Contents

Introduction............................................................ 2
ProScope Micro Mobile Kits........................................ 3
Components Name and Function................................. 4
Preparation before use............................................... 5
Using the ProScope Micro Mobile................................. 6~7
Removing/Installing a Mobile Device Sleeve............... 8
Removing/Installing a Lens, Lens Cone, or Filter........... 9
Maintenance & FAQ................................................... 10
FCC Statement........................................................ 11
Specifications......................................................... 12

Lens attachment for use with smartphones and tablets including the Apple iPhone®, iPod touch®, iPad®, and iPad mini®.*

*iPhone®, iPod touch®, iPad®, and iPad mini® are registered trademarks of Apple, Inc.
Thank you for purchasing the ProScope Micro Mobile by Bodelin Technologies!

The ProScope Micro Mobile (PMM) is the first professional-quality lens attachment system that turns your mobile device into a mobile microscope. It was designed to work with smartphones and tablets including the Apple iPhone®, iPod touch®, iPad®, and iPad mini®. It features removable lens cartridges for future expandability and includes its own internal rechargeable lithium-ion battery for hours of field operation without draining your mobile device’s battery.

Applications for the PMM include:  
**Science Education** - Traditional analog microscopes are not mobile. The PMM opens up a new world of mobile microscopy for students and educators around the world.

**Medical and Dermatology** - Doctors and Dermatologists use magnifying devices and loupes to diagnose skin and ENT conditions. The PMM can enhance healthcare and telemedicine evaluations by allowing doctor and patient to communicate, record, and track certain health conditions using a common mobile device.

**Manufacturing Quality Control** - Every manufacturer uses a microscope to check parts for tolerances and anomalies in the manufacturing process. The PMM can help communicate ideas and resolve issues between design and production more quickly and efficiently.

**Law Enforcement & Forensics** - Our ProScope products have been used in crime scene and forensic investigations for years. The PMM can help make mobile evidence gathering and investigations even more convenient and timely.

**Health and Beauty** - Skin care and hair replacement professionals often use microscopes to check the effectiveness of procedures. The PMM can bring mobility and convenience to both clinics and patients to easily check and compare progress of procedures over time.

**And more!** - We’re still discovering new uses for the PMM and so are our customers.

The ProScope Micro Mobile was designed, manufactured, and assembled with pride in Oregon, USA!
ProScope Micro Mobile kits

Kit model: PMM-IP5K
For iPhone 5

Kit model: PMM-IPADK
For iPad 2nd/3rd/4th gen

Kit model: PMM-IPMINIK
For iPad mini

Kit model: PMM-IP4K
For iPhone 4/4S

Kit model: PMM-IPT5K
For iPod touch 5th gen

Kit model: PMM-IPT4K
For iPod touch 4th gen

Kit model: PMM-BASE
For other smartphones and tablets
(additional adapters or sleeves may be required)
<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Power-Level Indicator LED</td>
<td>Indicates battery level and charging State - displays solid green, yellow, red states during battery operation and flashing green, yellow, red states during charging</td>
</tr>
<tr>
<td>2 Dual LED Banks</td>
<td>12 LEDs, 2 banks of 6 LEDs - for illumination of the subject</td>
</tr>
<tr>
<td>3 Removable Lens Cartridge</td>
<td>For future lens expandability - rotate counter-clockwise to unlock, push lens cartridge out to release</td>
</tr>
<tr>
<td>4 Power Rocker Switch</td>
<td>Press and hold center button for (1) second to turn LEDS ON/OFF - rotate rocker to change LED intensity</td>
</tr>
<tr>
<td>5 LED Bank Selector Switch</td>
<td>Switches between bank (A) and bank (B) LEDs</td>
</tr>
<tr>
<td>6 Shoe-Mounts</td>
<td>For attaching mobile device sleeves</td>
</tr>
<tr>
<td>7 Adjustable Lens Cone</td>
<td>For touch-view or distance-view focus</td>
</tr>
<tr>
<td>8 Tripod Mount</td>
<td>For mounting included tabletop stand - uses standard 1/4-20 tripod threads for mounting other tripods or pistol grips</td>
</tr>
<tr>
<td>9 Tabletop Stand</td>
<td>Stabilizes ProScope Micro Mobile for level, hands-free operation</td>
</tr>
<tr>
<td>10 USB Charging Port</td>
<td>Charges internal lithium-ion battery from standard 5v USB port</td>
</tr>
</tbody>
</table>

**Components Name and Function**

1. Power-Level Indicator LED
2. Dual LED Banks
3. Removable Lens Cartridge
4. Power Rocker Switch
5. LED Bank Selector Switch
6. Shoe-Mounts
7. Adjustable Lens Cone
8. Tripod Mount
9. Tabletop Stand
10. USB Charging Port
Preparation before use

Charging the PMM

Plug the provided USB charging cable into the mini USB port of the PMM. Plug the other end of the USB cable into a powered USB port on your computer or into a common 5v USB charger such as the charger that was provided with your iPhone or iPad.

Charging will be indicated by the Power-Level Indicator LED flashing.

While Charging:
<20% = Blinking Red
<50% = Blinking Yellow
<99% = Blinking Green
100% = Solid Green

A depleted battery will be fully charged in about 2 hours. A fully charged battery will illuminate the LEDs for approximately 5 hours at maximum intensity. Lower intensity LED operation will increase battery life. Typical use of the PMM will result in several days of operation before charging is required.

Note: It is okay to turn on the LEDs and use the PMM during the charging cycle.
Using the ProScope Micro Mobile

Mount your device

Slide your mobile device into the provided sleeve. Depending on which PMM kit you have purchased, each mobile device sleeve will look different. Make sure that you’ve purchased the correct kit for your specific mobile device. An iPhone 5 sleeve is shown in the example picture.

iPhone 5 sleeve

Turn ON the LEDs

Press and hold the center button on the Power Rocker Switch for (1) second to turn ON the LEDs. Note: Press and hold the center button again for (1) second to turn OFF the LEDs.

Rotate the rocker switch toward the USB port for maximum LED intensity or toward the lens for minimum intensity.

Launch Camera App

Launch a camera app on your mobile device. In the example to the right, we are using the Apple Camera App found on all iOS mobile devices. However, any camera app of your choice will also work.

With the PMM laying flat on a subject, you will see a magnified image. Use the pinch-to-zoom feature to fill the complete frame as shown in the Apple iPhone 5 example.

Adjust Lens Cone

Most cameras have an auto-focus feature. If your PMM is out of the focus range or you want to focus on features of interest above or below the surface level of your subject, turn the inner lens cone until the subject comes into focus. This works best when AE/AF Lock is enabled - see Apple Camera App features on next page.
Apple Camera App Features

The PMM is well suited for use with the Apple Camera App. Below is a partial list of features that will be helpful in your use with the PMM.*

1. Tap to Focus
Tap your device’s screen to focus and properly expose the subject you are inspecting.

2. Auto Exposure & Auto Focus Lock
It is extremely useful to use the AE/AF Lock function when viewing similar subjects where the distance from and illumination of the subject does not change much. For example, in dermatology applications, enabling the AE/AF Lock will maintain proper exposure and focus for quick imaging and comparison of different skin locations. To enable AE/AF Lock, tap and hold on your device's display until the AE/AF Lock indicator appears. Tap again to disable.

3. Pinch-to-zoom - 4X digital zoom
The PMM standard lens has an optical magnification of 20x. Using the digital zoom feature will give a magnification range of approximately 20 to 80x.

4. Still or Video capture
Images can be captured in either still or video mode. Image capture can be initiated by either tapping the capture button on screen or by pressing the (+) button on your iOS device.

5. Image sharing
The Camera App allows the sharing of images and video in a variety of ways, from emailing to printing. Captured images and videos are stored in the Photos folder on your device.

* Notes: Any camera app of your choice will also work with the PMM.
Please review the documentation from Apple as Camera App and iOS features may have changed from the time of this printing.
Removing/Installing a Mobile Device Sleeve

Line up a Sleeve

- iPhone
- iPad mini
- iPad

Install a Sleeve

- iPhone
- iPad mini
- iPad

Remove a Sleeve

- iPhone
- iPad mini
- iPad
Removing/Installing a Lens, Lens Cone, or Filter

**Removing/Installing a Lens**

**Installing a Lens**
Place the lens into the lens opening so that the lens hashmarks look like an 'X'. Use your thumb to twist the lens clockwise until the lens hashmarks look like a '+' and you feel the lens lock (click) into place.

**Removing a Lens**
Reverse the installation procedure. Once the lens is in the unlocked position, use your index finger on the opposite side of the lens opening to help push the lens cartridge out.

---

**Removing/Installing the Lens Cone**

The lens cone is keyed to be installed only one way. To remove the lens cone, pinch the inside and outside edge of the cone with forefinger and thumb and pull straight off the PMM body.

To install the lens cone, line up the notch on the lens cone with the triangle on the PMM body. Press the lens cone onto the PMM body until the lens cone is completely seated.

---

**Removing/Installing a Filter**

**Installing an optional Filter**
The filter carrier has two locating nubs. Press the carrier in place with the nubs positioned north/south. With your fingertips on the nubs, rotate the carrier clockwise 30 degrees until you feel a slight click.

**Removing a Filter**
Reverse the installation procedure. When the nubs are in the north/south position, the filter carrier should easily lift out.
Maintenance & FAQ

**Maintenance**

**Cleaning a Lens**

To clean a lens, use compressed air to blow off any particles from the inner lens assembly.

If the lens cone needs to be cleaned, a microfiber cloth lightly dampened with water can be used to wipe down the outside plastic.

You may also use isopropyl alcohol to clean the outside plastic cone but be sure to use a 50/50 alcohol/water solution to avoid discoloration.

**FAQ**

Q. Can I use the ProScope Micro Mobile with my Android or Windows smartphone or tablet?
A. Yes. However, because of consistency of design we currently only offer iPhone, iPod, iPad, and iPad mini mounting sleeves. Other smartphone and tablet cameras may be lined up with the PMM lens system for useful operation, but results may not be as precise.

Q. When using the Apple Camera App, how do I achieve best focus at maximum digital zoom?
A. For best results, focus the image first using no zoom and lock focus by enabling AE/AF Lock. Then using the pinch-to-zoom feature, increase the zoom to the desired magnification. If the zoomed image is still slightly out of focus, adjust the PMM’s focus ring to sharpen the focus.
THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.
### Specifications for ProScope Micro Mobile

#### Compatibility
Available kits for Phone 5, iPhone 4/4S, iPad mini, iPad 2nd/3rd/4th gen, and iPod touch 4th/5th gen. Also works with other camera-equipped smartphones and tablets. (additional sleeves or adapters may be required for precise results)

#### Lens Options
- **PMM-2080X - 20-80x lens**
  
  Digital Zoom Magnification Range of 20x to 80x
  
  Precision glass optics for sharp image detail and accurate color reproduction

#### Buttons and Switches
- **Light Switch A/B**
  - A: 6 LEDs
  - B: 6 LEDs

- **Rocker Switch**
  
  Increases/Decreases LED intensity

- **Rocker Switch - Center Button**
  
  Turns LEDs and charging circuit ON/OFF

#### LEDs
- **12 White LEDs**
  
  6 illuminated in A switch position
  
  6 illuminated in B switch position (for use with optional polarizing filter)

#### Indicator LED
Indicates battery charge status

- While Charging:
  
  - <20% = Blinking Red
  
  - <50% = Blinking Yellow
  
  - <99% = Blinking Green
  
  - 100% = Solid Green

- While operating:
  
  - <20% = Solid Red
  
  - <50% = Solid Yellow
  
  - <=100% = Solid Green

#### Ports
- **USB MiniB (F)**
  
  For connecting USB cable to charge internal battery

#### Power
- **Internal Lithium-Ion Polymer Battery - 3.7v 340mAh**
  
  Continuous operation at full LED intensity, approx 5 hours
  
  Typical use operation, several days
  
  Charging time from depleted state to full charge, approx 2 hours

- **MiniB (M) to USB A (M) USB cable**
  
  Powers LEDs when battery has no charge
  
  Charges Battery from standard computer USB port

#### Accessories
- **PMM-2080X** 20x-80x lens

- **PMM-IPSSL** iPhone 5 adapter sleeve

- **PMM-MINISL** iPad mini adapter sleeve

- **PMM-IPADSL** iPad adapter sleeve

- **PMM-IP4SL** iPhone 4/4S adapter sleeve

- **PMM-IP4SL** iPod touch 4th gen adapter sleeve

- **PMM-POLAR** Polarizing Filter

- **PMM-LCS** Replacement Nylon lens cone + stand set

- **LEN-ACUSB31** Optional Lenmar USB Charger

- **C2G-27005** Replacement USB Charging Cable

#### Kit configurations
- **PMM-IP5K ProScope Micro Mobile for iPhone 5**
  
  Includes: PMM Base, 20x-80x lens, iPhone 5 Sleeve, Adjustable Nylon Lens Cone, Stand, USB Charging Cable

- **PMM-IPMINIK ProScope Micro Mobile for iPad mini**
  
  Includes: PMM Base, 20x-80x lens, iPad mini Sleeve, Adjustable Nylon Lens Cone, Stand, USB Charging Cable

- **PMM-IPADK ProScope Micro Mobile for iPad**
  
  Includes: PMM Base, 20x-80x lens, iPad Sleeve, Adjustable Nylon Lens Cone, Stand, USB Charging Cable

- **PMM-IP4K ProScope Micro Mobile for iPhone 4/4S**
  
  Includes: PMM Base, 20x-80x lens, iPhone 4/4S Sleeve, Adjustable Nylon Lens Cone, Stand, USB Charging Cable

- **PMM-IPT4K ProScope Micro Mobile for iPod touch 4th gen**
  
  Includes: PMM Base, 20x-80x lens, iPod touch 4th gen Sleeve, Adjustable Nylon Lens Cone, Stand, USB Charging Cable

- **PMM-BASE ProScope Micro Mobile BASE ONLY**
  
  Includes: PMM Base, 20x-80x lens, Adjustable Nylon Lens Cone, Stand, USB Charging Cable, w/o sleeve