

# Appreciation

Thank you for purchasing Streamax mobile surveillance devices.

This manual aims at providing reference for M1-C104 installation and use. Here you can find all features and advantages of this product series, as well as detailed specifications and installation guide.

Before installation, please read the following cautions and key operating instructions.

## Notice

This manual applies to M1-C104 SD card Mobile DVR.

It may contain minor technical inaccuracies or typographical errors, which will be updated irregularly without further notice. The new content will be updated in the new versions of this manual.

If there is any description inconsistent, please refer to the actual products and programs.

## Guarantee & Warnings

### **1) Electrical Apparatus Safety**

All installation and operation should comply with local electrical safety norms.

### **2) Transportation**

In the process of transportation, storage and installation, please avoid heavy stress, violent vibration, impact and water splashing.

### **3) Installation**

Install the equipment in accordance with the requirements, handle carefully. Do not heavily press the equipment before the MDVR installation is finished.

### **4) Requirements on Engineers & Technicians**

All the work of checking and maintenance should be done by qualified engineers. We do not undertake any problems caused by unauthorized modifications.

## **5) Requirements on Environment**

The equipment should be installed and stored in a cool and dry place, away from direct sunlight, flammable or explosive substances, etc. Keep gaps not less than 3cm around the device to facilitate ventilation for cooling.

## **6) Accessories**

Make sure to use accessories from the manufacturer suggested in the attachment.

Insulate circuit ground and metal shell for all the peripherals.

Before installation, please open the package and ensure that all parts are included.

M1-C104 supports dual SD card recording, but you must ensure the consistency of the two SD card (same capacity, brand and production batch).

If there are any problems, please contact us as soon as possible.

# Product Overview

M1-C104 is cost-effective equipment specially designed for mobile surveillance. It uses high-speed processor and embedded operating system, combined with H.264 video compression/decompression technology and GPS locating technology. It can realize CIF HD1 and D1 video recording and vehicle driving information recording, with the data recorded down to be used for data query and accident analysis. M1-C104 is designed exquisitely with advantages of flexible installation, easy maintenance, etc.

## Features

- 1) Total resources: 4 CH D1 100/120fps.
- 2) Dual cards recording - Support cycle recording (Two SD cards record one by one circularly) and mirror recording (one is for main recording and one is for backup) with dual 32GB/64GB/128GB SD cards.
- 3) Waterproof level IP54 - protects device from dust and water spray.
- 4) Anti-vibration - 360 degree installation without video loss.
- 5) Power protection – stable video recording under unstable power input.
- 6) Compact design – ideal solution for small vehicle CCTV like taxi.
- 7) Support GPS for location tracking.
- 8) Provide protection for abnormal power-off, which reduces video loss.
- 9) Support DC8~36V wide voltage input, suitable for 12V and 24V vehicle.
- 10) Watermark technology: prevent data tempering and guarantee the video authenticity and legal efficiency.

## Functions

- 1) Local recording and video playback: D1/HD1/CIF resolution optional.
- 2) Driving recording: provide statistics on speed, turning, brake, reverse, opening door, etc.
- 3) User log: on-off status of the device, video loss, recording start time / end time, user log in / log out, modification of the device parameters, checking the time, GPS status.
- 4) Import and export of the configuration file: U disk import/export device

parameters.

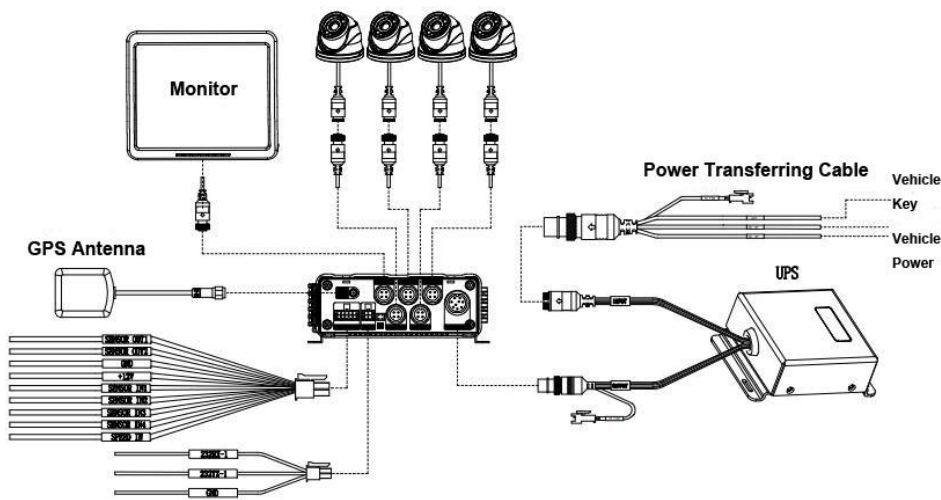
- 5) Device upgrade: support local upgrade.
- 6) Alarm linkage: support linkage switch value output, image display, etc.
- 7) Storage formatting: formatting SD cards and external USB devices.

# Specifications

| Items             |                         | Technical Index                                                                                 |
|-------------------|-------------------------|-------------------------------------------------------------------------------------------------|
| Product Series    |                         | M1-C104                                                                                         |
| Function Overview |                         | Preview, Recording, Playback, Locating                                                          |
| System            | OS                      | Linux 2.6.24                                                                                    |
|                   | Control Mode            | IR remote control                                                                               |
| Video             | Input                   | 4 channels                                                                                      |
|                   | Output                  | 1 channel                                                                                       |
|                   | Total Resource          | 4CH D1 100/120fps                                                                               |
|                   | Video Signal Standard   | Electrical level: 1Vpp; Impedance: 75Ω<br>NTSC/PAL Optional                                     |
| Audio             | Input                   | 4 channels                                                                                      |
|                   | Output                  | 1 channel                                                                                       |
|                   | Audio Signal Standard   | Electrical level: 2Vpp; Input impedance: 9.4Ω                                                   |
| Display           | Display Split           | 1/4                                                                                             |
|                   | OSD                     | GPS information, alarm, temperature, voltage, device information, firmware version, MCU version |
|                   | Operation Interface     | Semi-transparent GUI                                                                            |
| Recording         | Video/Audio Compression | H.264/ADPCM                                                                                     |
|                   | Image Resolution        | PAL: D1(704x576), HD1(704x288),<br>CIF(352x288)<br>NTSC: D1(704x480), HD1(704x240),             |

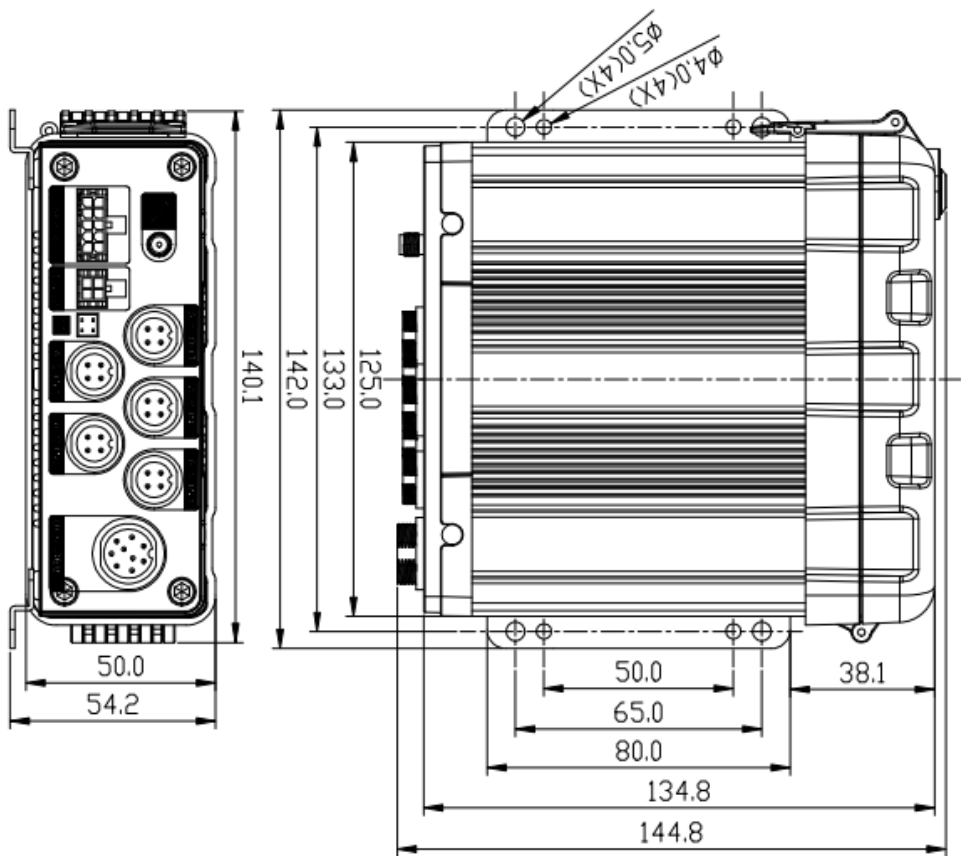
|                         |                       |                                                                                                            |
|-------------------------|-----------------------|------------------------------------------------------------------------------------------------------------|
|                         |                       | CIF(352x240)                                                                                               |
|                         | Image Quality         | 1-8 levels adjustable (1 is the best)                                                                      |
|                         | Recording Mode        | Manual/schedule/Alarm (sensor trigger, speed, acceleration, video loss, temperature)                       |
|                         | Post-recording        | 0-30minutes                                                                                                |
| Playback                | Playback Channel      | 1 channel by local playback, 1/4 channel by software playback                                              |
|                         | Search Mode           | Date/time, channel, event                                                                                  |
| Locating                | GPS                   | Location tracking, speed detection and time sync                                                           |
| Storage                 | SD Card               | 32GB/64GB/128GB Class 10 SDXC card                                                                         |
| Interface               | USB                   | USB2.0 × 1                                                                                                 |
|                         | SD                    | SD × 2                                                                                                     |
|                         | Sensor                | 4 inputs, 2 outputs                                                                                        |
|                         | Speed                 | 1 channel pulse speed detection                                                                            |
| Power                   | Input                 | DC8-36V                                                                                                    |
|                         | Output                | 12V@500mA                                                                                                  |
|                         | Current               | Impulse current: input 13.5V@1.3A<br>Working current: input 13.5V@1.2A,<br>27V@0.5A<br>Standby current: 0A |
| Physical Characteristic | Dimension (L x W x H) | 142 x 144.8 x 54.2mm                                                                                       |
|                         | Weight                | 0.7Kg                                                                                                      |
| Operating Environment   | Temperature           | -25°C- +60°C                                                                                               |
|                         | Relative Humidity     | 8%-90%                                                                                                     |
| Certificates            |                       | CE, FCC, MIL-STD-810F                                                                                      |

# System Diagram

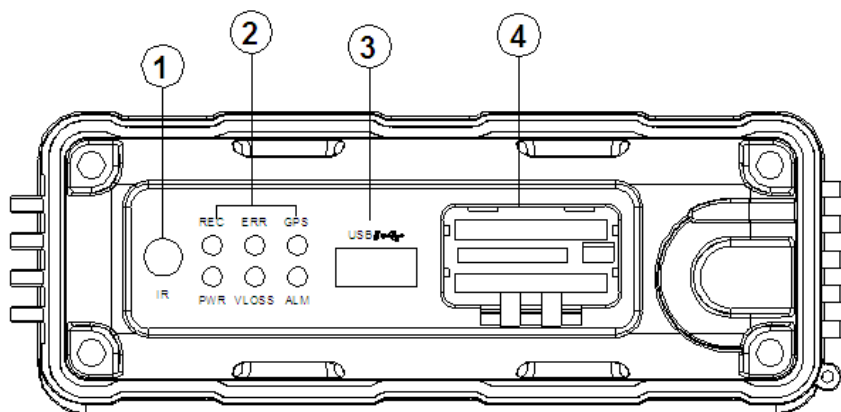


# External Interface

## 1) Dimension

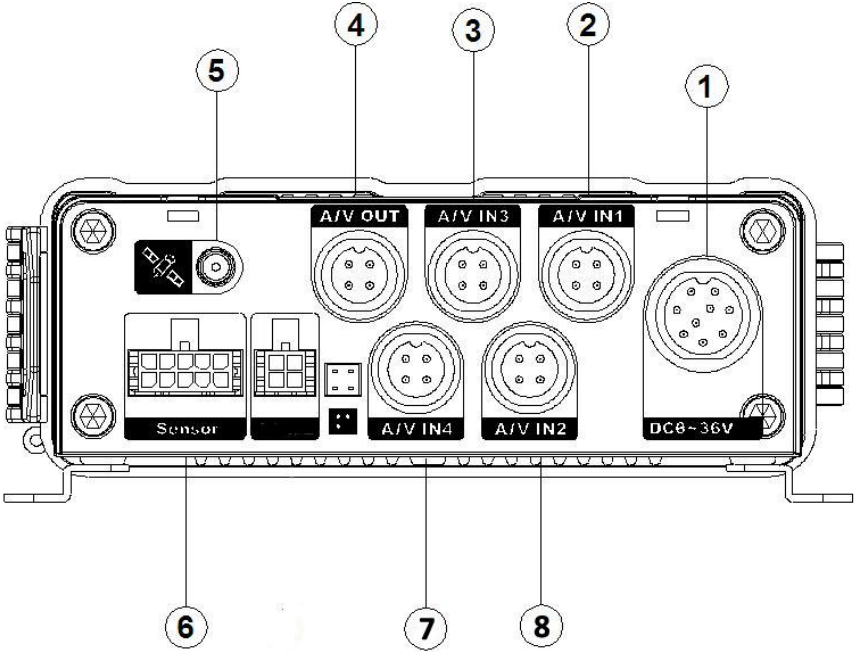



## 2) Front Panel



| Serial No. | Print | Description              |
|------------|-------|--------------------------|
| 1          | IR    | Remote control receiving |
| 2          | LED   | LED status indicator     |
| 3          | USB   | USB interface            |
| 4          | SD    | SD card interface        |

3) Rear Panel



| Serial No. | Print                                                                               | Description           |
|------------|-------------------------------------------------------------------------------------|-----------------------|
| 1          | DC8-36V                                                                             | DC IN Jack            |
| 2          | AV IN1                                                                              | Audio & Video Input 1 |
| 3          | AV IN3                                                                              | Audio & Video Input 3 |
| 4          | A/V OUT                                                                             | For Monitor           |
| 5          |  | For GPS Antenna       |
| 6          | SENSOR                                                                              | Alarm I/O             |
| 7          | AV IN4                                                                              | Audio & Video Input 4 |
| 8          | AV IN2                                                                              | Audio & Video Input 2 |

# Operation Instructions

## User Login

- 1) **Login:** when the device is started, press the button Startup/Shutdown or Settings on the control panel, then you enter the following Login page.



- 2) **Input the device No.:** Enter the number in the bracket.
- 3) **Input password:** Enter the user password or admin password. You can only search video and review information menu; if you enter with the admin password, you can set the device parameters as well.

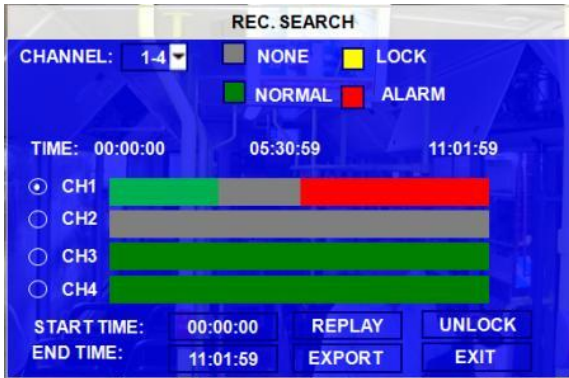
**Tips:** User default password is 22222222, and Admin password is 88888888.

## Local Rec. Search, Playback and Backup

- 1) **Rec. Search:** can search records according to file types, recording channels, date, start/end time; includes two types of file (green block means normal video, red block means records of that day contains alarm video).



The search result is displayed as follows.



- 2) **Rec. Backup:** select the channel and time of the file for playback, press the key “**Enter**” to start playback.
- 3) **Rec. Data Export:** if there is record file in the channel you choose, press the button “**Export**” to export all the files in the effective period to the storage device which is connected to the USB interface.

## Format

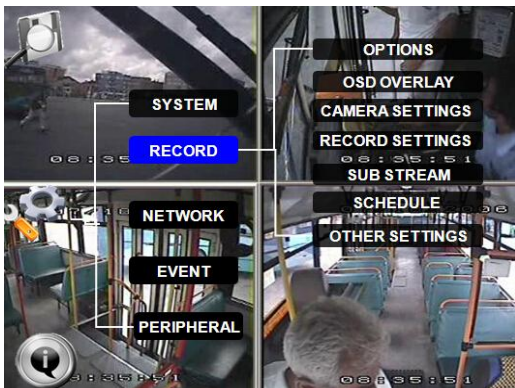
Click “**System**” in the main menu, choose “**Format**”. You can separately format the internal SD card and the external U disk.

**Note:** both new hard disk and SD card should be formatted when it is used for the first time.



## Dual-Card Recording Modes

M1-C104 supports dual-card cycle recording and mirror recording; you can switch dual-card recording modes through “Record” → “Other Settings”. When you switch the modes the storage cards may be formatted. Please note that M1-C104 supports dual card recording only when you ensure the consistency of the two SD cards (capacity, brand, production batch).



### Note for the overlay in cycle recording:

- Start to switch to the other card when there is less than 768M left in the current card.
- Start to overlay when the total capacity of the two cards is less than 3G.
- Stop overlaying when the total capacity of the two cards is more than 4G.
- Delete the earlier records before the later ones.

## Event Settings

**Note:** in this manual, **event** means records generated by sensors, video loss, over speed or other limit conditions.

## 1) Sensor Settings

| SENSOR |        |      |     |      |       |      |
|--------|--------|------|-----|------|-------|------|
| NO.    | ENABLE | NAME | OSD | SET  | ALARM | LOCK |
| S1     | ON     |      | COM | HIGH | ON    | OFF  |
| S2     | ON     |      | COM | HIGH | ON    | OFF  |
| S3     | ON     |      | COM | HIGH | ON    | OFF  |
| S4     | ON     |      | COM | HIGH | ON    | OFF  |
| S5     | ON     |      | COM | HIGH | ON    | OFF  |
| S6     | ON     |      | COM | HIGH | ON    | OFF  |
| S7     | ON     |      | COM | HIGH | ON    | OFF  |
| S8     | ON     |      | COM | HIGH | ON    | OFF  |

PGDOWN    SAVE    EXIT

a. **ENABLE:** when it is “OFF”, the event is logged down but not triggers record; when it is “ON”, the event not only is logged down but also triggers record.

b. **Name:** enter the text name to identify the source of each sensor, e.g. DOOR OPEN or REVERSE.

c. **OSD:** users can identify the OSD with characters, which is recorded down in the video file when trigger event happens. When playback the video, the OSD character can display after you press “ENTER” on remote control.

d. **SET:**

HIGH - low level effective; the corresponding sensor signal is sent when the sensor input is higher than 3.8 V.

LOW - high level effectively; the corresponding sensor signal is sent when the sensor input is lower than 0 V.

e. **ALARM:** “OFF” means the signal triggered is normal event; “ON” means the signal triggered is alarm event.

f. **LOCK:** “OFF” is corresponding to video signed as “U”, which can not be locked; “ON” is corresponding to video signed as “L”, which can be deleted only when unlocked. (The unlock time can be set through the lock file protection time.)

## 2) Sensor Trigger Action

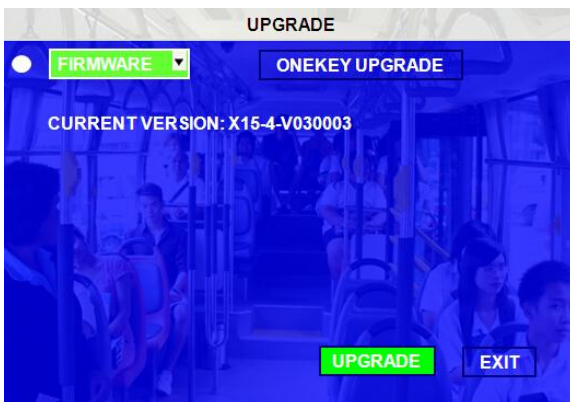
a. **FULL SCREEN:** “OFF” means to shutdown this function; “ON” means that the corresponding video of the channel would display in the direct screen when the sensor signal of that channel is triggered.

| SENSOR TRIGGER ACTION                                 |             |         |
|-------------------------------------------------------|-------------|---------|
| NO.                                                   | FULL SCREEN | 3G ACT. |
| S1                                                    | CH1         | OFF     |
| S2                                                    | CH1         | OFF     |
| S3                                                    | CH1         | OFF     |
| S4                                                    | CH1         | OFF     |
| S5                                                    | CH2         | OFF     |
| S6                                                    | NONE        | OFF     |
| S7                                                    | CH3         | OFF     |
| S8                                                    | CH4         | OFF     |
| <div>FRONT PAGE</div> <div>SAVE</div> <div>EXIT</div> |             |         |

b. 3G ACT: “**OFF**” means to shutdown this function; “**ON**” means that the 3G module would be activated once the sensor signal is triggered, and then upload the screenshot.

## System Upgrade

- 1) Copy the software to the folder “dvrupgrade” in the U disk;
- 2) When the device is start, insert the U disk which contains the upgrade file;
- 3) Click “System” in the main menu, select “Upgrade” and click the button “**UPGRADE**”, then the system upgrade starts.



- 4) During the upgrading, the indicator in the front panel flashes and the screen displays “System Update”;

- 5) When the upgrade is finished, the device will automatically restart; and the screen displays “System Initializing”;
- 6) After the device restarts, enter the “UPGRADE” page to make sure if the current version is the latest one.

# Reference Appendix

## Storage Capacity Calculation

### 1) Image Quality & Streams

|               | Image | 1    | 2    | 3    | 4    | 5   | 6   | 7   | 8   |
|---------------|-------|------|------|------|------|-----|-----|-----|-----|
| Stream (Kbps) | D1    | 2048 | 1536 | 1230 | 1024 | 900 | 800 | 720 | 640 |
|               | HD1   | 1280 | 960  | 768  | 640  | 560 | 500 | 450 | 400 |
|               | CIF   | 800  | 600  | 480  | 400  | 350 | 312 | 280 | 250 |

### 2) Rec. File Size Calculation

Rec. file size for each channel is:

Recording time (s) x Stream (Kbps) / 8 / 1024 = File Size (MB)

**e.g.** The file size of the channel-1 with D1 image quality within 1 hour:

3600 x 2048 Kbps / 8 / 1024 = 900 MB

### 3) Image Quality & Resolution

|            | Image Quality | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
|------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Resolution | D1            | 900 | 675 | 540 | 450 | 395 | 351 | 316 | 281 |
|            | HD1           | 562 | 422 | 337 | 281 | 246 | 219 | 198 | 176 |
|            | CIF           | 351 | 264 | 211 | 176 | 153 | 137 | 123 | 110 |

# Frequently Asked Questions

## 1) Can't Start

- ✧ Check the input power, whether the power wire is connected correctly, whether the ground wire is connected back to the battery, and whether the fuse on the power wire is in good condition.
- ✧ Check whether the ACC signal wire input to the power is with voltage higher than 7 V.
- ✧ Check whether the device key is closed.

## 2) Always in Restart Status

- ✧ Check whether the voltage is insufficient. If the voltage is less than the start-up voltage of the device, the device would always restart.
- ✧ The problem in hard disk/SD card may cause the failure to start. Take off the storage part and check whether it is broken down.

## 3) Can't Record

- ✧ Check whether the storage disk is installed, whether it is in good contact, and whether the disk can be read normally in computer.
- ✧ Check whether the storage disk is formatted. The storage disk should be formatted before normally storing record files.
- ✧ Check whether there is video signal input into the device from camera, and whether there is video/image on the screen.

## 4) No Voice in Record File

- ✧ Check whether there is an external pickup, or whether the camera features with the function of audio collection.
- ✧ Access to Video Channel Settings, check if Audio is set on.
- ✧ There must be video input into the channel for recording and it must record normally.

## 5) GPS Works Abnormally

- ✧ Check whether the GPS antenna is installed correctly. There is a silk print logo on the GPS antenna holder behind the host device.
- ✧ Check whether the antenna receiver is sheltered. It should not be covered by any stuff, which may cause it not to receive signals.
- ✧ Environmental influence such as tree shades, being inside tunnel,

driving near tall building or elevated roads, thunderstorms or other weather influence, etc. can also cause signal loss or receiving wrong signals.

#### **6) Can't Shutdown in Ignition Switch Mode**

- ✧ Check if the ACC line connection mode is correct; and check whether there is voltage on ACC yellow line when the key is turned off.
- ✧ If the device has been set with schedule recording, it can't shutdown if it is still during recording time of the task table.