Meibox Tower Meibographer
Central USB Meibography Camera

User’s Manual
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About This Guide

This manual provides instructions and illustrations on how to use your Meibox Tower Meibographer, includes:

- Chapter 1, Introduction, provides the general information on the camera.
- Chapter 2, Installation, describes the hardware and software installation procedure for the Meibox.
- Chapter 3, Security, explains the security feature of the camera.
- Chapter 4, Application of the Camera, provides the illustrations of the camera’s applications.
- Chapter 5, Using the Camera, guides you through the configuration using the web browser.
- Chapter 6, IPView Pro, helps you to install and use the software.
- Chapter 7, Appendix.

Please note that the illustrations or setting values in this manual are FOR YOUR REFERENCE ONLY. The actual settings and values depend on your system and network. If you are not sure about the respective information, please ask your network administrator or MIS staff for help.
1. Introduction

Thank you for purchasing the Meibox Tower, a camera device that can be connected directly to a window based PC. Compared to the other meibographers, the Meibox Tower features a central cloud based meibography imaging solution that can provide a cost-effective solution to imaging meibomian glands to aid in the diagnosis of dry eyes. It can be managed on any PC terminal that has the client software installed.

The simple installation procedures and cloud-based interface allow you to integrate it into your network easily. The camera features a simple central imaging solution, allowing you to install and use it in any clinical setting. In addition, with comprehensive applications supported, the Meibox Tower is your best solution for high resolution images of your patient’s Meibomian Glands.

1.1 Features and Benefits

Simple To Use
The Meibox was designed with quality, clinical efficiency and durability in mind. Composed of a durable brushed aluminum chassis, the Meibox is unobtrusive and fits perfectly in the flow of any clinic. The Tower can be placed in a centralized location as a screening tool or a dry eye testing room.

Cloud Based Database:
The Meibox utilizes Microsoft Azure a HIPPA Compliant storage database providing doctors convenience, security and peace of mind. The advantages of a cloud based software systems include:
- Protection of data ensured by Microsoft Azure
- No licensing fees for multiple viewing stations and installation
- No concerns of lost data due to server malfunctions
- Automatic updates ensuring the latest software updates are implemented
- Easy download of data to PC for attachment into electronic medical records
- Multi-location offices can access data for patients anywhere

Image Enhancing Software
Vision processing technology is available for enhancing your images of the meibomian glands. With the click of a button, images of the glands are enhanced with increased border definition. Inversion lighting allows you to see a negative of the image increasing the ability to interpret the image. The intelligent lighting features allow you to click on any area of the picture that you would like to see and enhances the surrounding light.

1.2 Unpacking the Package

Unpack the package and check all the items carefully. In addition to this User’s Guide, be certain that you have:
- One Meibox Meibographer Camera (Imaging box and slit lamp attachment)
- One Meibox Tower Station
- One Quick Installation Guide
- One 10 foot USB A to USB Cable
- One USB Foot Pedal
- One cordless mouse
- *Required PC not included as standard package

If any item contained is damaged or missing, please contact your local dealer immediately. Also, keep the box and packing materials in case you need to ship the unit in the future.

1.3 System Requirements

Networking
- Minimum internet speed recommended:  6Mbps Download and 1Mbps Upload

Accessing the Camera
- Operating System: Microsoft® Windows® 7/8/10
- CPU: Intel iCore 5 or above
- Memory Size: 4GB RAM
- Resolution: 1920x1080 or above
- Windows 64 bit processing
  (Recommended minimum outcomes are for optimal performance. Lower specifications have been compatible for the Meibox software, but cannot be guaranteed)

1.4 Physical Description

This section describes the externally visible features of the Meibox

1. Base
The Meibox base consists of a 13.375in W x 13.125in D and 18.25in H platform for the Meibox Camera Head. The Meibox Base consists of a platform that can move in the X, Y and Z axis
providing the full range of image capture. A joystick is used to drive the camera into focus. The camera arm that attaches to the camera can be rotated left and right to provide a better angle of image capture.

![Figure 1 Meibox Tower Base](image1)

![Figure 2 Meibox Tower Camera and Arm Attachment](image2)

![Figure 3 Meibox Chin Rest, Base, Side Plate and Cap](image3)

2. Chin Rest

The chin rest and headrest allow for a steady platform for the patient to position themselves in the central unit. The black knob on the head rest can be rotated to raise and lower the head position. The handle bars on the side of the head rest allow a position for the patient to rest their hands to provide better stability during image capture process.

3. Image Plate

The Meibox uses a special glass filter to allow only the optimum wavelengths of light in that allow for the highest resolution image of the Meibomian Glands.
4. **Red LED:**
When the camera system is active you will see a ring of red LED lights that will appear. The LED lights will not appear unless the camera is plugged in and the software is engaged in the capture process.

5. **USB Slot:**
The USB A slot is located at the base of the Meibox Head.

(Image of Base of Meibox)
2. Hardware Installation

2.1 Assembling the Base of the Meibox Tower

1. Position Chin Rest on top of base in designated slot and tighten screws beneath plate to lock into place.

2. After securing head stand, place base onto tower track. If the track is not aligned, you can tighten and loosen the screws holding track to base until device is aligned.

3. Place arm of tower into slot as seen below.
4. Screw cap into place on top of the arm to secure arm into place.

5. Slide side plates into place to secure tower.

6. Plug USB A-B cable into camera underneath and connect to PC/Laptop.

2.2 USB Extender (optional-not included in central platform):

If utilizing a USB extender attach the USB B end to the extender and follow additional steps.
2.3 Setting up the Camera Software

Installing the Setup Wizard

Step 1 Visit website www.boxmedicalsolutions.com/store

Step 2 Click on Meibox Cloud Imaging Software and proceed to checkout.

Enter discount code: CloudMeibox1
Step 3 Register your device by completing the address and forms. Include the email address that you would like to register to the cloud software as this will be used to determine if the account is legitimate periodically. Submit order and you will receive a link to download the software.
Step 4 Open Meibox Set Up Software and select Yes when prompted to allow this app to make changes on your device by Box Medical Solutions.

Step 5 Click **Next** to accept the default Destination Folder.

Step 6 Review and accept the Software Licensing Agreement.
**Step 7** Click Next to install all drivers. It is important to have the camera plugged into the computer at this time.

**Step 8** Select destination for program installation. Recommend using defaulted destination. Click Install.
Step 9 Click Next

Step 10 Successful installation, click finish.
Creating an Account

Step 1 Create an account and then login to start using the software. Use the email that was registered on the store as this will ensure that the account will not be suspended.

Starting new account:

Step 1 Create an account and then login to start using the software. Use the email that was registered on the store as this will ensure that the account will not be suspended.
3. Image Capture

**Image capture process:**

**Step 1** Add new patient by selecting upper right section:

![Image of adding a new patient](image1.png)

**Step 2** Enter patient demographics information:

![Image of entering patient demographics](image2.png)

**Step 3** Start new session (upper right hand corner)

![Image of starting a new session](image3.png)
Step 4 Have patient place chin on chin rest and forehead against head rest.

Step 5 Initiate camera capture process by selecting which eyelid you would like to take a picture of by clicking on the camera or capture icon.

Step 6 Move tower back all the way towards you and position the patient behind slit lamp. Move slit lamp towards patient until eyelids are in good focus. The optimum distance is 150mm from eye to Meibox Tower for best clarity.
Step 7 Evert eyelids. Click mouse button on live image of eye to start image capture process. There will be a 3 second count down as 4 images are captured.
4. Image Enhancement

**Step 1** Click on image you would like to enhance from the summary screen

**Step 2** Once the image is selected you will have several enhancement options. Scroll bar has multiple images that you can select from the previous patient sessions to allow for quick and easy access for comparison.
Contrast: Use contrast bar to adjust for better image capture
Enhance: Instant border enhancement of glands
Invert: Creates a negative image, glands will now appear black, may help with difficult to see glands
Light: Intelligent lighting, select option and click on any area of picture that you would like to see in better detail.
Download: Download a high-resolution jpeg of your image to attach to a file or email.

Step 3 Print option is available for report printing for patient. This function can be used to print a summary for a patient or a PDF for attachment to an EMR system.

Step 3 Compare Screen Options. Check sessions you would like to compare and click the compare button below.
Step 4 Modify and alternate between comparison screen by just selecting which images you would like to compare.
5. Appendix

5.1 Frequently Asked Questions

Frequently Asked Questions:

*Attachment Questions:*

Q: My computer is not detecting the Meibox camera system
A: Re-install Meibox driver and ensure that the camera is plugged in during installation. If the Meibox is still not being detected by the computer following re-installation unplug the USB cord from the computer and attempt another slot. If it is still not functioning, ensure that the USB cord to the camera is secure.

Q: The Meibox works when directly plugged into the computer system, but does not work when plugged into the adapter. What do I do?
A: Check to make sure that the power to the USB adapter is on. Ensure that the cables are all connected firmly. If after completing the wire check and the camera is still not detected, unplug from the USB adapter and plug the USB cable directly into the computer to check to see if the camera is detected. If functioning, there may be an issue with the USB adapter. Contact us at support@boxmedical solutions.com and we will send another adaptor.

Q: The images appear grainy
A: Ensure that your computer meets the minimum specifications in the beginning of the manual. Update your computer and display drivers and ensure that your computer resolution is at a minimum of 1920 x 1080.

Q: Is a computer provided with the Meibox unit?
A: A computer does not come standard with a Meibox unit. The Meibox unit is designed to be compatible with most computer technology. See specifications page for details for optimum PC requirements.

Q: Does the Meibox work with a Mac?
A: No unfortunately at this time, the device is not compatible with a Mac. You can partition a mac to run PC programs.

Q: Can the Meibox operate with a PC tablet?
A: Absolutely, the Meibox software is compatible with any PC tablet. If your office is not outfitted with a PC in each room, this would actually be a great option to be able to provide the doctor the ability to open the software to view images from any location.

Q: Can a technician be trained to use the Meibox?
A: Almost all of our doctors agree, the Meibox is extremely technician friendly. Due to its size and portability, technicians are encouraged to bring the testing to the patients instead of patients to the testing location. This reduces chair time and choke points in your examination room.
7.1 Specifications

Video specification
Resolution: 1920 x 1080 pixel
Gain control: Automatic
Exposure: Automatic
White Balance: Automatic

Hardware Interface
CPU: Intel I-core 5 or Equivalent
RAM: 4GB
Operating System: Windows 7/8/10 64 bit
Power consumption: Red (Active Capture Phase)
LED Indicator: USB A to USB attachment
Cables: USB A to USB attachment

Software
Application Software: Meibox Software

Operating environment
Operating temperature: 5°C ~ 40°C
Storage temperature: -25°C ~ 50°C
Humidity: 5% ~ 95%, non-condensing

EMI
FCC and FDA Class 1 Medical Device
Technical Support

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