Master Tailgaters
Rear View Mirror with HD DVR Recording

Model: MR-43E2DVR2

USER MANUAL
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,
(2) this device must accept any interference received, including interference that may cause undesired operation.

changes or modifications not expressly approved by the party responsible for compliance could avoid the user’s author-
ity to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC’s RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.

Entertainment video is not permitted when driving except for the navigation and backup camera display!

This manual is only for your reference.

This DVR mirror can stop recording at any time, do not solely rely on the DVR mirror.
The package contains the following:

01 Full HD DVR rear view mirror
02 Wire harness
03 User manual
04 Wire cover
05 Remote control
06 SD card (optional)
07 GPS antenna (optional)

For the items listed above, please check your packing contents. If any damage, please contact the distributor or the agent as soon as possible.
GENERAL INTRODUCTION

This full HD DVR mirror monitor adopts Ambarella A12 chipset with HD recording.

The professional processing technology of wide dynamic makes the abundant details available by capturing images in different lengths, and uniting two frames into one at the same time.

The 140° super wide angle makes the recording angle wider.

With superior night vision, more details will be visible in the video even in low light.

FEATURES

- Ultra high brightness display screen
- Superior night vision
- Full HD recording
- G sensor
- Auto screen off
- Car on auto record
- Parking mode
- Motion detection
- Back up camera display
- Automatically brightness adjustment
- Adjustable guide line
- LDWS (optional)
- FCWS (optional)

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>CPU</td>
<td>Ambarella A12</td>
</tr>
<tr>
<td>Flash</td>
<td>S34ML02G1</td>
</tr>
<tr>
<td>DDR</td>
<td>K4B4G1646D</td>
</tr>
<tr>
<td>Video Resolution</td>
<td>HDR1920x1080 30P/1280x720 30P/ 1920x1080 30f</td>
</tr>
<tr>
<td>Display</td>
<td>4.3 inch 16:9 TFT Display</td>
</tr>
<tr>
<td>Memory</td>
<td>SD card (MAX 64GB), class 10+</td>
</tr>
<tr>
<td>Focus</td>
<td>12cm–infinite</td>
</tr>
<tr>
<td>Audio</td>
<td>Built in microphone and speaker</td>
</tr>
<tr>
<td>Temperature</td>
<td>-4°F – 167°F</td>
</tr>
<tr>
<td>Language</td>
<td>English, Simplified Chinese, Traditional Chinese, Thai, and other languages.</td>
</tr>
</tbody>
</table>
BASIC OPERATING INSTRUCTIONS

1. SD cards can be made by several different ways using different memory types and formatting types. In general, two types are commonly found, MLC and TLC. TLC type cards are generally used in phones or other equipment that does mostly reading only, such as playing background music. MLC type cards are designed for devices that read and write often such as DVR’s or video cameras. TLC type memory will often fail more often under heavy recording of this type.

2. We only recommend brand name, high quality SD (or TF) cards using MLC technology for this HD DVR mirror. Also only use cards with a 2K or higher (4k) recording speed. Using lower quality memory or incorrect speed memory will affect the recording quality and may cause system errors.

3. Most SD Cards have a working life of about 2 years. Heat, amount of recording time, and overall usage, as well as the quality of the card may vary as will the life of the card. Memory cards do need to be re-formatted from time to time and should be replaced at least once per year to insure your DVR performing as expected. Remember your DVR is always recording when it is on, this is not the same as a normal camera that only records when a picture is taken. We suggest using a 32GB MLC type SD memory card with a minimum speed of 90mb/s for the best recording quality and reliability.

4. This DVR uses new technology and relies heavily on the SD Card memory. If the mirror or SD card fail to operate correctly and fail to record an incident, the manufacturer or re-seller cannot be held responsible. We recommend you check your SD card regularly to insure the system is operating correctly. This device is designed for entertainment purposes only and you should check all local laws that may relate to using such a device in your vehicle. Always use carefully when driving as safety is always the drivers first responsibility.

Note: For the best performance and durability of video recording, we recommend to use C10 U1 level TF card or better.

![Class Comparison](image)

- Class 4
- Class 10
- Class U1
- Class U3

OK

NG

There are left, middle and right three options of lens position for customer to choose. This image shows the lens on the right.
**HOW TO WIRE**

**Note:** Only special models come with exterior antenna.

1. Power button
   - DVR: short press to turn off the screen; long press to restart
   - Reversing: short press to adjust the brightness; long press to turn on/off the car reversing image
2. Light sensor
3. Indicator
4. 4.3 inch high brightness monitor
5. SD card slot (MAX 64GB)
6. Speaker
7. Cable connector
8. GPS antenna connector (option)
9. Windshield bracket
10. Camera Lens
11. Black to Ground
12. Yellow to battery
13. Red to ignition +12V
14. Green to back up signal
15. To back up camera
16. GPS antenna (optional)

**Back up camera**
- Black to GND
- Camera power to reversing power
- Green to back car signal
- Red to ignition +12V
- Yellow to battery
- Black to GND

**GPS antenna connector (optional)**

**Black to GND**

**Camera power to reversing power**

**Green to back car signal**

**Red to ignition +12V**

**Yellow to battery**

**Black to GND**
HOW TO INSTALL MIRROR MONITOR

Remove the original mirror

Different cars have different brackets. It depends on your vehicle maker and manufacturer. There are many methods to remove the original rear view mirror, however, please don’t force the mirror off the bracket. Master Tailgaters will not be responsible for damage caused to your car by faulty installation of the mirror.

NOTE: Always use caution, DO NOT force the mount. We will not be responsible for broken windshields. If you are not sure how to remove or re-install the mirror seek trained, professional help.

Install mirror monitor on the plate

Install rear view mirror along this direction

Please make sure to install the mirror to the end of the bottom without any loose

Torque is about 0.8-1.3 N.m

CAUTION!
When the car is reversing, the monitor will automatically display back up camera image.

Monitor brightness will change with the ambient light. Which will make sure drivers get a comfortable view from the monitor.

When ambient light is low, the screen will automatically reduce the brightness.

When ambient light is bright, the screen will automatically increase the brightness.

When the car is in reverse, short press “ ”, then you can switch among “PICTURE”, “SYSTEM”, or enter out. When you enter “PICTURE”, press “ ” to switch among the items.

“ ” and “ ” Are for changing the figure of each setting. “SYSTEM” setting is same as explanation above.
ADJUSTABLE GUIDE LINE

About guide line

Generally, to help drivers estimate the distance from obstacles, there are three lines for reference - red, yellow and green. Those lines are displayed on the monitor when reversing. The green line is 3m away from the back of car and the yellow line is 2m. The distant red line is 1m away from the backside of car while the closed red line is 0.4m. Both reference lines on the left and right should leave 0.2m from the car.

What the regular guide line is

Regular guide line is fixed. But installation sites of cameras are different as well as car size. The fixed guide line is not accurate enough for drivers. There is a great difference among regular and fixed guide lines and car’s real guide lines, especially when camera is mounted on the left or right side of car backside.

How to adjust the guide line

According to the sight of standard reference line, put a reference object in the back up camera line of sight. Compare with the marked references, adjust the lines and angles of two guide lines displayed on the monitor. You will get the accurate and safety guide lines once it coincides with the reference object.

1. Press setting button  to enter “guide line adjustment” mode. The system is defaulted to adjust left guide line first.
2. Press the button again to switch to adjust the right guide line.
3. The up , down , left and right buttons are to adjust the corresponding location of guide lines. The clockwise rotation and contra rotating buttons are to adjust the angles of guide lines. It is easy to operate and calibrate, calibration finished, switch the reverse gear to save the information.

Caution: keep the remote control 0.5m-1.0m from rearview mirror when you use the remote to adjust the parking lines.
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<tr>
<th>Settings</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Sound recording on/off</td>
<td>Lock video (In the screen off state)</td>
</tr>
<tr>
<td>Lock current video</td>
<td>Select the next entry</td>
</tr>
<tr>
<td>Setting mode</td>
<td>Select the previous entry</td>
</tr>
<tr>
<td>Playback mode</td>
<td>Back to recording interface</td>
</tr>
<tr>
<td>Backward</td>
<td>Delete current file</td>
</tr>
<tr>
<td>Select the next entry</td>
<td>Increase</td>
</tr>
<tr>
<td>Select the previous entry</td>
<td>Decrease</td>
</tr>
<tr>
<td>OK</td>
<td>Switch to next page</td>
</tr>
<tr>
<td>Play</td>
<td></td>
</tr>
<tr>
<td>Pause</td>
<td></td>
</tr>
</tbody>
</table>

### Language

There are 7 system languages available. Press “ ” button to enter system setting menu. Find “language” by “ ” and “ ” buttons. Press “ ” to choose a different language.

### Time setting

System time can be marked on the video. Press “ ” button to enter system setting menu. Find “Time setting” by “ ” and “ ” buttons. Press “ ” to confirm.
Video size
The full HD DVR mirror can record video in 3 kinds of video quality. There are HDR 1920×1080 30f/1280×720 30f/ 1920×1080 30f. Press “ ” button to enter system setting menu. Find “Video size” by “ ” and “ ” buttons. Press “ ” to choose a different video size.

Record recycle
To ensure enough memory, new recorded video will automatically overwrite the pre-recorded one. When “Record recycle” is on, you can set the length of recording time. Press “ ” button to enter system setting menu. Find “Record recycle” by “ ” and “ ” buttons. Press “ ” to choose a suitable length of time from “1 Min, 3 Mins and 5 Mins”.

G sensor
With G-sensor function, mirror can automatically save the video as read-only file when it detects acceleration of gravity changes greatly. For example, when car crash happens. The read-only file will be locked and cannot be overwritten in record cycle mode. It can only be manually deleted one by one or formatted.
The video files can be set as G-sensor files manually. When the video is being recorded, press “ ” of the remote control to save it.

Press “ ” button to enter into system setting menu. Find and choose “G sensor” by pressing “ ” and “ ” buttons. Press “ ” to choose a suitable sensitivity of G-sensor from “High/Normal/Low/Off”.
If G-sensor is off, the mirror will not immediately save the current video though car crashes. If you choose high-sensitivity G-sensor, recorded video will be saved as read-only file though there is minor shake. If you choose low sensitivity, then read-only video will only be saved when car crashes heavily.

★When the mirror is recording videos, press “ ” to save the current video as read-only file.
Parking mode

Please use this function cautiously, otherwise it would make the engine fail.

Take special care after you turn on parking mode function. It will consume about 15% power of the car battery which may cause difficulty to start the car. Please make sure that you are using parking mode under the following conditions.

1. Return to the car in 2 days.
2. Car battery is full of power.
3. You are not driving in a rural or remote area. Because you cannot get help in time in such areas.
4. Backup power is available.
5. Car has no important missions to do.

Parking mode means the DVR mirror can keep recording after ignition is off. When parking mode is on, both mirror monitor and indicator are off though mirror is still recording videos. If there is something moving in front of the lens, it will automatically record 30s; if not, no recording. This function can protect your car well after you leave the car. This mirror can support parking mode to work for 12 hours.

Press "Parking mode" button to enter system setting menu. Find “Parking mode” by " " and " " buttons. Press " " to set the working length of parking mode or turn it off. You can choose from 30 mins/1 hour/6 hours/12 hours/Off.

Once you choose “parking mode” working length from 30min/1 hour/6 hours/12 hours, you will find a warning message:

**Warning**

The device is high power consumption that may cause it can not power on next time if you do not turn off parking mode before leaving?

You can press " " to cancel or press " " to confirm.

After pressing " ", you will find another warning:

**Warning**

The parking mode is under working. Please go back and power on the car in case of the power will be used up!

Then you can press " " to back to system setting menu.
Battery monitor

The battery voltage monitoring is activated automatically when the parking mode is on. It can be set to 11.8V, 11.9V, 12V, 12.1V, 12.2V 5 kinds of voltage. when the B + voltage below data that set before, the system will automatically shut down.

Press “ ” button to enter system setting menu. Find “Battery monitor” by “ ” and “ ” buttons. Press “ ” to set the voltage. You can choose from 11.8V, 11.9V, 12V, 12.1V, 12.2V.

Lcd auto off

Press “ ” button to enter system setting menu. Find “Lcd auto off” by “ ” and “ ” buttons. Press “ ” to choose from Off/30 secs/1 min/ 2 mins/ 3 mins/ 5 mins”.

After exiting the menu, the mirror will start to count the time once there are no operations. The screen will auto turn off when it reaches the time you set. You also can manually turn on/off the screen by pressing the “POWER” button on the mirror.
PLAYBACK

Press “ ” or “ ” button to enter into playback menu. Find and choose “Normal video” or “Emergence video” by pressing “ ” and “ ” buttons. Press “ ” to confirm.

When you enter into “Normal video” list, press “ ” or “ ” to switch video and press “ ” to play/pause the file. Press “ ” to return to the main interface. And press “ ” can delete the file.

ADAS

Only connect the mirror to GPS antenna and GPS successfully fixed the location, the function will be work.

1. Lane Departure Warning System

When driving, the mirror can identify the vehicle track by its traffic lane detection function. Once the vehicle will deviate from the expected driving track, the mirror will send warning alarm to alert the driver.

2. Forward Collision Warning System

According to the lens image and GPS satellite information to determine the vehicle speed and the safe distance between the vehicle and the vehicle in front, when excessive speed and safe driving distance is too short, the recorders send warning alarm to alert the driver.

OPTIONAL FUNCTIONS

Front view departure warning system
Camera capture data
The system sends alert Normal route status

Frontal vehicle

Front view departure warning system
Camera capture data
The system sends alert Normal route status
Connect the mirror to external antenna. Press “ ” button to enter system setting menu. Find “GPS” and “ADAS” by “ ”, “ ” buttons. Press “ ” to turn them on.

After GPS successfully fixed the location, the icon “ ” will display on the bottom right corner of the recording interface.

When driving speed is over 30KM/H, detecting the lane departure over 1 second lane departure(left or right), it will trigger Lane Departure Warning System.

When driving speed over 30KM/H, and detecting the distance with front car is less than 6m, Forward Collision Warning System will be triggered.

TROUBLE SHOOTING

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<tr>
<th>Problems</th>
<th>Diagnoses</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not recording / Showing the no SD card condition</td>
<td>1. The SD card class too low to read and store.</td>
<td>1. Change into the high recording speed memory card.</td>
</tr>
<tr>
<td></td>
<td>2. SD card install wrong.</td>
<td>2. Remove the SD card, then put it in again.</td>
</tr>
<tr>
<td></td>
<td>3. SD card incompatible</td>
<td>3. Format the SD card, and reboot.</td>
</tr>
<tr>
<td>Stuck at some interface and can’t operate anymore.</td>
<td>1. Operating too frequent.</td>
<td>1. reboot mirror.</td>
</tr>
<tr>
<td></td>
<td>2. Operation went wrong.</td>
<td>2. reboot mirror and if it is too often, back to factory for repair.</td>
</tr>
<tr>
<td>System does not react when operating the remote control.</td>
<td>1. Plastic insulation sheet of the battery is not removed.</td>
<td>1. Remove the insulation sheet. Reinstall the battery.</td>
</tr>
<tr>
<td></td>
<td>2. Remote control is too close to the rearview mirror.</td>
<td>2. keep the distance between the remote control and the mirror at 0.5m-1.0m.</td>
</tr>
</tbody>
</table>

Problems Diagnoses Solutions

1. Plastic insulation sheet of the battery is not removed.
2. Remote control is too close to the rearview mirror.
3. Format the SD card, and reboot.

1.オススメ
2. Keep the distance between the remote control and the mirror at 0.5m-1.0m.