

MEDiC™

Mobile Exam Device Case User Guide

MEDiC-H-B02

MEDiC-HJ-B02

MEDiC-HL-B02

MEDiC-HG-B02

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Introduction

The Mobile Exam Device Case (MEDiC) telehealth consultation system from Iron Bow Healthcare Solutions equips Emergency Medical Services (EMS), first responders and others with the essential tools to conduct a telehealth consultation with specialists located remotely at a clinic, hospital or other medical facility.

The MEDiC is built for portability and durability and consists of a Microsoft Surface Pro 6 tablet PC with built-in camera for videoconferencing, a noise cancelling speakerphone for improved audio quality, a handheld digital HD Horus Scope system with an included general purpose lens. Additional lens attachments for otoscopy and dermatology are available, and the case has been designed to securely house them in the foam cutout.

Also included in the standard case is an integrated power supply, cable management system, washable keyboard and wireless mouse.



Figure 1. MEDiC general view

You may purchase extended support for the MEDiC, which is offered through the Iron Bow Client Service Center, a U.S.-based, ISO 9001 service facility providing support 24x7x365 days a year. Extended support includes optionally available product maintenance, service desk management, incident and problem management, asset and configuration management, reporting, proactive monitoring, as well as preventative and patch management. In addition, Iron Bow can optionally provide cloud video service for your MEDiC and your overall telehealth solution.

System Description

The primary components of the MEDiC include:

- A Microsoft Surface Pro 6 tablet PC, which fulfills the function of a videoconferencing endpoint with built-in Wi-Fi connectivity, Bluetooth connectivity (for supplied mouse) and full HD camera
- An antimicrobial USB keyboard with built-in touchpad.
- A Bluetooth wireless mouse and antimicrobial mouse pad
- An external speakerphone for high quality audio
- Integrated power supply
- Cable management system/connecting hub for all the medical and non-medical peripherals

The following medical devices are integrated in the MEDiC platform:

- Handheld digital HD scope system (Horus Scope) with a general lens for medical examinations.

The following medical devices are available as options from Iron Bow.

- Otoscope and Dermoscope lenses for the Horus Scope.
- Electronic stethoscope

The MEDiC components are housed in a customized, hard case.

The MEDiC uses a Windows-based tablet PC, therefore, Windows-based medical and videoconferencing applications currently used in the health and telehealth industry can be installed and used on this platform.

System Layout

The top section of the case houses an integrated tablet PC.

1. Built-in HD camera
2. Touch-screen tablet PC



Figure 2 - Top section view with tablet PC

The base section of the case houses the power supply, connecting cables, speakerphone and medical devices. The power supply and connecting cables are locked in a protective enclosure on which the speakerphone is mounted. Included in the storage area of the case is a portable keyboard and a storage pouch for cable, stethoscope and other accessories.

1. Power supply and connecting hub under protective cover
2. Speakerphone
3. Storage pouch (shown with optional stethoscope)



Figure 3 - Base Section View (1)

A removable cover protects the Horus Scope and lens attachments during transport and can double as a work surface.

1. Removable cover/ work surface (Below Mouse Mat and Keyboard)
2. USB keyboard
3. Bluetooth Mouse (see enclosed instructions for connectivity)
4. Removable Mouse Mat



Figure 4 - Base Section view (2)

The Keyboard is connected to the system via a UB Extension cable allowing use within the case or externally.

1. Keyboard Cable
2. Keyboard USB Connector with waterproof cover removed
3. Keyboard USB extension cable
4. Keyboard USB Connector



Figure 5 - Base Section View (3)

System Perihperals

The Horus Scope, lens attachments and other medical cables and accessories are stored in a layer of custom-cut polyethylene foam behind the removable cover.

1. Cables & accessory storage cutout
2. Hors Scope lens attachments (optional)
3. Horus Scope with USB cable attached to system
4. Ear specula (optional)
5. USB Peripheral connector

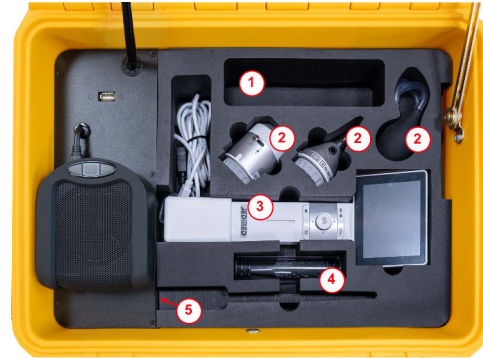


Figure 6 - Peripheral Equipment

Power

A power inlet located on the outside of the case is used to charge the system when not in use or as necessary when the unit is being used near a wall power outlet. The power inlet connector includes a rubber cover to avoid ingress of dust and dirt.



Figure 7. Power inlet

Medical Devices

Horus Scope Handheld Digital HD Scope System

The handheld digital HD Scope System supplied with the MEDiC is a *JEDMED Horus Scope*. The Horus Scope is used to capture and transmit images and video to a remote consulting clinician through the tablet PC.

Recommended lenses to use with the MEDiC are the:

- General viewing lens attachment for a wider-angle view examination of body areas (included with basic MEDiC)
- Dermoscope (surface) lens attachment for viewing magnified images of the skin with built-in polarization technology to reduce skin reflection (optional p/n ACC-DERM-A01)
- Otoscope lens attachment for viewing images of the tympanic membrane and auditory canal. An insufflator bulb is included for pneumotoscopy (optional p/n ACC-OTO-A01)

All lens attachments have built-in LEDs that provide illumination of the consulted area. The foam has cutouts to securely and safely hold these standard and optional lenses.

1. Dermoscope lens attachment
2. Otoscope lens attachment
3. Insufflator bulb (attaches to otoscope lens)
4. General viewing lens attachment

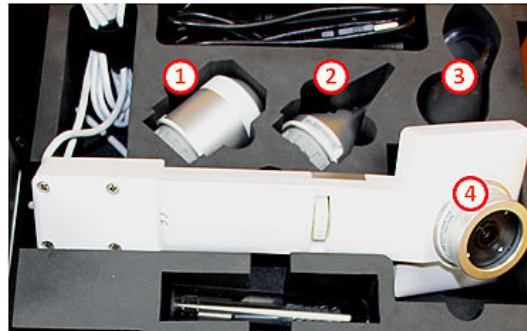


Figure 8 - Horus Scope Storage

Horus Scope Connectivity

The Horus Scope is connected to the tablet PC via the integrated hub. This connection is used for data transfer and charging. The integrated connecting cable allows the camera to remain connected to the tablet PC even when not in use, and to charge while the tablet is powered on. If needed, the Horus Scope can be disconnected from the USB cable from the end nearest the Horus Scope.

Electronic Stethoscope

The MEDiC supports electronic stethoscopes with several methods of connectivity.

- USB connection – use the exposed USB connection (also used for the keyboard)
- 3.5 mm Audio connection – via Audio Technica ATR2USB with the exposed USB port

Stethoscope Connectivity

3.5mm Audio Connection

Locate the Audio Technica ATR2USB adapter included with some models of the MEDiC. Connect the USB end to the exposed USB port on the inner, lower base of the unit. Connect the stethoscope 3.5 mm connection to the other end of the adapter.



Figure 9 - 3.5 mm audio adapter

Bluetooth Connection

Locate the Perani UD100-G03 and the extension antenna included in the MEDiC. Remove the short antenna attached to the UD-100 and attach the long antenna to the in its place until snug. Do not overtighten. Install the antenna assembly into the USB port as shown. The placement of the adapter in the MEDiC system allows it to remain connected to the tablet PC even when not in use and allows for automatic Bluetooth connectivity when the tablet is powered on..

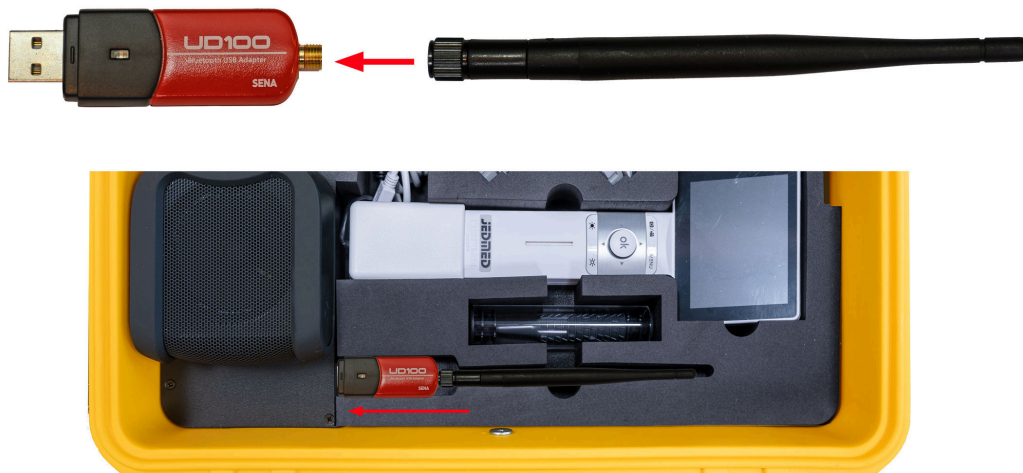


Figure 10 - Bluetooth Adapter

Getting Started

Powering On System

Reach on top of the tablet PC on the left side by the **Power Switch** label. Press and hold the button on the tablet. The tablet PC will start up.

Once the tablet PC is on, the connected peripherals receive power as well. The speakerphone and the stethoscope Bluetooth adapter automatically turn on and the LEDs of both devices are lit.



Figure 11 - Power on the Tablet

Logging in for the First Time

Log in to the tablet PC with the following default credentials:

Username: admin

Password: admin

Configuring Wi-Fi Access

After the tablet PC start-up procedure is complete, click or tap the Wi-Fi icon in the lower-right corner of the screen to launch the Wi-Fi configuration window. Enter the Wi-Fi security key to join the desired Wi-Fi network. Once the tablet PC is connected to the network the MEDiC system is ready for use.

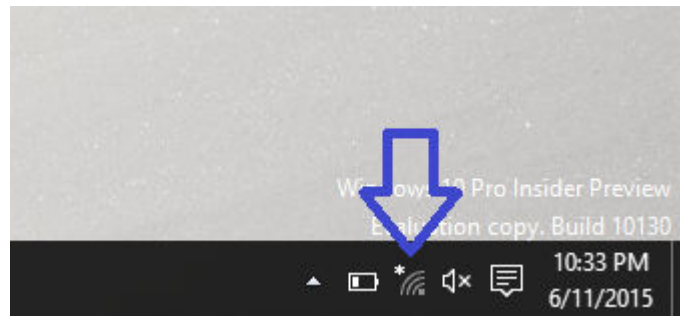


Figure 12 - Wi-Fi icon in Windows

Using the Horus Scope

Horus Scope Functions and Components

The Horus Scope is used to capture and transmit images and video to a remote consulting clinician through the MEDiC. This section includes a summary of the Horus Scope functions and components, basic operation and troubleshooting tips.

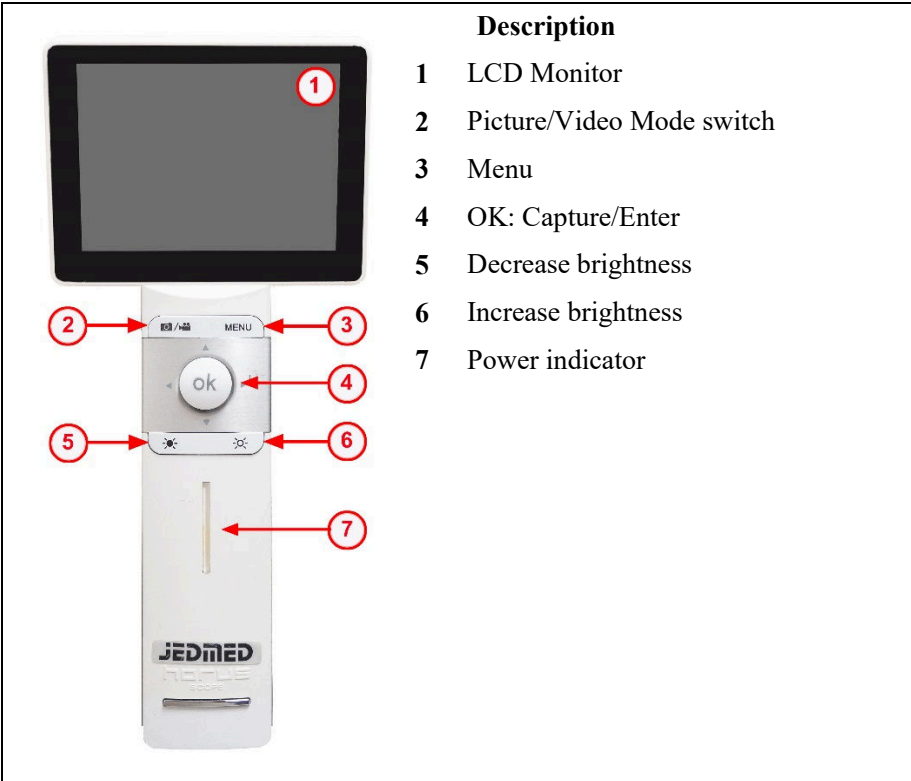


Figure 13 - Horus Scope Front View

Basic Horus Scope Operations

To power on the Horus Scope:

- Press and hold the power button at the top of the unit for two seconds. The Horus Scope will start up. Start-up takes about 20 seconds.



Figure 14 - Horus Scope Power Switch

Once the start-up procedure is complete the Horus Scope screen will display the live video feed captured by the lens currently attached to the unit.

To switch between live video and image capture:



1. Press the **OK** button on the unit to capture images.
2. Press the / button to return to live view.



Figure 15 - Horus Scope Controls

Changing Horus Scope Lens Attachments

To remove optical lens attachment from the Horus Scope:

1. Hold the camera in one hand and rotate optical lens counter-clockwise with the other hand until the lens detaches.
2. Gently pull to detach lens.

To add optical lens attachment to the Horus Scope:

1. Hold the camera in one hand and the lens in the other hand
2. Align the ● marks on the optical lens and the camera body
3. Push the lens and the camera together
4. Rotate optical lens clockwise until secure

For more details regarding the Horus Scope features, menu options, operation and care instructions please consult the JEDMED Horus Scope User's Manual, which can be found at: <https://www.jedmed.com/pages/horus-scope-manuals>

Using the Speakerphone

The speakerphone integrated in the MEDiC system is used to improve the audio quality during video conferencing calls, delivering full-duplex audio with echo cancellation and noise suppression.

Powering On Speakerphone

The speakerphone is always connected to the tablet PC. The speakerphone turns on automatically when the tablet PC is turned on, and turns off automatically when the tablet PC is turned off.

Performing Basic Operations

The speakerphone has the following controls: Mute (center), Volume Up (right) and Volume Down (left).

Calls are initiated and terminated from the videoconferencing software installed on the tablet PC.

- 1 USB cable (power and voice transmission)
- 2 Volume Down
- 3 Mute
- 4 Volume Up
- 5 External headset 3.5 mm jack input (not visible in picture)
- 6 Loudspeaker
- 7 Microphone



Figure 16. Speakerphone

To mute the microphone, press the Mute button. When the microphone is muted, the LED light will blink. To unmute microphone, press the mute button again.

Control the volume by pressing the Volume Up and Volume Down buttons. To mute the speaker, press the Volume Down button until no sound is heard from the speaker.

You can connect a headset to the 3.5 mm jack external speaker input located on the connector panel at the top of the unit. Once a headset is connected to the 3.5 mm jack input the internal speaker will be muted and the sound will be heard only through the headset.

Specifications

Tablet PC	
Make and Model	Microsoft Surface Pro 6 Tablet
Operating System	Windows 10 Professional
Processor	Intel i5 processor
Memory	8 GB
Internal Storage	256 GB SSD
Display	12.3" diagonal touch screen (2736 x 1824), Aspect ratio 3:2
Wireless	Wi-Fi: 802.11a/b/g/n/ac compatible Bluetooth® 4.1 technology
Camera	5.0MP front-facing camera with 1080p HD video
Software Included	McAfee EP Antivirus software
JEDMED Horus Scope Handheld Digital HD Scope System	
Resolution	1920x1080p HD
Included Lens	General Purpose Lens (other lenses available)
Light Source	Light Emitting Diode (LED)
Display	3.5 full color LCD
Image Format	JPEG (still) and H.264 (video)
Media Card	Micro SD 2GB (included)
Operating Time	3 hours
Weight	12 oz.
Focusing Range	5 mm to 30 mm
Speakerphone	
Connectivity	USB cable to Tablet PC via hub (integrated) 3.5 mm connection (for use with a headset instead of integrated speakers)
Power	USB power from Tablet PC via hub (LED will illuminate)
Audio	100% Full Duplex with no attenuation Acoustic Echo Cancellation >40 dB conforms to ITU-T G.167 Line echo cancellation Noise Cancellation >10 dB Low Delay (10msec) Speech processing and echo suppression at 16 kHz sampling rate Bandwidth for speech processing 20-7500 kHz Integrated loudspeaker with volume controls Mute button (with LED Mute indicator) Speech processing and echo suppression at 16 KHz sampling rate

Accessories Included	
	Littman 3200 Electronic Stethoscope (in some models) Perani UD100-G03 USB Bluetooth adapter (in some models) JedMed Omnisteth digital Stethoscope (in some models) Microsoft Surface Mouse Antimicrobial Mouse Pad Audio Technica ATR2USB USB to 3.5mm headphone jack Plastic separator for isolating accessories/foam and keypad Mini all-in-one silicone 86 key layout keyboard, waterproof, washable, antimicrobial protection 3' AC Power Cord Shoulder strap Accessories/Stethoscope Case Horus Scope User Guide, CD ROM
Expansion Slots	
	1 x USB 2.0 for keyboard or accessory use 1 x USB 2.0 dedicated to Bluetooth® receiver 1 x USB 2.0 (integrated) for JEDMED Horus Scope 1 x USB 2.0 (integrated) for audio speakerphone
Case	
Body	Injection Molded HPX high performance resin
Environmental	Watertight Temperature range -20° F - 140° F (-29° C - 60° F)
Certifications	MIL-STD-810F / ATA 300 / FED-STD-101C
Color	Yellow
Inputs	AC power inlet with integrated cover for charging
Battery	
	45 Wh (7.57 V x 5940 mAh); ~up to 13.5 hours of local video playback
Dimensions	
(L x W x D)	16.20" x 12.70" x 6.60" (41.1 x 32.3 x 16.8 cm)
Weight	
Basic Unit	13.5 lbs. (with Horus Scope, General Lens, no stethoscope)

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