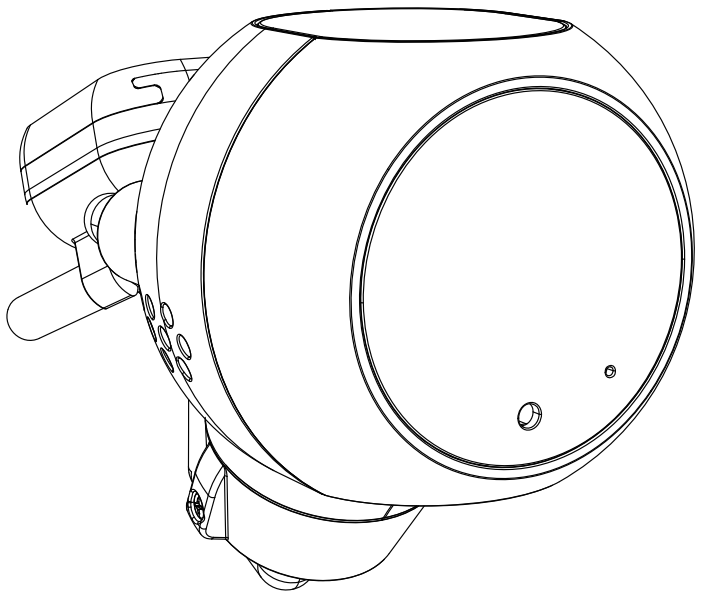
MDSM-22S

User Manual



MOVON CORPORATION

※ Thank you for purchasing MOVON Driver Status Monitoring System.

Please read the manual carefully before using MDSM-22S.

- ***Any inappropriate*** or ***illegal activities or violation of traffic rules on the roads are driver's responsibility.*** MOVON Corporation will not compensate any damage nor accept responsibility related to behaviors mentioned.
- Please be aware of MOVON's policy that private information and traffic related laws are user's responsibility. ***MDSM-22 only gives warnings to drivers. The final decision to maneuver / control shall be made by drivers themselves.***
- The safety function performance might be affected by driver status, road environments, weather conditions and installations.
- Customer service incurred by controlling while driving or damaging / revamping will not be guaranteed by MOVON's policy.
- MOVON shall NOT be responsible for any problems and/or damages that may occur from not using genuine or MOVON authorized parts and accessories. It is strongly recommended to use parts and accessories (including micro SD card) provided by MOVON or MOVON authorized seller to avoid any problems and/or damages.
- The information may not be up-to-date on the user manual for upgrading or editing purposes. The manual can be modified at any time without notification in order to enhance software.
- The product software may be modified for better performance without informing in advance. Please refer to the **http://www.movon.co.kr** for latest information.

Warnings / Cautions : Violating the following precautions may result in personal injury, death, or property damage.

- Do not install in disregard of installation instruction. It is recommended to go to authorized workshop.
- Do not use damaged/modified cables or voltage out of the rated voltage.
  It may cause injury, death or property damage.
- Do not modify nor disassemble the product and cables. It can cause explosion or fire resulted in injury or property damages.
- Do not use chemical on the device. It can cause fire or electric short, or malfunction of the device.
- Do not attach MDSM-22S in which it can obstruct the driver's view.
- Do not operate while driving, it is prohibited by law. If necessary, operate after stopping at a secure area.
  Do not apply excessive force when pushing the buttons on the device.
  Do not leave the product where infants, children or pets can reach it.
- Operating temperature is -4℉ ~ 158℉(-20℃ ~ 70℃).
  MDSM-22S may not operate properly and be damaged in excess of the temperature.
- The functions may not work properly due to camera location and angle, and weather conditions.
- Foreign substance or finger print on the lens may cause improper safety function performance.
  If recorded videos are broken due to users mishandling, the damaged video is not guaranteed to recover.

1. Product Overview

1.1 Main Features

MOVON Driver Safety and Monitoring (MDSM) helps drive safely by using a machine vision recognition technology to prevent drowsy or reckless driving

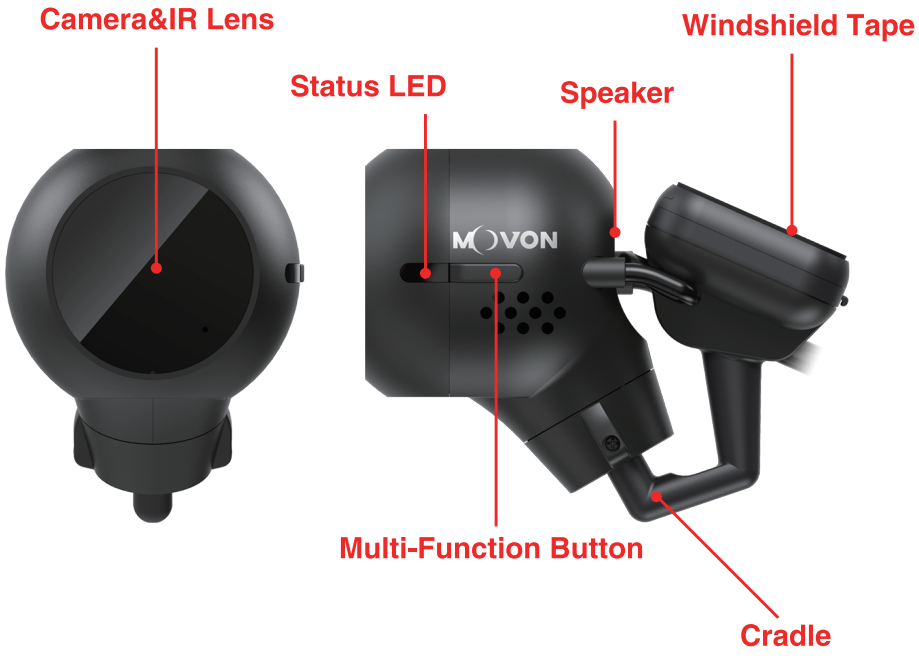
[Main functions]

	**Drowsiness** 1.Provides alarms when the driver's eyes are closed. 2.When the accumulated time of closed eyes exceeds 6 seconds within a 60-second interval, alarms are triggered.
	**Yawning** Detects when the driver yawns. Provides alarms when the driver yawns twice within 1 minute.

1. Product Overview

1.2 Parts Description

Camera



Main Control Box



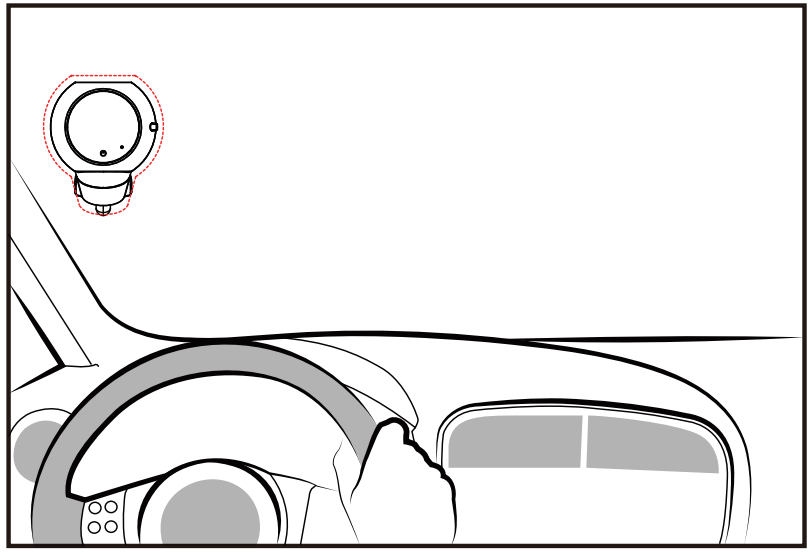
2. Installation

2.1 Installation Position for DSM camera

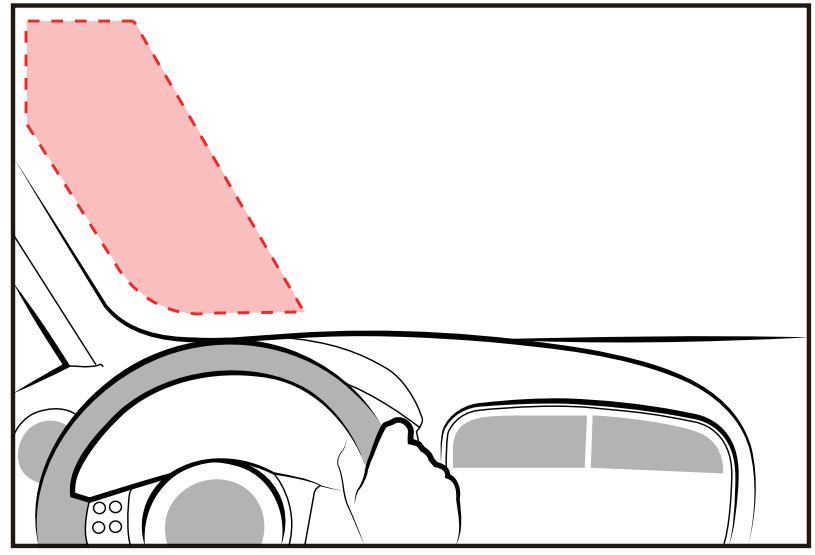
- Location: DSM camera is recommended to be attached next to A-Pillar
- Angle: below the driver's eyes is recommended, about 1° - 20°.
- Detecting Range: 80 – 100cm from the driver's face is recommended.
- The installation location and angle are very important to MDSM-22's performance. For the best, instructions above is highly recommended.

2.2 Installation Position for Control Box

- The control box is put inside the dashboard.



< Recommended Installation Position >



< DSM Camera installed next to A-Pillar >

3. LED Status

3.1 LED Status

1) Orange: Indicates that the MDSM-22S is booting when the vehicle speed is lower than the operating speed

2) Green: Indicates that the MDSM-22S is working properly when the speed of the vehicle exceeds the activation speed, potentially triggering an audible warning.

3) Red
(1) When an event occurs
(2) In case of error (CAN, camera error)

4. Limitations & Limited Warranty

4.1 Limitations

MDSM-22S doesn't guarantee 100% accuracy in detecting driver status or providing warnings for all potential accident causes behind the wheel.

MDSM-22S doesn't give alerts until it recognizes the driver's face. If the driver closes eyes or opens them little on purpose during face detection process, it will trigger false alerts while driving. Depending on the driver's facial characteristics, MDSM-22S may not detect/recognize the driver properly.

Direct sunlight to the camera lens or the driver's face can adversely affect MDSM-22's recognition performance. In case of partial or full blockage of the vision sensor, its ability to detect may be limited or MDSM-22S may not work properly.

The glasses or sunglasses could reflect the sunlight or surroundings. This will prevent MDSM-22S from detecting eyes and lower MDSM-22's performance accuracy. Also, any object that covers the driver's face, such as a eyepatch, hat, cap, mask, muffler, or other items could affect the performance as well.

The dirt, scratch, or a fingerprint on the camera part can affect recognition performance. Do not touch this part with bare hands or anything sharp. If there is dirt or fingerprint, wipe it up gently with soft and dry cloths.

4. Limitations & Limited Warranty

4.2 Limited Warranty

The term of this product warranty is 2 year from the purchase date.
This MDSM-22S's Limited Warranty is non-assignable and covers the original purchaser of the MDSM-22S installed on the vehicle for which the MDSM-22S was purchased against defects in material or workmanship for a period of two years from the date of purchase.

The sole obligation of MOVON under this Limited Warranty is to repair or replace, at MOVON's discretion, any MDSM product that is determined by MOVON to have been defective in materials or workmanship. MOVON will not be responsible for conditions arising as a result of installation.

The following are excluded from warranty coverage: (a) Damage from misuse, negligence, improper installation or accident, (b) Installation on a vehicle other than the vehicle for which this MDSM product was designed, (c) Repair or alteration of this MDSM product by any party other than MOVON.

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