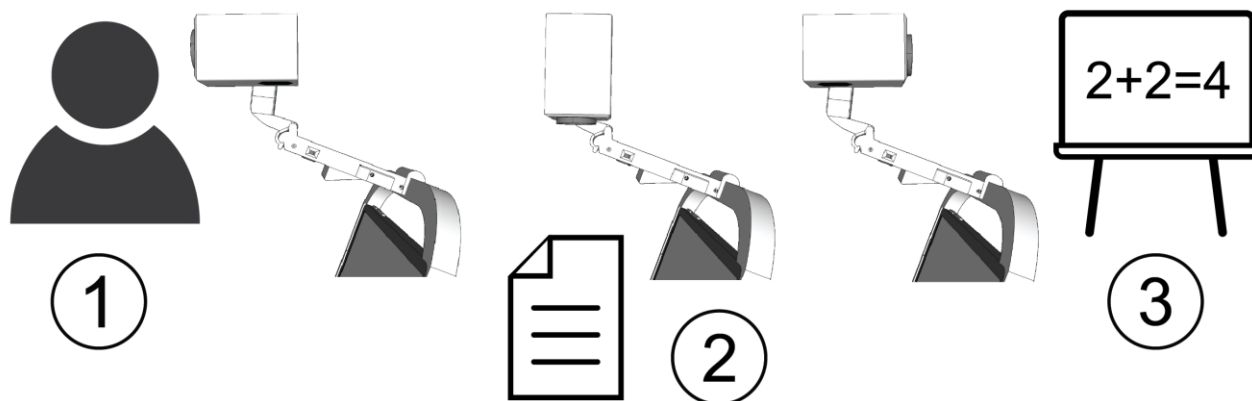
Camera LED Light

An integrated LED light is located in the main housing of the camera. The light switch is located on the right of the main housing which turns the light on and off.



Rotating the Camera

The camera automatically loads the last zoom and color setting depending on the rotation of the camera.



- | | | |
|---|---------------|---------------------------------------|
| 1 | Self-view | Camera rotated directly at user |
| 2 | Desktop view | Camera rotated down at a document |
| 3 | Distance view | Camera rotated forward away from user |

The ONYX PRO software installs on your Surface Pro 7 and controls the ONYX PRO and document cameras. It lets you capture, view, and save images, scan and read documents, view distant objects, record and save videos, and use screen enhancements such as magnification, color contrast, and brightness.

Installing Software

The ONYX PRO software is provided on a USB flash drive that ships with the ONYX PRO.

To install the software, do the following:

1. Insert the USB flash drive into the USB port on the right side of the tablet.
2. Open the flash drive folder and copy the ONYX PRO software file to the Surface Pro.
3. Unzip and run the ONYX PRO software file. Follow the installation prompts that appear on the screen.
4. When installation is finished, the ONYX PRO shortcut appears on the screen.



5. Double tap the shortcut to start the software.











The software consists of a main Settings bar that can be placed horizontally or vertically on the screen. From this bar you can capture images, record videos, scan and read documents, and other tasks.




The remainder of this document describes the Settings bar and different menus you use to control ONYX PRO.

Settings Bar

The Settings Bar provides all the common controls needed to operate the device and appears when the **V-shaped arrow** on the edge is touched.





	Exit – Close the software and exit to Windows
	Take Picture – Capture an image from the main camera to work with it further
	Record Video – Record a Video from the main camera. When recording, the recording icon  displays at the bottom right corner of the screen. When recording is in progress, the Record button  toggles to become the Stop Recording button  .
	Brightness/Contrast Adjustment
	Load Images/Videos – Open previously saved pictures and videos
	Zoom in
	Zoom out

	Toggle Color
	Document Camera – Switch to document camera to capture/read a document
	Application Settings


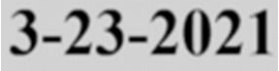


Touch Gestures

Some functions do not have an icon in the menu or can be controlled using touch gestures as well. They are as follows:

Action	Touch Gesture	Keyboard
Focus *	Single Finger Tap 	Press ENTER
Zoom In Zoom Out	Two-Finger Pinch 	Press PLUS key (+) Press MINUS key (-)
* While focusing, a white square appears on the screen along with an audible sound. During this time other actions are disabled. Once focusing is complete, the square changes color from white to green and a double-beep sound plays.		

Saved Files Page






The Saved Files page is used to navigate through saved folders. Use it to open, rename and delete document folders.



	Go back to previous page.
	Open folder. The preview menu will change if the file is a picture or a video.
	Rename folder. A dialog box opens to let you rename the selected folder.
	Delete folder.

Saved Pictures Menu

The Saved Pictures menu appears if the file being previewed is a picture.










	Go back to previous page.
	Read the current document aloud
	Previous file.
	Next file.
	Rotate picture.

	Disable/Enable column detection.
	Delete file.

Saved Videos Menu





The Saved Videos menu appears if the file being previewed is a video.



	Go back to previous page.
	Pause/Play video.
	Previous file.
	Next file.
	Forward video 30 seconds.
	Rewind video 30 seconds.
	Delete file.


Brightness and Contrast Panel

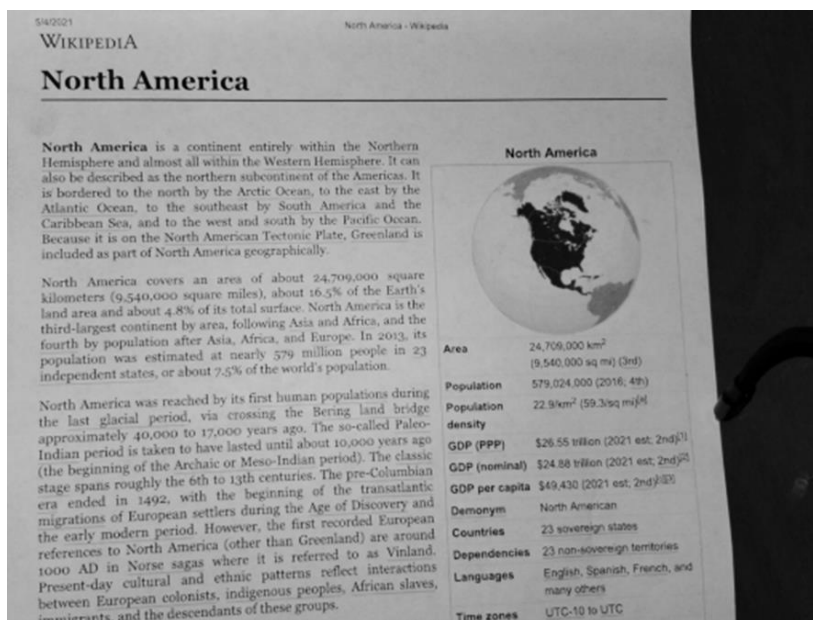
The Brightness and Contrast panel lets you control the brightness and contrast of the live video from the ONYX PRO camera.



	Default contrast
	Default brightness
	Increase brightness/contrast
	Decrease brightness/contrast


Document Camera

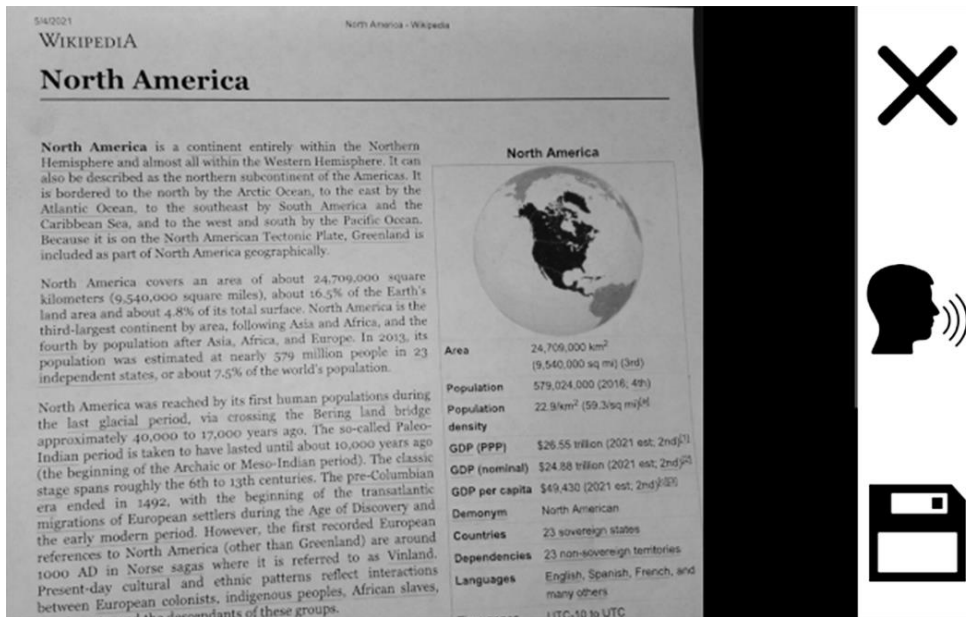
A secondary camera called the document camera is housed inside the middle of the camera assembly. It has a wider field of view and LED light to capture a full letter or A4 document with high accuracy and read it aloud.




Press  on the Settings bar to enable the document camera. A screen similar to the example below will appear.



	Back - Return to previous page.
	Capture – Capture the current document for further processing

After pressing , a screen similar to the following will appear:



	Back – Return to previous page
	Read – The viewable document will be read aloud
	Save - Save document to “[USERNAME]\Pictures\ONYX PRO[DATE]” folder (ex: ..\DefaultUser\Pictures\ONYX PRO\3-25-2021)



Reading

While reading, ONYX PRO will use the settings selected in Application Settings related to speech and reading.

Original Mode

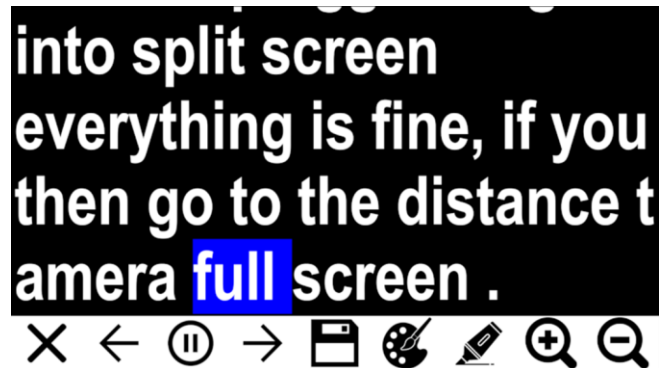
In original mode, the original picture is displayed, and the text is highlighted using a highlight box.












	Go back to previous page.
	Save text to file.

Wrapped Mode

In wrapped mode, the text is displayed and highlighted digitally when reading.



	Go back to previous page.
	Previous sentence.
	Pause/Play
	Next sentence.
	Save text to file.
	Toggle text and background color.
	Toggle text highlight color.
	Zoom in.
	Zoom out.

Application Settings

Application settings let you set where pictures and documents are saved, set placement of the menu bar on the screen, set menu and reading language, set speech volume and rate, set color modes, restore factory settings, and more.

The following describes the General, Speech, Color Modes, and About settings.

General

Saved Pictures to My Pictures /	Renames the folder where the pictures and videos are saved.
Save Documents to My Documents /	Renames the folder where text files are saved.
Main Camera Orientation	Set camera orientation to: Original, Flipped
Main Camera Frequency	Set camera frequency to: 60hz, 50hz
Menu Language Selection	Select language displayed on the menu.
Menu Bar Alignment	Set the menu bar alignment to: Top, Bottom, Left, Right
Main Camera Video Stabilization	Set video stabilization to: On, Off
Reading Mode	Set reading mode to: Original, Wrapped

Speech

Language Selection	Select reading language.
Voice Selection	Select reading voice.
Speech Volume	Set speech volume to: Low, Medium, High
Speech Speed	Set reading speed to: Slow, Medium, Fast

Color Modes

Choose which color modes to enable or disable using this menu. Unchecked options are skipped while cycling through the color options.

About

About	Software and registration information.
Unregister	Unregister the software so it can be transferred to another PC.
Restore Defaults	Restore all settings to default values.

ONYX PRO

The following specifications apply to the ONYX PRO stand, ONYX PRO camera, and document camera.

ONYX PRO Stand:

- Stand Folded: 12" x 13" x 2" / 305 mm x 330 mm x 51 mm
- Stand Unfolded: 12" x 13" x 12" / 305 mm x 330 mm x 51 mm
- Weight: ~2.2 kg / 5 lbs.

ONYX PRO Camera:

- Magnification range: 2x to 24x zoom
- Camera: 5 MP HD auto-focus camera module; rotates to support five camera positions: reading, hobby, distance, self-view, and spotting
- Image resolution: 800 x 480 pixels
- Color: 24-bit

Microsoft Surface Pro 7

Note: The Surface Pro 7 is provided by the customer.
The following specifications apply to the tablet.

- Screen: 12.3 inches / 31.24 cm tilts approximately 40 degrees with built-in reading stand open
- Resolution: 2736 x 1924 px
- Tablet size: 11.5" x 7.9" x 0.33" / 292 mm x 201 mm x 8.5 mm
- Battery: Li-ion battery; approximately four hours of continuous use; charges in approximately three hours

Note: Only use the supplied power adapter to charge the unit's battery.

Note: This device has no user-serviceable components. Any unauthorized attempt to service or replace internal components will void the product warranty.

To contact Technical Support by web, visit **support.freedomscientific.com/support** and submit a technical support request to ask questions.

To contact by email, send questions to **support@freedomscientific.com**.

To contact by telephone, U.S. customers can call **(727) 803-8600** weekdays between 8:30 AM to 7:00 PM (Eastern Time).

When you call, please have your questions ready and be prepared to provide the following information:

- Product name
- Product serial number
- What you were doing when the problem occurred
- How you tried to solve the problem