BOYO®
VISION
Vision Tech America

VTR93MHD
2 Channel Full HD Mirror Monitor
Rear View Camera • Dashcam

USER MANUAL

Precautions

- Micro-SD card: CLASS 10, or above, required.

  - Micro-SD card specification varies from one brand to another, and it may not function as expected when used with VTR93MHD.

  - If VTR93MHD shows an error message, format the micro-SD card from the menu of VTR93MHD. If the error continues, please reset VTR93MHD or replace the micro-SD card.

- The micro-SD card must be formatted before use.

  - All files will be deleted when formatting the micro-SD card. Please backup the important files before format.

  - Loop recording records over the oldest recording file when the memory is full. Depending on the memory card size, the recording hours vary. Please backup important recording files accordingly as all files will be overwritten, eventually.

  - Please format the micro-SD card every month for recording stability.

- Do not force the memory card into the slot as it can damage the card or VTR93MHD. When the micro-SD card is inserted properly and in the right direction, a micro-SD card will drop into the card slot and only gentle press is needed at the end to secure – with click sound – in the card slot.

- The battery lifespan will continuously decrease upon usage. Please charge the battery every month to preserve the battery life.

- The straps must be installed properly and firmly to prevent shaking while driving or falling off due to light impact.

- Install VTR93MHD in a dry environment: the monitor is not water resistant nor waterproofed.

- Avoid the camera from facing the sun (direct sunlight) to record or take pictures.

- Keep the front windshield and camera lenses clean. Clean them regularly

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to obtain clear images.

● Please handle VTR93MHD with care. Avoid using VTR93MHD in a high electromagnetic environment.

● Operating temperature of the VTR93MHD is -4°F to 140°F. Continuous exposure to sunlight, especially when VTR93MHD is mounted in a vehicle where the temperature exceeds above 158°F, VTR93MHD may malfunction, screen change colors or image distortion.

● **Please do not plug and unplug a rear-view camera while VTR93MHD is ON**. Incorrect operation can lead to a system crash and the damage to the camera. Please use a small hard pin to press the RESET to restart VTR93MHD.

Disclaimer:

This device is NOT intended to be used for illegal purposes; surveillance shall not be used in any form as evidence for claim purposes.

Some countries and states prohibit drivers from mounting anything on the windshield or specific areas of the windshield or on an area that obstructs the driver's view. It is the owner's responsibility to mount the device in compliance with local laws and the driver is responsible for safe driving; observing all traffic rules and regulations to avoid accidents, personal injury, or property damages. Do not operate this device while driving.

Proper installation and settings will provide high confidence in assuring video recordings. However, in rare cases, if the recording fails: The manufacturer, resellers, and installers are not liable or responsible for the non-recorded events, missing files, and others; and the manufacturer, resellers, and installers will not be liable for any damage incurred directly or indirectly from recording errors, omissions, or discrepancies.

Please refer to the warranty information at the end of the manual.

Package Content

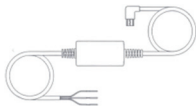Mirror Monitor Front Camera

Rearview Camera
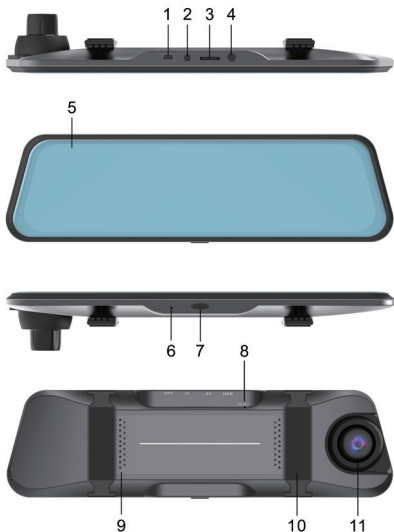
Mounting Straps

Car Charger

GPS Antenna

User Manual

Hardwiring

Product Structure

1. USB Power Port
2. Rear-view Camera Port
3. Micro-SD Card Slot
4. GPS Antenna Port
5. IPS Screen
6. MIC
7. ON/OFF Power Button
8. Reset
9. Speaker
10. Back Strap Mounting Hook
11. Front Camera

Function

A. Power Function

Cigarette jack	plug-in	to turn
Hard-wired	turn the key to accessories position	power on

The power will be supplied to VTR93MHD. The BOYO logo will appear first, and then the icons and the camera(s) will be displayed.

Recording will start automatically.

Cigarette jack	un-plug	to turn
Hard-wired	key turned to off position	power off

The power will be cut from VTR93MHD. 10 second count down starts. Recording stops and files are safely closed. The BOYO logo will appear first, and then the screen goes black.

On/Off Button	Power on state	long press	to turn power off

Recording stops and files are safely closed. The BOYO logo will appear first, and then the screen goes black.

On/Off Button	Power off state	long press	to turn power on

The long press will display the BOYO logo first, and then, the camera(s) will be displayed.

In low battery, VTR93MHD displays 'Low Battery' and will automatically save the last file and shut down.

On/Off Button	Display on state	short press	to turn display off

The display power turned off and the screen goes black.

On/Off Button	Display off state	short press	To turn display on

The display power turned on and the screen turns on – icons & camera.

Note: In low battery, VTR93MHD displays 'Low Battery' and will automatically save the last file and shut down.

B. Home Screen Icons

VTR93MHD will display the homepage after it is powered ON.

Homepage screen:

Homepage screen Icons:

●	"Recording Indicator" – when recording, it will be flashing.
04:36	"Loop Recording Timer" – when recording, it will count (by a second) to recording time limit. See the "Loop Recording" menu.
☀ ———●—	"Brightness Control" – Drag the white button to increase or decrease the screen brightness.
↑ ↓	"Digital Camera Tilt" – Due to elongated shape of the display, the display shows the limited vertical portion of camera. Press up or down arrow to select vertical section of camera to be displayed.
GPS	"GPS" – If show, the GPS antenna is detected.
GPS	"GPS" – If shown, GPS active and speed and compass direction is computed based on GPS data.
🔒	"File Protection" – the recorded file is being protected.

⚞	"Impact Sensor" – If shown, the impact sensor is turned on
0 0 0 km/h	"Vehicle Speed" shows the current travelling speed.
1080+1080	"Video Resolution" Current video resolution settings for the front and rear cameras.
⊕ W N E S	"Compass" - The arrow will show the real-time driving direction of the vehicle.
ABCDEFG	"Vehicle ID" – The vehicle identification number will be displayed if it is turned on in the settings

Operation: Switching between Front and Rear Camera Display

● Swipe screen from left to right.

Quick Menu Bar:

It is a quick menu bar. If no operations within 10 seconds, this bar will disappear, but touch anywhere on the screen, it will appear again.

Quick Menu Bar Buttons

⦿	**RECORD / PAUSE** button**:** Toggle between "recording" and "pause". RED: ● Recording WHITE: ○ Paused
◻	**Camera Shutter** button**:** A short press to take a single photo. A long press will take a picture in a burst mode.
ⓠ	**Microphone ON/OFF** button:

(🎤) : Turn on	(🎤̸) : Turn off
(🔒)	**Recording Lock/Unlock** button**:**
	(🔒) Save the current video file and lock it. The loop recording will not overwrite the file. 🔒 icon will appear on the top right of screen.
	(🔓) Do not lock recorded files.
(▶)	**File Management** button**:**
	In standby mode, press this button to playback recorded videos, view photos. Or delete videos or photos.
⚙	**System Setting** button**:**
	In standby mode, click the icon to enter system (menu) settings.

C. File Management: Recorded Video Playback

To playback recorded video or to view photos, press (▶) on the Quick Menu Bar. Recording must be paused.
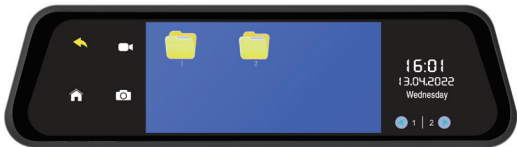
Select	
↰	"back" button – return to the previous step.
⌂	"home" button – go to to the main (home) screen.
◼	"video" button - show the video folders
◻	"picture" button – show the photo folders

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📁	"front camera folder" button – '1' indicates that the folder contains the front camera videos or photos
📁	"rear camera folder" button – '2' indicates that the folder contains the rear camera videos or photos

🔘 1 | 2 🔘 at the bottom right of the screen indicates the current page number. The first number is the current page, and the second number is the last page. Press 🔵 or 🔵 to change the page.

To view the videos or photos.

1   Select (touch) 🎥 for videos or select 📷 for photos.

2   Select 📁 to go into a camera folder.

3   If a picture is selected, it will be displayed immediately.

     If a video is selected, 🔵 button will appear. As shown.

Press 🔵 to play.

To delete a photo or a video

1	Select (touch) 🎥 for videos or select 📷 for photos.
2	Select 📁 to go into a camera folder.
3	Select a photo or a video
4	Select 🗑 to delete

D. System Setting

Click ⚙ to enter the system setting menu (shown as below).
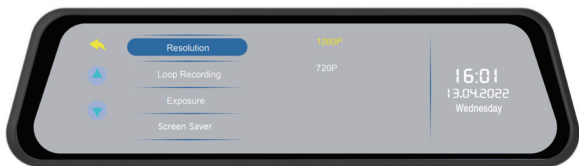
To change a setting

1	Click 🔻 or 🔺 key to switch the menu pages.
2	Select menu item – e.g. "Resolution", "Loop Recording", etc.
3	Select an option – e.g. "1080P" or "720P" Selected option will be highlighted.

Menu and Options

Menu	Description
Resolution	Options: 1080P, 720P ● Rear camera (recording) resolution
Loop Recording	Options: Off, 1min, 3min, 5min ● Duration of recording file clips. ● If set, and when the card's full, the oldest video clips will be overwritten with new video clips. ● Loop recording is recommended to be ON for quick search and view the videos.
Exposure	Options: -3, -2, -1, 0 +1, +2, +3 ● Decrease or increase to sensitive to light will result in brighter or darker images
Screen Saver	Option: Off, 1min, 3mins, 5mins ● Turn display off. ● When Screen Saver is 'off', the selected camera will be displayed always. ● If the timer is set, the monitor will turn display off in

	the specified time and the monitor will act as rear-view mirror.
Impact Sensor Sensitivity	Options: Off, Low, Medium, High ● When the vehicle brakes suddenly or be hit, the impact sensor will be activated. The current recording file will be saved and locked to prevent from being overwritten.
Bootup Display	Option: Front Camera, Rear Camera ● When the monitor is powered on, the selected camera will be displayed. ● If the screen saver is turned off, the selected camera will stay on until the power is turned off.
Date/Time	Select: Year, Month, Day, Hour, Minute Select "confirm" to change date and time.
GPS Information	Displays current longitude and latitude position. The data will verify the accuracy of the GPS sensor.
Time-lapse Recording	Options: Off, 1000ms, 200ms, 100ms ● When set, the image is captured and recorded at the selected interval (1000ms, 200ms or 100ms). ● In case of using hardwired power supply, the time-lapse recording should be turned on to continue recording. Note that the hardwired power supply has voltage cut-off, which protects the battery from going dead.
Key Sound	Options: Off, On ● Enable or disable screen touch sound.
Language	Options: English, Espanol, Fracais ● The device support three languages: English, Spanish and French.
Parking Monitor	Options: Off, On ● When parking monitor is on and the key is off, the device monitors vehicle vibrations. When vibration is detected, the device will power on and will record for 30 seconds. Then, it will shut down to the standby mode.

	Note:
	● On sequence of vibrations, only the first video will be locked.
	● This function can only work normally in the condition of a fully charged battery or powered by car charger.
Motion Detection	Options: Off, On
	● When the motion detection is On, the front camera starts to detect object movement. When the movement is detected, the device will record automatically for 30 seconds. Then, the recording will stop, and it will go to the standby mode.
	● Factory default setting is Off. It needs to be turned on from the setting menu if the motion detection is needed.
Shutter Delay	Options: No Delay, 2s Delay, 5s Delay, 10s Delay
	● When selected, the photo shutter button is pressed, it will count down (count will be displayed on the screen) before taking a picture.
Burst	Options: Off, 3, 6, 9 pictures
	● When selected, long pressing of the photo shutter button will initiate a sequence of pictures to be taken (in a burst).
	Note: Shutter delay and burst only work in the video standby mode. Shutter delay overrides burst mode.
Daylight Saving	Options: Off, On
Display Vehicle ID	Options: Off, On
	● Show or not show Vehicle ID on the main screen.
Vehicle ID	Enter 7 alpha-numeric vehicle ID
Format	"Confirm" to erase and format the recording storage.
	Note: This device support microSD Class 10 or above, tested up to 64GB.

Default	"Confirm" to reset the system setting to factory default.
Version	Firmware Version of the device
Time Zone	Select local time zone
Speed Unit	Options: MPH, KPH

E. GPS Player – Video Playback with Geo-Location Display (PC Only)

** GPS Player is available at www.visiontechamerica.com.

Download and install the GPS Player.

GPS Screen:

1. File: click to browse on the added drive and select the video file that users prefer to play in the player.

2. Settings: the language, speed unit and map can be set here.

3. Video View Window

4. Scroll Bar: show the current point of the video; click forward or backward to check the point users want view.

5. Playing time

6. Playback time

7. Volume

8. Previous video

9. Play/Pause

10. Next video

11. Stop

12. Select Video to Play

13. Date & Time: show Date & Time of video was recorded

14. Driving Speed: this is where the driving speed will be displayed.

15. GPS Coordinates: these are the coordinates longitude and latitude recorded by GPS Geo Tagging Device.

16. Top and AVG Driving Speed

17. Impact Sensor Indicator: This is where users can measure camera movement that is caused and recorded by impact sensor, i.e. when the vehicle hits pot-hole or bump users can see it here.

18. Map Location: Maps showing vehicle's driving route recorded by GPS Geo Tagging Device based on coordinates.

19. The destination of the vehicle's driving route

20. The starting point of the vehicle's driving route

21. Zoom in and out the map window

22. Past Viewed Files: These are previously viewed files. Click on to view them again.

F. USB Mode – Connecting device to a PC

** USB cable not included

When the VTR93MHD is connected to a PC via a USB cable, the following selection will pop-up on the screen.

1. Memory Mode

The device is acting as a storage device, and you can access the recorded videos and photos from the connected PC.

2. Camera Mode

The device is acting as a (UVC) camera for PC. Please check that the computer supports a UVC camera before first use.

3. Recorder Mode

The device is acting as VTR93MHD, recording videos, and taking pictures. PC is supplying power through the connected USB cable.

Specifications

Specifications may change without prior notice.

Screen	9.66" full touch IPS screen
Video Resolution	1920*1080P (front)
	1920*1080P (rear)
Cameras	170° diagonal viewing angle(front)
	100° diagonal viewing angle(rear)
Frame Rate	30fps
Video Format	MOV
Photo Format	JPG
Gravity Sensor	Support
GPS Tracking	Support
Motion Detection	Support
Parking Monitor	Support
Loop Recording	Support
Vehicle ID Display	Support
Microphone/Speaker	Support
Memory Card Capacity	Max. support 64GB
	(Class 10 or above suggested)
Frequency	50HZ
Power	5V/3A
USB Type	Mini USB
Language	English/Spanish/French
Battery	Built-in 500mA Li-on battery

WARRANTY INFORMATION

This one-year limited warranty is given to the end-user or the retail purchaser (referred to this warranty as "Original Purchaser") that it will be free from defects in material and workmanship for a period of one year from the date of the purchase of the new product (excluding accessory items such as power cords, cradle, memory card, adaptor, and cables).
This limited warranty does not cover any physical damage to, or misuse of, this product, damage caused by improper installation; improper use; misuse; neglect; repair of cracked, scratched, broken or modified cosmetics; or parts that have been altered or removed; damages done by another device used with this product resulting from use of non-BOYO®-brand parts. This warranty is VOID if you purchased this product as used, floor model sample, or refurbished; if the product has been altered or modified in any way (including but not limited to attempted repair without authorization from BOYO®- Vision Tech America, Inc. and/or alteration/removal of the serial number).

For warranty information, visit: https://www.visiontechamerica.com/get-warranty