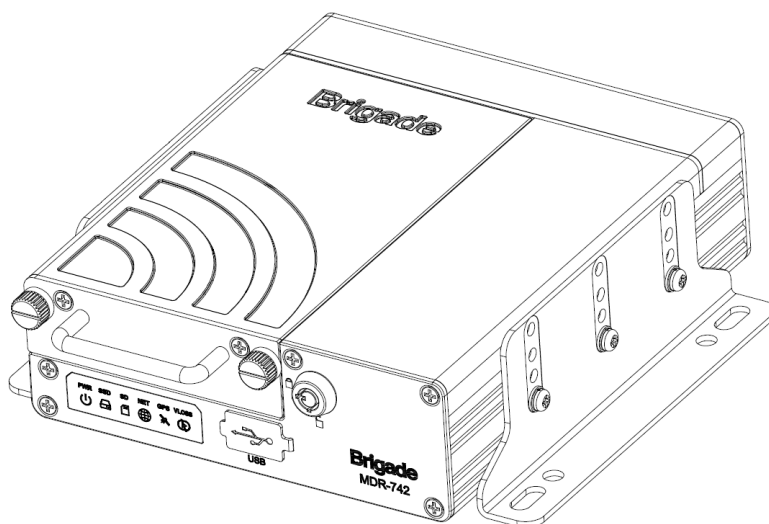




Mobile Digital Recorder

MDR-742GW-XX(XX)



MDR 700 Series Installation and Operation Guide

For the latest version of this manual, visit www.brigade-electronics.com

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1 Introduction to MDR 700 Series Technology

Brigade's MDR 700 Series Mobile Digital Recorders (MDRs) are designed to record and playback multiple video channels with high performance and flexibility. The system supports Analog High Definition (AHD), Phase Alternating Line (PAL) and National Television System Committee (NTSC) video standards, with recording resolutions including CIF, WCIF, HD1, WHD1, D1, WD1, 720P, 960P and up to 1080P at full frame rate on all channels simultaneously.

The MDR 742 Series features a compact and lightweight design, making it suitable for installations where space and weight are constrained. The primary storage medium is an internal M.2 Solid-State Drive (SSD), with multiple capacity options available up to 4 TB. A secondary microSD card (up to 1 TB, model dependent) is supported for sub-stream recording, mirrored recording or alarm-only recording. The microSD card stores video and frame data at the configured resolution and frame rate, providing additional resilience in extreme scenarios, such as a primary SSD write interruption during a vehicle collision.

By default, the internal M.2 SSD is configured as the main storage, while the microSD card operates as the sub-storage. In this configuration, the SSD handles main-stream recording, while the microSD card may be used for sub-stream, mirrored or alarm recording, depending on system settings. Alternatively, the MDR 700 Series allows the microSD card to be configured as the main storage via user settings. When configured as the primary storage, the microSD card supports the same core recording functions as the SSD, including main-stream recording. Please note that when the microSD card is configured as the main storage, the SSD will not operate simultaneously. This configuration is intended as a fallback solution, enabling continued main-stream recording in scenarios where the SSD is unavailable or not operational.

All MDR 700 Series models include built-in 4G mobile network and Wi-Fi capability as standard. It also provides sufficient processing and recording resources to support advanced features, including AI-based alarm functions. These functions are compatible with Brigade's existing AI camera portfolio, enabling intelligent road and driver status detection. For GPS and positioning data, the MDR 700 Series incorporates an integrated six-axis G-sensor and a GNSS module with inertial navigation capability, enabling more accurate speed and movement data, particularly in environments where satellite signal quality may be degraded.

It is imperative that Brigade MDR 700 Series units are installed and commissioned by competent and trained technicians. Installers are responsible for the correct configuration of the overall system and must ensure compliance with all applicable regulations and legislation.

Table 1: Description of MDR 700 Series Models:

#	MODEL	NUMBER OF CHANNELS	SSD CAPACITY	SD CAPACITY	GPS	MOB. NET	WI-FI
(1)	MDR-742GW-1	4 (Analogue) + 6 (IP)*	1TB	128GB	✓	✓	✓
(2)	MDR-742GW-2	4 (Analogue) + 6 (IP)*	2TB	128GB	✓	✓	✓
(3)	MDR-742GW-4	4 (Analogue) + 6 (IP)*	4TB	128GB	✓	✓	✓
(4)	MDR-742GW-SD	4 (Analogue) + 6 (IP)*	-	128GB	✓	✓	✓
(5)	MDR-742GW-1(NA)	4 (Analogue) + 6 (IP)*	1TB	128GB	✓	✓	✓
(6)	MDR-742GW-2(NA)	4 (Analogue) + 6 (IP)*	2TB	128GB	✓	✓	✓
(7)	MDR-742GW-4(NA)	4 (Analogue) + 6 (IP)*	4TB	128GB	✓	✓	✓
(8)	MDR-742GW-SD(NA)	4 (Analogue) + 6 (IP)*	-	128GB	✓	✓	✓

*6x IP channel inputs. 2x direct connections on the rear of the MDR and 4x additional via an external 4-Port PON Switch and IP-MDR-PON cable. When the PON Switch is not used, the reserved Ethernet port can be connected to a third IP camera. This port does not support plug-and-play and must be manually assigned to the corresponding channel by the user.

Warning: Prior to attempting the system setup, please ensure the MDR 700 Series Installation & Operation Guide is thoroughly read and understood. Brigade will not be responsible for any failures due to incorrect installation or operation. Ensure your anti-virus software has exclusions in place to allow the MDR software package to function properly.

1.1 Product Features

1.1.1 General Specification of MDR 700 Series

Models	MDR-742XX-XX (XX)
Main Storage	500GB / 1TB / 2TB M.2 SSD with anti-vibration mounting (total 2x2TB maximum)
Sub-Storage	128GB microSD card (total 2x 512GB maximum)
Recording Resource	Simultaneous 10 channel recording up to: AHD / CVBS: 1080P @ 30fps (PAL) / (NTSC) for 4 channels IP (direct connection): 1080P @ 30fps for 2 channels IP (via PON Switch): 1080P @ 30fps for 4 channels
Inputs	7x Select video connectors for camera connection (video & audio)
Weight	2.9Kg approx.

1.1.2 Common Features of MDR 700 Series

- Embedded Linux operating system
- Internal anti-vibration mounting design for M.2 SSD
- Embedded super-capacitor enabling safe finalisation of recordings after unexpected power interruption (up to 10 seconds)
- Individual channel configurations for recording resolution, frame rate and quality
- Anti-tamper feature via digital password
- 1/4/6/9-way split screen display output
- Optional EIA/TIA 485 (RS485) for external Remote Status & Interface Panel

- Operation log files for troubleshooting
- Built-in 6-axis G-Sensor
- Internal GPS module with inertial navigation capability for location monitoring and tracking
- I/O: 8x configurable trigger inputs (9V threshold, high or low activation modes); 2x trigger outputs (12V, 500mA max)
- Pre-alarm recording 30 seconds to 60 minutes and Post-alarm recording 0 to 60 minutes.
- Video recording quality selectable from 8 different levels
- Video/Audio compression H.264/H.265/ADPCM/G711U/G711A
- Normal, Alarm or Timer recording modes
- Alarm recordings configurable for trigger, speed, G-Force, video loss, motion detection, blind detection, panic button, geo-fencing, SSD/SD errors, GPS errors and AI alarms.
- AI camera support for ADAS and DSM functions
- Low voltage protection with configurable shut-down delay and minimum restart voltage
- Ethernet 10/100M transferrable from 6-pin to RJ45 port for configuration, live view, playback and video download
- Support for wired/wireless mouse for configuration and recording / event search(mouse not supplied)
- Shut-down delay configurable from 0 seconds to 24 hours or Non-Stop
- 12V / 24V Power Input
- Network Protocols supported: TCP/IP, UDP, DHCP, TFTP, FTP, HTTP/HTTPS, SNTP, ONVIF, RTSP

2 Kit Contents

2.1 MDR 700 Series Kits

2.1.1 MDR-742XX-XX(XX)



MDR 742 Series Control Unit

2.1.2 Giftbox Accessories



MDR Power Cable
MDR-PWR-01



MDR Input / Output Cable
MDR-IO-04



MDR GPS Antenna
MDR-ANT-GPS-02



MDR Wi-Fi Antenna
MDR-ANT-Wi-Fi-01



MDR Mobile Network Antenna
MDR-ANT-MOB-02



4G Antenna Adapter
MDR-AC-MOB-01



MDR USB 3.0 Cable
MDR-USB-C-01



MDR CAN Cable
MDR-CAN-02



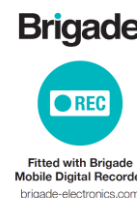
MDR Security Key
MDR-KEY-01



7x MDR Bracket Fixing Screws
MDR-BKT-FIX-01



MDR 700 Quick Start Guide
MDR-700-QSG



MDR Vehicle Warning Sticker
MDR-VWS



MDR Brackets
MDR-BKT-03

2.2 Optional Accessories



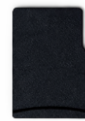
MDR Remote Status & Interface Panel
MDR-RP-02-P



MDR 4m Cable for Remote Status & Interface Panel
MDR-04RPC



Adapter Cable from IP to Ethernet
IP-MDR-PON



MicroSD Card
MDR-MICROSD-XXXGB

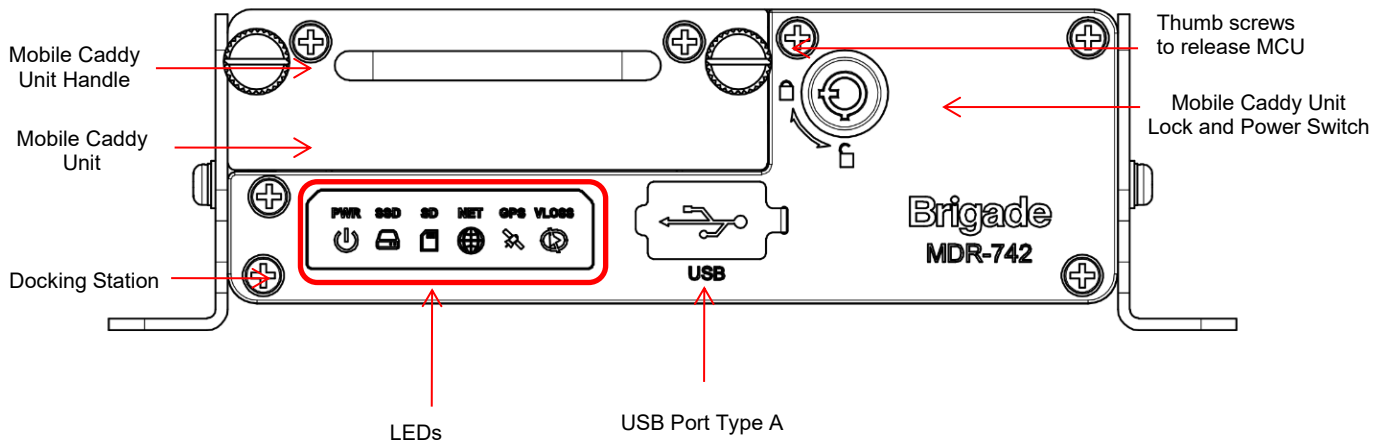
3 Hardware Installation

Warning

- Do NOT Connect input/output wiring to voltages exceeding 36V. Brigade is not responsible for damage caused by incorrect installation.

3.1 MDR-742 Hardware

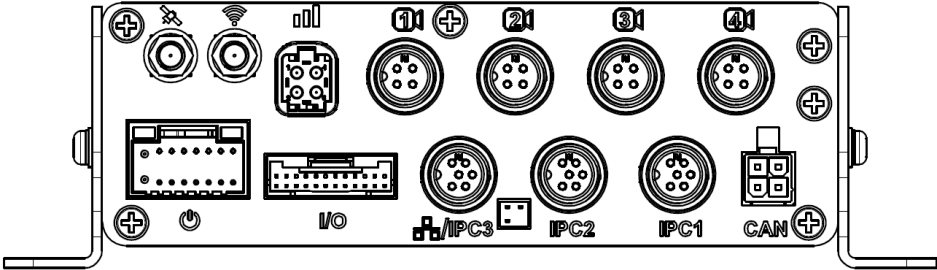
3.1.1 MDR-742GW-XX(XX) Front View



MDR-742XX-X (XX) Front View Figure 1

 Power - Green LED ON: Power on or sleep mode OFF: Power off  SSD – Blue / Red LED Blue: SSD available Blue Flashing: SSD recording Red: SSD full / SSD fault Purple (Blue and Red): one of the SSD is full / fault  SD – Green / Red LED Green: SD available Green Flashing: SD recording Red: SD full / SD fault Mix (Green and Red): 1 of 2 SD's full / fault	 Network – Green LED ON: Wi-Fi / Mobile network available OFF: No network available  GPS – Green LED ON: GPS available OFF: GPS not available  Video Loss - Red LED ON: Channel(s) has no video feed(s) OFF: All channels have video feeds
--	--

3.1.2 MDR-742GW-XX(XX) Rear View

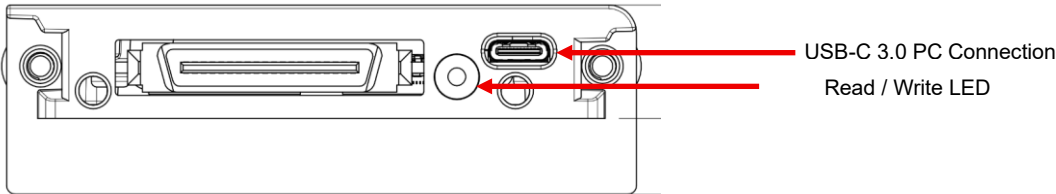


MDR-742XX-XX(XX) Rear View Figure 2

Rear Panel:

- | | | | |
|---|----------------------------------|---|--------------------------------|
|  | Mobile Network Antenna Connector |  | IP Camera 1 Connector |
|  | Wi-Fi Antenna Connector |  | Ethernet / IP Camera Connector |
|  | GPS Antenna Connector |  | Input / Output Cable Connector |
|  | Power Cable Connector |  | Analogue Camera 1 Connector |
|  | CAN Bus Cable Connector | | |

3.1.3 MDR-700-X-X-MCU-E



MDR-742-X-X-MCU-E Figure 3

3.2 Mobile Caddy Unit Removal / Installation

Warning: Follow the removal steps shown below. Failure to do so **will damage** the SSD. Ensure that the PWR LED indicates the MDR is OFF prior to removal.

Step 1
Unlock the MCU using the key.

Step 2
Confirm that the **PWR LED** is **OFF**.

Step 3
Undo the two thumbscrews (anti-clockwise) and remove the caddy.



MCU Removal for MDR-742XX-XX(XX) Figure 4

3.3 SD Card Removal / Installation

Note: To remove an SD card from an MDR, the MCU needs to be removed first. Make sure the MDR is powered off before removing any storage medium. Failure to do so **will damage** the SD card. (See MicroSD Card removal for MDR-742XX-XX(XX) Figure 5)

Step 1
Follow previous chapter to remove the caddy.

Step 2
MDR has two MicroSD card slots with labelling for slot 1 and slot 2.

Step 3
Insert or remove A microSD card into/from the slot. Inserting a microSD into a different slot will cause the display name to change, representing the slot it is inserted into.



MicroSD Card removal for MDR-742XX-XX(XX) Figure 5

3.4 Sim Card Removal / Installation

Step 1
Follow previous chapter to remove the caddy.

Step 2
MDR supports a nano sim card, inserted via the small tray pre-installed in the SIM slot.

Step 3
Place the sim card on the tray and push it back in the slot. The sim card installation is complete.



SIM Card removal for MDR-742XX-XX(XX) Figure 6

3.5 Antennas Installation

The information found in this sub-chapter may be found in the FCS1362:2016 UK CODE OF PRACTICE for the installation of mobile radio and related ancillary equipment in land-based vehicles. Please use this document for further details. MDR devices have been tested and certified using Brigade antennas. Performance and regulatory compliance are assured when used with these antennas. If alternative antennas are used, the installer is responsible for ensuring the installation continues to meet applicable regulatory requirements.

3.5.1 GPS antenna Installation

The GPS antenna must have a clear view of the sky to achieve maximum satellite coverage. The antenna must be fitted horizontally. An example of an ideal placement would be on the dashboard by the windscreen. As the antenna is magnetic, it can be fitted to a metal plate.

3.5.2 Wi-Fi antenna

Before a magnetic mount antenna is fitted, both the underside of the base and the selected body panel surface should always be cleaned to avoid damage to the paint work.

- They must be directly placed on a flat area of steel
- They should not have any other material inserted between the magnetic base and vehicle body other than a protective pad or boot supplied by the antenna base manufacturer. This is to avoid reduction in the magnetic retention strength and any effect on the coupling to the ground plane.

3.5.3 Mobile Network antenna

On-glass antennas must be:

- Securely fitted and fixed away from any metal which could deflect the signal
- Located such that driver visibility is not impaired
- Avoiding heated screen elements
- Mounted outside of the swept area of the windscreen

4 MDR On-Screen Display (OSD)

This chapter describes the configuration of the MDR.

Brigade's 700 Series MDR displays a start-up screen. See *MDR Initialisation Screen Figure 7*. During this period, the MDR completes a disk check which helps in identifying any file errors or bad sectors. In doing so, the MDR will avoid writing to these sectors to maintain data integrity.

If required, the MDR will attempt to repair any bad sectors prior to entering its recording state. The MDR 700 Series takes approximately 25 seconds to enter a recording state once ignition has been applied.

To guarantee MDR is recording properly, there are three ways in which a user can tell if the MDR is recording: a visible blue SSD and a green SD card symbol on each channel; MDR REC LED will be on; Remote Panel REC LED will be on (optional accessory).



MDR Initialisation Screen Figure 7

4.1 Mouse Operation

To configure the system via the MDR on-screen display (OSD), a mouse is required. Basic mouse operations are described below.

Navigation buttons are used browsing the OSD. Left Mouse Button

Scroll Wheel / Third Mouse Button

Exit button are used for exiting menu or return to previous page. Right Mouse Button



General Mouse Figure 8

4.2 Quick Menu

After initial ignition on the MDR, it displays a quad view for Channel 1 – 4 by default. See *Quick Menu Figure 9*.

To access the quick menu, use the right button on the mouse  Clicking this button again will make any currently displayed OSD disappear. The right button can also be used as a quick exit button.

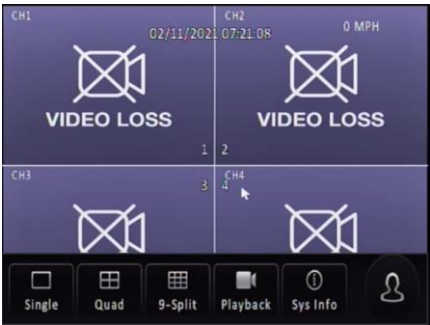
By default, the quick menu appears on the bottom of the display area.

Four different view options are available in the quick menu: **Single**, **Quad**, **6-Split** and **9-Split**. See *Quick Menu Figure 9*, *Single View Figure 10*, *6-Split View Figure 11* and *9-Split View Figure 12*. Since MDR 700 Series

support various channels, by turning page, clicking the view options buttons. E.g., MDR displays 1 – 4 Channel under quad view, clicking the 'Quad' button again will change the view to channels 5 – 8. The same principle applied to 'Single' and '9-Split'.

Playback directly supports playback recordings after clicking. It requires login details and Storage Key (if set) to access.
Note: It starts playback recording from 2 minutes behind the current time. If the MDR does not have any recording during that period, the direct playback will fail and show “Failed to open playback stream segment!” warning. For accessing full recordings, recommend using Playback feature in *Chapter 6 Record Search*.

Sys Info will be covered in Chapter 8 System Information.



Quick Menu Figure 9



Single View Figure 10



6-Split View Figure 11



9-Split View Figure 12

4.3 Login

By default, there are two user accounts: **admin** and **user**. If accessing settings when the MDR first boots up, a window will pop up requesting password setup for admin that meets the complexity requirements. After the password for admin has been set, the default password for the **user** account is **user**.

Brigade recommend changing the password after first login which must be documented and controlled by your company. The new password should contain 8 to 16 characters, including uppercase, lowercase letters, numbers, and optionally special characters. Refer to *MDR Set Password Screen Figure 13*.

After saving the new password, users need to input the correct password on the login window again, to successfully access MDR configuration menu.

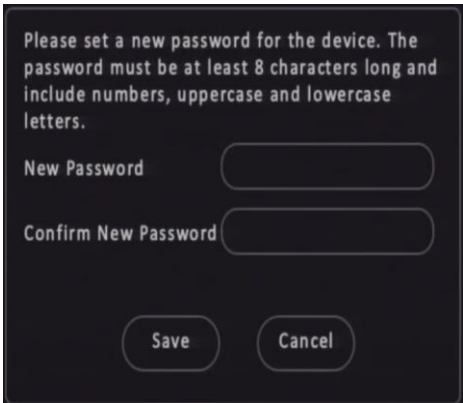
Monitors should scale the MDR video output automatically, but some monitors do not do this. If your screen is being partially cut-off, the MDR output margins can be manually adjusted by navigating to **Setup -> Surveillance -> Live View -> Preview -> Margins Setup**. Ensure all white borders are visible. See 5.2.1.1 *Preview* for further details.

Note: When accessing the menu, recording continues without any interruptions.

Once the login is successful, the OSD menu is displayed. See *Menu Structure Figure 16*. The menu is navigated using mouse movement and the left button.

Prior to using the MDR please set the MDR to default settings and clear all history information.

Default settings are achieved by: **Setup -> Maintenance -> Reset -> Factory Settings -> Restore**.



MDR Set Password Screen Figure 13

Clear history information by: **System Info → History → Clean.**

A complete OSD map is found in Chapter **Error! Reference source not found. Error! Reference source not found.**

Language is supported in current MDR firmware versions.

9 language options in total, which are English, German, Italian, Portuguese, Spanish, French, Polish, Dutch, Russian.



Password not Fit Requirement Figure 14

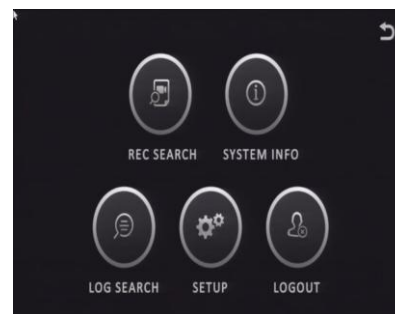


MDR Language Options Figure 15

Once you have logged in, the menu structure will be displayed as shown in *Menu Structure Figure 16*.

This menu consists of: Recordings Search, System Information, Log Search, Setup and Logout.

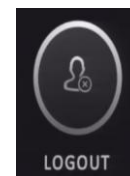
There are help buttons  found throughout the MDR OSD menu. These buttons contain additional information to help explain features, settings and functions.



Menu Structure Figure 16

4.4 Logout

Logout is used to log off a user account that has accessed the MDR menu. Ensure to log off once configuration is completed. See *Logout Figure 17*.



Logout Figure 17

5 Setup

This chapter describes the setup of the MDR. Settings related to basic setup, surveillance, events, alarms and maintenance. All settings are contained in the MDR Docking Station (DS). This means that Mobile Caddy Unit (MCU) swapping is easily supported if vehicle registrations are completed.

5.1 Basic Setup

Use **SAVE** which is located at the bottom of each page after making any changes.

Warning: Leaving a page prior to saving will cause changes to settings to be lost.

5.1.1 Register Information

5.1.1.1 Vehicle Information

Vehicle Registration is an important field which should always be populated. The vehicle registration is stored on the docking station and is then copied onto the current MCU recordings. This helps in identifying which vehicle the MCU was in at the time of recording. This is vital information if a fleet of vehicles swap MCUs.

Vehicle Number is typically used in fleet/bus applications where a vehicle has an associated fleet number. This can be captured in this field to assist in identifying the vehicle.



Vehicle Info Figure 18

5.1.1.2 Driver Information

Driver Number is typically used in fleet/bus applications where a driver has an associated number. This can be captured in this field to assist in identifying the driver in the event of an incident.

Driver Name may be populated which would make it easier in linking a driver's name with their number.

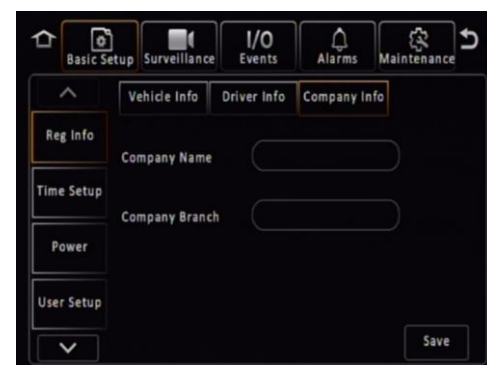


Driver Info Figure 19

5.1.1.3 Company Information

Company Name can be used in various type of fleets. The name filled in this blank will be synchronized to display on MDR-Dashboard software vehicle information section, which is under the vehicle fleet window.

Company Branch will make the vehicle information more detailed. Also, this will be displayed in the MDR-Dashboard software as well.



Company Info Figure 20

5.1.2 Time Setup

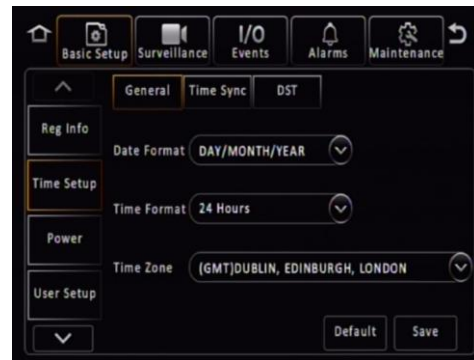
5.1.2.1 General

Date Format can be set to either DAY/MONTH/YEAR, YEAR-MONTH-DAY or MONTH/DAY/YEAR. By default, it is set to DAY/MONTH/YEAR.

Time Format can be either 24 Hours or 12 Hours. By default, it is set to 24 Hours.

Time Zone includes worldwide time zone options. By default, this is set to (GMT) DUBLIN, EDINBURGH, LONDON.

Default is found on most settings pages. This allows you to easily restore the factory settings for those settings.



Time Setup Figure 21

5.1.2.2 Time Sync

Date/Time can be entered manually here.

GPS should be ticked, and the GPS antenna should be mounted in a vehicle location where signal can be achieved easily. This is the simplest and more reliable option.

NTP sync refers to network time protocol that is used to synchronize time with NTP Server PC time. This should only be used for mobile network or Wi-Fi MDR units.

Center Server allows to synchronize the time with current connected MDR servers.

Note: When GPS, NTP sync and Center Server are enabled simultaneously, GPS takes highest priority. The priority between them is GPS>NTP sync>Center Server.



Time Sync Figure 22

5.1.2.3 Daylight Saving Time (DST)

Allows users to enter the date and time in which the Daylight-Saving Time will be activated. In the UK, it starts on the last Sunday of March at 1:00 AM and ends on the last Sunday of October at 2:00 AM. Enter the correct time and date of the country in which the vehicle will be utilised. Whenever **DST** is not in use, turn this option to off.

DST Enable is enabled by default. This setting determines whether daylight saving time is active.

Start represents the month, date, day and time at which DST begins. By default, this is set to UK DST. If the time zone has been changed to another country, other than the UK, then the DST settings will need to be amended to reflect the selected country.

End represents the month, date, day and time at which DST finishes.



Daylight Saving Time Figure 23

5.1.3 Power

5.1.3.1 On/Off

On/Off Mode has three different modes: IGNITION, TIMER and IGNITION OR TIMER.

This option determines the conditions for which the MDR will power up. By default, it is set to **IGNITION**, which means that the MDR only turns on when an ignition signal is applied (yellow wire).

Note: Timer mode must not be used for extended periods of time – this will damage your vehicle's battery.

Non-stop allows the MDR to record infinitely. Enabling this will disable Shutdown Delay.

Warning: Using the MDR for prolonged periods of time without ignition (vehicle running) can drain the vehicle's battery. It is recommended that the Low Voltage Protection feature is enabled. See 5.1.3.2 Voltage for details.

Shutdown Delay refers to the period the MDR will remain on and recording once the ignition has been turned off. The range is 0 to 86399 seconds (24 hours). By default, this is 600 seconds (10 minutes).



On/Off Figure 24

Note: MDRs are required to be continuously on for approximately 6 minutes, this period is called "Protection Time". If you try to turn off the MDR before it is running continuously for 6 minutes, MDR will judge between current running time and Shutdown Delay setting.

1) If Shutdown Delay (60s) < remaining Protection Time (3min out of 6min), The MDR will count down the remaining Protection Time (3min) before shutdown.

2) If Shutdown Delay (600s) > remaining Protection Time (3 min out of 6min), the MDR will count down the Shutdown Delay value before shutdown.

In all cases, the MDR will choose the longer value to count down, to protect itself from damage by abrupt shutdown.

Shutdown Recording Delay allows MDR to stop recording during shutdown delay period. Considering that after the ignition is turned off, the recording during this shutdown period may not be useful in some aspects, the user can set MDR to stop recording and save storage space. The Shutdown Recording Delay range is between 0 to the value the user set for Shutdown Delay. This maximum value changes when the Shutdown Delay value changes. See *Shutdown Recording Delay Value Change Figure 25*.

Timer From becomes active once an On/Off Mode that includes timer is selected.

5.1.3.2 Voltage

Low Voltage Protection Enable is off by default. This feature is important to use to protect your vehicle's battery from damage. Ensure this feature is activated when using the non-stop shutdown delay feature.

Low Voltage is the voltage level which is a dangerously low value. For a 24V vehicle, the limits are from 21V to 23.5V. For a 12V vehicle, the limits are from 8V to 11.5V. If the power supply voltage is lower than the set value, MDR will start the low voltage protection process.

Start-up Voltage refers to the minimum voltage the MDR must receive before powering on. For a 24V vehicle, the limits are 24V to 26V. For a 12V vehicle, the limits are 12V to 14V.

Note: If MDR shuts down because of low voltage, it must receive a higher supply voltage than the Start-up Voltage value, in order to boot up again.

Observe Time is the amount of time the low voltage value must be observed. This is to ignore any sudden dips in voltage that auto-recover. The MDR will be forced to shut down if the voltage does not recover during the Observe Time.

Low Volt Upload can only be used if the MDR is connected to the MDR Server. MDR Server software is a requirement for this feature. Once the MDR detects a low voltage level, it will send this data back to the MDR Server where it gets stored. This can then be reviewed later.



Voltage Figure 26



Low Voltage Shutdown Delay Figure 27

5.1.3.3 Sleep

Sleep is a temporary standby status which enables MDR to automatically wake up from time to time to complete MDR-Dashboard platform issued Auto-download tasks. While the device is in Sleep mode, GPS, 4G, RTC are still working.

By default, this is off. This feature aims to save vehicle battery consumption while MDR is lined up waiting for its turn to download footage to MDR server.

Sleep Duration defines how many hours the MDR will stay in sleep mode.

Periodic Wake-up means after MDR enters Sleep mode, it can periodically wake up after several minutes to resume online download tasks.

Note:

1. **3-time check-up:** If MDR cannot detect auto-download (ADS) tasks (likely no task assigned), it will wake up only 3 times after the ignition is turned off, to check with the platform, then shut down completely, ignoring the Sleep Duration settings to protect the vehicle battery. If MDR has



Sleep mode Figure 28

ADS tasks, after task completed, it still has the 3-time check-up before shutdown.

2. If Sleep Duration time ends before ADS task starts, MDR will end the sleep mode and shut down completely.

3. If Sleep Duration (1 hour) set value is less than Periodic Wake-up (65 min), MDR will wake up at 65 minutes, and act differently when:

- There is an ADS task but it is not its turn to start downloading: MDR will shut down because the sleep duration is over.
- There is an ADS task and Wi-Fi available for download: MDR will complete the task then shut down, no 3-time check-up needed because the sleep duration is over.
- There is no ADS task: MDR will shut down because the sleep duration is over.

5.1.4 User Setup

Menu Idle Time refers to the period for which the menu will remain active and logged in. Once this period finishes, the MDR will automatically log off the user.

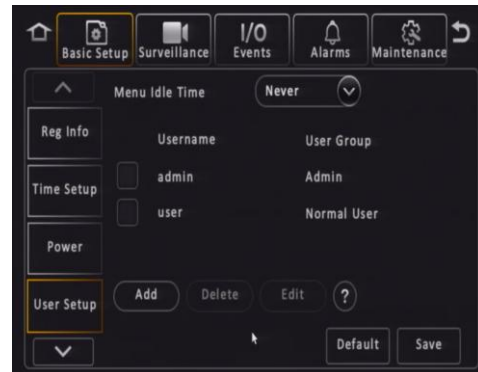
Username is the name you use to log onto the MDR. By default, there are two usernames: **admin** and **user**.

User Group represents the level of access to the MDR OSD. There are only two types: Admin and Normal User. Admin has access to all settings and features. Normal User has restricted access: sys info, playback and export logs and videos.

Add is used to create additional user accounts. A maximum of three user accounts can exist.

Edit is used to change existing user account details.

Note: If the **Default** button at the bottom is pressed and saved, the user credentials will be cleared. After exiting the menu, the user will need to set a new password for **admin**.



User Setup Figure 29

5.1.5 Storage Key

Storage Key is used for encrypting stored data while using MDR playback or using MDR-Dashboard to read the MCU via USB cable. By default, it is off.

After enabling this feature:

1) If attempting to playback recordings on MDR, it will ask to input correct password before proceeding.

2) The MDR-Dashboard client will have a verification window pop up before loading video data. See *MDR-Dashboard Input Storage Key Figure 32*. The Storage key cannot be removed by formatting the MCU, and the Storage Key is not stored within MDR config file for security purposes.

Storage Name choose between SSD1/2 and SD(Internal)1/2 if it is available. SSD represents main storage medium solid-state drive. SD(Internal) represents SD card installed.

Storage Protected Enable by default set to off.

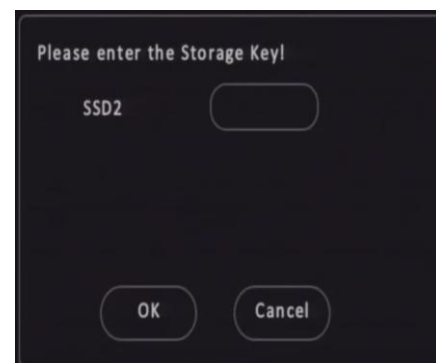
New Password is used to setup a new password or reset current password. Password must contain a combination of numbers, uppercase and lowercase letters.

Old Password is used for confirming previous password before resetting to a new password or disabling the protection. If the old password is input incorrectly, the procedure will fail.

The Storage Key feature is automatically added to every installed MCU/SD card. Swapping MCU will not affect its current setting. If the MCU previously enabled the Storage key feature, then in this section, the Storage Protected Enable will be ticked automatically, but the password section has no value for data security purposes. If the MCU has not had the Storage Key feature enabled previously, after being installed on the Docking Station, the Storage Key section will display feature disabled.



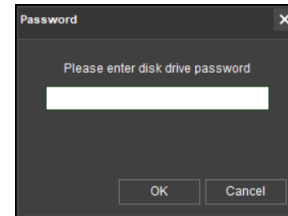
Storage Key Figure 30



MDR Playback Requires SSD Key Figure 31

Note: The Storage Key cannot be removed by formatting the SSD or SD card. It is not saved in Config File, therefore users must setup the Key for individual MDRs.

If the Storage Key has been forgotten, please contact Brigade. A super password can be provided to the user to reset it.



MDR-Dashboard Input Storage Key Figure 32

5.1.6 Network

5.1.6.1 Ethernet

MDR supports IPv4 and IPv6. By default, both protocols are enabled.

Enable IPv4 will activate the following settings. The MDR will be discoverable on the network by other devices.

DHCP Mode refers to the Ethernet adaptor of the MDR obtaining an IP address automatically from the network.

Static IP is used to specify the exact network details you would like the MDR Ethernet adaptor to use.

IP Address refers to the internet protocol address of the Ethernet adaptor. This address is used to access the MDR Ethernet menu via LAN cable. It is recommended to ask your internal IT department for information and assistance.

Subnet Mask is used to identify network address of an IP address. By default, this is 255.255.255.000.

Gateway helps route the network traffic. By default, this is 192.168.001.254.

Obtain DNS Automatically refers to the domain name system. A DNS server takes the website addresses that you type in and integrates them into the actual IP address of the site. While MDR attempts to get an IP address for itself from the DHCP server, it will simultaneously attempt to resolve address.

Use Following DNS the MDR will use these DNS addresses regardless of what the DHCP server is using.

Preferred DNS Server by default, this is 8.8.8.8.

Alternate DNS Server by default, this is 8.8.4.4.

Enable IPv6 will activate the following settings. The MDR will be discoverable on the network by other devices through IPv6 protocol.

Prefix Length defines how many bits of the IPv6 address are used to identify the network portion, which has similar usage as IPv4 subnet mask.

Gateway helps route the network traffic. By default, this is: 192.168.001.254.

Obtain DNS Automatically refers to the IPv6 DNS servers. While MDR attempts to get an IP address for itself from the DHCP server, it will simultaneously attempt to resolve address.

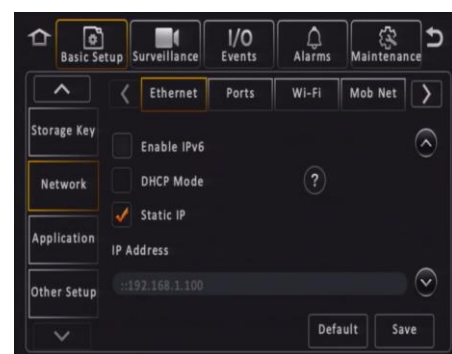
Use Following DNS the MDR will use these DNS addresses regardless of what the DHCP server is using.



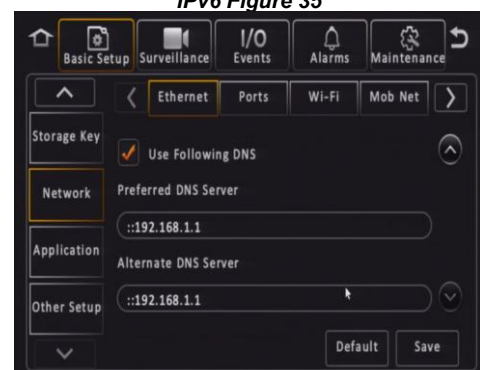
IPv4 Figure 33



DNS Settings Figure 34



IPv6 Figure 35



IPv6 DNS Settings Figure 36

5.1.6.2 Ports

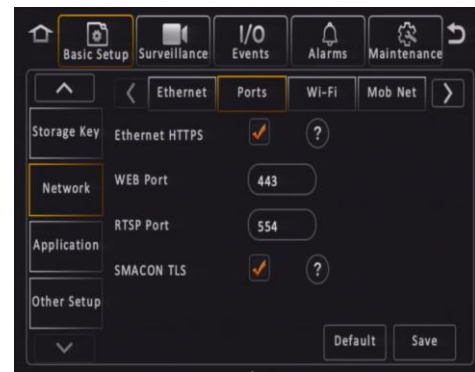
Ethernet HTTPS ensures that communication between the MDR and its Ethernet page is encrypted. By default, this is enabled for communication security.

Web Port is used for when a PC is connecting to the MDR Ethernet page. If this is incorrect, the web page will not open. When **Ethernet HTTPS** is enabled, the port is 443 by default. When it is disabled, the default port is 80 for non-HTTPS communication.

RTSP Port is used for Real Time Streaming feature which can be configured in MDR Ethernet page. Changing this port will result in the Real Time Streaming feature not working properly. By default, this is 554.

SMACON TLS is used for when Smartcontroller APP is connecting to the MDR via TLS encryption. By default, this is enabled for communication security.

Note: After SMACON TLS has been enabled, please make sure to enable TLS on the SmartController App login page before operation; otherwise, the login will fail.



Ports Figure 37

5.1.6.3 Wi-Fi

Enable is used to switch the Wi-Fi module between 3 different statuses, Off, On and SmartController. Once On or SmartController are selected, the settings found below will become active.

Enable (On) activates the Wi-Fi module and acts as a Wi-Fi client, the MDR will have the ability to connect to any valid Wi-Fi signal for data transmission.

Enable (SmartController) activates the Wi-Fi module and acts as a Wi-Fi hotspot which will provide a Wi-Fi signal for any mobile device to connect to. However, this Wi-Fi connection can only be used for the MDR SmartController App. Mobile devices cannot get online access by connecting to MDR hotspot.

Note: under **Enable (On)** mode, when the MDR is booting up, for the first 3 minutes it will stay in **Enable (SmartController)** mode for users to quickly access the menu and adjust settings. After 3 minutes, it will switch back to **Enable (On)** mode for activating Wi-Fi connectivity and communicate with MDR Server through Wi-Fi data.

WIFI Mode includes options of **2.4GHz**, **5GHz**, allowing users to configure the operating frequency band of the Wi-Fi emitted by the MDR. This feature only affects SmartController mode and does not apply when the MDR operates in client mode.

Note: When selecting **5GHz**, ensure the device is operated indoor, or inside vehicles or trains.

SSID is the service set identifier.

SSID (On) It is used to identify a wireless LAN and is usually unique to an area. This is where to enter the name of the wireless network that the MDR will connect to.

SSID (SmartController) is to set the name of the MDR wireless network hotspot which mobile devices can look for when trying to connect.

Encryption refers to protocols used to protect your network.

Encryption (On) supports WEP, WPA/WPA2-PSK and WPA2_Enterprise. This is case-sensitive.

Encryption (SmartController) supports None, WEP and WPA. None means no password needed when trying to connect to this hotspot. WEP and WPA needs a minimum 8 character password, or the hotspot will not show up on the Wi-Fi list properly.

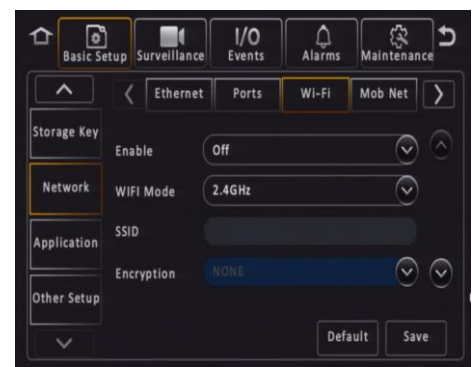
User Name is only valid when **Encryption** is set to

WPA2_Enterprise (the username and password will be provided with the Wi-Fi router). Otherwise, this field is greyed-out and cannot be edited.

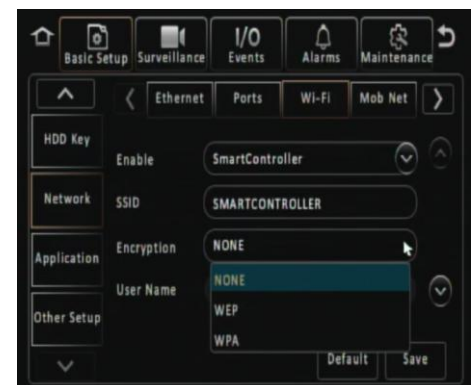
Password is the wireless network password; this should be entered carefully as it is case-sensitive.

Static IP is used to turn the Wi-Fi module off or on. Once enabled, the settings found below will become active.

IP Address refers to the internet protocol address of the Wireless module. This address is used to connect to the wireless network.

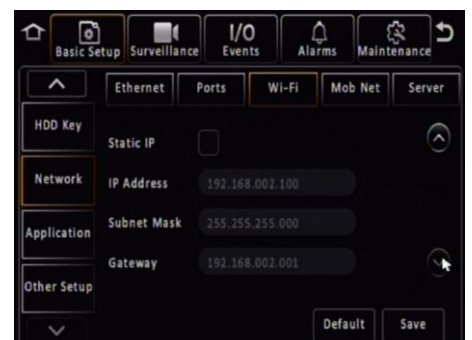


Wi-Fi 1 Figure 38



SmartController Wi-Fi Setup Figure 39

SmartController Wi-Fi Hotspot Figure 40



Wi-Fi 2 Figure 41

Subnet Mask is used to identify the network address of an IP address. By default, this is 255.255.255.000.

Gateway helps route the network traffic.

Hotspot option appears when Wi-Fi is set to SmartController mode. This feature enables sharing of mobile network data through the SmartController Wi-Fi connection to connected mobile devices. Disabling this option will stop data sharing.

5.1.6.4 Mobile Network

MTU is used to adjust the MTU (Maximum Transmission Unit) value for optimising your network transmission. By default, this is set to 1500.

Enable is used to turn the mobile network module off or on. Once enabled, the settings found below will become active.

Server Type is an auto-populated field, indicating the mobile network connection type.

Network Type refers to the type of mobile network connection that is used by the MDR to connect to the internet. Default is set to **4G**. The option **Mix** works for 5G, 4G and 3G networks whichever has the strongest signal.

APN refers to Access Point Name. This information is dependent on your mobile carrier network.

Username obtain from your SIM card provider.

Password obtain from your SIM card provider.

Access Number refers to the dial up phone number needed to connect to the network. By default, this is set to *99#

Certification refers to the authentication mode. It can be set to either CHAP (Challenge Handshake Authentication Protocol) or PAP (Password Authentication Protocol). CHAP should be chosen as this is a more secure authentication protocol. This is chosen by the network operator.

Active Mode provides different connection types of Mob Net. By default, the connection mode is Always, which means the MDR will immediately connect to mobile networks as long as this feature is enabled. Another option is Phone/SMS which can let the MDR stay under no connection status until certain phone calls or messages come in.

Number1/2/3 link with above Active mode. If Phone/SMS is selected in active mode, users can fill in 3 different mobile numbers here. When these numbers call or send messages to the MDR sim card, the Mob Net connection will be built and MDR can start using mobile data for online features.

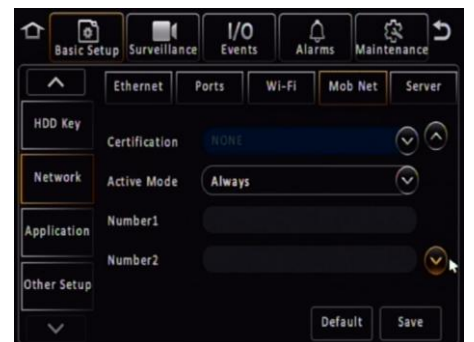
Note: There is a sub-feature. If a user calls in, the MDR will display caller number and options to pick up or hang up the call. If picking up, the MDR will be able to audio-communicate with the caller.



Mobile Network 1 Figure 42



Mobile Network 2 Figure 43



Mobile Network 3 Figure 44

5.1.6.5 Server

Center Server refers to the MDR Server PC. A maximum of 6 center servers can be saved.

Add adds another center server. A new blank page is displayed with a new number.

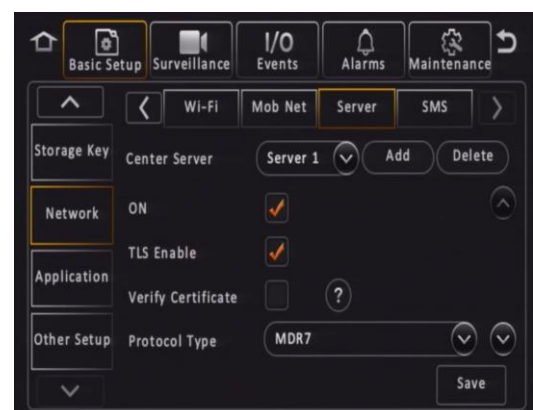
Delete removes the currently displayed center server.

ON enables the current center server.

TLS Enable encrypts communication between the MDR and the Server. This is recommended to be enabled if the server is deployed with HTTPS.

Verify Certificate ensures the authenticity of the server's certificate during every TLS connection attempt once the server's root certificate and revocation list (CRL optional) are imported into the MDR. The connection is allowed only after successful verification. This feature is disabled by default.

Note: If this feature is enabled, importing the server's root certificate is mandatory prior to use; otherwise, server connections will fail. For importing root certificate and CRLs, please refer to Chapter 5.5.6 Certificate



Server 1 Figure 45

Protocol Type refers to the protocol used by the MDR unit to send its data (video and metadata) to the MDR Server. By default, this is set to MDR7. A maximum of 4x MDR servers can be connected simultaneously

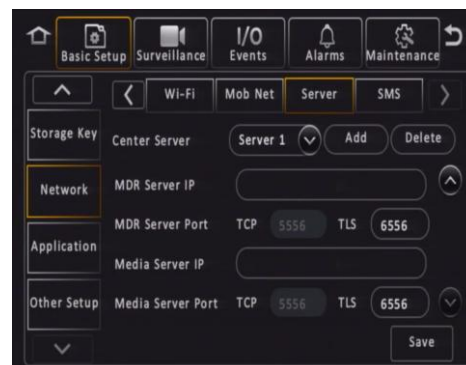
Network Mode refers to the network communication module used to communicate with the MDR Server. The options are Ethernet, Mobile Network and Wi-Fi. This is discussed in further detail in *MDR 700 Series Network Connectivity SW&Infrastructure Manual*. This can be found on the Brigade website.

MDR Server IP Public IP address of the firewall which forwards any traffic to the server PC, or IP address of the server PC hosting the MDR Wi-Fi Server. (Domain name also supported)

MDR Server Port is used for device access to the server. When TLS function is enabled, it uses TLS port. By default, it is 6556. When TLS function is disabled, it uses TCP port. By default, it is 5556.

Media Server IP should be the same as MDR Server IP.

Media Server Port should be the same as MDR Server Port.



Server 2 Figure 46

5.1.7 Application

5.1.7.1 FTP Server

FTP Enable is for setting up an FTP server for storing snapshots. The FTP is used for building a channel between software and MDR hardware, which allows users to download footage or snapshots through MDR-Dashboard software. It is recommended to enable this feature permanently.

Server is filled in by default. It is recommended not to change the Server address.

Port is set by default. It is recommended not to change the Port number.

Username is for the FTP server login.

Password is for the FTP server login, void by default.



FTP Server Figure 47

5.1.8 Other Setup

5.1.8.1 Algorithm

This screen collects various measurements for vehicle body and installation height, which are being used to setup IP-FFC-AI-01 – Forward Facing Camera (hereinafter referred to as FFC) to achieve AI functionalities.

Before proceeding with these settings, please make sure:

- 1) IP-FFC-AI-01 has been properly installed on the vehicle and connection to MDR is confirmed. For details refer to *Brigade AI Cameras and Accessories (Various) Installation & Operation Guide*.
- 2) 2x IO have been properly enabled and assigned to “Left Steering” and “Right Steering”. For details, refer to *Chapter 5.4.1.3 IO Alarm*. Or enable Left_Turn and Right_Turn in the CAN config.

ADAS Camera Install Height: this is the height from the middle of the FFC lens to the ground.

ADAS Camera Left margin: this is the horizontal distance between the FFC and the left end of the vehicle body.

Front-end Width: this is the vehicle body width (distance from outside of one wheel to outside of the opposite wheel).

Front-end Length: this is the distance between the FFC and the front end of the vehicle, which is also the distance between the FFC lens and the license plate of the vehicle.

If it is still not clear what these measurements mean, users can use the SmartController App to access the **Algorithm** menu to see a visual illustration of these measurements. Due to Linux system limitations, the illustration is not displayed on MDR OSD.



Algorithm - 1 Figure 48

Unit Type can be in **CM** or **Inch**.

AI Voice Enable (All) is the master switch for all AI alarm audio alerts. The user can also select which AI alarms give audio alerts and disable the ones that are not required, see chapter 5.4.4 AI for details on how.

Hazard Warning Unit Voice Enable (All) used to control whether or not the Hazard Warning Unit gives beeping alerts when AI alarms happen.

Hazard Warning Unit Brightness adjustable from level 0 -8. The higher the number, the brighter the display screen. 0 is completely dark, no visual display available. By default, it is set to 2 which has a good performance balance for daytime / night-time driving.



Algorithm - 2 Figure 49



Algorithm menu on SmartController App Figure 50

5.2 Surveillance

5.2.1 Live View

5.2.1.1 Preview

Note: The MIRROR and FLIP VERTICAL features affects both the live and recorded views.

Live Audio is used to send real-time audio from a microphone enabled camera to a speaker enabled monitor. By default, this is disabled.

Image Setup is used to control BRIGHTNESS, CONTRAST, COLOUR and SATURATION. By default, these are set to the mid-point (31). Each channel can be setup individually. All Settings (except mirror and flip vertical) can easily be duplicated across all channels by using the COPY TO button. A MIRROR and FLIP VERTICAL button may also be configured per channel.



Preview Figure 51



Image Setup Figure 52

Margins is a key feature to adjust the MDR displayed output. By default, MARGIN-TOP is 20, MARGIN-BOTTOM is 20, MARGIN-LEFT is 45 and MARGIN-RIGHT is 45.

Start-up Screen refers to the configuration the MDR will display once it has fully booted up. The options are **Single**, **Quad**, **6-Split** and **9-Split**. By default, MDR is set to **Quad** view.



Margins Figure 53

Channel controls which channels you want to view upon MDR boot up. If the Start-up Screen is set to Quad, user can choose any 4 channels to display on the first page. This feature allows the user to view required channels without operating the MDR.

AvOut Mode determines the output image quality. Options include **CVBS**, **720P** and **1080P**. The default setting is **CVBS**. Please note that if the connected monitor does not support AHD, the image output may not function properly. Users can use SmartController App to reconfigure the output resolution if the default resolution does not match with monitor specs.



AvOut Mode Figure 54

5.2.1.2 Autoscan

Autoscan Enable must be ticked to enable all the options.

Screen is used to identify the different **Autoscan** views.

 **Delete** removes **Autoscan** views.

 **Edit Screen** is where **Autoscan** views are setup.

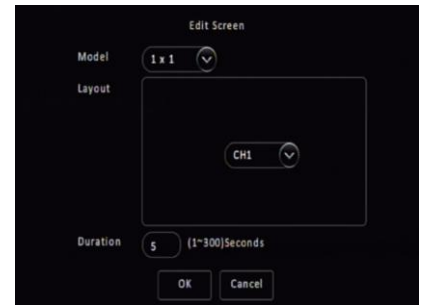
Mode refers to layout options, such as single, quad, 9-split (8CH only).

Layout is where you choose your channel arrangement.

Duration refers to the time displaying the **Autoscan**. 1-300 seconds.



Autoscan Figure 55



Edit Screen Figure 56

5.2.1.3 Live OSD

This refers to information that is displayed on the live monitor view at all times.

The options are: Date/Time, Vehicle Reg, Alarm, Vehicle Num, Recording State, Speed, GPS, Channel name and G-Force.

Users can change the position of each live OSD option by using the **Setup** button. The recording states' position is fixed and cannot be changed. This will be displayed in the setup screen.



Live OSD Figure 57



Live OSD Position Figure 58

5.2.1.4 RTSP (Real Time Streaming Protocol)

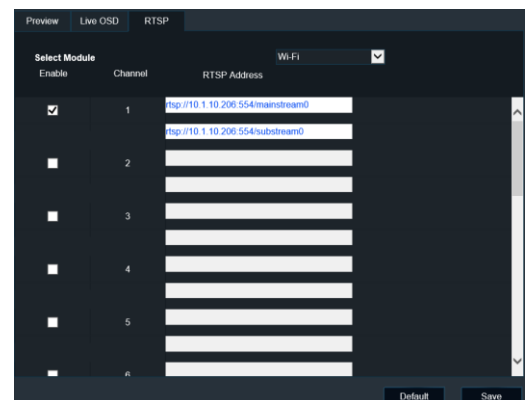
This feature is only available in Ethernet page. It provides a RTSP streaming link for third party media player users.

Select Module to choose which communication method MDR will use for streaming transmission. 3 options are available: Ethernet, Wi-Fi and Mob Net.

Enable determines which channels can pull video streams to third party media players. Mainstream and Sub-stream are available. (To set Mainstream and Sub-stream parameters setting see 5.2.2 Record) Remember to click on the **Save** button to save the current RTSP setup, or these settings will be lost after exiting the web page.

Channel automatically adapt to MDR models. 10 channels available for MDR 742 Series.

RTSP Address used for input to a third party player to obtain live streaming.



RTSP Figure 59

5.2.2 Record

5.2.2.1 General

Video Format is used to select the video output format. The options are AHD -PAL/NTSC. By default, **PAL** is chosen. This will be the same for all camera inputs. Brigade's monitors have automatic detection of these standards.

Main Storage defines which storage device acts as the main storage and stores main stream videos. By default, it is set to **SSD**.

If SSD is selected, the SSD(s) in the caddy will be used for main stream recording, following the parameters configured under the **"Main"** tab. The SD cards will function as sub-storage and can be used for various recording purposes depending on the setting under **SD Record Mode**.

If **SD** is selected, SD1 (in the first card slot) will be used as the main storage, and SD2 (in the second card slot) will be used as sub storage. In this mode, the SSD will be disabled and will not function in any way.



Record Figure 60

Note: if SD1 is not present, no main stream will be recorded. In this case, SD2 always acts as the sub-storage and will not substitute SD1 as the main storage.

SSD/SD Overwrite refers to when an SSD and SD cards will overwrite its stored data. The options are BY CAPACITY, BY DAYS and NEVER. By default, BY CAPACITY has been selected, which means once the SSD has 4GB of space remaining (1GB for SD card), older recordings are erased and replaced by newer recordings, excluding locked files. The NEVER option is when overwrite is deactivated. The MDR will stop recording when the SSD reaches 2GB of free space. The user must either replace the storage or manually delete recordings.

Note: If recording time conflicts (for example, crossing a time-zone which results in a 1-hour time change), records during the overlapping time period won't be overwritten or erased. They will still be saved in the storage medium, but playback by MDR is not supported. It is recommended to export the conflicting video through the USB port on front panel, then use MDR-Player 7.0 to play back the certain footage as needed. Refer to *Conflict Footages Show in Computer Figure 61*

Locked File Retention This represents the length of time (in days) for which alarms cannot be overwritten by the MDR. When the retention period expires, the locked files will automatically be unlocked and deleted.

Alarm Pre-recording This value specifies the length of time prior to an alarm recording. This will be added before the actual alarm. For example, if ALARM PRE-REC is set to 10 minutes and an alarm of 5 minutes is triggered at 4:00pm and ALARM POST REC is 180 seconds, the alarm recording will begin at 3:50pm and will end after 4:08pm. See *Chapter 5.4 Alarms* for more information.

Enable Live View controls whether to display live view for each channel on the screen. By default, all channels have been enabled. If channels are disabled, live view will cease by displaying a black image. This setting will not affect recording functionality. Refer to *Disabled Channel 2 Live View Figure 64*.

Sub Storage Record options are **Sub-stream**, **Main Stream**, **Alarms** and **Loop-Record**. By default, **Sub-stream** is chosen.

Main Stream mode will mirror record main stream settings onto sub storage.

Alarms only the alarms will be recorded onto the sub storage.

Loop-Record allows the sub-storage to act as an extension of the main storage. When the main storage becomes full, recording will be stored on the sub-storage.

Note: When SD cards/SSDs are replaced, they must be formatted before using the MDR.

Sub Storage Write Resource Ratio calculated by (Stream bitrate / SD card full write speed). Bitrate determined by resolution, framerates and quality; SD card full write speed is a fixed value of Brigade SD card (12Mbps). This is a reference value for the user to see and configure settings accordingly. It is recommended that this is set to value lower than 80%, in case the data rate exceeds SD card writing speed and results in data loss.

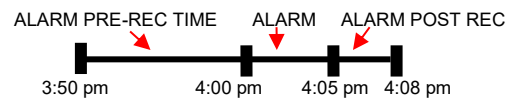
Note: This value cannot reflect correct status if using a 3rd party SD card.

Record Storage currently only supports Internal SD.

Sub-Stream CH by default enables all available channels.

CH01-20190610-083959-095025.264
CH01-20190610-085008-095959.264
CH02-20190610-083959-095025.264
CH02-20190610-085008-095959.264

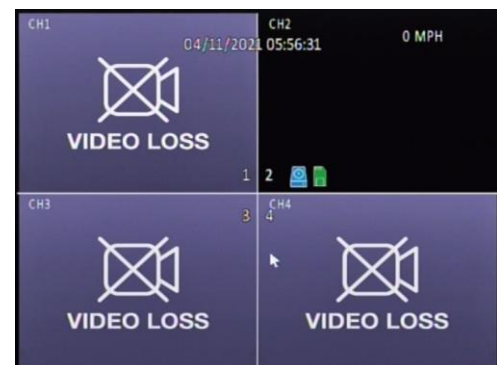
Conflict Footages Show in Computer Figure 61



Pre-Rec and Post Rec Explanation Figure 62



Record 2 Figure 63



Disabled Channel 2 Live View Figure 64



Record 3 Figure 65

5.2.2.2 Main

These settings are used to set the resolution, frame rate and quality per channel independently for main stream.

Channel is used to identify the channel.

Channel Name is used for an 8-character name which each camera channel can be associated with. These can include lower/upper alphanumeric characters. This is displayed on the live OSD.

Enable Recording allows the activation/deactivation of the camera channel. This should be used if not all camera channels are utilized, to avoid video loss errors. For IP camera channels, all the settings will be greyed-out and unable to be set. Users need to enable them first in the IPC Setup page.

AI Alert is a standalone feature for each channel that enables AI voice alerts. Even if the channel is not recording, AI audio alerts can still be triggered when this feature has been enabled.

Resolution allows users to choose the resolution for each channel. The options auto adjust based on camera inputs. The options are CIF (lowest), WCIF, HD1, WHD1, D1, WD1 and AHD (720p, 960p and 1080p) (highest). By default, it is D1. If the set resolution is higher than the camera's actual resolution, the setting cannot be saved. Refer to Chapter 18 *Specifications* for further information on each resolution.

Encode Standard options are H.265 and H.264. By default, it is set to H.264.

Note: For IP camera channels, since IP cameras have their own embedded settings, upon connecting to MDR, the MDR channel setting will automatically change to IP camera settings. Users may need to manually adjust the setting after connection.

Frame Rate allows users to choose different frame rates for different channels, depending on resolution settings. Options are 1 to 25 for PAL and 1 to 30 for NTSC. By default, it is 20.

Quality has 8 levels. Level 1 is the highest quality, whereas level 8 is the lowest quality. The value beside **Quality** represents the stream data bitrate based on the current settings (**Resolution, Frame rate, Quality, Encode Standard**). This value can help users to estimate the video file size.

Record Mode has three modes available – all modes require the **IGNITION** signal to be applied, or timer auto-boot to be set up:

- **NORMAL** - allows continuous recording after powering up until the device shuts down. Alarm recording is included in this mode.
- **ALARM** - allows users to record only when an alarm has been triggered. Alarms can be configured to be activated by triggers or other alarms (such as under/over speed, G-Force, Panic Button, etc.)
- **TIMER** - allows users to specify timeframes in which the recording will be activated. Refer to the OSD map to program these timeframes.

Record Mode - Timer - Schedule allows users to choose schedules based on different days.

Click on the day and choose the desired day of the week. Then set up the Start Time, End Time and Video Type.

Video Type can be Normal or Alarm.

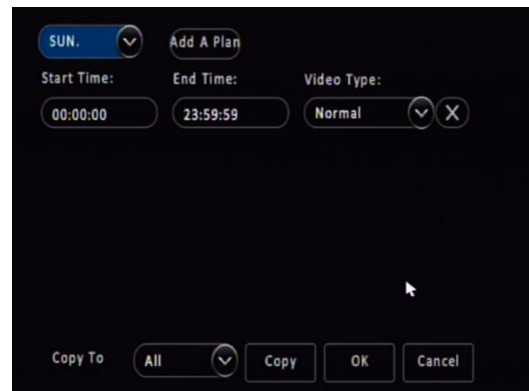
Note: This record mode timer prevents an MDR from turning off, but this timer is unable to control when an MDR turns on. This has a higher priority than the ON/OFF TIMER.



Main - 1 Figure 66



Main - 2 Figure 67



Record Mode – Timer Figure 68

Audio activation allows users to enable/disable the audio recording from the camera channels individually. This setting depends on the utilised cameras having microphones. There are 3 options; **Always Audio** (Main Stream recordings can have audio, whether alarm recording has it or not, depending on alarm recording setting), **No Audio** (Main Stream recording has no audio), **Alarm Audio** (only Main Stream alarm recording can have audio, whether alarm recording has it or not, again depending on alarm recording setting). See *Chapter 5.4*

General.

Alarm Quality has 8 levels. Level 1 is the highest quality whereas level 8 is the lowest quality. Brigade recommends using a higher quality for Alarms for a higher level of image detail.

Encode Mode allows users to choose between Constant Bit Rate (CBR) and Variable Bit Rate (VBR). The difference is minimal as the Variable Bit Rate is not efficient as it involves more processing power and may introduce partial image distortion due to higher compression rates.

Audio Coding Format supports 3 types of audio format: ADPCM, G711U, G711A. By default, it is set to ADPCM.

Percentage of Main Stream displays resource occupation which is calculated based upon each channel's settings. Main Stream resource and Sub Stream resource are calculated separately, each of them can go to 100%.

5.2.2.3 Sub

In this page, the parameters are for defining Sub Stream which is typically used for an SD card or online **Live View** via MDR-Dashboard. If an SD card is used for Alarm recording or Main Stream recording, the SD card will take Main Stream parameters.

Channel is used to identify the channel.

Enable this controls which channels you would like to enable Sub Stream video and save to the SD card.

Encode Standard options are H.265 and H.264. By default, this is set to H.264.

Audio activation allows users to enable/disable the audio recording from the camera channels individually. This setting depends on the utilised cameras having microphones. There are 3 options; **Always Audio** (Sub Stream recordings can have audio, whether alarm recording has it or not, depending on alarm recording setting), **No Audio** (Sub Stream recording has no audio), **Alarm Audio** (only Sub Stream alarm recording can have audio, whether alarm recording has it or not, again depending on alarm recording setting). See *Chapter 5.4*

General.

Resolution can be set up per channel. Options are CIF, HD1, D1. These options are dependent on input to MDR.

Frame Rate allows users to choose different frame rates for different channels depending on resolution settings. Options are 1 to 25 for PAL and 1 to 30 for NTSC.

Quality has 8 levels. Level 1 is the best quality whereas level 8 is the lowest quality. Brigade recommends using a higher quality for Alarms for a higher level of image detail. The value beside **Quality** represents stream data bitrate based on the current setting (**Resolution, Frame Rate, Quality, Encode Standard**). This value can help users to estimate the video file size.

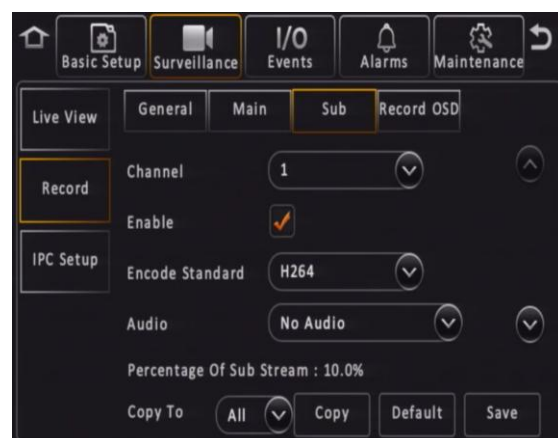
Copy to function is available to copy settings to all or individual channels.

Percentage of Sub Stream displays resource occupation which is calculated based on each channel's settings. Main Stream resource and Sub Stream resource are calculated separately. Each of them can go to 100%.

Note: if this value exceeds 100%, MDR will notify the user, and the setting cannot be saved.



Main - 3 Figure 69



Sub - 1 Figure 70



Sub - 2 Figure 71

5.2.2.4 Record OSD

Record OSD refers to information that will be “burned” onto the video image. This means that if AVI is used for the export option, then the enabled information will be shown on the image.

The options are: **Date/Time, Vehicle Reg, Channel Name, G-Force, Speed, GPS, Vehicle Num** and **Alarms**.

You can change the position of each live OSD by using the **Setup** button.

By default, DATE/TIME, VEHICLE REG, CHANNEL NAME, SPEED and ALARMS are enabled.



Record OSD Figure 72

5.2.3 IP Camera Setup

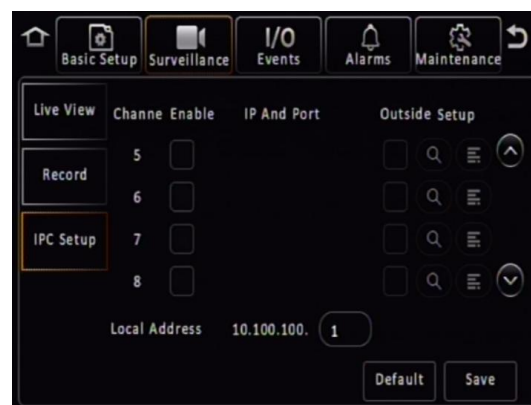
The MDR 742 Series supports 3x direct connections with IP cameras via 6pin connectors on the rear panel. It also supports an additional 4x IP camera channels through an external Power Over Network (PON) switch.

The IP connections on the rear panel are plug-and-play. IPC1 – IPC2 represent display channels 5 – 6 by default. After being connected, the camera images will appear on the screen after approx. 20s without extra operations needed. IPC3 is reserved for a PON Switch connection, which still functions with a single IP camera, but no plug-and-play supported. Users need to manually search for this camera and allocate it to a dedicated display channel.

IP channels are also flexible compared to analogue channels. If an IP camera is connected to the physical connector IPC1, the user can manually allocate it to any other channel in the IPC Setup page.

By default, the **Local Address** for MDR itself is 10.100.100.1.

For more IP camera setup and operation information, please refer to *IP Camera Operational Guide*.



IPC Setup Figure 73

5.3 Events

5.3.1 General

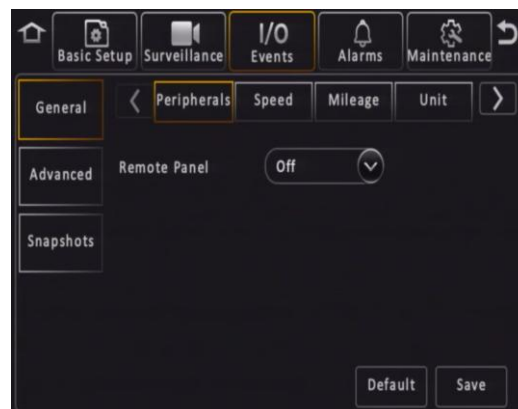
5.3.1.1 Peripherals

Remote Panel is an accessory that consists of 4 diagnostic LEDs, an internal buzzer and a panic button. In a scenario where the MDR is installed in a box away from the driver, or the MDR output is not being viewed, the remote panel LEDs and buzzer will alert the driver to any hardware or software faults.

The panic button can be used for various scenarios, this button can be used to trigger real-time emails to the fleet manager.



Remote Panel Figure 74



Peripherals Figure 75

5.3.1.2 Speed

Unit refers to the speed setting. This can either be in miles per hour (MPH) or kilometres per hour (KPH). By default, this is set to MPH.

Source has three options; GPS, Speed Pulse or CAN (works after the CAN feature has been properly set up). In the majority of applications GPS signal is the simplest to use. Brigade's MDR comes equipped with a GPS antenna as standard.

Speed signal from the speed pulse or CAN are both recommended when the GPS signal is absent or weak (e.g. in mines or major city centres). However, these sources require additional wiring between the MDR and the vehicle.



Speed Figure 76

Speed Pulse - Calibration Mode has two options: Input Manually and Auto Correct. Auto Correct is currently unused.

To use input manually, connect the speed cables on the IO cable then click save. Start the vehicle and then click start. Drive for at least a minute with a minimum speed of 40 km/h or 25 mph. Once you have stopped the vehicle, click the finish button. Now, you will have a mileage value (from your drive). Input the mileage value into the box and click calculate. Finally, your pulse ratio has been calculated. Also, this supports inputting the **Pulse Ratio** manually if the user can obtain the correct value from the vehicle manufacturer, which should avoid further effort of driving and calculating. (This section can only be viewed by selecting "Speed Pulse" in the Source dropdown box).

Start is used to begin the analysis of your drive.

Calculate is used to obtain the pulse ratio once you have entered the mileage value.



Speed Pulse Figure 77

5.3.1.3 Mileage

Total Mileage displays the total mileage of the vehicle once it has been confirmed in mileage setup. The speed unit controls whether this value is displayed in miles or kilometres.

Actual Mileage is a field that is manually entered. Type the current mileage value once the MDR is installed.

Mileage Setup is used to submit the mileage value to the MDR memory. Click confirm once you are happy with the value. Click clear to zero the total mileage value. Prompts will display to ask for user confirmation.



Mileage Figure 78

5.3.1.4 Unit

Temperature defines which temperature unit to display on MDR OSD. Users choose from Celsius(°C) and Fahrenheit(°F). Upon selection, the device temperature will switch the value accordingly.



Temperature Figure 79



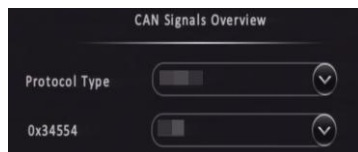
Unit Figure 80

5.3.1.5 CAN

The MDR supports two CAN input channels labelled as CAN1 and CAN2 in the OSD interface. Users can assign different CAN rules to CAN1 and CAN2 for data interpretation. These rule sets must be defined in a CAN Config File and imported into the MDR in advance. If no valid CAN Config File is available, CAN1 and CAN2 will not be able to interpret the corresponding CAN data correctly. For CAN Config File import instructions please refer to *Chapter 5.5.1.4 CAN File*.

Type parameter includes two options: **NULL** and **General CAN**. By default, CAN1 and CAN2 are set to **NULL**, indicating that the channels are not enabled. To activate CAN data reading, manually select **General CAN**.

Details is displayed under this icon . In this sub-interface, users can select the decoding rule group to be assigned to each CAN channel. CAN1 and CAN2 must be assigned to different rule groups for analysis. The signals included in the selected group can be previewed from the drop-down list below.



CAN Signals Overview Figure 81

For more information, please contact Brigade for detailed CAN instruction guide and configuration tool as needed.



CAN Figure 82

5.3.1.6 iButton

iButton is a feature used for logging driver check-in and check-out status. It typically works with an accessory consisting of a base and a key. To check-in or check-out, the driver taps the key onto the base to trigger the status. The status change is accompanied by audible notification. By default, this is set to disabled.

iButton to enable the feature on the MDR.

Audible Reminder allows the device to play an audible notification for check-in or check-out events, or to remind the driver to check-in if no action is taken for an extended period.

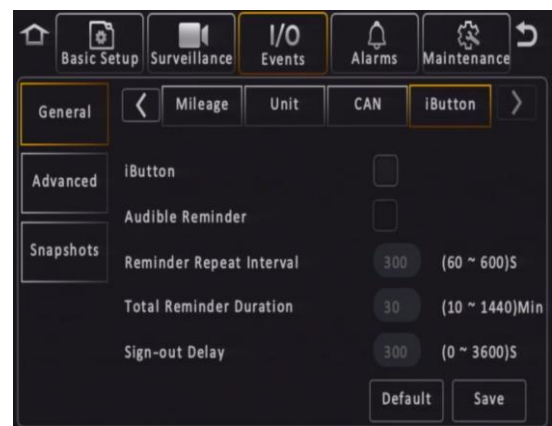
Reminder Repeat Interval defines how many seconds between each reminding notification when no action is taken for check-in.

Total Reminder Duration defines how long the MDR will keep reminding the driver for taking actions. If the time has been exceeded, the MDR will no longer remind the driver.

Sign-out Delay is used after the MDR ignition off. It will count down for a set period before automatically checking-out the driver. This is useful when the Shutdown Delay is set for a long period of time or to Non-Stop. Without Sign-out Delay, if a driver forgets to check-out, his status will remain unchanged for an excessive time period. This feature ensures a driver is a checked-out automatically after a certain length of time.

Note:

1. After check-in, the status will not change for 1 minute even if the key is tapped again. This is to prevent accidental activation.
2. If the MDR shuts down unexpectedly, it will automatically check-out the driver after it reboots.



iButton Figure 83

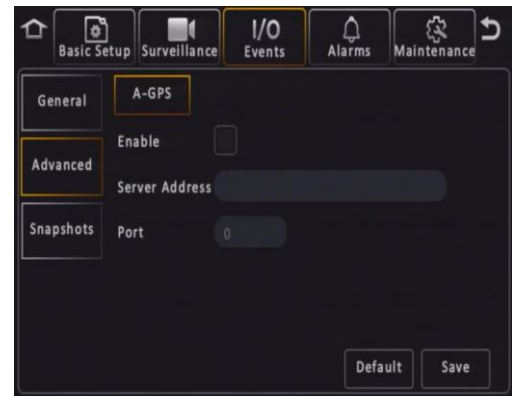
5.3.2 Advanced

5.3.2.1 A-GPS

A-GPS is a method to improve GPS transmission by connecting to a nearby mobile base station to download satellite data. Common satellite signal is only 50bit/s. With support from a mobile base station, the downloading speed can be drastically improved. After A-GPS is enabled, users can input an A-GPS server address and port. Afterwards, the device will be able to connect to the A-GPS server and download GPS data while the vehicle is moving. There are a lot of public A-GPS services that can be chosen. Users can decide which one to use as required.

Note:

1. To use the A-GPS feature requires the mobile network to be enabled on the device.
2. If the A-GPS is enabled, the additional data consumption is less than 1MB/day.



A-GPS Figure 84

5.3.3 Snapshots

Snapshots refer to images of the video data displayed on an MDR channel.

5.3.3.1 Time Snap

Time Snap must be ticked to enable all the options. You can have a maximum of 8 snap entries. By default, time snaps are disabled.



Delete removes a time snap entry. You cannot delete entry 1.



Snap Link Setup is where your time snap is set up.

Start time refers to the time you would like time snaps to start.

End time refers to the time you would like time snaps to end.

There is no limitation on the number of snaps, but this uses the same storage limit as recordings. If the storage is full, then the oldest snap will be overwritten. Snaps are stored by vehicle registration and time.

When exporting snaps to a USB flash drive, a folder named "picture" found in the following path F:\MDR742\vehicle registration\date\picture will be created.

Channel is the intended channel for the time snap to be set up.

Snap Enable controls whether time snaps are enabled for that channel. To activate the other menu options, snap enable must be ticked.

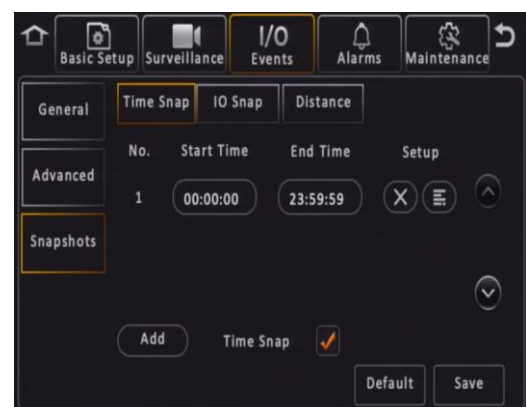
Resolution refers to the time snap resolution. The options are: CIF, WCIF, HD1, WHD1, D1, WD1 and AHD (720p, 960p and 1080p). This is dependent on the input resolution of the cameras connected to the MDR.

Quality represents the image quality of the snapshot. There are 8 levels. Level 1 is the highest quality whereas level 8 is the lowest quality. By default, this is 1.

Upload Type support to save snapshot to FTP server which has been defined in *Chapter 5.1.7.1 FTP Server*.

Snap Count refers to how many snaps will be taken. A maximum of 3 snaps can be taken for a minimum of 5 seconds. By default, this is 1.

Snap Interval is the period between each snap which can be between 5 and 3600 seconds. By default, this is 5 seconds.



Time Snap Figure 85



Snap Link Setup Figure 86

5.3.3.2 IO Snap

Alarm Snap Link Setup is used for taking snaps based on triggered alarms only.

Mobile App / Web Snap Link Setup is unused currently.



IO Snap Figure 87

5.3.3.3 Distance

Distance Snap captures snapshots based on the vehicle's driving distance. The configurable unit is 0.1 mile, allowing finer control of the capture interval. For example, a value of 10 means a snapshot will be taken every 1 mile, while a value of 1 means a snapshot will be taken every 0.1 mile.

Distance Interval is used to define how frequently the device will create a single snapshot.

Setup follows the same interface and structure as **Time Snap**. Please refer to *Chapter 5.3.3.1 Time Snap* for detailed explanations.



Distance Figure 88

5.4 Alarms

5.4.1 General

There are various alarms that can be configured in the MDR. Such as speed, panic button, IO, GPS, video loss, motion detection, blind detection, Privacy, G-Force, Geo-Fencing, SSD/SD Error and AI Alarms. Alarms and events are different. Alarms are reported to the Centre Server (depending on MDR model). Events are stored but do not get reported to the Centre Server. (Please click into the Alarm Link before the following function can be viewed. *See Speed Alarm Figure 92*). **All alarms use the Alarm Link Setup page. (See Alarm Link Setup 1 Figure 89)**

Channel is used to choose which channels you would like to mark as alarm recordings (Alarm recordings will show as red on playback time bar on both MDR OSD and MDR-Dashboard software). The options are all available channels.

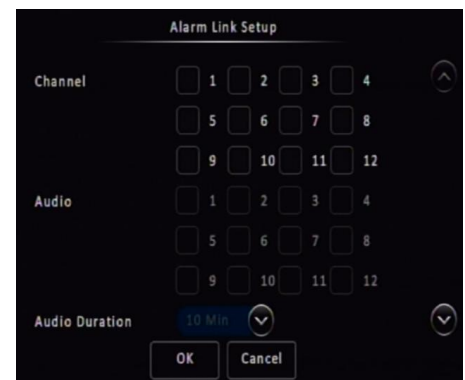
Audio is used to determine whether this alarm recording will have audio recorded as well. This feature can help in audio-sensitive situations, users can enable/disable it based on their condition. (These audio settings have a lower priority than audio settings in Record->Main settings and Record->Sub settings, see *Main - 3 Figure 69* and *Sub - 1 Figure 70*). There are different usage scenarios, with outcomes listed below:

1. If set to **Always Audio** in Main Settings, but **Audio** is disabled in alarm settings, normal recordings will have audio, but alarm recordings will not.
2. If set to **No Audio** in Main settings, it does not matter if **Audio** is enabled or disabled, in alarm settings, both normal and alarm recordings will have no audio.
3. If set to **Alarm Audio** in Main settings and **Audio** is enabled in alarm settings, only the alarm recording will have audio, normal recordings will not.

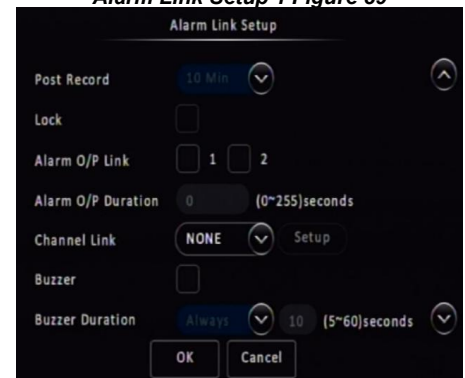
Other common scenarios:

1. If in two different types of alarms, one alarm enables the audio, another alarm disables the same channel. When both alarms activate simultaneously, the alarm recording has audio.
2. If in two different types of alarms, both alarms enabled audio for the same channel, but set to different time length. When both alarms activate simultaneously, the alarm recording follows the longer time audio setting.

Audio Duration is to define how long to keep audio recordings after alarm happens. By default, this is 10 minutes.



Alarm Link Setup 1 Figure 89



Alarm Link Setup 2 Figure 90

Post Record specifies the period of recording appended at the end of an alarm. For instance, if a sensor is triggered for 1 sec and the alarm duration is 30 seconds and the post recording is 15 seconds, the total amount of recording time will be 45 seconds. By default, this is 10 minutes, the same as Audio Duration.

Lock represents whether an alarm cannot be overwritten by the MDR. When the retention period expires, the locked files will automatically be unlocked and deleted. Refer to *Chapter 5.2.2.1 General* on how to set lock expiry timeframes.

Alarm Output Link refers to the 2 outputs found on the IO cable. These outputs can be activated based on a linked alarm. Enable this for a high voltage on the alarm outputs.

Alarm Output Duration represents the amount of time the alarm output will be active for. This can be between 0 and 255 seconds.

Channel Link can be used to display a **Single / Double / Three / Quad** configuration with selected channels.

Buzzer refers to the built-in buzzer inside the MDR docking station. Once this is enabled the duration can be configured.

Buzzer Duration can be configured in two ways depending on the type of alarm being triggered. The options are ALWAYS (the buzzer will sound continuously without interruption) or TIMER (the buzzer will sound for the defined period). Timer can be set between 5 and 60 seconds.

Alarm Snap can be enabled, the settings are based on the alarm snap link setup. Refer to 5.3.1.4

Alarm Link Setup 3 Figure 91

5.4.1.1 Speed Alarm

Overspeed Enable is used to activate overspeed alarms or events.

Alarm Type can either be alarm or event. Alarms are saved to the Centre Server and are displayed in the alarm log in Live view in MDR-Dashboard 7.0 Server mode.

Events are stored, but do not get saved to the Centre Server. Events are not displayed in the live view alarm log.

Trigger Setup is used to control the conditions for the trigger. (See *Speed Trigger Figure 93*)

For Alarm Link Setup details refer to 5.4.1 General.

Speed Alarm Figure 92

Early Difference is an early warning for drivers to curb their speed. For example, if you set the speed to 70mph, and early difference is set to 5mph, then when your speed reaches 65mph, the MDR will sound a short beep to warn the driver. By default, early difference is set to 10 mph.

Speed refers to the threshold value for which speed will be considered an overspeed and recorded as an alarm.

Duration Time specifies different lengths of time which allow for longer/shorter alarm durations. If the alarm duration is set to 30 seconds and a short 2 second alarm occurs, this would be treated as a 30 second alarm. Can be set between 0 to 255 seconds. By default, the duration time is 10 seconds.

Alarm Off-Delay is a period in which rapid activations/deactivations can occur, which must be ignored. This is applied when indicators or hazard lights are connected to an input trigger where the off time is ignored. By default, this is 10 seconds.

Speed Trigger Figure 93

5.4.1.2 Panic Alarm

Panic Button Enable refers to the panic button found on the external remote panel. This is connected to the MDR via the IO cable. By default, this alarm is enabled. Refer to *Panic Alarm Figure 94*

Alarm Type can either be alarm or event. Alarms are reported to the Centre Server (depending on MDR model). Events are stored but do not get reported to the Centre Server.

For Alarm Link Setup details refer to 5.4.1 General.

Clicking Trigger Setup will display *Panic Trigger Figure 95*.

Activation Period refers to how long the panic button needs to be pressed for, to be considered an alarm (high). By default, this is 1 second.

Alarm Off-Delay is a period in which rapid activations/deactivations can occur, which must be ignored. By default, this is 10 seconds.



Panic Alarm Figure 94



Panic Trigger Figure 95

5.4.1.3 IO Alarm

IO Enable allows users to set which trigger input wires are used. If a wire is not used, set enable to off. IO1 has the highest priority and IO8 has the lowest.

Alarm Type can either be alarm or event. Alarms are reported to the Centre Server. Events are stored but do not get reported to the Centre Server.

For Alarm Link Setup details refer to Chapter 5.4.1 General.

Sensor Name is filled in for input sensor information. This is usually completed by the installer to aid in identifying an input trigger in the future. Up to 8 alphanumeric characters can be used. This is an important field to be filled in, it is displayed under alarm description in the event log within MDR-Dashboard 7.0 software.



IO Alarm Figure 98

Alarm Descr	Time	Alarm Type
Rv	13:48:38 07-26-202	IO3
Rv	13:48:27 07-26-202	IO3
Ri	13:48:14 07-26-202	IO2
Li	13:48:04 07-26-202	IO1

Alarm Display on MDR-Dashboard software Figure 96

OSD Name is a 2-alphanumeric character identifier. This is an important field to be filled in as this information is then carried over to the MDR-Dashboard 7.0 software. This is shown in frame information. It is also shown on the LIVE OSD and the RECORD OSD. By default, Brigade uses IO1 for left indicator (Li), IO2 for right indicator (Ri), IO3 for reverse (Re) and IO4 for brake (Br). The IO wires have a priority with IO1 being the highest and IO8 the lowest.

Li	Ri	Rv	Br	Db	Mb	7	8	PB	IGN
----	----	----	----	----	----	---	---	----	-----

Frame Information Figure 97

It is possible to duplicate the field information to all 8 input triggers, but this is not advised as each trigger will be connected to varied sources.

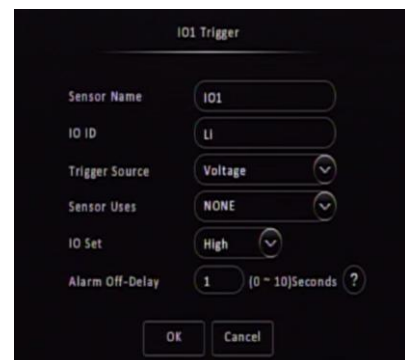
Sensor Uses:

1) If **Left Steering** and **Right Steering** are chosen, the activating status of these IOs will be considered in AI alarm judgement, especially for the Distraction and LDW. If the MDR receives signals from these IOs, then driver checking mirrors and changing lanes actions will be considered normal operation without triggering any alarms.

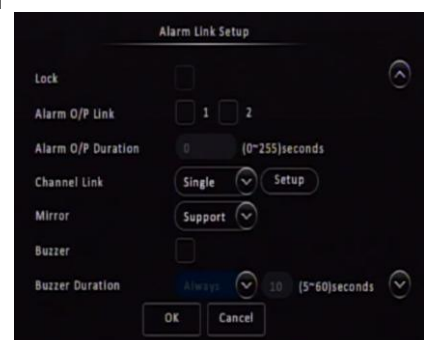
2) If **Reverse** is chosen, a mirror option appears under Channel Link settings when the user selects the link to a single channel. See *IO Reverse Mirror Figure 100*. This aids the driver during manoeuvring. If **Privacy** is chosen, this IO will be used to turn Privacy mode on/off. For further details please refer to Chapter 5.4.2.4 Privacy Mode.

Remaining options are currently not in use, these are reserved for future development.

Trigger Source defines where the signal comes from. The user can choose between **Voltage**, **CAN** and **Pulse**. Under **Voltage**, a high/low voltage level can trigger the sensor. Under **Pulse**, some pulse signals such as left / right steering can trigger the sensor. Under **CAN**, a group of CAN signals can be selected as trigger inputs.



IO Trigger Figure 99



IO Reverse Mirror Figure 100

IO Set is a field that controls whether an input trigger will trigger on a low or high signal.

Copy please refer to *Section 5.1.8 Surveillance* for details.

Alarm Off-Delay is a period in which rapid activations/deactivations can occur, which must be ignored.

5.4.1.4 GPS Alarm

By default, this alarm is on.

GPS Alarm Enable is used to generate an instant alarm when the device loses GPS signal.

Alarm Type can either be alarm or event. Alarms are reported to the Server Centre. Events are stored but do not get reported to the Server Centre.

Trigger Setup is used to control the conditions for the trigger.

Effective Time defines that during this period, the device only allows this alarm to be triggered once.



IO Alarm Figure 101

5.4.2 Video

5.4.2.1 Video Loss

Video Loss Enable is used to alert users to a loss of video signal on any of the enabled camera input channels. By default, this is enabled.

Alarm Type can either be alarm or event. Alarms are reported to the Centre Server. Events are stored but do not get reported to the Centre Server.

For Alarm Link Setup details refer to *Chapter 5.4.1 General*.

Channel is used to choose which channels you would like the alarms to be triggered from. All channels are ticked by default.

Alarm Off-Delay is a period in which rapid activations/deactivations can occur, which must be ignored. By default, this is 10 seconds.



Video Loss Alarm Figure 102



Video Loss Setup Figure 103

5.4.2.2 Motion Detection

Motion Detection Enable is used to analyse camera inputs for motion. By default, this is disabled.

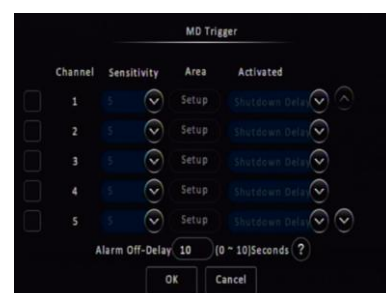
Alarm Type can either be alarm or event. Alarms are reported to the Centre Server. Events are stored but do not get reported to the Centre Server.

For Alarm Link Setup details refer to *Chapter 5.4.1 General*.

Channel is used to choose which channels you would like the alarms to be triggered from.



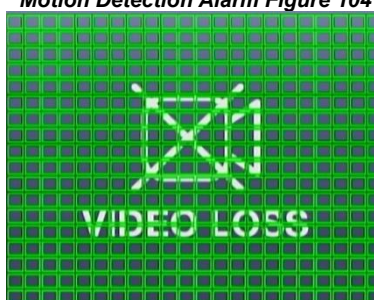
Motion Detection Alarm Figure 104



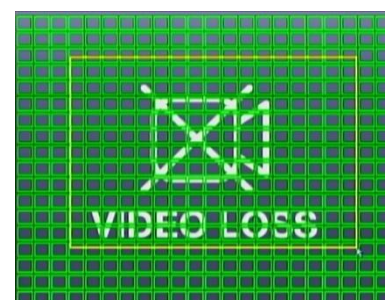
Motion Detection Setup Figure 105

Sensitivity each channel can have different sensitivities and different areas of detection. 1 represents most sensitive and 8 is the least sensitive.

Area Setup lets you choose the area of interest in the camera image. Green blocks are areas where motion will be detected. Using the mouse, drag and drop a yellow square to deactivate areas that you want to be ignored. To reactivate the area, use the mouse to drag and drop over the deactivated area.



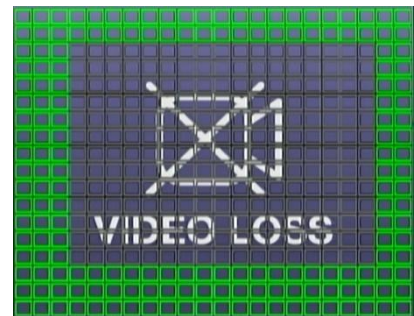
Area Setup 1 Figure 106



Area Setup 2 Figure 107

Activated determines when motion detection will be active. The three options are **Shutdown Delay**, **Ignition On** and **Both**. Shutdown delay means that motion detection will only be active once the ignition has been turned off. The period depends on the shutdown delay settings. Ignition On means that motion detection will be active whenever the MDR has ignition applied. Both works for Shutdown Delay and Ignition On conditions.

Alarm Off-Delay is a period in which rapid activations/deactivations can occur, which must be ignored. By default, this is 10 seconds.



Area Setup 3 Figure 108

5.4.2.3 Blind Detection

Blind Detection Enable is used to analyse camera inputs for blind images. By default, this is disabled. Blind detection occurs when a camera is obstructed by a large object or deliberately. It is mostly used to tackle acts of vandalism.

Note: Rapid light changes will also cause Blind Detection to be triggered, therefore, it is not recommended when using cameras with infrared illumination.

Alarm Type can either be alarm or event. Alarms are reported to the Centre Server. Events are stored but do not get reported to the Centre Server.

For Alarm Link Setup details refer to *Chapter 5.4.1 General*.

Channel is used to choose which channels you would like the alarms to be triggered from.

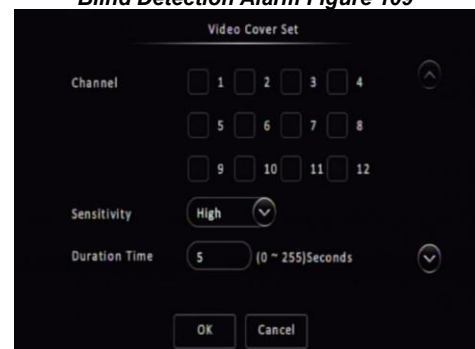
Sensitivity has three options; High, Middle and Low.

Duration Time specifies different lengths of time which allow for longer/shorter alarm durations. If the alarm duration is set to 30 seconds and a short 2 seconds alarm occurs, this would be treated as a 30 second alarm. Can be set between 0 and 255 seconds. By default, this is 5 seconds.

Alarm Off-Delay is a period in which rapid activations/deactivations can occur, which must be ignored. By default, this is 10 seconds.



Blind Detection Alarm Figure 109



Blind Detection Setup Figure 110



Blind Detection Setup 2 Figure 111

5.4.2.4 Privacy Mode

Privacy Mode is used to turn off the camera and stop recording when the driver does not want to be recorded. By default, this is off.

Alarm Type can either be alarm or event. Alarms are reported to the Centre Server. Events are stored but do not get reported to the Centre Server.

Privacy Mode does not have Alarm Link Setup.

Channel is used to choose which channels you would like to stop recording when privacy mode is activated.

Privacy Method has two options: **IO** and **Ignition OFF**.

If **IO** is selected the driver can activate the privacy mode by triggering the dedicated IO (the **Sensor Usage** in IO alarm must be set to privacy mode). In IO setup, the **Signal Type** can be chosen from **Short Signal** or **Long Signal**. If choosing **Short Signal**, triggering the IO once will enter the privacy mode no matter what happens to the IO afterwards. If choosing the **Long signal**, when the IO is triggered, the device will enter Privacy Mode. If IO is dismissed, the device will exit privacy mode immediately.

If **Ignition OFF** is selected, the privacy mode will be activated when the ignition signal is cut off.

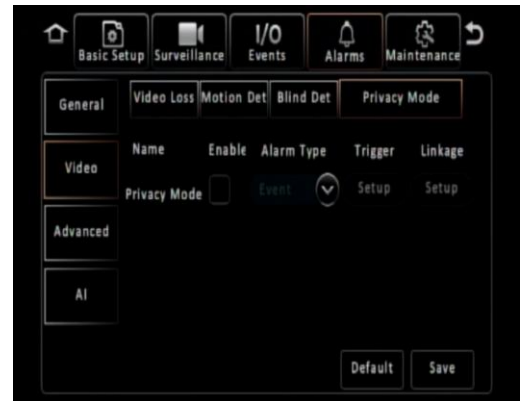
Exit Method defines how to deactivate the Privacy Mode and put camera(s) back to normal recording state. **Exit Method** can choose multiple conditions. If more than one method has been chosen, fulfilling either one of them will deactivate the **Privacy Mode**.

Note: The combination: **Ignition OFF** (enter) + **Long Signal IO** (exit) is not supported.

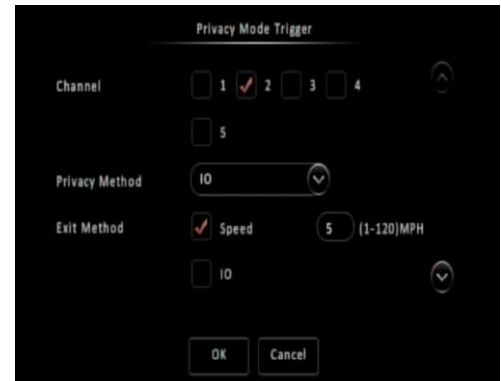
Enable AI Mp3 Voice currently not in use.

Alarm Voice Enable can be ticked to allow an audio notification for the user while entering or exiting the privacy mode. If entering the mode, they will hear "Privacy Mode Enable", if exiting the mode, they will hear "Privacy Mode Disable".

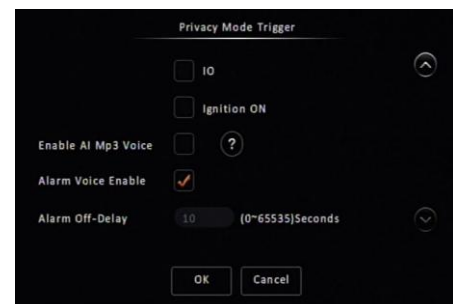
Alarm Off-Delay works when **Privacy Method** is switched to **Ignition OFF**. It determines how many seconds before entering the mode. By default, this set to 10, which means after 10 seconds of the ignition being turned off, the device will enter privacy mode.



Privacy Mode Alarm Figure 112



Privacy Mode Trigger - 1 Figure 113



Privacy Mode Trigger - 2 Figure 114

5.4.3 Advanced

5.4.3.1 G-Force

G-Force Enable is used to analyse the MDR's G-force values. By default, this is disabled.

Alarm Type can either be alarm or event. Alarms are reported to the Centre Server. Events are stored but do not get reported to the Centre Server.

Real-Time represents the magnitude of gravity acting on an MDR in three directions (when the user faces the MDR front panel, X represents left/right; Y represents forward/backward; Z represents up/down).

Auto-Calibration is On by default. After the device is powered On, if it can obtain driving data which has acceleration and deceleration at least 3 times within the speed 10km/h to 40km/h, the device will use accumulated G-Force data and an internal algorithm to calibrate the 6-axis G-Sensor value, including X, Y, Z and Roll, Pitch and Yaw.

[Manual] **Calibrate** is greyed out if Auto-Calibration is on. If Auto-Calibration fails, users can disable it and use the manual Calibration button to refresh the 6-axis G-Sensor values.

Installation Angle displays the angle of the installed device, showing roll-pitch-yaw angles obtained from internal 6-axis G-Sensor.



G-Force Alarm - 1 Figure 115

100HZ G-Force value is enabled to let the G-Sensor work at maximum sampling rate. This will create G-Force data 100 times per second, which improves the accuracy of the G-Sensor greatly but also increases the size of the metadata drastically. It is recommended that this feature is disabled for everyday use. The default sampling rate is 10Hz.

Self-checking is to examine if the Auto-Calibration works well, especially when the auto-calibration result is abnormal. The G-Sensor will check 6-axis data to make sure it matches the auto-calibration value.

For Trigger:

Based on the accumulated data obtained from the built-in Sensor, the device can make a judgment and report alarms on the driver's driving behaviour such as **Harsh Braking**, **Hard Acceleration**, **Harsh Left Turn** and **Harsh Right Turn**.

Offset is defined by complex algorithms and Brigade recommends leaving the value as default. By default, there are three sets of Offset values that can be chosen, determined by the vehicle's weight:

Light Duty (≤ 6 ton), **Medium Duty** (≤ 14 ton) and **Heavy Duty** (> 14 ton). Users can select the setting based on their vehicle specification.

Note: The offset value can be increased or decreased if the alarm is too easy/hard to trigger, but the effect is not linear, so it must be tested and determined for the user's specific vehicle.

Speed defines this alarm will trigger when the vehicle speed reaches a certain value.

Shock represents a collision warning based on received G-force data. The X, Y, Z values refer to the G value which will trigger the alarm. By default, X and Y are 1G, Z is 2G.

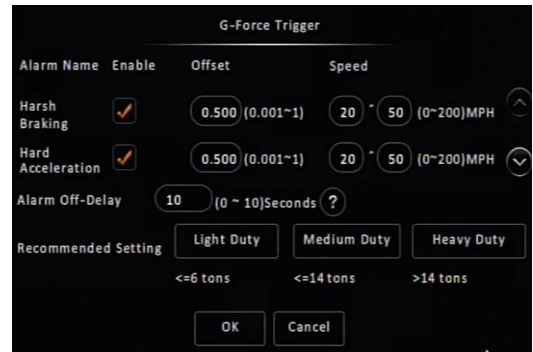
Alarm Off-Delay is a period in which rapid activations/deactivations can occur, which must be ignored. By default, this is 10 seconds.

For Alarm Link Setup details, most of the settings can refer to *Chapter 5.4.1 General*.

This alarm has an individual setting for **Alarm Voice**, which can output voice messages when an alarm occurs. For more information, please refer to *Chapter 11 MDR Audio Alerts Summary*.



G-Force Alarm - 2 Figure 116



G-Force Alarm Trigger (Partly) Figure 117



G-Force Alarm Voice Figure 118

5.4.3.2 Geo-Fence

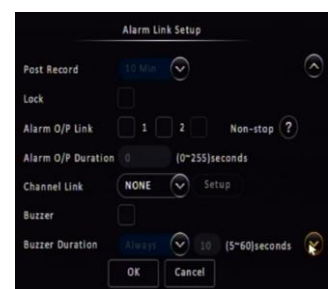
Geo-Fence are used to send an alarm if a vehicle leaves or enters a geographical region. This region is setup by the user in MDR-Dashboard software.

Geo-fences are setup in MDR-Dashboard - Server mode. Please refer to the Network Connectivity SW & Infrastructure Manual.

In **Geo-Fence Alarm** Link Setup, it supports a **Non-stop** feature for IO output. If Non-stop is enabled, the Alarm O/P duration will be greyed out. This allows the MDR to keep a continuous high-level output if it is in the Geo-Fence area.



Geo-Fencing Alarm Figure 119



Non-Stop Feature Figure 120

5.4.3.3 SSD/SD Error

SSD/SD Error Enable is an alarm which indicates when the SSD/SD has a major malfunction where data can no longer be written to the storage medium. When the system detects the SSD failing to connect / work, it will cut power to the SSD and supply power again to reset it and see if the action can bring it back to normal. This process runs 3 times. If the SSD has still not recovered, then this alarm will be generated and outputted.

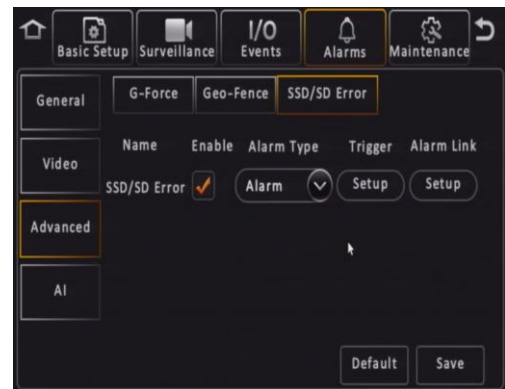
Alarm Type can either be alarm or event. Alarms are reported to the Centre Server. Events are stored but do not get reported to the Centre Server.

Alarm Off-Delay is a period in which rapid activations/deactivations can occur, which must be ignored. By default, this is 7200 seconds (2 hours).

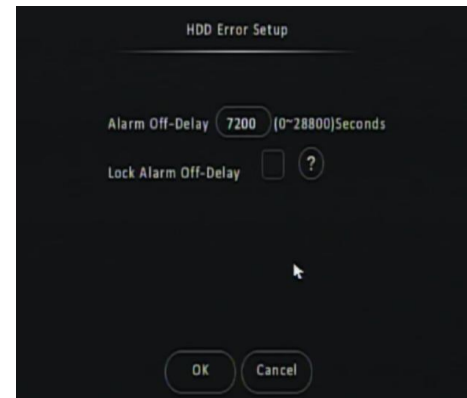
Lock Alarm Off-Delay by default is on. When it is not enabled, after the first alarm has been triggered, if another one is triggered within the **Alarm Off-Delay** period, this alarm will be subdued as it should be, but the **Alarm Off-Delay** counting will be refreshed and count from 0 again. Enabling it means the **Alarm Off-Delay** is a hard-set time, no matter how many alarms happen within this period, it won't affect or refresh the counting.

For Alarm Link Setup details refer to *Chapter 5.4.1 General*.

Note: Buzzer is set to 10 seconds when SSD/SD Error alarm happens.



SSD/SD Error Alarm Figure 121



SSD/SD Error Setup Figure 122

5.4.4 AI

5.4.4.1 ADAS

ADAS (Advance Driving Assistant System) supports various alarms/alerts by image analysis and processing from the front view camera IP-FFC-AI-01.

Alarm Type can either be alarm or event. Alarms are reported to the Server Centre. Events are stored but do not get reported to the Server Centre.

Trigger settings are different for each individual alarm.

LDW (Lane Departure Warning) by detecting road lanes and left/right turning signals to give alerts when it detects unintended lane departure. By default, this is on.

Judgement: vehicle is crossing lanes without left/right turning signal enabled.

Level 1 alerts: (speed 45 – 70mph) TTS broadcast “Lane Departure.”

Level 2 alerts: (speed ≥70mph) high pitch beeps.

FCW (Forward Collision Warning) by detecting the distance between the vehicle in front and the driver's vehicle, calculating with the vehicle speed to give alerts. By default, this is on.

Judgement: vehicle has a great possibility of crashing within seconds if the vehicle in front brakes abruptly.

Level 1 alerts: (speed 31 – 50mph) TTS broadcast “Collision warning, collision warning”.

Level 2 alerts: (speed ≥50mph) high pitch beeps.

HMW (Headway Monitoring Warning) by detecting the relative distance between the vehicle in front and the drivers vehicle, calculating with the vehicle speed to give alerts. By default, this is on.

Judgement: vehicle has a high possibility of crashing within seconds.

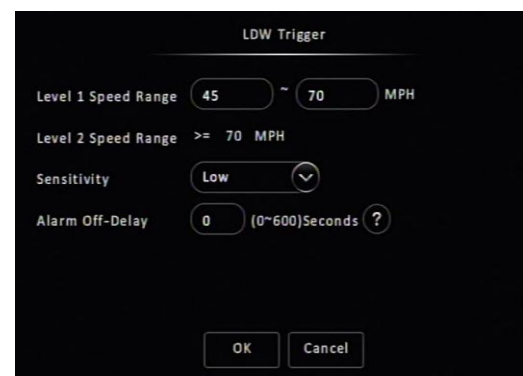
Level 1 alerts: (speed 31 – 50mph) TTS broadcast “Unsafe following distance.”

Level 2 alerts: (speed ≥50mph) high pitch beeps.

PCW (Pedestrian Collision Warning) currently not in use.



ADAS Alarm Figure 123



FCW Trigger Figure 124

Sensitivity refers to how sensitive this alarm trigger should be. Options are High, Medium, Low and User-defined. It is recommended to keep the default settings and test these out in the vehicle. If a custom sensitivity is selected, testing must be carried out prior to use.

Duration specifies the time between when a risk has been identified and an alarm is triggered. This setting only exists on HMW. If the dangerous following distance remains for the duration time, the HMW alarm will go off. By default, this is 2 seconds.

Alarm Off-Delay is a time period in which multiple activations/deactivations can occur, which can be ignored. By default, this is 0 seconds.

For most details of Alarm Link Setup settings, refer to *Chapter 5.4.1 General*.

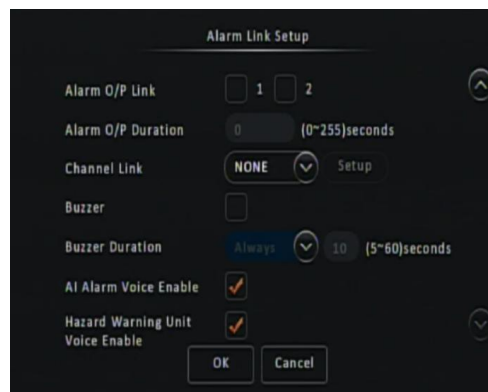
Apart from that, AI alarms support two individual settings.

AI Alarm Voice Enable allows MDR to output audio alerts to inform the driver when an alarm is triggered. These alerts will be outputted from connected monitors.

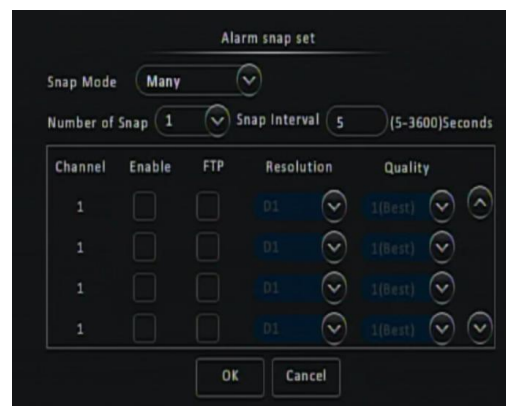
Hazard Warning Unit Voice Enable allows a connected Hazard Warning Unit to make a beeping noise to notify the driver. Disabling it will curb the voice alert, but not the visual alerts from Hazard Warning Unit screen.

Snap allows the setup of automatic snapshots when the alarm has been triggered. Users can define how many snapshots to take and on which channels. After an alarm has been triggered, users can export snapshots from MDR. For exporting steps, please refer to *Chapter 5.5.2.1 Data Export*.

FTP only used when the device is connected with an FTP server. For details, please refer to *Chapter 5.1.7.1*.



AI Alarm Link Figure 125



ADAS Alarm Figure 126

5.4.4.2 DFC

DFC (Driver Facing Camera) supports various alarms/alerts by image analysing and processing from the driver facing camera IP-DFC-AI-XX-01.

Alarm Type can either be alarm or event. Alarms are reported to the Server Centre. Events are stored but do not get reported to the Server Centre.

Trigger settings are different for each individual alarm.

Fatigue Driving by detecting driver eye movements to determine if there is a driver that is drowsy or falling asleep. By default, this is on.

Judgement: eyes blinking frequency / closed period exceeds threshold.

Level 1 alerts: (speed 19 – 100mph) TTS broadcast “Fatigue driving, please rest now.”

Level 2 alerts: (speed ≥100mph) high pitch beeps.

No Driver by detecting driver face movements to determine if there’s a driver seated in the driving seat. By default, this is on.

Judgement: No face has been detected.

Level 1 alerts: (speed ≥30mph) TTS broadcast “No driver detected.”

Phone Call by detecting the moving object around the driver’s face/ear.

Judgement: An object shaped like a mobile phone has been detected close to drivers’ ear or in hands.

Level 1 alerts: (speed 3 – 100mph) TTS broadcast “Phone detected.”

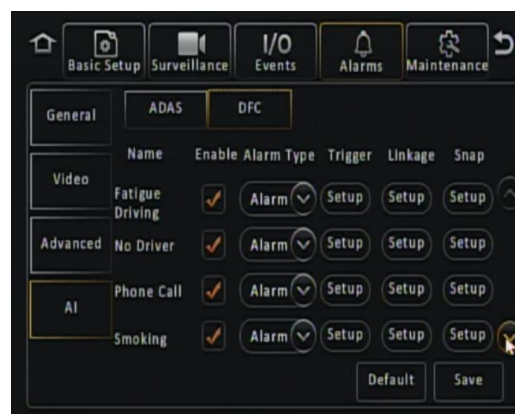
Level 2 alerts: (speed ≥100mph) high pitch beeps.

Smoking by detecting the cigarette stick features and body gestures.

Judgement: A cigarette feature has been detected for a period.

Level 1 alerts: TTS broadcast “Smoking detected.”

Level 2 alerts: high pitch beeps.



DFC Alarm Figure 127



DFC Alarm Figure 128

Distraction by detecting driver face and eye movements.
Supports custom moving conditions: Left, Right, Up and Down.

Judgement: certain movement has been detected and no left / right turning signal has been enabled (rules out the legal observation movement before turning the vehicle).

Level 1 alerts: (speed 19 – 100mph) TTS broadcast “Driver distraction.”

Level 2 alerts: (speed ≥ 100 mph) high pitch beeps.

Yawn by detecting the position of the upper and lower lips and its opening amplitude value.

Judgement: the amplitude value exceeds a certain threshold and lasts for a certain duration.

Level 1 alerts: (speed 3 – 100mph) TTS broadcast “Yawning, please drive carefully.”

Level 2 alerts: (speed ≥ 100 mph) high pitch beeps.

Seatbelt by detecting seatbelt shape across driver’s body.

Judgement: No seatbelt has been detected for a period.

Level 1 alerts: (speed 3 – 100mph) TTS broadcast “Please fasten seatbelt.”

Level 2 alerts: (speed ≥ 100 mph) high pitch beeps.

Note: Two **Alarm Mode** options available for **Seatbelt**.

Normal Mode will constantly check seatbelt and output alarms when triggered and outside the **Effective Time** period.

Regular Inspection will turn on the checking mechanism from time to time, spare the device calculating resource and reduce the chance for false positive alarms. By choosing this, the **Sensitivity** and **Effective Time** will stop taking effect. Instead, a new setting called **Inspection Interval** initiates which determines after how much time the device can check for Seatbelt again. Each check lasts for 10 seconds.

Infrared block alarm is currently not in use.

Sensitivity refers to how sensitive this alarm should be to trigger. Options are High, Medium, Low and User-defined. It is recommended to keep the default settings. If a custom sensitivity is selected, testing must be carried out prior to use.

Alarm Off-Delay is a time period in which multiple activations/deactivations can occur, which can be ignored. By default, this is 0 seconds.

Judgement (available on Distraction) has options **L+R**, **Up+Down** and **L+R+Up+Down**. They refer to different conditions of left / right / up / down head movement. Each condition can define detecting periods.

Distraction Level (available on Distraction) refers to the turning angle of the driver’s head. Setting to **high** will trigger the alarm when the head is slightly turned. Setting to **medium** or **light** can allow larger turning angles without triggering the alarm. This is used to avoid false alarms triggered by normal head movement.

For most details of Alarm Link Setup settings, refer to *Chapter 5.4.1 General*. Apart from that, AI alarms support two individual settings.

AI Alarm Voice Enable allows MDR to output audio alerts to inform the driver when an alarm is triggered. These alerts will be outputted from connected monitors.

Hazard Warning Unit Voice Enable allows a connected Hazard Warning Unit to make a beeping noise to notify the driver. Disabling it will curb the voice alert, but not visual alerts from Hazard Warning Unit screen.

Snap allows to setup of automatic snapshots when the alarms have been triggered. Users can define how many snapshots to take and on which channels. After an alarm has been triggered, users can export snapshot from MDR. For exporting steps, please refer to *Chapter 5.5.2.1 Data Export*.

FTP only used when the device is connected with an FTP server. For details, please refer to *Chapter 5.1.7.1*.

Distraction Trigger Figure 129

Seatbelt Trigger Figure 130

Alarm Link Setup Figure 131

Channel	Enable	FTP	Resolution	Quality
1	☐	☐	D1	1(Best)
1	☐	☐	D1	1(Best)
1	☐	☐	D1	1(Best)
1	☐	☐	D1	1(Best)

DFC Alarm Figure 132

5.5 Maintenance

If not operate with the SmartController APP, then A bus-powered USB hub (minimum of 2 USB ports for USB mouse and USB flash drive) will be required to export/import configuration, network files and geo-fence files. Please note Config Files are created by the user.

5.5.1 Configuration

For easier operation, users can store multiple configuration files on the flash drive, under the path: root directory/ConfigFile/MDRXXX. The MDR automatically detects these files if they follow the correct naming convention, and list them for selection. The naming rules are as follows:

Config File: config_XXX

AI Config File: AI_config_XXX

Network File: network_XXX.config

Geo-Fence File: geo-fence_XXX.config

CAN File: CanCfg_XXX.config

“xxx” can contain up to 14 alphabetic characters (uppercase or lowercase only).

“XXX” can contain up to 14 alphanumeric characters (uppercase, lowercase and numbers).

5.5.1.1 Config File

Config File Export creates a configuration file and saves this to a USB flash drive. This file includes all settings except network and geo-fence related settings. This file can only be read by an MDR 700 Series model.

A configuration file named CONFIG.CONFIG will be created on the root of the USB flash drive.

Warning: Network settings and Register Info settings are not contained in a configuration file, to support MDR fleet setups with an identical configuration file.

Note: If a configuration file with the same name is present, this will be overwritten.

Config File Import is used when users have an existing configuration file on the flash drive and wish to import those settings into the MDR.

AI Config File Export creates a configuration file only for AI related settings but doesn't include measurements and unit type in the **Algorithm** menu. This is considering 1) each vehicle install condition cannot be the same, whereby each measurement will be used for calibrating the algorithm and must be measured and input manually. 2) For fleet operation, if any AI alarm settings need to be changed, users can export and import AI Config files between different vehicles without affecting the core calibration data.

AI Config File Import is used when users have an existing AI configuration file on the flash drive and wish to import those settings to the MDR.

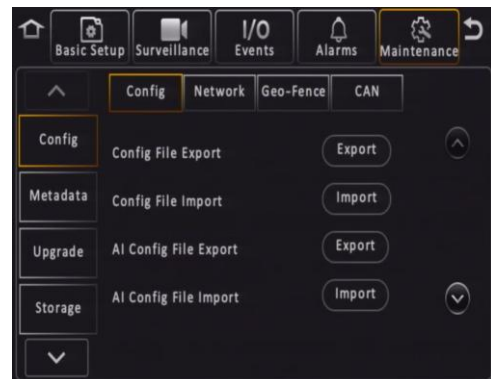
Import Ethernet HTTPS Certificate and Key is used to import a new encryption key and certificate when the built-in ones have expired.

For importing, place the new key and certificate file in a folder named **webcert** under the root directory of the flash drive. Rename the key file as **webserver_cert.pem** and the certificate file to **webserver_key.pem**. Click **Import** to load both files into the MDR.

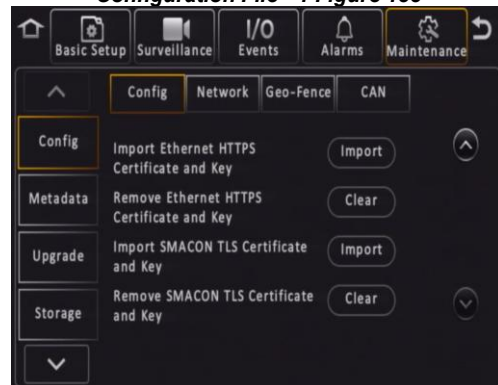
Note: the MDR is equipped with a default HTTPS certificate valid for 10 years. In most cases this operation is not required.

Remove Ethernet HTTPS Certificate and Key is used to remove the existing HTTPS certificate and key in the MDR.

Import SMACON TLS Certificate and Key is used to import a new encryption key and certificate for SmartController communication when the built-in ones have expired.



Configuration File - 1 Figure 133



Configuration File - 2 Figure 134

For importing, place the new key and certificate file in a folder named **appcert** under the root directory of the flash drive. Rename the key file as **app_cert.pem** and the certificate file to **app_key.pem**. Click **Import** to load both files into the MDR.

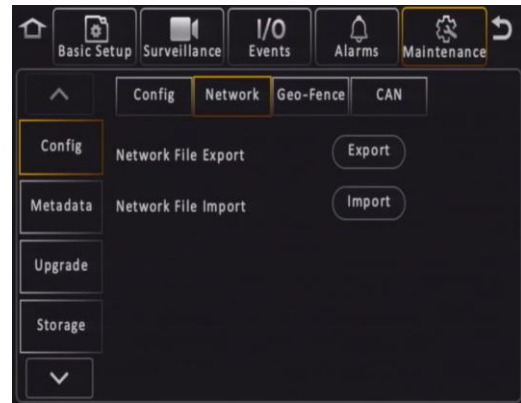
Note: the MDR is equipped with a default TLS certificate valid for 10 years. In most cases this operation is not required.

Remove SMACON TLS Certificate and Key is used to remove the existing TLS certificate and key in the MDR.

5.5.1.2 Network File

Network File Export creates a file that contains all network related settings, such as: server, ethernet, mobile network and Wi-Fi settings. This will be called NETWORK.CONFIG.

Network File Import is used when you have an existing network file on your flash drive and wish to import network settings to the MDR.

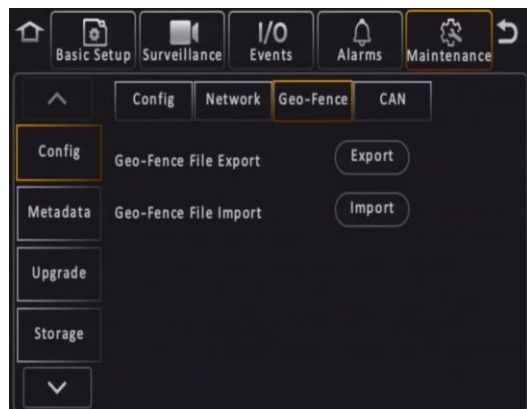


Configuration File Figure 135

5.5.1.3 Geo-Fence File

Geo-Fence File Export creates a file that contains geo-fence parameters. This file will be called GEO-FENCE.CONFIG.

Geo-Fence File Import is used when you have an existing network file on your flash drive and wish to import geo-fence settings to the MDR.



Geo-Fence File Figure 136

5.5.1.4 CAN File

CAN File Export creates a file that contains CAN parameters used for decoding the CAN data. This file is named CanCfg_ddmmyy, where "ddmmyy" is automatically generated based on the export date.

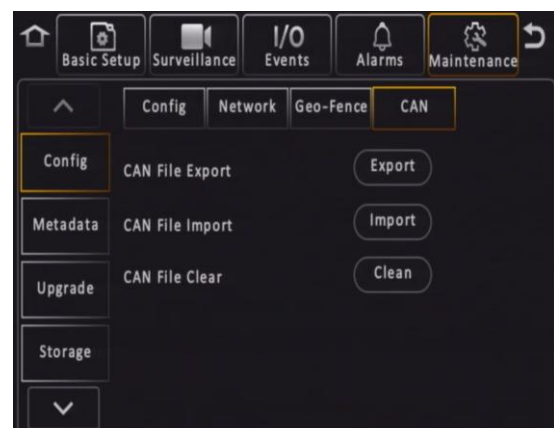
CAN File Import is used when the user has an existing CAN file on the flash drive and wishes to import CAN decoding parameters into the MDR. The CAN file path is structured as follows: *root directory/ConfigFile/MDRXXX*, where XXX represents the MDR model number (for example, 742).

After importing the CAN File, please go to *Chapter 5.3.1.5 CAN* to complete following setup.

CAN File Clear is used to clear the stored CAN File in the MDR to prevent it from using incorrect parameters for CAN decoding.

Note:

1. The CAN File has no limitation on its content, but the file size should not exceed 1MB.
2. The CAN File name supports a certain level of flexibility. The prefix must be "CanCfg_" to be recognisable by the MDR. The characters following the prefix can be customised - up to 14 characters, supporting uppercase letters, lowercase letters and numbers.



CAN File Figure 137

5.5.2 Metadata

Information related to recording parameters, alarms and trigger status can be recorded along with speed, location and G-Force data. In addition, data related to the unit itself such as voltage and temperature are recorded and plotted graphically in MDR Software (MDR-Dashboard and MDR-Player). This information is called metadata. Metadata will be saved in the MDR main storage medium for 6 months maximum. After 6 months, the oldest metadata will be overwritten by new ones.

5.5.2.1 Data Export

This area is used to export data to a USB Flash drive.

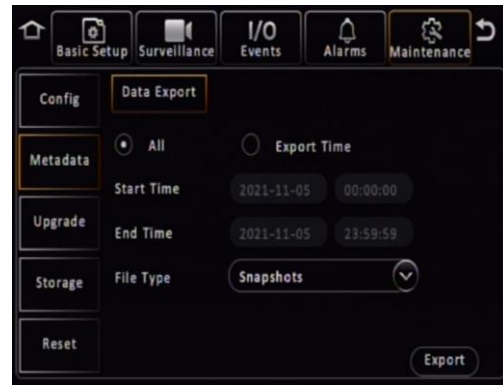
All will export all historical data for the chosen file type that the MDR has stored.

Export Time lets you choose a specific period which may be of interest. You can specify the date and time.

File Type allows you to choose the metadata that you would like to export. The options are Snapshots, GPS Data, G-Force Info, Mob Net Dial Log, Alarm Log, Operation Log, Blackbox data and Debug Log Information.

Note: Debug Log is automatically created every day by the MDR for self-check purposes. It can be used for troubleshooting.

The storage location follows the format such as \"MDR unique serial number\"MDR742\\YYYY-MM-DD\\log\\log type\" and can be read using Notepad™. For e.g. E:\\00D20027FD\\2023-06-06\\log\\userlog.



Data Export Figure 138

5.5.3 Upgrade

A powered USB hub (minimum of 2 USB ports for USB mouse and USB flash drive) will be required for upgrade procedures unless using the Smartcontroller app.

FMW/MCU Upgrade is used to upgrade firmware and MCU (Microcontroller) version. Firmware contains MCU version (combined package) for an easier upgrade. Please check Brigade's website regularly for updates. Upgrades require a USB bus-powered hub unless the Smartcontroller app is used. Firmware upgrades take approximately 5 minutes to upload.

Firmware is OSD (on-screen display) related software and directly affects the user interface.

MCU version is software related to MDR hardware functions.

Create a folder named **upgrade** in the root directory of your USB flash drive. Copy firmware files (combined FMW and MCU). Plug the USB flash drive into USB bus-powered hub which is then connected to the front of the MDR. Click upgrade to start the upgrade process, see *Upgrading Progress Figure 140*. After the upgrade, the MDR will restart and display *System Upgrade Figure 141*. Check if the firmware/MCU version have been upgraded successfully by checking system information.

Automatic upgrades can also be carried out. To complete this type of upgrade, create a folder named **autoupgrade** in the root directory of your USB flash drive. Plug the USB flash drive into a USB bus-powered hub which is then connected to the front of the MDR. The upgrade process will begin a few seconds after. Make sure the MDR is on when you plug in the flash drive. If it does see a different firmware, then you will be shown *Autoupgrade Figure 142*. If the firmware version is the same as the version installed on the MDR then no upgrade will occur.

Warning: Do not connect an external storage to the front USB port. Only USB Flash drives (which contain flash memory) are supported by this port. Brigade will not be held responsible for incorrect use of this port.

Warning: Ensure the flash drive is not unplugged from the MDR during this process. Power must be supplied to the MDR without any interruption. Both firmware and MCU upgrades are very sensitive operations, and any power loss may permanently damage the MDR.

IPC Upgrade refers to IP camera upgrades. Refer to IP Camera Operational Guide.

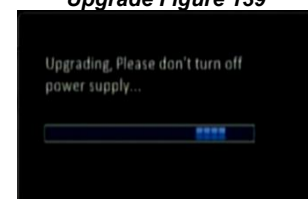
GPS Upgrade refers to upgrading the firmware of the built-in GPS module.

4G Upgrade refers to upgrading the firmware of the built-in 4G module.

Hazard Warning Unit Upgrade refers to upgrading the firmware of the Hazard Warning Unit.



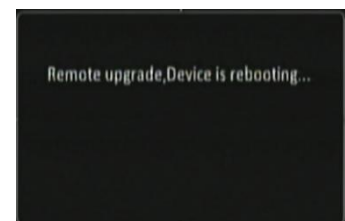
Upgrade Figure 139



Upgrading Progress Figure 140



System Upgrade Figure 141



Autoupgrade Figure 142

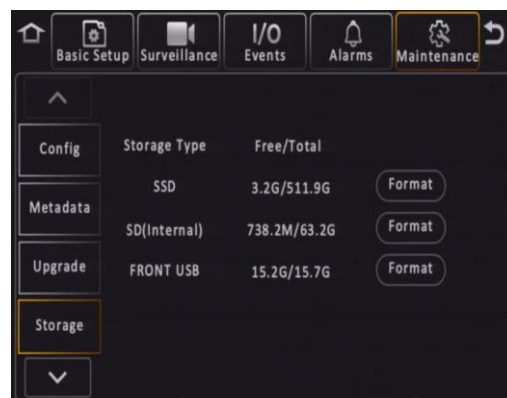
5.5.4 Storage

Format is used to remove data from the different storage types. It is possible to format the **SSD**, **SD (Internal)** and **Front USB**. You will be asked to confirm if you would like to format prior to the MDR starting the format process.

A USB flash drive that is plugged into the front USB slot of the MDR can also be formatted to MDR7 or FAT32 format.

Warning: Formatting the different storage types will delete all the data from that storage.

Note: This interface only displays storage mediums which are currently installed or plugged in.



Storage Figure 143

5.5.5 Reset

Factory Settings Restore use this feature to restore the configuration to its default factory settings. Any configuration will be lost, except video recordings and historical data (highest/lowest temperature, mileage etc.).

System Restart is used to force the MDR to restart.



Reset Figure 144

5.5.6 Certificate

All files imported here are for supporting the Verify Certificate feature. For detailed functionality, please refer to *Chapter 5.1.6.5 Server*.

Trusted Root Certificate Users shall obtain the root certificate from a Certificate Authority (CA) and place it in a folder named **cers** in the root directory of the flash drive. Press the **Import** button to load the file into the MDR.

Note: A maximum of one hundred root certificates can be imported. The file name must not exceed 64 characters in length.

Remove ALL Root Certificate is used to remove all the existing root certificates in the MDR.

Certificate Revocation Lists (CRLs) is used to check whether the server's HTTPS certificate has been revoked or is no longer valid. For importing, place the latest CRL files in a folder named **crls** in the root directory of the flash drive. Press the **Import** button to load the files into the MDR.

Note: The maximum file size supported for import is 2048KB. The file name must not exceed 64 characters in length.

Remove CRLs is used to remove all the existing CRLs in the MDR.



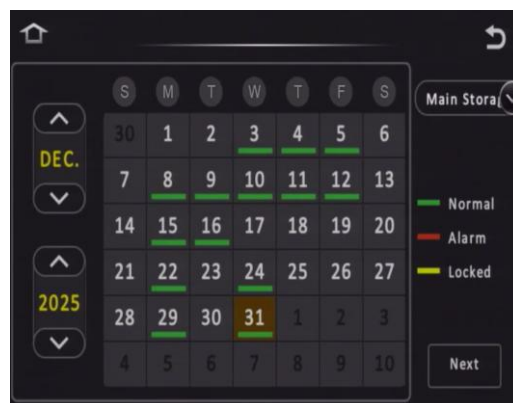
Certificate Figure 145

6 Record Search

Rec Search allows you to search based on source, type, channel, date, month, year and time.

Source can be selected for data retrieval. As the MDR 700 Series supports flexible storage configurations, the main storage may be either the SSD or the microSD card. Accordingly, the following source options are available: **Main Storage**, **Sub - Sub Strm** (Sub Storage Sub Stream) or **Sub - Main Strm** (Sub Storage Main Stream). By default, **Main Storage** is selected. Main Stream recording represents higher quality recordings. This is usually set to a better resolution than Sub-stream data. Sub-stream represents a lower resolution recording.

Once you have chosen the date, click **Next**.



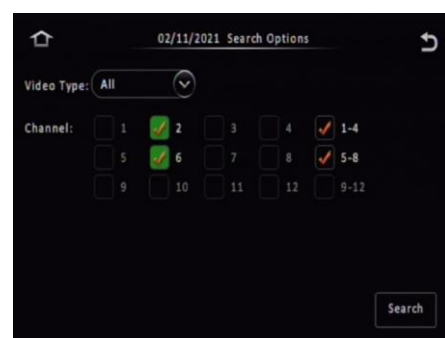
Rec Search Figure 146

Now the search results are shown, see *Search Results Figure 147*.

Video type options are All, Normal Alarm or Lock. If you are not certain of the type, choose All.

Channel lets you choose which video channels you would like to view. Each channel will be displayed in full screen.

Once you click **Search** the Video results are displayed. See *Video Results Figure 148*.



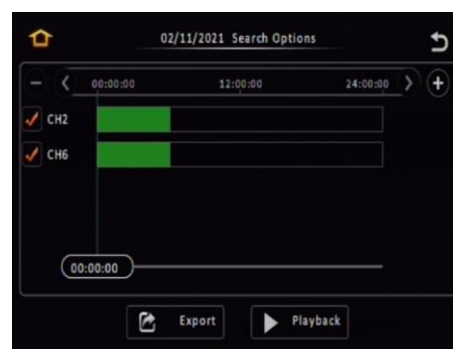
Search Results Figure 147

In this window, you will be able to choose a channel and time. Ticked channel boxes will load this data during playback.

If you click **Playback** it will automatically start playing the first channel displayed when the video data starts for that day.

Note: If playback of a video recording is in a different video format from the current settings (example NTSC or PAL), it cannot be played. Please, switch the video format. You do this by navigating to Setup -> Surveillance -> Record -> General -> Video Format.

You can click on the timeline to a desired time or choose the time using the number pad . You can move the button to your chosen time, by clicking and dragging while left clicking.



Video Results Figure 148

is used to navigate earlier or later in that day.

is used to zoom in and out on the timeline.

During Playback, the following functions are available:

Show/Hide Volume menu

Choose time using number pad

Volume Increase

Volume Decrease

Mute Volume

Next Channel

Previous Channel

Rewind x2 x4 x8 x16

Play / Pause

Fast Forward x2 x4 x8 x16

Slow Forward 1/2 1/4 1/8 1/16

Step

Back



Playback Figure 149

Once you click **Export** in *Video Results Figure 148*, then *Start Time Export Figure 150* is displayed.

By default, the timeline for one whole day (24 hours) is displayed. Enter the start time of your export. Once you are happy with the time, click **Start time**. See *Start Time Export Figure 150*.

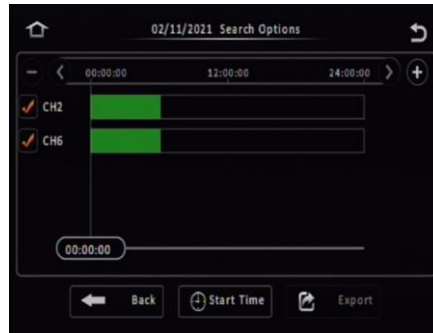
Enter the end time of your export and click **End time**. See *End Time Export Figure 151*.

The duration and estimated capacity will be displayed. See *Export Estimate Figure 152*.

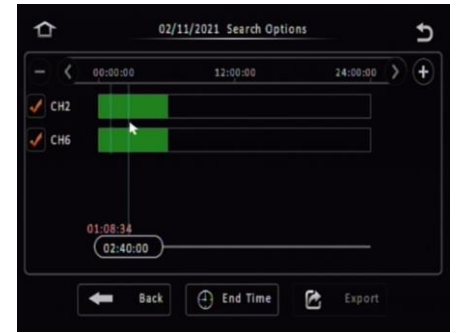
Once the start and end times are correct, insert a bus-powered USB hub into the MDR front USB. Then connect your mouse and USB Flash drive to this hub and click **Export** (All of the above is unneeded if using Smartcontroller).

An export detail window will be shown, see *Export Details Figure 154*. Choose **Proprietary** or **AVI**. Proprietary is secure and contains metadata. It is played using MDR-Dashboard software. AVI is playable on industry media players such as Windows Media Player (WMP).

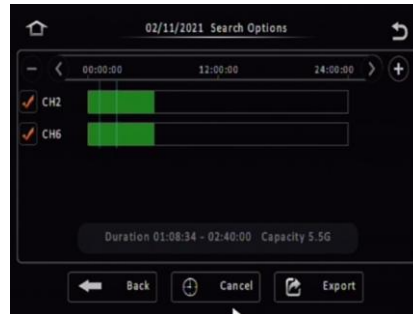
Errors can occur such as no external storage detected or a lack of memory space. If this happens, unplug and replug in the USB flash drive or insert a larger capacity flash drive. Click **OK**. Exporting progress will be shown in *Exporting Progress Figure 153*.



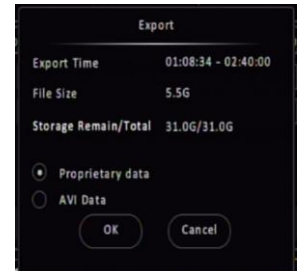
Start Time Export Figure 150



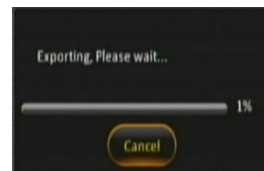
End Time Export Figure 151



Export Estimate Figure 152



Export Details Figure 154



Exporting Progress Figure 153

7 Log Search

Log Search allows you to search based on type, date, month, year and time.

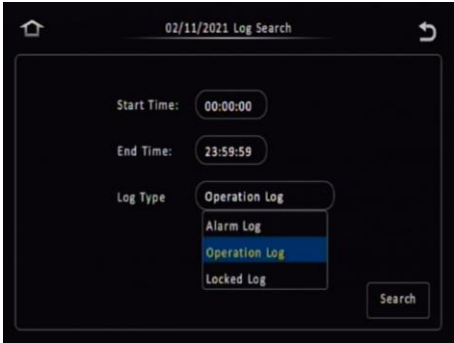
Click **Next** once you have chosen your required date.

In the next window, enter your **Start Time** and **End Time** of the period.

Log Type can be Alarm, Operation and Locked. Alarm logs contain logs related to Input/output triggers, Panic Button, Speed, G-Force, Video Loss, Motion Detection, Blind Detection, SSD/SD Error and Geo-Fence. Alarm logs can be filtered. Operation logs show all logs related to MDR functions, see *Operation Log Figure 157*. Locked logs show logs related to files that are locked by the user. This is configured by the user.



Log Search Figure 155



Log Details Figure 156



Operation Log Figure 157

8 System Information

8.1 Version Information

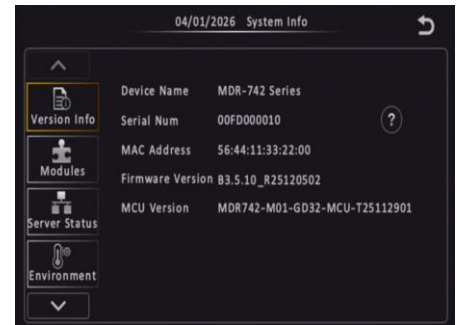
Device Name is a pre-populated field to help identify the MDR unit.

Serial Number is a unique identifier for each MDR unit. This information is used to connect to a mobile network or to the MDR-Dashboard. This is made up of 10 alphanumeric characters.

MAC Address refers to the media access control address which is a unique identifier. This is assigned to network interfaces for communications at the data link layer of a network segment. This consists of 12 alphanumeric characters.

Firmware Version refers to the firmware which contains the OSD menu. The structure starts with MDR series model name.

MCU Version refers to MCU firmware which is installed in the MDR unit. This firmware controls all hardware operations.



Version Information Figure 158

8.2 Modules

8.2.1 Mobile Network

This tab will only show if it is enabled and configured.

Connection Type shows the connection used to connect to network operators. The options are: GPRS/EDGE, CDMA, EVDO, WCDMA, TDSCDMA, FDD and TDD.

Module Status shows whether the MDR sees the presence of the mobile network module. This will either show module model names or "not detected".

SIM Status shows whether the MDR sees the presence of a SIM card. The statuses are detected, not detected, available, not available and busy.

Dial Status indicates the SIM's dial status, which can be dialled up, failed dial up and unknown error.

Signal Level will display the power level of the signal, this will be xxdBm format.

IP Address refers to the IP address obtained by the SIM from the network provider.

IMEI refers to International Mobile Equipment Identity number. This is made up of 15 alphanumeric characters.

IMSI refers to International Mobile Subscriber Identity number. This is made up of 15 alphanumeric characters. This will display the correct number after a SIM card is installed.



Mobile Network Figure 159

8.2.2 Wi-Fi

This tab will only show if it is enabled and configured.

Built-in Wi-Fi Status indicates the current physical state of the internal Wi-Fi module. This can be detected, not detected, connecting, connection failed, connected and obtaining IP address (DHCP).

Signal Level will display the power level of the signal in a visual form



The more blue bars the better the signal level.

IP Address refers to the IP address obtained by the wireless module.

MAC Address refers to the media access control address which is a unique identifier. This is assigned to network interfaces for communications at the data link layer of a network segment. This consists of 12 alphanumeric characters.

SmrtCntrlr Wi-Fi Status indicates the presence of a SmartController dongle. If it is connected on the USB port on the MDR front panel, the status would show "Detected". Available statuses are **Not detected**, **Detected** and **Connected**.

SmrtCntrlr SSID displays the SmartController Wi-Fi name. Users can find this Wi-Fi in their mobile device Wi-Fi list and connect to it.

SmrtCntrlr IP Address refers to the IP address obtained by a SmartController dongle.

SmrtCntrlr MAC Address refers to media access control address, which is a unique identifier, assigned by a SmartController dongle.

For more SmartController features, please refer to the SmartController product manual.



Wi-Fi Figure 160

8.2.3 GPS

GPS Status shows whether the MDR sees the presence of the GPS module. This will say detected or not detected.

GPS Satellite Count shows how many satellites the GPS module sees, the value can be various numbers depend on available satellite amount.

Speed indicates the current speed of the vehicle, obtained from GPS data.

Note: the metadata (including GPS) is saved in the main storage medium for 180 days.



GPS Figure 161

8.3 Server Status

Centre Server # displays the current server configuration details. A maximum of 6 centre servers can be stored.

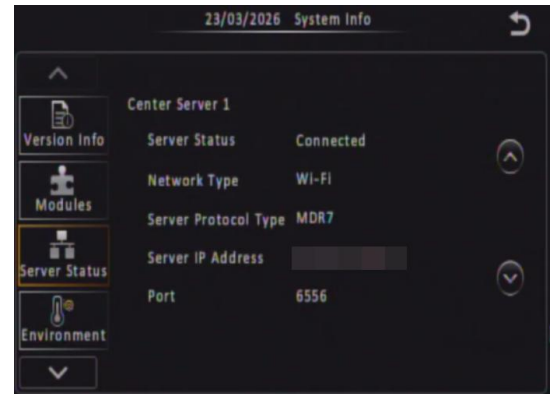
Server Status shows the connection state of the chosen server. This can either be connected or unconnected.

Network Type indicates the type of connection interface the centre server will use to attempt to communicate with the MDR Server. There are three options: Ethernet, Wi-Fi and mobile network.

Server protocol type shows the built-in proprietary communication protocol that will be used between the MDR unit and MDR Server.

Server IP Address displays the IP address of the MDR Server. This can either be an internal or external IP address.

Port shows the port used for communication between the MDR and MDR server.



Server Status Figure 162

8.4 Environment

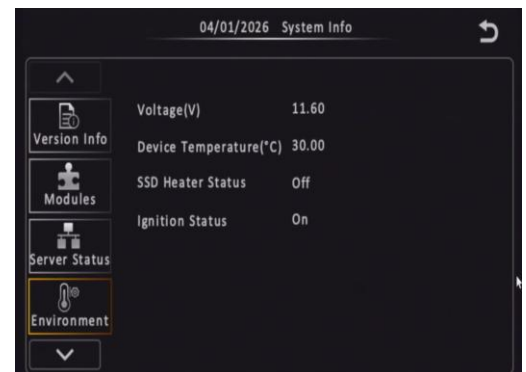
Voltage (V) indicates the current voltage level the MDR is receiving.

Device Temperature (°C) shows the physical temperature of the MDR unit.

SSD Heater Status indicates the current state of the heater. The heater is found on the PCB inside the MCU. The heater turns on automatically once the environment temperature goes down below 10°C and will keep heating to maintain the device temperature around 10°C.

Note: The SSD will not record while the MDR is warming up, until it reaches 10 °C and turns on properly.

Ignition Status indicates the current state of the ignition wire.



Environment Figure 163

8.5 Storage

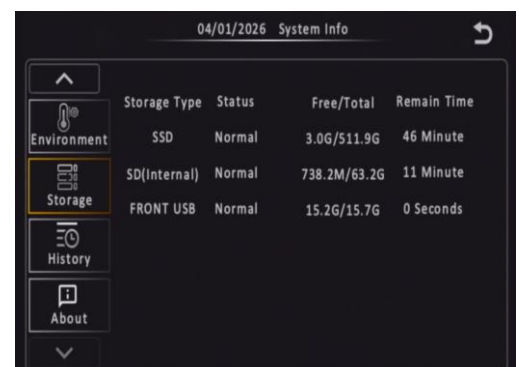
Storage Type refers to the medium of storage. By default, any installed storage medium should be displayed. **FRONT USB** may also be displayed here if a flash drive is connected to the front USB port, found on the docking station.

Warning: Do not connect an external storage to the front USB port. Only USB Flash drives (which contain flash memory) are supported by this port. Brigade will not be held responsible for incorrect use of this port.

Status is an indication of the state of the storage medium. There are three states that can be shown: **Recording**, **Normal** or **Failed**. **Recording** refers to when the medium is currently recording data. **Normal** is when the medium is not currently recording data, and it has no errors/failures. If the **Failed state** is displayed, the MDR should be restarted and the storage medium formatted or replaced.

Free/Total shows the capacity of the storage media. In all storage media, once formatted, some space will be lost due to binary maths. In general, 70MB of storage will be used per gigabyte.

Remain Time shows the remaining time on each storage media that is currently being recorded on.



Storage Figure 164

8.6 History

Highest Speed is displayed with the relevant date and time.

Total Mileage is an indication of the vehicle's mileage.

Lowest Voltage is displayed with the relevant date and time.

Highest Voltage is displayed with the relevant date and time.

Lowest Temperature is displayed with the relevant date and time.

Highest Temperature is displayed with the relevant date and time.

Highest Information Clean is used to clear all historic information shown on this page.



History Figure 165

8.7 About

Free and Open-Source Software List (FOSS) to display all information of open-source platforms which have been used in MDR firmware.



FOSS Figure 166

9 Advanced Ethernet Configurations

This section is dedicated to an advanced feature for individuals with networking knowledge which enables users to:

- Live View of Cameras
- Playback and download recordings
- View and download logs
- Configure MDR unit settings

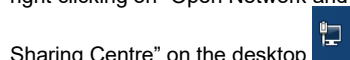
This feature is not recommended for field operations, diagnosis and configuration. Recommended browsers are Microsoft Edge and Google Chrome. Other browsers are also supported but have only been minimally tested.

Warning: The web interface menu below does not match the OSD menu found on the MDR. Terminology may differ but the same settings can be found.

Note: The configuration requires a Cat5e cable, a Microsoft Windows™ Operating system; a PC with an Ethernet RJ45 port and a wireless adapter with Internet Access.

9.1 Ethernet Setup

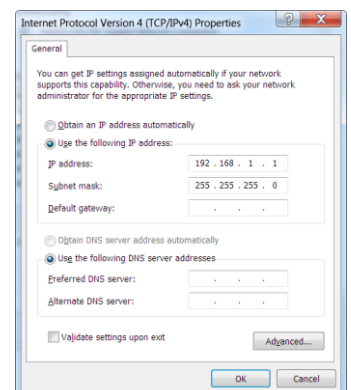
- Connect an Ethernet cable to the PC and Ethernet LAN port on the back of the MDR.
- The following steps apply to PCs running Windows 7 upwards. Before making changes to the PC's network settings, ensure all work is saved.
- *Local Area Connection Properties Figure 167* shows the network configuration window. This dialog may be accessed by right clicking on "Open Network and



Sharing Centre" on the desktop. Select the appropriate network interface by double clicking.



Local Area Connection Properties Figure 167



Internet Protocol Version 4 Figure 168

- Select the “Internet Protocol Version 4 (TCP/IPv4)” item and click “Properties”. *Internet Protocol Version 4 Figure 168* is displayed; an IP address should be entered in this box; **192.168.1.1** is shown in the example. (This address is on the same subnet as the MDR, which has a default IP address of **192.168.1.100**).
- To locate the MDR IP, log into the MDR menu, go to **Basic Setup → Ethernet** and check the IP address.
- To change, type the new IP address and click save.
- To test the PC connection to the MDR, open the Command prompt by typing cmd within the start-up menu. Ping the MDR IP address by typing **ping 192.168.1.100**. These results are shown in *Results from Command Prompt Figure 170*.
- Open a web page and type the following: <http://192.168.1.100>.
- The login window (*Web User Login Figure 172*) will appear after enter the IP address.
- Enter the appropriate password (same as MDR unit login) to grant the correct permissions, and then click **LOGIN**.

Note: If this is the first time logging in to the MDR, users are required to set a new password for the device. Please login with the username/password combination “admin/admin” or “user/user” to trigger the password setup process. Any other combination will result in a login failure.



MDR Network Settings Figure 169

```
Administrator: Command Prompt
C:\Users\user>ping 192.168.1.100<----- MDR IP Address

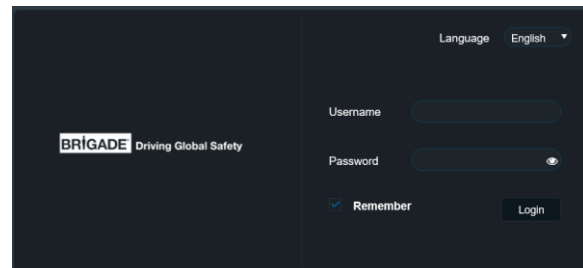
Pinging 192.168.1.100 with 32 bytes of data:
Reply from 192.168.1.100: bytes=32 time=3ms TTL=64
Reply from 192.168.1.100: bytes=32 time=2ms TTL=64
Reply from 192.168.1.100: bytes=32 time=2ms TTL=64
Reply from 192.168.1.100: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 3ms, Average = 2ms
```

Results from Command Prompt Figure 170



Web Address Figure 171



Web User Login Figure 172

9.2 Ethernet Operation

- Once logged in, 5 tabs will be displayed as follows: **PLAYBACK**, **LIVE VIEW**, **MAINTENANCE**, **LOG** and **SETUP**. See *Web Application Manager Figure 173*.
- **PLAYBACK** tab allows users to view and download recordings.
- **LIVE VIEW** tab allows users to view the live cameras.
- **MAINTENANCE** shows you basic information, device module information, storage device information and version information.
- **LOG** is used to display and export logs.
- **Setup** is used to configure MDR settings such as basic setup, surveillance, events and alarms.
- **PLAYBACK** tab allows users to view and play recordings. Users can **SEARCH** by date, type, time, channel and the source of the recording.
- Clicking various calendar dates will automatically load video data in the timeline.
- Snaps are saved in the following path (Default):
C:\Users\Administrator\NVR\192.XXX.XXX.XXX\CAPTURE\CHXX

Note: Please use the admin account to operate, and use admin authority to open the web browser (right click run as administrator), or snaps will be saved in a Windows temp folder called:

C:\Users\XXXXX\AppData\Local\Microsoft\Windows\INetCache\Virtualized\C\Users\XXXXX\NVR\XXX.XXX.XXX.XXX\CAPTURE. This folder is invisible most of the time. Please follow online instructions to unhide those folders as needed.

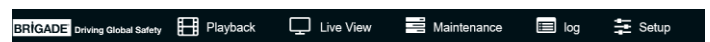
- See the toolbar and the view options shown below:



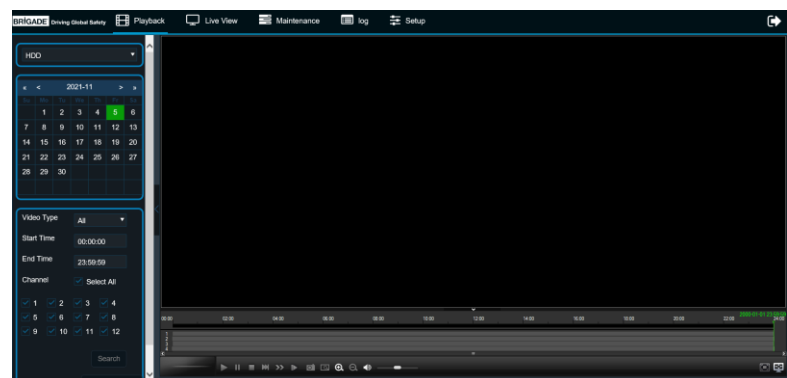
Playback Toolbar Figure 174



Playback View Options Figure 175



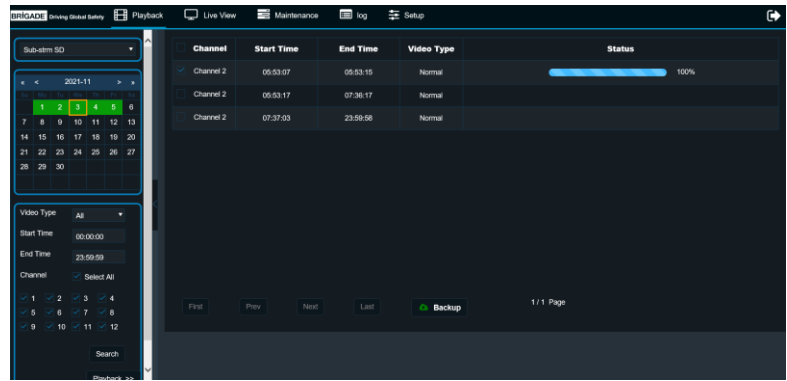
Web Application Manager Figure 173



Playback Figure 176

- PLAYBACK will also show a record list based on your search which can be downloaded. You can access this by clicking on Record List found below the Search button.
- Tick which channels you would like to download then click Backup.
- Then a pop-up window will ask for that data type.
- Proprietary and AVI data is stored in the following path (Default):
C:\Users\Administrator\NVR\192.168.1.100\BACKUP

Note: Please use computer admin profile to operate, also use admin authority to open the IE web browser (right click run as administrator)

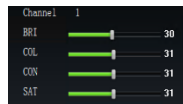


Record List Figure 177

- Live view is used to view live cameras. Audio is and accessible. The green outline indicates which channel's audio is playing.
- See view options below. Snaps are saved in the same path as above. Each channel's settings can be adjusted individually, such as brightness, colour, contrast and saturation using .
- You can switch between main stream and sub stream using options in Live Stream Options Figure 180.



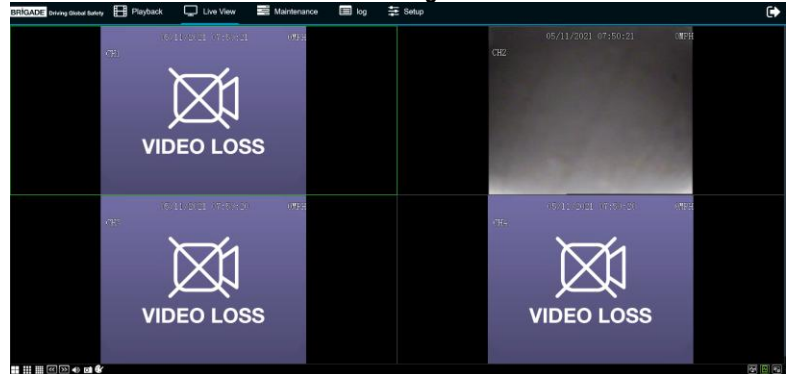
Live View Options Figure 178



Live Channel View Settings Figure 179



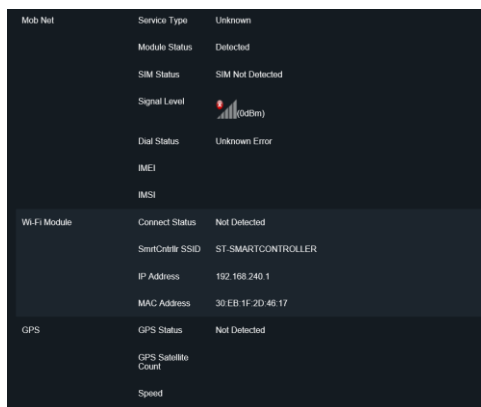
Live Stream Options Figure 180



Live View Figure 181

9.3 Ethernet Maintenance

- Version Information displays firmware version, MCU version, IP camera firmware version, mobile network module firmware and algorithm version (which is not in use currently).
- Device module displays information with regards to the mobile network, Wi-Fi and GPS modules. See below:

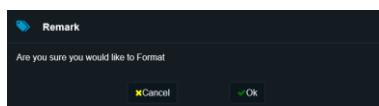


Ethernet Module Information Figure 182

Firmware Version	V3.4.4.1_R21101503
MCU Version	MDR644-M01-STM32-MCU-T21091201
Algorithm Version	ADAS8-NAE091611 DSM:N3DMSE9061_Nor
Remote Device[Channel 5]	T2018082001.C20.M4.0
4G Version	EC25ECGAR06A05M1G

Ethernet Version Information Figure 183

- Storage Device** is used for a variety of features. It shows all storage devices; SSD, SD(Internal) and FRONT USB. The free/total capacities are displayed. 
- You can format a chosen storage device by clicking . See below for format confirmation window.
- Under the **Local Storage** section, you can define the path used for snaps and video backups. By default, this is set to:
C:\Users\Administrator\NVR\



Ethernet Format Confirmation Figure 184

Storage Name	Free/Total	Status	Format
HDD	988.6G/999.9G	Recording	
SD(Internal)	805.3M/31.9G	Recording	
Local storage			
Snap Path	C:\Users\sofia.zhang\NVR\	Browse	
Record backup path	C:\Users\sofia.zhang\NVR\	Browse	

Ethernet Storage Devices Figure 185

- **Environment** shows the device voltage, device temperature and ignition status. This is aligned with MDR OSD.
- **Server Status** shows the current configured server connection status. This is aligned with MDR OSD.
- **Configuration** files can be exported or imported. When export is selected, a prompt will ask the user to confirm the saving of the file.
- Importing a configuration file requires you to have a config file already stored locally, and this is then sent to the MDR.
- **Upgrade** upgrade MDR FMW and Restart the unit. (R-Watch Upgrade is not in use)

The screenshot shows a web-based configuration interface for Ethernet settings. It includes sections for:

- Import Parameters (with Browse and Import buttons)
- Export Parameters (with Export button)
- Import AI Parameters (with Browse and Import buttons)
- Export AI Parameters (with Export button)
- Import Network Parameters (with Browse and Import buttons)
- Export Network Parameters (with Export button)
- Import Geo-Fence Parameters (with Browse and Import buttons)
- Export Geo-Fence Parameters (with Export button)
- Import Ethernet HTTPS Certificate and Key (with Browse and Import buttons)
- Remove Ethernet HTTPS Certificate and Key (with Clear button)
- Import SMAACON TLS Certificate and Key (with Browse and Import buttons)
- Remove SMAACON TLS Certificate and Key (with Clear button)
- Factory Settings (with Reset button)

Ethernet Config Figure 186

Main Voltage(V)	11.80
Farad Voltage(V)	12.40
Device Temperature(°C)	41.00
Ignition Status	ON

Ethernet Environment Figure 187

Center Server 1	Server Connect Status	Unconnected
	Network Type	Wi-Fi
	Server Protocol Type	MDR6
	Server IP Address	217.13.142.246
	Port	5556
Center Server 2	Server Connect Status	Unconnected
	Network Type	Wi-Fi
	Server Protocol Type	MDR6
	Server IP Address	217.13.142.249
	Port	5556

Ethernet Server Status Figure 188

The screenshot shows a web-based upgrade interface. It includes:

- A 'System Restart' section with a 'Restart' button.
- An 'FMW/MCU' section with a 'Browse' button and an 'Upgrade' button.
- An 'R-Watch' section with a 'Browse' button and an 'Upgrade' button.

Ethernet Upgrade Figure 189

9.4 Ethernet Log

- Log is used to search, display and export logs from the MDR.
- Logs can be alarm logs, operation logs or locked logs.
- Alarm logs can be filtered further by type such as: IO, Panic, Speed, Video Loss, Blind detection, Motion detection, G-Force and Geo-Fence.
- Search results are displayed below containing information such as type, date, time and details.
- Exporting log files is done by clicking Export, this will then show a prompt as shown below. Click Save. By default, this will save to the following path: C:\Users\Administrator\Downloads
- Exports are stored as .txt files which can be opened by a text editor such as Notepad™.

The screenshot shows a web-based log interface. At the top, there are filters for 'Log Type' (set to 'All type'), 'Time' (05/11/2021), and 'From' (00:00:00) to 'To' (23:59:59). Below the filters is a table of log entries:

Operation Type	Time	Information
Operation Log	2021-11-05 07:57:24	Format SD(internal) Username:admin 192.168.1.66
Operation Log	2021-11-05 07:16:19	Save configuration Basic Setup-Network-Ethernet User Name:admin
Operation Log	2021-11-05 07:13:35	Log Search Username:admin 192.168.1.66
Operation Log	2021-11-05 07:12:56	Save configuration Basic Setup-Network-Wi-Fi User Name:admin
Operation Log	2021-11-05 07:06:17	Save configuration Basic Setup-Network-Ethernet User Name:admin
Operation Log	2021-11-05 06:31:16	Format HDD User Name:admin

Ethernet Logs Figure 191

The screenshot shows a standard Windows file save dialog box. The text reads: 'Do you want to open or save 20170612LogBackup.txt from 192.168.14.219?'. There are 'Open', 'Save', and 'Cancel' buttons.

Ethernet Log File Figure 190

9.5 Ethernet Configuration

Ethernet configuration is a web version of the OSD map found on the MDR. Please refer to Chapter 5 Setup for further details. Ensure you click save after each change to ensure this gets sent to the MDR.

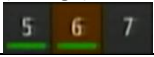
10 On-screen Display Map

Note: **GREEN ARIAL BLACK ITALICS** represents default settings

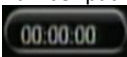
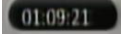
10.1 Rec Search

10.1.1 Rec Search

Rec Search	
TITLE	OPTION No 1
Source Drop down option	MAIN
	STORAGE
	Sub – sub-strm
	Sub – Main-strm

Month (XXX)	 
Year (XXXX)	 
Date	Choose on calendar view (Orange) 
Next	----->

Search Options	
TITLE	OPTION No 1
Video Type	ALL
	Normal
	Alarm
	Lock
Channel	AVAILABLE
	INDIVIDUAL
	1-4 group
	5-8 group
	9-12 group
Search	----->

Search Options	
TITLE	OPTION No 1
Zoom Out	
Zoom In	
Earlier in day	
Later in day	
Channel options	AVAILABLE INDIVIDUAL
Playback Start Time	Choose time using number pad 
Export	Back
	Start time XX.XX.XX
	End time XX.XX.XX
	Cancel
	Export ----->
Playback (During Playback right-click removes OSD from view)	Show/Hide Volume menu 
	Choose time using number pad 
	Volume Increase 
	Volume Decrease 
	Mute Volume 
	Next Channel 
	Previous Channel 

Export Time
File Size
Remaining/Total

Rewind x2 x4 x8 x16	
Play / Pause	
Fast Forward x2 x4 x8 x16	
Slow Forward 1/2 1/4 1/8 1/16	
Step	
Back	

10.2 SYSTEM INFO

10.2.1 Version Info

Version Info	
TITLE	OPTION No 1
Device Name	MDR-XXX Series
Serial Num 	XXXXXXXXXX (10 characters)
MAC Address	XX:XX:XX:XX:XX:XX (12 characters)
Firmware Version	XXXXXXXXXX
MCU Version	MDRXXXXXXXXXX

10.2.2 Modules

10.2.2.1 Mob Net

Mob Net	
TITLE	OPTION No 1
Connection Type	Unknown
	GPRS/EDGE
	CDMA
	EVDO
	WCDMA
	TDSCDMA
	FDD
	TDD
Module Status (Physical State)	EC25
	Not Detected
SIM Status (Physical State)	SIM Detected
	SIM Not Detected
	SIM Available
	SIM Not Available
	SIM Busy
Dial Status	Dialled Up
	Failed Dial Up
	DIAL UNKNOWN ERROR
Signal Level	 (XXdBm)
IP Address	XXX.XXX.XXX.XXX
IMEI	XXXXXXXXXXXX (15 characters)
IMSI	XXXXXXXXXXXX (15 characters)

10.2.2.2 Wi-Fi

Wi-Fi	
TITLE	OPTION No 1
Built-in Wi-Fi Status (Physical State)	Detected
	Not Detected
	AP cannot find
	Connecting
	Connection Failed
	Connected
	Obtaining IP Address (DHCP)
Signal Level	
IP Address	XXX.XXX.XXX.XXX
MAC Address	XX:XX:XX:XX:XX:XX (12 characters)
SmrtCntrlr Wi-Fi Status	Detected

	Not Detected
SmrtCntrlr SSID	Unique ID
SmrtCntrlr IP Address	XXX.XXX.XXX.XXX
SmrtCntrlr MAC Address	XX:XX:XX:XX:XX:XX (12 characters)

10.2.2.3 GPS

GPS	
TITLE	OPTION No 1
GPS Status (Physical State)	Detected
	Not Detected
	No GPS Module
GPS Satellite Count	Various
Speed	MPH/ KM/H

10.2.3 Server Status

Centre Server #	
TITLE	OPTION No 1 (up to 8 using   buttons)
Server Status	Unconnected
	Connected
Network Type	Mob Net
	Wi-Fi
	Ethernet
	Auto-adapt
Server Protocol Type	MDR7
Server IP Address	XXX.XXX.XXX.XXX
Port	XXXX (usually 4 characters, depends on port specification)

10.2.4 Environment

Environment	
TITLE	OPTION No 1
Voltage (V)	XX.XX
Device Temperature (°C)	XX.XX
SSD Heater Status	Off
	On
Ignition Status	Off
	On

10.2.5 Storage

Storage	
TITLE	OPTION No 1
Storage Type	SSD1 / SSD2
	SD(Internal1) / SD(Internal2)
	SD (FPB)
	FRONT USB
Status	Recording
	Normal
	Failed
Free/Total (in Megabytes, Gigabytes or Terabytes)	XXX.X/XXX.XG
Remain Time (in Days/Hours/Minutes)	X.X

10.2.6 History

History	
TITLE	OPTION No 1
Highest Speed	xx MPH/KM/H, dd/mm/yyyy, hh:mm:ss
Total Mileage	xxxx.xxxx MILE / KM
Lowest Voltage	xx.xV, dd/mm/yyyy, hh:mm:ss
Highest Voltage	x.xV, dd/mm/yyyy, hh:mm:ss
Lowest Temperature	xx.x F/C, dd/mm/yyyy, hh:mm:ss
Highest Temperature	xx.x F/C, dd/mm/yyyy, hh:mm:ss
Highest Information Clean	

10.2.7 About

History

TITLE	OPTION No 1
Free and Open-Source Software List	Details

10.3 LOG SEARCH

Log Search		TITLE		OPTION No 1	
Month					
Year					
Date	Choose on calendar view (Orange) 				
Next	----->	Start Time	hh:mm:ss	Using Number Pad.	
		End Time	hh:mm:ss		
		Log Type	OPERATION LOG		
		Alarm Log--->		Alarm Type--->	ALL
		Locked Log			IO Alarm
		Search->			Panic Button
					Speed Alarm
					Video Loss
					Motion
					G-Force
					Blind Detection
					Geo-Fence
					AI Alarm

10.4 SETUP

10.4.1 Basic Setup

10.4.1.1 Reg Info

10.4.1.1.1 Vehicle Info

Vehicle Info	
TITLE	OPTION No 1
Vehicle Reg (Shows on MDR-Dashboard)	XXXXXXXXXX (10 characters)
Vehicle Num (Shows on MDR-Dashboard)	XXXXXXXXXX (10 characters)

10.4.1.1.2 Driver Info

Driver Info	
TITLE	OPTION No 1
Driver Number (Not Shown in MDR-Dashboard)	XXXXXXXXXX (10 characters)
Driver Name (MDR-Dashboard Evidence Area)	XXXXXXXXXX (10 characters)

10.4.1.1.3 Company Info

Company Info	
TITLE	OPTION No 1
Company Name (Shows on MDR-Dashboard)	XXXXXXXXXXXXXXXXXXXX (16 characters)
Company Branch (Shows on MDR-Dashboard)	XXXXXXXXXX (8 characters)

10.4.1.2 Time Setup

10.4.1.2.1 General

General	
TITLE	OPTION No 1
Date Format	DAY/MONTH/YEAR
	MONTH/DAY/YEAR
	YEAR-MONTH-DAY
Time Format	24 HOURS
	12 Hours
Time Zone	(GMT) DUBLIN, EDINBURGH, LONDON



(GMT/±HH:MM) "City[Cities]"

10.4.1.2.2 Time Sync

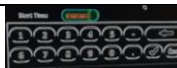
Time Sync		
TITLE	OPTION No 1	
Date/Time	Choose from calendar	dd/mm/yyyy
	Use numpad to enter time	hh:mm:ss
GPS	ENABLED	
	Disabled	
NTP sync (?)	Enabled ----->	time.nist.gov
	DISABLED	
Center Server	DISABLED	
	Enabled	Choose from server 1 ~ Server X

10.4.1.2.3 DST

DST			
TITLE	OPTION No 1		
Enable	ENABLED ----->	Start	MAR. Choose Calendar Month = XXX 1 ST , 2 ND , 3 RD , 4 TH , LAST SUNDAY Choose Day of Week 02:00:00 Choose time hh:mm:ss
	Disabled		
End		End	OCT. Choose Calendar Month = XXX 1 ST , 2 ND , 3 RD , 4 TH , LAST SUNDAY Choose Day of Week 02:00:00 Choose time hh:mm:ss
			

10.4.1.3 Power

10.4.1.3.1 On/Off

On/Off					
TITLE		OPTION No 1			
On/Off Mode (?)	IGNITION		Timer From	Enter Start Time	hh:mm:ss
	Timer ----->				
	Ignition or Timer----->	Enter End Time		hh:mm:ss	
Non-stop (?)	Enabled (Disables Shutdown Delay)				
	DISABLED				
Shutdown Delay	600 SECONDS (0-86399) seconds		Using Number Pad		
Shutdown Recording Delay (?)	600 SECONDS (0-86399) seconds		Using Number Pad		

10.4.1.3.2 Voltage

Voltage			
TITLE	OPTION No 1		
Low Voltage Protection	Enabled----->	Low Voltage (8~11.5) V / (20~23.5) V	11.0 V / 22.0 V
	DISABLED	Start-up Voltage (12~14) V / (24~26) V	12.0 V / 24.0 V
		Observe Time (Period observed for it to be considered a low voltage event)	300 SECONDS (0-1800) seconds
		Low Volt Upload (Uploads Low Volt Information to MDR Server, requires mobile network or Wi-Fi MDR model)	Enabled
			DISABLED

10.4.1.3.3 Sleep

Sleep			
TITLE	OPTION No 1		
Sleep Mode (?)	Enabled----->	Sleep Duration	100 (0~100)Hours
		Periodic Wake-up	5 (0~720)Min
	DISABLED		

10.4.1.4 User Setup

USER SETUP						
TITLE		OPTION No 1				
Menu Idle Time (Automatically Logout Period)	30 Seconds		Enabled --→	Edit -----→	Username	XXXXXXXXXX (10 characters)
	1 Minute				User Group	Admin
	3 MINUTES					Normal User
	5 Minutes				New Password	XXXXX...XXXXX (16 characters)
	10 Minutes					
	Never					
Username	admin					
	user					
User Group	Admin					
	Normal User					
Add ? (Active if a maximum of 2 user accounts exist)						
	Username					
	User Group					
	Password					
	Confirm Password					

10.4.1.5 Storage Key

Storage Key			
TITLE	OPTION No 1		
Storage Name	SSD1		
	SSD2		
	SD(Internal1)		
	SD(Internal2)		
Storage Protected Enable	Enabled----->	New Password	XXXXXXXX (8 Characters)
		Old Password	XXXXXXXX (8 Characters)
	DISABLED		

10.4.1.6 Network

10.4.1.6.1 Ethernet

0.4.1.0.1 Ethernet

Ethernet			
TITLE		OPTION No 1	
Enable IPv4	ENABLED		
	Disabled		
DHCP Mode ?	Enabled		
	DISABLED		
Static IP	ENABLED ----->	IP Address	192.168.001.100
	Disabled	Subnet Mask	255.255.255.000
		Gateway	192.168.001.254
OBTAIN DNS AUTO	DISABLED		
	Enabled		
Use following DNS ----->	Preferred DNS Server	008.008.008.008	
	Alternate DNS Server	008.008.004.004	
Enable IPv6	Enabled		
	DISABLED		
DHCP Mode ?	Enabled		
	DISABLED		
Static IP	ENABLED ----->	IP Address	::192.168.001.100
	Disabled	Prefix Length	64
		Gateway	::192.168.001.001
OBTAIN DNS AUTO	DISABLED		
	Enabled		
Use following DNS ----->	Preferred DNS Server	::192.168.001.001	
	Alternate DNS Server	::192.168.001.001	

10.4.1.6.2 Ports

Ports	
TITLE	OPTION No 1
Ethernet HTTPS [?]	ENABLED
	Disabled
Web Port (IE access to MDR using Ethernet)	443
	80 (If Ethernet HTTPS is disabled)
RTSP Port	554
SAMCON TLS [?] (Access to MDR using SmartController Apps)	ENABLED
	Disabled

10.4.1.6.3 Wi-Fi

Wi-Fi						
TITLE		OPTION No 1				
Enable	OFF					
	On -----→	SSID	XXXXX...XXXXX (32 characters)			
		Encryption ---→	None	Password	XXXX...XXXX (32 characters)	
			WEP -----→			
			WPA/WPA2-PSK -----→			
			WPA2_Enterprise--- -----→			
		Static IP	Enabled -----→	IP Address	XXX.XXX.XXX.XXXX	
			DISABLED	Subnet Mask	XXX.XXX.XXX.XXXX	
			Gateway	XXX.XXX.XXX.XXXX		
	SmartController	SSID	XXXXX...XXXXX (32 characters)			
		Wi-Fi Mode	2.4GHz			
			5GHz			
		Encryption ----- -----→	None	Password	XXXX...XXXX (32 characters)	
			WEP -----→			
			WPA-----→ None			
		Hotspot	DISABLED			
			Enabled			

10.4.1.6.4 Mob Net

Mob Net	
TITLE	OPTION No 1
MTU	1500 (1~1500)
Enable	OFF
	On
Server Type	No Service
	GPRS/EDGE
	CDMA
	EVDO
	WCDMA
	TDSCDMA
	FDD
	TDD
Network Type	3G
	4G
	5G
	Mix
APN	XXXX...XXXX (32 characters)
Username	XXXX...XXXX (32 characters)
Password	XXXX...XXXX (32 characters)
Access Number	*99#
Certification	NONE
	PAP
	CHAP
	Mix
Active Mode	ALWAYS

Phone/SMS-----→	
Number1	XX...XXX (16 characters)
Number2	XX...XXX (16 characters)
Number3	XX...XXX (16 characters)

10.4.1.6.5 Server

Server					
TITLE	OPTION No 1				
Centre Server	SERVER 1 -----→	Add/ Delete			
	Server 2 -----→	Add/ Delete			
	Server 3 -----→	Add/ Delete			
	Server 4 -----→	Add/ Delete			
	Server 5 -----→	Add/ Delete			
	Server 6 -----→	Delete			
ON	ENABLED -----→	TLS ENABLE	ENABLED -----→	Verify Certificate ?	DISABLED
			Disabled		Enabled
		Protocol Type ----→	MDR7		
		Network Mode ---→	Ethernet		
			Wi-Fi		
			MOB NET		
			Auto Adapt		
		MDR Server IP	xxx.xxx.xxx.xxx		
		MDR Server Port	TCP	5556 (If Server TLS is disabled)	
			TLS	6556	
		Media Server IP	xxx.xxx.xxx.xxx		
		Media Server Port	TCP	5556 (If Server TLS is disabled)	
			TLS	6556	
		Disabled			

10.4.1.6.6 SMS

SMS	
TITLE	OPTION No 1
SMS Password	XXXXXXXX

10.4.1.7 Application

10.4.1.7.1 FTP Server

FTP Server	
TITLE	OPTION No 1
FTP Enable	DISABLED
	Enabled
Server	192.168.1.200
port	21
Username	Admin
Password	XXXX...XXXX (32 characters)

10.4.1.8 Other Setup

10.4.1.8.1 Algorithm

Algorithm	
TITLE	OPTION No 1
ADAS Camera Install Height	153 (50 ~ 400)CM
ADAS Camera Left Margin	120 (0~400)CM
Front-end Width	240 (0~400)CM
Front-end Length	50 (0~400)CM
Unit Type	CM
	Inch
AI Voice Enable (All)	ENABLED
	Disabled
Hazard Warning Unit Voice Enable (All)	ENABLED
	Disabled
Hazard Warning Unit Brightness	2 (0~8)

10.4.2 Surveillance

10.4.2.1 Live View

10.4.2.1.1 Preview

Preview	
TITLE	OPTION No 1
Live Audio	Enabled
	DISABLED
Image Setup	Setup ----->
	BRI (Brightness) 31
	
	CON (Contrast) 31
	
	COL (Colour) 31
	
	SAT (Saturation) 31
	
	Channel Choose from 1 to 12
Margins	Mirror/Normal (Mirrors Live and Recorded Data) 
	Flip Vertical (Flips Live and Recorded Data) 
	Copy to ALL
	Choose from 1 to 12
	Margin-Top 20
	
	Margin-Bottom 20
	
	Margin-Left 45
	
	Margin-Right 45
	
Start-up Screen	Single
	QUAD
	6-Split
	9-Split
Channel	Choose from 1-10
	ENABLED
AV Out Mode	Disabled
	1080P
	720P
	CVBS

10.4.2.1.2 Autoscan

Autoscan	
TITLE	OPTION No 1
Autoscan Enable (Max 32)	Enabled ----->
	DISABLED
	Add Screen ----->
	Mode 1 X 1
	2 X 2
	3 x 3
	Layout Assign channels to each area
	Duration 5 SECONDS (1-300 seconds)
	 Edit Screen----->
	Mode 1 X 1
	2 X 2
	3 x 3
	Layout Assign channels to each area
	Duration 5 SECONDS (1-300 seconds)
	 Delete

10.4.2.1.3 Live OSD

Live OSD		
TITLE	OPTION No 1	
Date/Time	ENABLED	
	Disabled	
Vehicle Reg	Enabled	
	DISABLED	
Alarm	Enabled	
	DISABLED	
Vehicle Num	Enabled	
	DISABLED	
Recording State	ENABLED	
	Disabled	
Speed	ENABLED	
	Disabled	
GPS	Enabled	
	DISABLED	
Channel name	ENABLED	
	Disabled	
G-Force	Enabled	
	DISABLED	
Position	Setup	Drag OSD items to desired positions on screen

10.4.2.2 Record

10.4.2.2.1 General

General			
TITLE	OPTION No 1		
Video Format	PAL-AHD		
	NTSC-AHD		
Main Storage	SSD		
	SD		
SSD/SD Overwrite	By Days-----→		1 (1-31 Day)
	BY CAPACITY		
	Never		
Locked File Retention (?)	7 (1-31 Day)		
Alarm Pre-recording	ENABLED -----→		30 SECS
	Disabled		1 Min
			3 Min
			5 Min
			10 Min
			15 Min
			30 Min
			1 Hour
Enable Live View	ENABLED	All Channels	
SD Record Mode	SUB-STREAM -----→	Sub-Stream CH	Choose from 1-10
	Main Stream	Main Stream CH	Choose from 1-10
	Alarms	Alarm CH	Choose from 1-10
	Loop-Record		
SD Write Resource Ratio	xx.x%		
Record Storage	INTERNAL SD		

10.4.2.2.2 Main

Main	
TITLE	OPTION No 1
Channel	Choose from all available channels
Channel Name	CH1...CHX
Enable Recording	ENABLED
	Disabled
AI Alert	Enabled
	DISABLED
Resolution (options auto-adjust based on available camera inputs)	CIF

	WCIF						
	HD1						
	WHD1						
	D1						
	WD1 (960H)						
	720p (AHD/IP)						
	960p (AHD/IP)						
	1080p (AHD/IP)						
Encode Standard	H264						
	H265						
Frame Rate	20 - Choose from 1 to 30						
Quality	2 - Choose from 1 (Best) to 8	xxxKbps (Transmission speed for this channel)					
Record Mode 	IGNITION			 Delete			
	Timer ----->	Schedule->	Choose from Sun to Sat		Start Time	hh:mm:ss	
	Alarm				End Time	hh:mm:ss	
Audio	Always Audio				Video Type->	Normal	
	NO AUDIO						
	Alarm Audio					Alarm	
Alarm Quality	1 Choose from 1 (Best) to 8						
Encode Mode	CBR						
	VBR						
Audio Coding Format	ADPCM						
	G711U						
	G711A						
Percentage of Main Stream	xx.x%						
Copy to	ALL						
	Choose from all available channels						

10.4.2.2.3 Sub

Sub	
TITLE	OPTION No 1
Channel	Choose from all available channels
Enable	Disabled
	ENABLED
Encoded Standard	H264
	H265
Audio	NO AUDIO
	Alarm Audio
	Always Audio
Resolution (options auto-adjust based on available camera)	CIF
	HD1
	D1
Frame Rate	5 Choose from 1 to 30
Quality	2 Choose from 1 (Best) to 8
	xxxKbps (Transmission speed for this channel)
Copy to	ALL
	Choose from all available channels

10.4.2.2.4 Record OSD

Record OSD	
TITLE	OPTION No 1
Date/Time	ENABLED
	Disabled
Vehicle Reg	ENABLED
	Disabled
Channel Name	ENABLED
	Disabled

G-Force	Enabled		
	DISABLED		
Speed	ENABLED		
	Disabled		
GPS	Enabled		
	DISABLED		
Vehicle Num	Enabled		
	DISABLED		
Alarms	ENABLED		
	Disabled		
Position 	Setup ----->		Drag OSD items to desired positions on screen

10.4.2.3 IPC Setup

IPC Setup						
TITLE	OPTION No 1					
Channel 1 X	Enable -->	IP And Port xxx.xxx.xxx.xxx:xxxx	Search -> 	MAC Address	Enabled --->	IP Address
					Disabled	
				Protocol type	MDR7 ---->	Port 9006
			Network Setup ->	Remote Device	ONVIF ---->	Port 9007
					DEFAULT	
				DSM		
				Protocol Type	MDR7	
				ONVIF		
				IP Address	xxx.xxx.xxx.xxx	
				Port	9006	
				Username	admin	
				Password	xxxxxxxxxxxxxxxx	
			Outside	Enabled		
				DISABLED		
		DISABLED				
Local Address	10.100.100.	1 (Choose from 1 to 253)				

10.4.3 Events

10.4.3.1 General

10.4.3.1.1 Peripherals

Peripherals	
TITLE	OPTION No 1
Remote Panel	OFF
	On

10.4.3.1.2 Speed

SPEED					
<u>TITLE</u>	<u>OPTION No 1</u>				
Unit	KM/H				
	MPH				
Source	GPS				
	CAN				
	Speed Pulse -----→	Calibration Mode	Input Manually	Start	xx:xx:xx
			Finish -----→	Calculate	
			Auto Correct ---→	Correct	
		Pulse Ratio	Per Mile / Per KM		

10.4.3.1.3 Mileage

Mileage	
TITLE	OPTION No 1
Total Mileage	X.XXXX Mile/KM
Actual Mileage	0 (0-4000000) Mile/KM

Mileage Setup	Confirm	Are you sure you would like to set the mileage value?
	Clear	Are you sure you would like to set the total mileage to zero?

10.4.3.1.4 Unit

Unit	
TITLE	OPTION No 1
Temperature	CELSIUS(°C)
	Fahrenheit(°F)

10.4.3.1.5 CAN

CAN	
TITLE	OPTION No 1
Name	CAN1
	CAN2
Type	NULL
General CAN-->	Details->
Protocol Type	NULL
	Imported CAN config

10.4.3.1.6 iButton

iButton	
TITLE	OPTION No 1
iButton	DISABLED
Enabled	Audible Reminder
	DISABLED
	Enabled
	Reminder Repeat Interval
	300 (60~600) s
	Total Reminder Duration
	30 (10~1440) Minute
Sign out delay	300 (0~3600)s

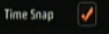
10.4.3.2 Advanced

10.4.3.2.1 A-GPS

A-GPS	
TITLE	OPTION No 1
Enable	Disabled
Enabled	Server Address
	XXX.XXX.XXX.XXX
	Port
	0 (XXXXX)

10.4.3.3 Snapshots

10.4.3.3.1 Time Snap

Time Snap	
TITLE	OPTION No 1
Time Snap	Enabled ----->
	 DISABLED
No. 1 – 8 (maximum)	Start Time (Time of Day)
	End Time
	 Delete
	 Snap Link Setup ->
	Add ----->
	New No. gets added
	Using NumPad: 
	hh:mm:ss
	hh:mm:ss
	Disabled for No. 1
	Channel
	Choose channels
	Snap Enable ----->
	Enabled ----->
	DISABLED
	Copy to
	Choose channels
Resolution	CIF
	WCIF
	HD1
	WHD1
	D1
	WD1
	720p
	960P
	1080p
Quality	1 Choose from 1(Best) to 8

Upload Type	FTP DISABLED
	FTP Enabled
Snap Count	1 (1~3) pcs
Snap Interval	5 (5~3600) seconds

10.4.3.3.2 IO Snap

IO Snap		OPTION No 1	
TITLE			
Alarm Snap	Snap Link Setup-----→	Channel	Choose channels
		Snap Enable -----→	Enabled -----→
			DISABLED
		Copy to	ALL
			Choose channels
		Resolution	CIF
			WCIF
			HD1
			WHD1
			D1
			WD1
			720p
			960P
			1080p
		Quality	1 Choose from 1(Best) to 8
		Upload Type	FTP DISABLED
			FTP Enabled
		Snap Count	1 (1~3) pcs
		Snap Interval	5 (5~3600) seconds
Mob App/Web Snap (IE access to MDR)	Snap Link Setup -----→	Channel	Choose from channels
		Snap Enable -----→	Enabled -----→
			DISABLED
		Copy to	ALL
			Choose channels
		Resolution	CIF
			WCIF
			HD1
			WHD1
			D1
			WD1
			720p
			960P
			1080p
		Upload Type	FTP DISABLED
			FTP Enabled
		Quality	1 Choose from 1(Best) to 8
		Snap Count	1 (1~3) pcs

10.4.3.3.3 Distance

Distance		OPTION No 1	
TITLE			
Distance Interval	10 (0.1Mile)		
Alarm Snap	Snap Link Setup-----→	Channel	Choose channels
		Snap Enable -----→	Enabled -----→
			DISABLED
		Copy to	ALL
			Choose channels
		Resolution	CIF
			WCIF
			HD1
			WHD1
			D1
			WD1
			720p
			960P
			1080p
		Quality	1 Choose from 1(Best) to 8
		Upload Type	FTP DISABLED
			FTP Enabled
		Snap Count	1 (1~3) pcs
		Snap Interval	5 (5~3600) seconds

10.4.4 Alarms

10.4.4.1 General

10.4.4.1.1 Speed Alarm

Speed Alarm			
TITLE	OPTION No 1		
Overspd	Enabled---→	Alarm Type	ALARM
	DISABLED	Event	
		Trigger	Early Difference
			10 MPH
			Speed
			80 MPH
			Duration Time
			10 (0~255) seconds
			Alarm Off-Delay
			10 (0~10) seconds
		Alarm Link Setup	-----→
		Channel	TICK AVAILABLE CHANNELS
		Audio	TICK AVAILABLE CHANNELS
		Audio Duration	NONE
			1 Min
			3 Min
			5 Min
			10 MIN
			15 Min
			30 Min
		Post Record	NONE
			1 Min
			3 Min
			5 Min
			10 MIN
			15 Min
		Lock	Enabled
			DISABLED
		Alarm O/P Link	1 -----→
			2 -----→
		Alarm O/P Duration	0 (0~255) seconds
		Channel Link	NONE
		Single -----→	Setup -----→
			Edit Screen Layout
		Double -----→	Setup -----→
			Edit Screen Layout
		Three -----→	Setup -----→
			Edit Screen Layout
		Quad -----→	Setup -----→
			Edit Screen Layout
		Buzzer	Enabled
			DISABLED
		Buzzer Duration	Always
		Timer -----→	10 (05 - 60 seconds)
		Alarm Snap	Enabled
			DISABLED

10.4.4.1.2 Panic Alarm

Panic Alarm			
TITLE	OPTION No 1		
Panic Bbtn	ENABLED →	Alarm Type	ALARM
	Disabled	Event	
		Trigger	Activation Period
			1 (1~255) seconds
			Alarm Off-Delay ?
			10 (0~10) seconds
		Alarm Link Setup	-----→
		Channel	TICK AVAILABLE CHANNELS
		Audio	TICK AVAILABLE CHANNELS
			TICK AVAILABLE CHANNELS

	Audio Duration	NONE		
		1 Min		
		3 Min		
		5 Min		
		10 MIN		
		15 Min		
		30 Min		
		Post Record		
	1 Min			
	3 Min			
	5 Min			
	10 MIN			
	15 Min			
Lock	30 Min			
	Enabled			
	DISABLED			
Alarm O/P Link	1 ----->	Alarm O/P Duration	0 (0~255) seconds	
	2----->			
Channel Link	NONE			
	Single ----->	Setup ----->	Edit Screen Layout	
	Double----->	Setup ----->	Edit Screen Layout	
	Three----->	Setup ----->	Edit Screen Layout	
	Quad ----->	Setup ----->	Edit Screen Layout	
PB Alarm Duration	20 (0 - 25 seconds)			
Buzzer	Enabled			
	DISABLED			
Buzzer Duration	Always			
	Timer----->	10 (05 - 60 seconds)		
Alarm Snap	Enabled			
	DISABLED			

10.4.4.1.3 IO Alarm

IO Alarm				
TITLE	OPTION No 1			
IO #	ENABLED→	Alarm Type	Alarm	
	Disabled		EVENT	
		Trigger	Sensor Name	IO1
			OSD Name	Rv (IO1), Li (IO2), Ri (IO3), Br (IO4)
			Sensor Uses	NONE
				Right Steering
				Left Steering
				Reverse
				Seat Belt
				Privacy
			Trigger Source	VOLTAGE
				Pulse
		CAN		
		IO Set	Low	
			HIGH	
		Alarm Off-Delay	1 (0~10) seconds	
Alarm Link Setup	-----→	Channel	NO CHANNEL	
		Audio	NO CHANNEL	
		Audio Duration	NONE	
			1 Min	
			3 Min	
			5 Min	
			10 MIN	
			15 Min	

				30 Min	
			Post Record	NONE	
				1 Min	
				3 Min	
				5 Min	
				10 MIN	
				15 Min	
				30 Min	
			Lock	Enabled	
				DISABLED	
Alarm O/P Link			1 -----→	Alarm O/P Duration	0 (0~255) seconds
			2-----→		
Channel Link			NONE		
			Single -----→	Setup -----→	Edit Screen Layout
			Double-----→	Setup -----→	Edit Screen Layout
			Three-----→	Setup -----→	Edit Screen Layout
			Quad -----→	Setup -----→	Edit Screen Layout
Buzzer			Enabled		
			DISABLED		
Buzzer Duration			Always		
			Timer-----→	10 (05 - 60 seconds)	
Alarm Snap			Enabled		
			DISABLED		
Copy	IO #	ALL -----→ Choose from 1 to 8 IO--→	Copy		

10.4.4.1.4 GPS Alarm

GPS Alarm					
TITLE	OPTION No 1				
GPS Alarm	Disabled				
	ENABLED	Alarm Type	Alarm		
			Event		
		Trigger	Alarm Off-Delay (?)	10 Seconds (0~10) Seconds	
		Alarm Link Setup	-----→	Channel	NO CHANNEL
				Audio	NO CHANNEL
				Audio Duration	NONE
					1 Min
					3 Min
					5 Min
					10 MIN
					15 Min
					30 Min
				Post Record	NONE
					1 Min
					3 Min
					5 Min
					10 MIN
					15 Min
					30 Min
				Lock	Enabled
					DISABLED
		Alarm O/P Link	1 -----→	Alarm O/P Duration	0 (0~255) seconds
			2-----→		
		Channel Link	NONE		

	Single ----->	Setup ----->	Edit Screen Layout	
	Double----->	Setup ----->	Edit Screen Layout	
	Three----->	Setup ----->	Edit Screen Layout	
	Quad ----->	Setup ----->	Edit Screen Layout	
Buzzer	Enabled			
	DISABLED			
Buzzer Duration	Always			
	Timer----->			
Alarm Snap	Enabled	10 (05 - 60 seconds)		
	DISABLED			

10.4.4.2 Video

10.4.4.2.1 Video Loss

Video Loss		OPTION No 1	
TITLE	OPTION No 1		
Video Loss	ENABLED →	Alarm Type	ALARM
	Disabled		Event
Trigger Setup	Video Loss Setup	Channel	TICK AVAILABLE CHANNELS
		Effective Time	5 (0~10) seconds
Alarm Link Setup	-----→	Channel	TICK AVAILABLE CHANNELS
		Audio	TICK AVAILABLE CHANNELS
		Audio Duration	NONE
			1 Min
			3 Min
			5 Min
			10 MIN
			15 Min
			30 Min
		Post Record	NONE
			1 Min
			3 Min
			5 Min
			10 MIN
			15 Min
			30 Min
		Lock	Enabled
			DISABLED
Alarm O/P Link	1 -----→	Alarm O/P Duration	0 (0~255) seconds
	2-----→		
Channel Link	NONE		
	Single -----→	Setup -----→	Edit Screen Layout
	Double-----→	Setup -----→	Edit Screen Layout
	Three-----→	Setup -----→	Edit Screen Layout
	Quad -----→	Setup -----→	Edit Screen Layout
Buzzer	ENABLED		
	Disabled		
Buzzer Duration	Always		
	TIMER -----→	10 (5 - 60 seconds)	

Alarm Snap	Enabled
	DISABLED

10.4.4.2.2 Motion Det

Motion Det					
TITLE	OPTION No 1				
MD	Enabled----→	Alarm Type	ALARM		
	DISABLED	Event			
	M.D Setup	Channel Enable (1 to 12)	Enabled -----→	Sensitivity	1 (Most)
					2
					3
					4
					5
					6
					7
					8
				Area	Setup
				Activated	SHUTDOWN DELAY
			Ignition On		
			Both		
		Speed	0		
			All		
		DISABLED			
		Alarm Off-Delay	10 (0~10) seconds		
	Alarm Link Setup	-----→	Channel	TICK AVAILABLE CHANNELS	
			Audio	TICK AVAILABLE CHANNELS	
			Audio Duration	NONE	
				1 Min	
				3 Min	
5 Min					
10 MIN					
15 Min					
30 Min					
Post Record			NONE		
	1 Min				
	3 Min				
	5 Min				
	10 MIN				
	15 Min				
	30 Min				
	Lock	Enabled			
		DISABLED			
Alarm O/P Link	1 -----→	Alarm O/P Duration	0 (0~255) seconds		
	2-----→				
Channel Link	NONE				
	Single -----→	Setup -----→	Edit Screen Layout		
	Double-----→	Setup -----→	Edit Screen Layout		
	Three-----→	Setup -----→	Edit Screen Layout		
	Quad -----→	Setup -----→	Edit Screen Layout		
Buzzer	Enabled				
	DISABLED				
Buzzer Duration	Always				
	Timer-----→	10 (05 - 60 seconds)			
Alarm Snap	Enabled				

DISABLED

10.4.4.2.3 Blind Det

Blind Det			
TITLE	OPTION No 1		
BD	Enabled--->	Alarm Type	ALARM
	DISABLED	Event	
		B.D Setup	Channel
			Enabled ----->
			Sensitivity
			High
			Middle
			Low
			Duration Time
			5 (0~255) seconds
			Alarm Off-Delay
			10 (0~10) seconds
		Alarm Link Setup	Channel
			TICK AVAILABLE CHANNELS
			Audio
			NONE
			Audio Duration
			1 Min
			3 Min
			5 Min
			10 MIN
			15 Min
		Post Record	30 Min
			NONE
			1 Min
			3 Min
			5 Min
			10 MIN
			15 Min
			30 Min
			Enabled
			Lock
		Alarm O/P Link	DISABLED
			Alarm O/P Duration
			0 (0~255) seconds
			1 ----->
			2 ----->
			Channel Link
			NONE
			Setup ----->
			Edit Screen Layout
			Single ----->
		Channel Link	Setup ----->
			Edit Screen Layout
			Double ----->
			Setup ----->
			Edit Screen Layout
			Three ----->
			Setup ----->
			Edit Screen Layout
			Quad ----->
			Enabled
		Buzzer	DISABLED
			Buzzer Duration
			Always
			10 (05 - 60 seconds)
			Timer ----->
			Alarm Snap
			Enabled
			DISABLED

10.4.4.2.4 Privacy Mode

Privacy Mode			
TITLE	OPTION No 1		
BD	Enabled--->	Alarm Type	Event
	DISABLED	Alarm	
		Setup	Channel
			Enabled Channel -- ----->
			Privacy Method
			10
			Ignition OFF
			Exit Method
			Speed 5 (1-120MPH)

			IO
			Ignition ON
		Enable AI Mp3 Voice ?	DISABLED
			Enabled
		Alarm Voice Enable	ENABLED
			Disabled
		Alarm Off-Delay	10 (0-65535 Seconds)
		DISABLED	

10.4.4.3 Advanced

10.4.4.3.1 G-Force

G-Force							
TITLE	OPTION No 1						
G-Force	Enabled-----→	Alarm Type	ALARM				
	DISABLED		Event				
Real-Time	X:						
	Y:						
	Z:						
Auto Calibration	ENABLED						
	Disabled →	Calibrate					
Installation Angle	Row:						
	Pitch:						
	Yaw:						
100HZ G-Force Value	Enabled						
	DISABLED						
Self-checking	Normal						
Navigation	Enable						
	DISABLED						
Select Vehicle Model	ADAPTION						
	Small						
	Large						
	Customized						
	G-Force Trigger	Harsh Braking	ENABLED	0.500 (0.001~1)	20~50 (0~200) MPH		
			Disabled				
		Hard Acceleration	ENABLED	0.500 (0.001~1)	20~50 (0~200) MPH		
			Disabled				
		Harsh Left Turn	ENABLED	0.500 (0.001~1)	20~50 (0~200) MPH		
			Disabled				
		Harsh Right Turn	ENABLED	0.500 (0.001~1)	20~50 (0~200) MPH		
			Disabled				
		Shock	Enabled	X: 1.0 (0.1~8)			
				Y: 1.0 (0.1~8)			
				Z: 2.0 (0.1~8)			
			DISABLED				
		Alarm Off-Delay	10 (0~10) seconds				
		Recommend Settings	Light Duty				
			Medium Duty				
			Heavy Duty				
Alarm Link Setup	-----→	Channel	NO CHANNEL				
		Audio	NO CHANNEL				
		Audio Duration	NONE				

		1 MIN	
		3 Min	
		5 Min	
		10 Min	
		15 Min	
		30 Min	
	Post Record	NONE	
		1 MIN	
		3 Min	
		5 Min	
		10 Min	
		15 Min	
		30 Min	
Lock	Enabled		
	DISABLED		
Alarm O/P Link	1 -----→	Alarm O/P Duration	0 (0~255) seconds
	2-----→		
Channel Link	NONE		
	Single -----→	Setup -----→	Edit Screen Layout
	Double-----→	Setup -----→	Edit Screen Layout
	Three-----→	Setup -----→	Edit Screen Layout
	Quad -----→	Setup -----→	Edit Screen Layout
Buzzer	Enabled		
	DISABLED		
	Buzzer Duration	Always	
	Timer-----→	10 (05 - 60 seconds)	
Alarm Snap	Enabled		
	DISABLED		
Alarm Voice	Enabled		
	DISABLED		

10.4.4.3.2 Geo-Fence

Geo-Fence	
TITLE	OPTION No 1
Enable	ON
	Off

-----→	Channel	NO CHANNEL	
	Audio	NO CHANNEL	
	Audio Duration	NONE	
		1 Min	
		3 Min	
		5 Min	
		10 MIN	
		15 Min	
		30 Min	
		Post Record	NONE
	1 Min		
	3 Min		
	5 Min		
	10 MIN		
	15 Min		
	30 Min		
Lock	Enabled		
	DISABLED		
Alarm O/P Link	1 -----→	Alarm O/P Duration	0(0~255) seconds
	2-----→	Alarm O/P Duration	0(0~255) seconds
	Non-Stop (?)	DISABLED	
		Enabled	

Channel Link	NONE		
	Single -----→	Setup -----→	Edit Screen Layout
	Double-----→	Setup -----→	Edit Screen Layout
	Three-----→	Setup -----→	Edit Screen Layout
	Quad -----→	Setup -----→	Edit Screen Layout
Buzzer	Enabled		
	DISABLED		
Buzzer Duration	Always		
	Timer-----→	10 (05 - 60 seconds)	
Alarm Snap	Enabled		
	DISABLED		

10.4.4.3.3 SSD/SD Error

SSD/SD Error	
TITLE	OPTION No 1
SSD/SD Error	ENABLED→
	Disabled

Alarm Type	ALARM		
	Event		
SSD/SD Error Setup	Alarm Off-Delay	7200 (0~28800) seconds	
	Lock Alarm Off-Delay	ENABLED	
		Disabled	
Alarm Link Setup	-----→	Channel	TICK AVAILABLE CHANNELS
		Audio	TICK AVAILABLE CHANNELS
		Audio Duration	NONE
			1 Min
			3 Min
			5 Min
			10 MIN
			15 Min
			30 Min
		Post Record	NONE
			1 Min
			3 Min
			5 Min
			10 MIN
			15 Min
			30 Min
		Lock	Enabled
		DISABLED	

Alarm O/P Link	1 -----→	Alarm O/P Duration	0 (0~255) seconds
	2-----→		
Channel Link	NONE		
	Single ----- -→	Setup -----→	Edit Screen Layout
	Double----- →	Setup -----→	Edit Screen Layout
	Three----- →	Setup -----→	Edit Screen Layout
	Quad ----- →	Setup -----→	Edit Screen Layout
Buzzer	ENABLED		
	Disabled		
Buzzer Duration	Always		
	TIMER -----→	10 (05 - 60 seconds)	
Alarm Snap	Enabled		
	DISABLED		

10.4.4.4 AI (ADAS)

10.4.4.4.1 LDW

LDW						
TITLE	OPTION No.1					
LDW	ENABLED	Alarm Type	ALARM			
	Disabled	Event				
		Trigger	Level Speed Range	45 ~ 70 MPH		
			Secondary Speed Range	>= 70 MPH		
			Sensitivity	Middle		
				LOW		
				High		
			Alarm Off-Delay	0 (0~600) Seconds		
		Alarm Link Setup	----->	Channel	NO CHANNEL	
				Audio	NO CHANNEL	
				Audio Duration	None	
					1 MIN	
					3 Min	
					5 Min	
					10 Min	
					15 Min	
					30 Min	
				Post Record	None	
					1 MIN	
					3 Min	
					5 Min	
					10 Min	
					15 Min	
					30 Min	
				Lock	Enabled	
					DISABLED	
Alarm O/P Link		1 ----->	Alarm O/P Duration	0 (0~255) seconds		
		2----->				
Channel Link		NONE				
		Single ----->	Setup ----->	Edit Screen Layout		
		Double----->	Setup ----->	Edit Screen Layout		
		Three----->	Setup ----->	Edit Screen Layout		
		Quad ----->	Setup ----->	Edit Screen Layout		
Buzzer		DISABLED				
		Enabled				
Buzzer Duration		ALWAYS				
		Timer----->	10 (05 - 60 seconds)			
Alarm Voice		ENABLED				
		Enable	Disabled			
		Hazard Warning	ENABLED			
Unit Voice Enable		ENABLED				
		Disabled				
Alarm Snap		Snap Mode	MANY			
		Number of Snap	0			
			1			
			2			
		Snap Interval	5 (5-3600) Seconds			
		Channel (Choose from 1 - 12)	DISABLED			
Enabled----->						
		FTP	DISABLED			
			Enabled			
		Resolution	D1			
			CIF			
			HD1			
QCIF						

	QVGA
	VGA
	WCIF
	WHD1
	WD1
	960P
	WQCIF
	720P
	Q1081P
	1080P
Quality	1(Best)
	2
	3
	4
	5
	6
	7
	8

10.4.4.4.2 FCW

FCW			
TITLE	OPTION No.1		
LDW	ENABLED	Alarm Type	ALARM
	Disabled		Event
		Trigger	Level Speed Range
			31 ~ 50 MPH
			Secondary Speed Range
			>= 50 MPH
			Alarm Off-Delay
			0 (0~600) Seconds
		Alarm Link Setup	----->
			Channel
			NO CHANNEL
			Audio
			NO CHANNEL
			Audio Duration
			None
			1 MIN
			3 Min
			5 Min
			10 Min
			15 Min
			30 Min
			Post Record
			None
			1 MIN
			3 Min
			5 Min
			10 Min
			15 Min
			30 Min
			Lock
			Enabled
			DISABLED
		Alarm O/P Link	1 ----->
			2 ----->
			Alarm O/P Duration
			0 (0~255) seconds
		Channel Link	NONE
			Single ----->
			Setup ----->
			Edit Screen Layout
			Double ----->
			Setup ----->
			Edit Screen Layout
			Three ----->
			Setup ----->
			Edit Screen Layout
			Quad ----->
			Setup ----->
			Edit Screen Layout
		Buzzer	DISABLED
			Enabled
		Buzzer Duration	ALWAYS
			Timer ----->
			10 (05 - 60 seconds)
		Alarm Voice Enable	ENABLED
			Disabled
		Hazard Warning	ENABLED

Alarm Snap	Unit Voice Enable	Disabled	FTP	DISABLED
	Snap Mode	MANY		Enabled
	Number of Snap	0		Resolution
		1		D1
		2		CIF
	Snap Interval	5 (5-3600) Seconds		HD1
	Channel (Choose from 1 - 12)	DISABLED		QCIF
	Enabled-----→			QVGA
				VGA
				WCIF
				WHD1
				WD1
				960P
				WQCIF
				720P
				Q1081P
				1080P
				Quality
				1(Best)
				2
				3
				4
				5
				6
				7
				8

10.4.4.4.3 HMW

HMW			
TITLE	OPTION No.1		
LDW	ENABLED	Alarm Type	ALARM
	Disabled	Event	
Trigger		Level Speed Range	31 ~ 50 MPH
		Secondary Speed Range	>= 50 MPH
		Sensitivity	Low
			Middle
			High
			User-Defined
			0.6 (0.6 ~ 4) Seconds
Duration			2.00 (0.1 ~ 30) Seconds
		Alarm Off-Delay	0 (0~600) Seconds
		-----→	
Alarm Link Setup		Channel	NO CHANNEL
		Audio	NO CHANNEL
		Audio Duration	None
			1 MIN
			3 Min
			5 Min
			10 Min
			15 Min
			30 Min
		Post Record	None
			1 MIN
			3 Min
			5 Min
			10 Min
			15 Min
			30 Min

	Lock	Enabled		
		DISABLED		
Alarm O/P Link	1 -----→	Alarm O/P Duration	0 (0~255) seconds	
	2 -----→			
Channel Link	NONE			
	Single -----→	Setup -----→	Edit Screen Layout	
	Double -----→	Setup -----→	Edit Screen Layout	
	Three -----→	Setup -----→	Edit Screen Layout	
	Quad -----→	Setup -----→	Edit Screen Layout	
Buzzer	DISABLED			
	Enabled			
Buzzer Duration	ALWAYS			
	Timer -----→	10 (05 - 60 seconds)		
Alarm Voice Enable	ENABLED			
	Disabled			
Hazard Warning Unit Voice Enable	ENABLED			
	Disabled			
Alarm Snap	Snap Mode	MANY		
	Number of Snap	0		
		1		
		2		
	Snap Interval	5 (5-3600) Seconds		
	Channel (Choose from 1 - 12)	DISABLED		
Enabled -----→		FTP	DISABLED	
			Enabled	
		Resolution	D1	
			CIF	
			HD1	
			QCIF	
			QVGA	
			VGA	
			WCIF	
			WHD1	
			WD1	
			960P	
			WQCIF	
			720P	
			Q1081P	
			1080P	
		Quality	1(Best)	
			2	
			3	
			4	
			5	
			6	
		7		
		8		

10.4.4.4.4 PCW

PCW				
TITLE	OPTION No.1			
LDW	Enabled	Alarm Type	ALARM	
	DISABLED	Event		
		Trigger	Level Speed Range	12 ~ 31 MPH
			Secondary Speed Range	>= 31 MPH
			Sensitivity	Low
				MIDDLE
				High
			User-Defined	5 (0 ~ 60) Seconds

	Alarm Off-Delay	0 (0~600) Seconds		
Alarm Link Setup	-----→	Channel	NO CHANNEL	
		Audio	NO CHANNEL	
		Audio Duration	None	
			1 MIN	
			3 Min	
			5 Min	
			10 Min	
			15 Min	
			30 Min	
		Post Record	None	
			1 MIN	
			3 Min	
			5 Min	
			10 Min	
			15 Min	
			30 Min	
		Lock	Enabled	
			DISABLED	
Alarm O/P Link	1 -----→	Alarm O/P Duration	0 (0~255) seconds	
	2-----→			
Channel Link	NONE			
	Single -----→	Setup -----→	Edit Screen Layout	
	Double-----→	Setup -----→	Edit Screen Layout	
	Three-----→	Setup -----→	Edit Screen Layout	
	Quad -----→	Setup -----→	Edit Screen Layout	
Buzzer	DISABLED			
	Enabled			
Buzzer Duration	ALWAYS		10 (05 - 60 seconds)	
	Timer-----→			
Alarm Voice Enable	Enabled			
	DISABLED			
Hazard Warning Unit Voice Enable	Enabled			
	DISABLED			
Alarm Snap	Snap Mode	MANY		
	Number of Snap	0		
		1		
		2		
	Snap Interval	5 (5-3600) Seconds		
	Channel (Choose from 1 - 12)	DISABLED		
		Enabled-----→		
		FTP	DISABLED	
			Enabled	
		Resolution	D1	
			CIF	
			HD1	
			QCIF	
			QVGA	
			VGA	
			WCIF	
			WHD1	
			WD1	
			960P	
			WQCIF	
			720P	
			Q1081P	
			1080P	
		Quality	1(Best)	
			2	

	3
	4
	5
	6
	7
	8

10.4.4.5 AI (DFC)

10.4.4.5.1 Fatigue Driving

Fatigue					
TITLE	OPTION No.1				
Fatigue	ENABLED	Alarm Type	ALARM		
	Disabled	Event			
		Trigger	Level Speed Range	19 ~ 100 MPH	
			Secondary Speed Range	>= 100 MPH	
			Sensitivity	Low	
				Middle	
				High	
			USER-DEFINED	15 (10 ~255)*100ms	
		Alarm Off-Delay	0 (0~600) Seconds		
		Alarm Link Setup	----->	Channel	NO CHANNEL
				Audio	NO CHANNEL
				Audio Duration	None
1 MIN					
3 Min					
5 Min					
10 Min					
15 Min					
30 Min					
Post Record	None				
	1 MIN				
	3 Min				
	5 Min				
	10 Min				
	15 Min				
30 Min					
Lock	Enabled				
	DISABLED				
Alarm O/P Link	1 ----->	Alarm O/P Duration	0(0~255) seconds		
	2----->				
Channel Link	NONE				
	Single ----->	Setup ----->	Edit Screen Layout		
	Double----->	Setup ----->	Edit Screen Layout		
	Three----->	Setup ----->	Edit Screen Layout		
	Quad ----->	Setup ----->	Edit Screen Layout		
Buzzer	DISABLED				
	Enabled				
Buzzer Duration	ALWAYS				
	Timer----->	10 (05 - 60 seconds)			
Alarm Voice Enable	ENABLED				
	Disabled				
	ENABLED				
	Disabled				
Alarm Snap	Snap Mode	MANY			
	Number of Snap	0			
		1			
		2			
	Snap Interval	5 (5-3600) Seconds			

	Channel (Choose from 1 - 12)	DISABLED	FTP	DISABLED
	Enabled-----→			Enabled
	Resolution			D1
				CIF
				HD1
				QCIF
				QVGA
				VGA
				WCIF
				WHD1
				WD1
				960P
				WQCIF
				720P
				Q1081P
				1080P
	Quality			1(Best)
				2
				3
				4
				5
				6
				7
				8

10.4.4.5.2 No Driver

No Driver						
TITLE	OPTION No.1					
No Driver	ENABLED	Alarm Type	ALARM			
	Disabled		Event			
	Trigger	Level Speed Range	>= 30 MPH			
		Sensitivity	Low			
			Middle			
			High			
			USER-DEFINED	60 (0 ~ 60) Seconds		
		Alarm Off-Delay	300 (0~600) Seconds			
	Alarm Link Setup	----->	Channel	NO CHANNEL		
			Audio	NO CHANNEL		
			Audio Duration	None		
				1 MIN		
				3 Min		
				5 Min		
				10 Min		
				15 Min		
				30 Min		
			Post Record	None		
				1 MIN		
		3 Min				
	5 Min					
	10 Min					
	15 Min					
	30 Min					
	Lock	Enabled				
		DISABLED				
Alarm O/P Link	1 ----->	Alarm O/P Duration	0 (0~255) seconds			
	2----->					
Channel Link	NONE					
	Single ----->	Setup ----->	Edit Screen Layout			
	Double----->	Setup ----->	Edit Screen Layout			

Alarm Snap		Three-----→	Setup -----→	Edit Screen Layout
		Quad -----→	Setup -----→	Edit Screen Layout
	Buzzer	DISABLED	10 (05 - 60 seconds)	
		Enabled		
	Buzzer Duration	ALWAYS		
		Timer-----→		
	Alarm Voice Enable	ENABLED		
		Disabled		
	Hazard Warning Unit Voice Enable	ENABLED		
		Disabled		
	Snap Mode	MANY		
	Number of Snap	0		
		1		
		2		
	Snap Interval	5 (5-3600) Seconds		
	Channel (Choose from 1 - 12)	DISABLED		
		Enabled-----→	FTP	DISABLED
			Enabled	
		Resolution	D1	
			CIF	
			HD1	
			QCIF	
			QVGA	
			VGA	
			WCIF	
			WHD1	
			WD1	
			960P	
			WQCIF	
		720P		
		Q1081P		
		1080P		
		Quality	1(Best)	
			2	
			3	
			4	
			5	
			6	
			7	
		8		

10.4.4.5.3 Phone Call

Phone Call				
TITLE	OPTION No.1			
Phone Call	ENABLED	Alarm Type	ALARM	
	Disabled	Event		
	Trigger	Level Speed Range	3 ~ 100 MPH	
		Secondary Speed Range	>= 100 MPH	
		Sensitivity	Low	
			Middle	
			High	
			USER-DEFINED	3 (0 ~ 24) Seconds
	Alarm Off-Delay	10 (0~600) Seconds		
	Alarm Link Setup	-----→	Channel	NO CHANNEL
			Audio	NO CHANNEL
			Audio Duration	None
			1 MIN	
			3 Min	
			5 Min	
			10 Min	
			15 Min	

		30 Min		
	Post Record	None		
		1 MIN		
		3 Min		
		5 Min		
		10 Min		
		15 Min		
		30 Min		
	Lock	Enabled		
		DISABLED		
	Alarm O/P Link	1 -----→	Alarm O/P Duration	0 (0~255) seconds
		2-----→		
	Channel Link	NONE		
		Single -----→	Setup -----→	Edit Screen Layout
		Double-----→	Setup -----→	Edit Screen Layout
		Three-----→	Setup -----→	Edit Screen Layout
		Quad -----→	Setup -----→	Edit Screen Layout
	Buzzer	DISABLED		
		Enabled		
	Buzzer Duration	ALWAYS		
		Timer-----→	10 (05 - 60 seconds)	
	Alarm Voice Enable	Enabled		
		DISABLED		
	Hazard Warning Unit Voice Enable	Enabled		
		DISABLED		
Alarm Snap	Snap Mode	MANY		
	Number of Snap	0		
		1		
		2		
	Snap Interval	5 (5-3600) Seconds		
	Channel (Choose from 1 - 12)	DISABLED		
		Enabled-----→	FTP	DISABLED
			Enabled	
	Resolution	D1		
		CIF		
		HD1		
		QCIF		
		QVGA		
		VGA		
		WCIF		
		WHD1		
		WD1		
		960P		
		WQCIF		
		720P		
		Q1081P		
		1080P		
	Quality	1(Best)		
		2		
		3		
		4		
		5		
6				
7				
8				

10.4.4.5.4 Smoking

Smoking			
TITLE	OPTION No.1		
Smoking	ENABLED	Alarm Type	ALARM

	Disabled				
	Trigger	Event			
		Level Speed Range	0 ~ 100 MPH		
		Secondary Speed Range	>= 100 MPH		
		Sensitivity	Low		
			Middle		
			High		
		USER-DEFINED	0 (0 ~ 24) Seconds		
	Alarm Off-Delay	0 (0~600) Seconds			
	Alarm Link Setup	----->	Channel	NO CHANNEL	
			Audio	NO CHANNEL	
			Audio Duration	None	
				1 MIN	
				3 Min	
				5 Min	
				10 Min	
				15 Min	
				30 Min	
			Post Record	None	
				1 MIN	
				3 Min	
				5 Min	
				10 Min	
				15 Min	
				30 Min	
		Lock	Enabled		
			DISABLED		
Alarm O/P Link	1 ----->	Alarm O/P Duration	0 (0~255) seconds		
	2----->				
Channel Link	NONE				
	Single ----->	Setup ----->	Edit Screen Layout		
	Double----->	Setup ----->	Edit Screen Layout		
	Three----->	Setup ----->	Edit Screen Layout		
	Quad ----->	Setup ----->	Edit Screen Layout		
Buzzer	DISABLED				
	Enabled				
Buzzer Duration	ALWAYS				
	Timer----->	10 (05 - 60 seconds)			
Alarm Voice Enable	Enabled				
	DISABLED				
	Hazard Warning	Enabled			
Alarm Snap	Unit Voice Enable	DISABLED			
	Snap Mode	MANY			
	Number of Snap	0			
		1			
		2			
	Snap Interval	5 (5-3600) Seconds			
Channel (Choose from 1 - 12)	DISABLED				
	Enabled----->	FTP	DISABLED		
			Enabled		
		Resolution	D1		
			CIF		
			HD1		
			QCIF		
			QVGA		
			VGA		
			WCIF		
			WHD1		

	WD1
	960P
	WQCIF
	720P
	Q1081P
	1080P
Quality	1(Best)
	2
	3
	4
	5
	6
	7
	8

10.4.4.5.5 Driver Distraction

Driver Distraction						
TITLE	OPTION No.1					
Driver	ENABLED	Alarm Type	ALARM			
Distraction	Disabled	Event				
		Trigger	Level Speed Range	19 ~ 100 MPH		
			Secondary Speed Range	>= 100 MPH		
			Sensitivity	Low		
				Middle		
				High		
				USER-DEFINED	U/D Look	3 (0 ~60) Seconds
					R/L Look	5 (0 ~60) Seconds
			Judgement	L+R+Up+Down		
				L+R		
				Up+Down		
		Distraction Level	Light			
			MEDIUM			
			High			
		Alarm Off-Delay	0 (0~600) Seconds			
		Alarm Link Setup	----->	Channel	UNTICK AVAILABLE CHANNELS	
				Audio	UNTICK AVAILABLE CHANNELS	
				Audio Duration	None	
					1 MIN	
					3 Min	
					5 Min	
					10 Min	
					15 Min	
					30 Min	
				Post Record	None	
					1 MIN	
					3 Min	
					5 Min	
					10 Min	
					15 Min	
					30 Min	
				Lock	Enabled	
					DISABLED	
Alarm O/P Link		1 ----->	Alarm O/P Duration	0 (0~255) seconds		
		2----->				
Channel Link		NONE				
		Single ----->	Setup ----->	Edit Screen Lavout		

Alarm Snap		Double-----→	Setup -----→	Edit Screen Layout
		Three-----→	Setup -----→	Edit Screen Layout
		Quad -----→	Setup -----→	Edit Screen Layout
	Buzzer	DISABLED	10 (05 - 60 seconds)	
		Enabled		
	Buzzer Duration	ALWAYS		
		Timer-----→		
	Alarm Voice Enable	ENABLED		
		Disabled		
	Hazard Warning Unit Voice Enable	ENABLED		
		Disabled		
	Snap Mode	MANY		
		0		
		1		
	Number of Snap	2		
		5 (5-3600) Seconds		
		DISABLED		
	Channel (Choose from 1 - 12)	Enabled-----→	FTP	DISABLED
				Enabled
				Resolution
				D1
				CIF
				HD1
				QCIF
				QVGA
				VGA
				WCIF
				WHD1
				WD1
				960P
				WQCIF
				720P
				Q1081P
				1080P
				Quality
				1(Best)
				2
				3
				4
				5
				6
				7
				8

10.4.4.5.6 Yawn

Yawn			
TITLE	OPTION No.1		
Yawn	ENABLED	Alarm Type	ALARM
	Disabled	Event	
Trigger		Level Speed Range	3 ~ 100 MPH
		Secondary Speed Range	>= 100 MPH
		Sensitivity	Low
			Middle
			High
			USER-DEFINED
Alarm Off-Delay			2 (0 ~60) Seconds
			180 (0~600) Seconds
Alarm Link Setup	-----→	Channel	NO CHANNEL
		Audio	NO CHANNEL
		Audio Duration	None
			1 MIN
			3 Min
			5 Min

		10 Min		
		15 Min		
		30 Min		
	Post Record	None		
		1 MIN		
		3 Min		
		5 Min		
		10 Min		
		15 Min		
		30 Min		
		Lock	Enabled	
	DISABLED			
	Alarm O/P Link	1 ----->	Alarm O/P Duration	0 (0~255) seconds
		2----->		
	Channel Link	NONE		
		Single ----->	Setup ----->	Edit Screen Layout
		Double----->	Setup ----->	Edit Screen Layout
		Three----->	Setup ----->	Edit Screen Layout
		Quad ----->	Setup ----->	Edit Screen Layout
Buzzer	DISABLED			
	Enabled			
Buzzer Duration	ALWAYS			
	Timer----->	10 (05 - 60 seconds)		
Alarm Voice Enable	ENABLED			
	Disabled			
Hazard Warning Unit Voice Enable	ENABLED			
	Disabled			
Alarm Snap	Snap Mode	MANY		
	Number of Snap	0		
		1		
		2		
	Snap Interval	5 (5-3600) Seconds		
	Channel (Choose from 1 - 12)	DISABLED		
Enabled----->		FTP	DISABLED	
			Enabled	
	Resolution	D1		
		CIF		
		HD1		
		QCIF		
		QVGA		
		VGA		
		WCIF		
		WHD1		
		WD1		
		960P		
		WQCIF		
		720P		
	Q1081P			
	1080P			
	Quality	1(Best)		
		2		
		3		
		4		
		5		
		6		
		7		
		8		

10.4.4.5.7 Seatbelt

Seatbelt							
TITLE	OPTION No.1						
Seatbelt	ENABLED	Alarm Type	ALARM				
	Disabled	Event					
Trigger		Alarm Mode	NORMAL MODE -->	Alarm Off-Delay	180 (0~600) Seconds		
			Regular Inspection--->	Inspection Interval	60 (5 ~240) Minute		
		Level Speed Range	3 ~ 100 MPH				
		Secondary Speed Range	>= 100 MPH				
		Sensitivity	Low				
			Middle				
			High				
		USER-DEFINED		10 (0 ~60) Seconds			
		Alarm Link Setup	----->	Channel	NO CHANNEL		
				Audio	NO CHANNEL		
		Audio Duration	None				
			1 MIN				
			3 Min				
			5 Min				
			10 Min				
			15 Min				
			30 Min				
		Post Record	None				
			1 MIN				
			3 Min				
			5 Min				
			10 Min				
			15 Min				
			30 Min				
		Lock	Enabled				
			DISABLED				
Alarm O/P Link		1 ----->	Alarm O/P Duration	0 (0~255) seconds			
		2----->					
Channel Link		NONE					
		Single ----->	Setup ----->	Edit Screen Layout			
		Double----->	Setup ----->	Edit Screen Layout			
		Three----->	Setup ----->	Edit Screen Layout			
		Quad ----->	Setup ----->	Edit Screen Layout			
Buzzer		DISABLED					
		Enabled					
Buzzer Duration		ALWAYS					
		Timer----->	10 (05 - 60 seconds)				
Alarm Voice Enable		ENABLED					
		Disabled					
Hazard Warning Unit Voice Enable		ENABLED					
		Disabled					
Alarm Snap		Snap Mode	MANY				
		Number of Snap	0				
			1				
			2				
		Snap Interval	5 (5-3600) Seconds				
		Channel (Choose from 1 - 12)	DISABLED				
		Enabled----->	FTP	DISABLED			
				Enabled			
			Resolution	D1			

	CIF
	HD1
	QCIF
	QVGA
	VGA
	WCIF
	WHD1
	WD1
	960P
	WQCIF
	720P
	Q1081P
	1080P
Quality	1(Best)
	2
	3
	4
	5
	6
	7
	8

10.4.4.5.8 Infrared Block Alarm

Infrared block alarm			
TITLE	OPTION No.1		
Infrared block alarm	DISABLED Enabled	Alarm Type	ALARM
		Event	
		Level Speed Range	12~ 31 MPH
		Secondary Speed Range	>= 31 MPH
		Sensitivity	Low
			MIDDLE
			High
		User-Defined	5 (0 ~60) Seconds
		Alarm Off-Delay	0 (0~600) Seconds
Alarm Link Setup	----->	Channel	NO CHANNEL
		Audio	NO CHANNEL
		Audio Duration	None
			1 MIN
			3 Min
			5 Min
			10 Min
			15 Min
			30 Min
		Post Record	None
			1 MIN
			3 Min
			5 Min
			10 Min
			15 Min
			30 Min
		Lock	Enabled
			DISABLED
Alarm O/P Link	1 ----->	Alarm O/P Duration	0 (0~255) seconds
	2----->		
Channel Link	NONE		
	Single ----->	Setup ----->	Edit Screen Layout
	Double----->	Setup ----->	Edit Screen Layout
	Three----->	Setup ----->	Edit Screen Layout
	Quad ----->	Setup ----->	Edit Screen Layout

Alarm Snap	Buzzer	DISABLED	10 (05 - 60 seconds)
		Enabled	
	Buzzer Duration	ALWAYS	
		Timer-----→	
	Alarm Voice Enable	Enabled	
		DISABLED	
	Hazard Warning Unit Voice Enable	Enabled	
		DISABLED	
	Snap Mode	MANY	
	Number of Snap	0	
		1	
		2	
	Snap Interval	5 (5-3600) Seconds	
	Channel (Choose from 1 - 12)	DISABLED	
	Enabled-----→		
FTP			DISABLED
			Enabled
Resolution			D1
			CIF
			HD1
			QCIF
			QVGA
			VGA
			WCIF
			WHD1
			WD1
			960P
			WQCIF
			720P
			Q1081P
			1080P
Quality			1(Best)
			2
			3
			4
			5
			6
			7
			8

10.4.5 Maintenance

10.4.5.1 Config

10.4.5.1.1 Config

Config	
TITLE	OPTION No 1
Config File Export	Export
Config File Import	Import
AI Config File Export	Export
AI Config File Import	Import
Import Ethernet HTTPS Certificate and Key	Import
Remove Ethernet HTTPS Certificate and Key	Clear
Import SMACON TLS Certificate and Key	Import
Remove SMACON TLS Certificate and Key	Clear

10.4.5.1.2 Network

Network	
TITLE	OPTION No 1
Network File Export	Export
Network File Import	Import

10.4.5.1.3 Geo-Fence

Geo-Fence	
TITLE	OPTION No 1
Geo-Fence File Export	Export
Geo-Fence File Import	Import

10.4.5.1.4 CAN

CAN	
TITLE	OPTION No 1
CAN File Export	Export
CAN File Import	Import
CAN File Clear	Clean

10.4.5.1.5 Metadata

Data Export				
TITLE		OPTION No 1		
ALL	ENABLED----->	File Type	SNAPSHOTS	Export
			GPS Data	
			G-Force Info	
			Mob Net Dial Log	
			Alarm Log	
			Operation Log	
			BlackBox Data	
			Debug Log Information	
	Disabled			
	Export Time	Enabled ----->	Start time	Date
Time				hh:mm:ss
End time			Date	yyyy-mm-dd
			Time	hh:mm:ss
File Type			SNAPSHOTS	Export
			GPS Data	
			G-Force Info	
			Mob Net Dial Log	
			Alarm Log	
			Operation Log	
			BlackBox Data	
			Debug Log Information	
Disabled				

10.4.5.2 Upgrade

Upgrade				
TITLE		OPTION No 1		
FMW/MCU	Upgrade	Are you sure you would like to Upgrade?		
IPC (IPC must be connected)	Upgrade	All	Enabled	Upgrade
			Disabled	
		Choose from the available IP Cameras	Enabled	Upgrade
			Disabled	
GPS Upgrade	Upgrade	Are you sure you would like to Upgrade?		
4G Upgrade	Upgrade	Are you sure you would like to Upgrade?		
Hazard Warning Unit (HWU must be connected)	Upgrade	Choose from the available Hazard Warning Unit	Enabled	Upgrade
			Disabled	

10.4.5.3 Storage

Storage		
TITLE	OPTION No 1	
Storage Type	SSD1 / SSD2	
	SD(Internal1) / SD(Internal2)	
	FRONT USB	
Free/Total	XXXX.X G	
Format	SSD1 / SSD2	Format or Not?

	SD(Internal1) / SD(Internal2)			
	FRONT USB	Format type	FAT32	Are you sure you would like to Format FRONT USB?
			MDR7	Less than 4GB
				Greater than 4GB

10.4.5.4 Reset

Reset		
<u>TITLE</u>	<u>OPTION No 1</u>	
Factory Settings	Restore	Are you sure to restore all the settings?
System Restart	Restart	Are you sure to Restart?

10.4.5.5 Certificate

Certificate		
<u>TITLE</u>	<u>OPTION No 1</u>	
Trusted Root Certificates ?	Import	
Remove ALL Root Certificates	Remove	Are you sure you want to remove ALL root certificates? Warning: After removing, server connections will fail when verify certificate is enabled. Because there is no root certificate to check against.
Certificate Revocation Lists ?	Import	
Remove CRLs	Remove	Are you sure you want to remove ALL CRLs? Warning: After removing, certificate revocation checking will be skipped when verify certificate is enabled. Because there is no CRL to check against.

10.5 LOGOUT

10.5.1 Logout Prompt

Logout Prompt	
<u>TITLE</u>	<u>OPTION No 1</u>
Are you sure to Logout?	YES
	No

11 MDR Audio Alerts Summary

The MDR is embedded with various audio alerts files for different features and alarms. Details listed in table below:
Table 1: audio alerts when alarm has been triggered.

Alarm Type	Audio Alert Content (Level 1)	Audio Alert Content (Level 2)
Fatigue Driving	Fatigue warning, please rest now	Beeps
No Driver	No driver	
Phone Call	Phone detected	
Smoking	Smoking detected	
Driver Distraction	Driver distraction	
Yawn	Yawning, please drive carefully	
Seatbelt	Please fasten seatbelt	
Infrared Block Alarm	Please don't wear blocking glasses	
LDW	Lane departure	
FCW	Collision warning, collision warning	
HMW	Unsafe following distance	
PCW	Pedestrian warning, pedestrian warning	
Overspeed	Speed warning (pre-warn)	N/A
	Overspeed warning (official-warn)	
Privacy Mode (enable)	Privacy mode enabled	
Privacy Mode (disable)	Privacy mode disabled	
G-Force	Harsh acceleration	
	Harsh braking	
	Harsh cornering	

Table 2 audio alerts for normal operations.

Operation	Audio Alert Content
Privacy Mode	Privacy mode enabled
	Privacy mode disabled

12 Help Button

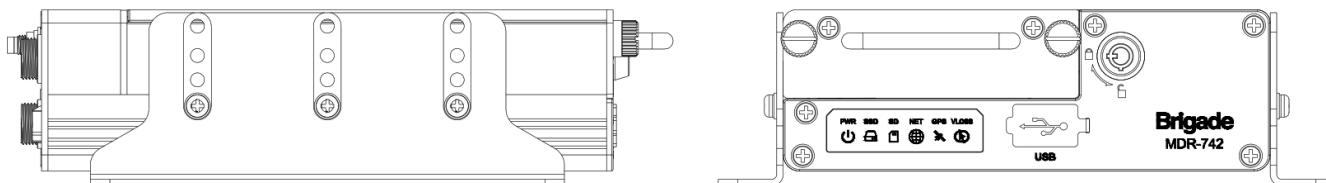
Main Menu	Sub Menu	Page	Tab Menu	Title	Open	Text	Close
SYSTEM INFO	-	Version Info	-	Serial Num		For Mobile Network / Wi-Fi MDR models: Serial Numbers are shown under MDR	
SETUP	Basic Setup	Time Setup	Time Sync	NTP sync		Only for Mobile network or Wi-Fi MDR units.	
SETUP	Basic Setup	Power	On/Off	On/Off Mode		Timer mode must not be used for extended periods of time - this will damage your vehicle's battery.	
SETUP	Basic Setup	Power	On/Off	Non-stop		Non-stop allows the MDR to record indefinitely. Enabling this will disable Shutdown Delay Warning. Using the MDR for prolonged periods of time without ignition (vehicle running) can drain the vehicle's battery.	
SETUP	Basic Setup	Power	Sleep	Sleep Mode		Enable sleep mode to allow MDR automatic wake up after a certain period of time to support MDR-Dashboard client auto-download feature. Sleep Duration: Sleep duration before MDR completely shuts down after ignition off. Periodic Wake-up: After entered minutes of sleep, MDR will turn on automatically to start auto-download task.	
SETUP	Basic Setup	Network	Ethernet	DHCP Mode		Automatically obtains IP address from network.	
SETUP	Surveillance	Record	General	Locked File Retention		This will ensure that alarms that are set as locked files will be stored for this time period. Locked files are automatically deleted once this period is over, regardless of remaining storage capacity.	
SETUP	Surveillance	Record	Main	Record Mode		Timer prevents an MDR from turning OFF - higher priority than on/off timer. This timer CANNOT control when an MDR turns ON.	
SETUP	Surveillance	Record	Main	Record Rate		I.Frame MDR will record using one frame per second to save storage, but once an alarm is triggered, the MDR will record with the current frame rate.	

					Normal MDR will record using the correct frame rate.
SETUP	Surveillance	Record	Record OSD	Position	Choice of a maximum of 6 options.
SETUP	Alarms	Advanced	Geo-Fence	Alarm Link Setup	Non-Stop allows the sensor output indefinitely if the MDR is within the Geo-Fence region. Note: the region can be set in MDR-Dashboard 7.0 software.
SETUP	Alarms	Advanced	Panic Btn	Alarm-Off Delay	Alarm Off-Delay means that, if the same type of alarm triggers twice within the Alarm Off-Delay period, this will be considered as a single alarm.
SETUP	Alarms	Advanced	SSD/SD Error	Lock Alarm Off-Delay	Assume that the "alarm duration" is set to 10 seconds. When the option is not checked, if the same alarm is triggered multiple times within 10 seconds, the effective time of the alarm will be extended. When the option is checked, if the same alarm is triggered multiple times within 10 seconds, the effective time will not be extended.
SETUP	Alarms	AI	All AI alarms	Effective Time	(It has the same functionality as Alarm Off-Delay) Alarm Off-Delay means that, if the same type of alarm triggers twice within the Alarm Off-Delay period, this will be considered as a single alarm.

13 Mounting Dimensions

13.1 MDR-742GW-XX(XX)

For mounting centre holes please refer to MDR-BKT-03 drawing.



<u>Bracket Position</u>	<u>MDR height from mounting surface</u>
1 (highest on bracket)	29 mm
2	20 mm
3	12.5 mm
4 (lowest on bracket)	4.5 mm

14 Appendices

14.1 Video Quality Table

Using Brigade's Resource calculator, the below tables have been compiled. Please note the following:

- The values below are for reference only.
- Streaming bandwidth can vary, according to the level of variations in the image. Static images are more efficiently compressed than dynamic ones.
- Frame rates are assumed to be set to maximum which is 25fps for PAL and 30fps for NTSC.

Quality level		1 (Highest)	2	3	4	5	6	7	8 (Lowest)
Video Streaming Data Rate (Kbps) depending on resolution (H.264)	1080P (AHD)	8192	6390	5505	4068	3712	2818	1919	1024
	960P (AHD)	7987.2	6240	5366.4	4492.8	3619.2	2745.6	1872	998.4
	720P (AHD)	6144	4800	4128	3456	2784	2112	1440	768
	WD1	2662.4	1996.8	1664	1331.2	1170	1040	936	832
	D1	2048	1536	1280	1024	900	800	720	640
	WHD1	1996.8	1664	1331.2	998.4	832	728	650	585
	HD1	1536	1280	1024	768	640	560	500	450
	WCIF	1331.2	998.4	832	665.6	572	455	405.6	364
Video Streaming Data Rate (Kbps) depending on resolution (H.265)	CIF (Lowest)	1024	768	640	512	440	350	312	280
	1080P (AHD)	5734	4473	3847	3221	2596	1970	1344	717
	960P (AHD)	5591	4368	3756	3145	2533	1922	1310	699
	720P (AHD)	4301	3360	2890	2419	1949	1478	1008	538
	WD1	1597	1198	998	799	702	624	562	499
	D1	1331	998	832	666	630	560	504	448
	WHD1	1198	998	799	599	499	437	390	351
	HD1	998	832	666	538	448	392	400	360
	WCIF	799	599	499	399	343	273	243	218
	CIF (Lowest)	717	538	448	358	352	280	250	224

14.2 MDR Storage Calculator

For typical recording sizes for a one-hour duration and recording times in hours versus storage capacity, please use the MDR storage calculator: <https://brigade-electronics.com/product-support-area/recording-hub/>.

14.3 User Log Description

Reason	Example	Description
MDR Ignition	08:48:16 Power on Last power-off cause: Normal poweroff	MDR powers on and show the reason for the last shutdown: normal ignition off or time off
	10:10:19 Power on Last power-off cause: Low voltage reboot	MDR powers on and show the reason for the last shutdown: low voltage shutdown
	11:02:38 Power on Last power-off cause:ACC sleep	MDR powers on and show the reason for the last shutdown: Sleep session
	15:28:51 Low voltagePower off	
	22:30:55 ACCPower off	Ignition off, MDR shutdown
MDR Recording	08:48:25 Channel1 Main record on	
	08:48:25 Channel1 Alarm record on	
	08:48:25 Channel1 Sub-record on	
MDR Setup Changed	08:50:15 Save configuration Surveillance->Live View->Preview User Name:admin	
	09:10:07 Save configuration Surveillance->Live View->Live OSD User Name:admin	
	10:05:13 Save configuration Alarms->Video->Motion Det User Name:admin	
	10:12:37 Save configuration Alarms->General->IO Alarm User Name:admin	
	10:34:59 Save configuration Basic Setup->Network->Server User Name:admin	
	10:35:34 Save configuration Surveillance->Record->SD User Name:admin	
	14:25:51 Reboot User Name:admin	
	15:21:40 Save configuration IPC Setup User Name:admin	
	15:28:50 Exporting User Name:admin	Export config file
	15:35:00 Importing User Name:admin	Import config file
	03:58:23 Adjust time:[2022-03-27 02:00:00] -> [2022-03-27 03:00:00]	
Alarms	09:10:07 09:11:15 Channel4 Motion Det.	
	09:12:38 09:11:15 IO1	
	09:15:17 09:11:15 Enter Polygon Area[test(1)]	Geo- Fence alarm triggered, area name: test, area type: polygon
	09:16:07 09:18:15 SD card failure	
	10:04:55 10:05:05 Channel2 Video loss	
	11:42:54 11:42:54 Low-voltage alarm	
	12:04:17 12:04:54 Blind Det.	

14.4 Events Table

The following table illustrates the type of events recorded. This is illustrated in the event list search of the MDR and MDR-Dashboard 7.0.

Event Type	Event Name	Description
Video Loss	VL	Video loss alarm (e.g. the camera has been either deliberately or inadvertently disconnected).
Blind Detection	BD	Blind camera alarm (e.g. the camera has been intentionally obstructed, or a large object is obstructing the entire view).
Motion Detection	MD	Motion detection for video capturing when vehicles are unattended.
Triggers	Name of the Trigger (e.g., IO1, IO2 etc. or PB for Panic Button)	GPIO (general purpose input/output) trigger sensor alarm.
Speed Alarm	H-Speed	Overspeed can be flagged and recorded.
Geo-Fence	Geo-Fence	Geo-Fence alarm can be flagged and recorded when vehicle is in / out of a set area.
G-Force	G-Force	Excessive G-Force can be flagged and recorded.
SSD/SD Error	SSD/SD Error	Storage (SSD, SD card) damage can be flagged.

15 Testing and Maintenance

15.1 Operator Instructions

This information is addressed to the operator of the vehicle where a Brigade MDR 700 Series System is installed:

- 1) The Brigade MDR 700 Series is intended to be used as a mobile digital recorder. Drivers and operators should not interact with the MDR setup menu.
- 2) Testing and inspection of the system should be carried out in accordance with this manual. The driver or operator is responsible for ensuring the Brigade MDR 700 Series System is working as intended.
- 3) Operators using this equipment are strongly recommended to check the system's operation at the beginning of every shift.
- 4) Improved safety can be achieved when used in conjunction with Brigade's camera-monitor systems. This may allow triggering camera views and provide additional vehicle information during manoeuvres. It is necessary to read, understand and follow all instructions received with the Brigade MDR 700 Series System.

- 5) The Brigade MDR 700 Series System for digital recording is intended for use on commercial vehicles and machinery equipment. Correct installation of the system requires a good understanding of vehicle electrical systems and procedures, along with a proficiency in installation.
- 6) Keep these instructions in a safe place and refer to them when maintaining and/or reinstalling the product.

15.2 Maintenance and Testing

This information is addressed to the operator for maintenance and testing of a vehicle with the Brigade MDR 700 Series System installed. This is also to familiarise the operator with the features and behaviour of the system. More frequent inspections should be performed in cases where:

- The vehicle is operating in a particularly dirty or harsh environment.
- The operator has reason to suspect the system is not working or has been damaged.

Procedure:

- 1) Clean the camera lens and housing of any accumulation of dirt, mud, snow, ice or any other debris.
- 2) Visually inspect the cameras and MDR unit and verify that they are securely attached to the vehicle and are not damaged.
- 3) Visually inspect the system's cables and verify that they are properly secured and not damaged.
- 4) Ensure the area in front of the cameras is clear of obstacles and has the right coverage area to view objects.

If any of the following tests fail, follow the appropriate sections of this instruction guide or contact Brigade if still in doubt.

- 5) Activate the Brigade MDR 700 Series System and verify the LEDs (on the front of the MDR unit) are illuminated. It should take approximately 25 seconds for recordings to start after a file-system check.
- 6) This test can only be performed when the MDR video output is displayed on a Brigade monitor. Ensure that both the SD card and SSD are recording. Recording is shown with an SD card symbol and SSD symbol.
- 7) Other tests can be performed depending on the configuration. For instance, if Video Loss is activated, any disconnected or malfunctioning camera is detected.
- 8) Sensor trigger activation can also be diagnosed. For instance, if a trigger is set up to turn a channel to full screen or set an alarm. This will be identified by the channel occupying the full screen.
- 9) GPS, G-Sensor, Supply Voltage and Heater functioning can be accessed via SYS INFO using the mouse (if a Brigade monitor is connected) or via SmartController APP interface.

16 General Antenna Guidelines

- (a) Ensure that the cable is:
 - properly secured, but not strained or distorted
 - routed in such a way as to avoid sharp bends
 - not run in parallel with vehicle wiring wherever possible
 - routed as far away as possible from any electronic module
- (b) Excess coaxial cable should not be coiled up as this may affect the tuning of the antenna as well as producing electrical interference. Excess cable should be laid out over a larger area to avoid potential coiling.
- (c) Before connection to the equipment the antenna system should be DC tested at the equipment end of the coaxial cable for continuity and to ensure there is no short circuit.
- (d) Antenna positions should be planned to achieve best separation between antennas while maintaining a suitably sized ground plane for each one. Each antenna should be separated by at least 50cm where possible. This includes antennae already fitted to the vehicle, e.g. radio, phone and GPS devices. Antenna should be tightly installed preferably on the roof or a place near the window to guarantee signal strength. Please do not put antenna in an enclosed or half-enclosed space around metal which may obstruct reception.
- (e) Record and play back a short section to check recordings do not have or cause interference. EMC issues may cause interference to in-car entertainment equipment or other vehicle electrical equipment. Also, the antenna may pick up noise received from the vehicle or other fitted role equipment such as light bars, GPS processors and other digital (computing) equipment and present it to the radio equipment as interference. Repositioning may be required.

17 Troubleshooting

17.1 MDR Unit

Scenario	Detection	Resolution
Loss of recording data	1. Error light will be visible on the MDR unit LED panel 2. Error light will be shown on the Remote panel 3. If the sound buzzer is activated or a audio buzzer is connected to one of the trigger outputs, an audible alarm can alert drivers	1. SD card is used to recover data – see the manual for recording options 2. Requires the LED panel of the MDR or a remote panel to always be visible to driver 3. The audio buzzer should be activated and configured to alert drivers to errors.
System Power loss	1. Error light will be visible on the MDR unit LED panel and power LED will turn off	1. Vehicle Battery should be replaced if it is suspected of malfunctioning 2. Low Voltage protection feature should be turned on 3. Fuses may be blown and may need to be replaced
Data Corruption due to Power loss	1. Error light will be visible on the MDR unit LED panel and power LED will turn off	1. MDR is powered for few minutes after power loss to enable closure of recording files
Video Loss	1. Video loss LED will turn on which is found on the MDR and the Remote panel 2. If the audio buzzer is activated or an audio buzzer is connected to one of the trigger outputs, an audible alarm can alert drivers	1. If possible, cables should not be installed in an area where these can be tampered with 2. Ensure cable connectors are secure before driving
No recording on SD or SSD	1. Error light will be visible on the MDR unit LED panel 2. Error light will be shown on the Remote panel 3. If the audio buzzer is activated or an audio buzzer is connected to one of the trigger outputs, an audible alarm can alert drivers	1. Ensure that the Overwrite feature is turned on 2. Install larger capacity SSD or 256GB SD card
MCU failure	1. Visible Physical Damage and unable to connect on PC	1. Retain a backup MCU for a vehicle 2. Ensure supplied USB cable is used 3. Ensure PC is fully up to date with Windows updates and drivers are installed
Failure due to Environment	1. Error light will be visible on the MDR unit LED panel 2. Error light will be shown on the Remote panel 3. SSD recording cannot begin (SSD LED not ON)	1. Driver should wait a few minutes for the internal heater to heat the SSD to above 10°C – this will then start to record
Docking Station Failure	1. No visible power LED is on	1. Ensure the MCU KEY is locked 2. Ensure that wires that are being used are protected by heat shrink
Recording inconsistent functionality	1. Error light will be visible on the MDR unit LED panel 2. Error light will be shown on the Remote panel	1. Customers must follow the MCU removal procedure as stipulated in the manual

18 Specifications

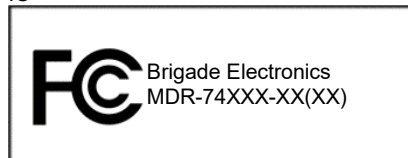
Nominal Operating Voltage	12Vdc / 24Vdc
Operating Current (max. @ voltages and mode)	1.0A@12V / 0.5A@24V with 4x AHD cameras, IR off, heater off
Current Consumption (min. / typ. (at nom. voltage stated) / max. per mode & voltages)	1.57A@12V / 0.77A@24V with 4x AHD cameras, 2x IP cameras, IR off, heater off; 2.49A@12V / 1.20A@24V with 4x AHD cameras, 2x IP cameras, IR on, heater off; 2.72A@12V / 1.31A@24V with 4x AHD cameras, 6x IP cameras, 1x 4 port PON Switch, IR on, heater off; 7.06A@12V / 3.20A@24V with 4x AHD cameras, 6x IP cameras, 1x 4 port PON Switch, IR on, heater on
Quiescent Current (at nom. voltages stated)	<1mA@12V / 1mA@24V
Video Signal Level Input	PAL:CVBS, 0.904Vpp720P, 0.976Vpp1080P, 1Vpp; NTSC:CVBS, 0.952Vpp720P, 0.992Vpp1080P, 1Vpp
Trigger/Activation Input Parameters	Rating 0Vdc to 32Vdc, none active below 9.0Vdc / active above 9.0Vdc
Camera Supply Output Parameters	500mA
Wireless Mobile Network Standards	3G / 4G
Trigger/Alarm Output Parameters	Active 12V, max 1A, 36V short-to-rail protection, short-to-GND protection
Warning / Status Light	Multiple integrated in front panel for several functions
Function or Menu Access Control	Login with password and multiple user groups
Data Access Control	Login with password and multiple user groups. Additional feature of password protection for recording data available
Video System	PAL / NTSC / AHD 1.0 720p 25fps / AHD 1.0 720p 30fps / AHD 2.0 1080p 25fps / AHD 2.0 1080p 30fps
Display Image Orientation	Normal (default) / Mirror / Vertical flip / Mirror & vertical flip / Adjustable / Per Channel
Recording Image Orientation	Normal (default) / Mirror / Vertical flip / Mirror & vertical flip / Adjustable / Per Channel
Auto Scan	Configurable
Display Image Modes	Single, Quad, 6-Split, 9-Split fully configurable
Operating System	Embedded Real-Time Linux

Video Compression	H.264 (default) / H.265
Audio Compression	ADPCM (default), G711A, G711U
User Interface for Setup or Control	OSD operated via USB Mouse, Mobile device via Smartcontroller Apps, PC browser via Ethernet connection, PC software via server
On-Screen Display Information	Channel number or name / GPS information / alarm / vehicle number plate / vehicle number / speed / G-Force / Date and Time
Recording Mode	Normal, Alarm, Timer
Pre-alarm Recording	Configurable range 30sec. to 60min.
Post-alarm Recording	Configurable range 0 to 30min
Supply Power Input	Wire, red insulation, AWG16, with in-line fuse holder
Trigger/Activation Input	8x, wire, multi-colour insulation, AWG22
Trigger/Activation Output	2x, wire, multi-colour insulation, AWG22
AV Output	4x, multipin 4pin, Brigade Select female
AV Input	4x, multipin 4pin, Brigade Select male
GPS Antenna	1x, multipin, SMA, female
Wi-Fi Antenna	1x, multipin SMA, female
Mobile Network Antenna	1x, multipin SMA, female
Serial Interface	1x, multipin 6pin, female
Network Ethernet	1x, multipin 6pin, male
Shut-down Delay (Post-recording)	Configurable range 0sec. to non-stop
Ingress Protection	IP30
Storage Temperature Range	-40°C to 85°C (ISO 16750-4)
Mechanical Shock	51G (ISO 16750-3)
Mechanical Vibration	8.5G (ISO 16750-3)
Operating Relative Humidity	10% - 90%
Recording Resolution	PAL: WD1 (960x576), D1 (704x576), WHD1 (960x288), HD1 (704x288), WCIF (480x288), CIF (352x288) NTSC: WD1 (960x480), D1 (704x480), WHD1 (960x240), HD1 (704x240), WCIF (480x240), CIF (352x240) AHD: HD (1280x720), FULL HD (1920x1080) IP Camera: HD (1280x720), FULL HD (1920x1080) configurable for each channel
Recording Frame Rate Range	1-25 FPS (PAL); 1-30 FPS (NTSC); 1-30 FPS (AHD); 1-30 FPS (IP Camera) configurable for each channel
Recording Image Quality Range	1-8 Adjustable Levels (1 is the Best)
Power-up Time to Recording	approx. 25sec
Overall Dimensions typ. Assembly (W x H x D in mm / inch)	190 x 205 x 54 / 7.5 x 8.1 x 2.2, ECU 150 x 205 x 49.5 / 6.0 x 8.1 x 2.0
Weight of installed Product	1.8kg / 4.0lb
Packaged Weight of Item	2.9kg / 6.4lb
Main Housing Finish Appearance	Oil paint of dark gray
Materials / Finishes	Main Housing: Aluminum AL6063-T5 / dark gray / oil paint, Bracket: Cold-rolled plate / dark gray / oil paint, LED cover: Polycarbonate / dark gray / screen paint
Material of Fixings	Machine screw, Low Carbon Steel
Torque (Nm / ft-lb)	M4 x 8mm: 0.75 / 0.56
OSD Languages	English / French / German / Italian / Spanish / Dutch / Portuguese / Polish / Russian
Key Chipsets (Part No. / Manufacturer / Datasheet available)	NT98332 / Novatek / yes
Playback of Recordings	1 Channel at a time using MDR video output to monitor / Smartcontroller app, 1 to multiple Channels using MDR-Dashboard / MDR-Player / PC via browser (Ethernet)
File Search Mode Options via OSD	Date / Time / Channel / File Type
Built in Heater	Integrated for M.2 SSDs
GPS Functions	Integrated in receiver with external antenna, location for tracking, speed and time synchronisation
Buzzer	Integrated / function / configurable
G-Sensor	Integrated / calibratable / threshold configurable for alarm, Autorotation to adapt for mounting orientation
Storage Capacity (Provided / max. Supported / Medium)	500GB / 1TB / 2TB / 2x slots support / device max. 4TB supported / M.2 SSD, 128GB / 256GB / 512GB / 2x slots supported / device max. 1TB supported / microSD card
Wireless Mobile Network Operating Bands	Worldwide exclude NA variant:4G (FDD LTE): B1, B3, B7, B8, B20, B28A, all bands with receive diversity; 3G(WCDMA/DC-HSPA+): B1, B8, all bands with receive diversity; North America variant:4G (FDD LTE): B2, B4, B5, B12, B13, B14, B66, B71 all bands with receive diversity; 3G(WCDMA/DC-HSPA+): B2, B4, B8 all bands with receive diversity
Wireless Mobile Network Data Services	Worldwide exclude NA variant:FDD: UL 50 Mbit/s; DL 150 Mbit/s @20M BW cat4DC-HSPA+: UL 5.76 Mbit/s; DL 42 Mbit/sWCDMA: UL 384 kbit/s; DL 384 kbit/s. North America variant:FDD: UL 50 Mbit/s; DL 150 Mbit/s @20M BW cat4DC-HSPA+: UL 5.76 Mbit/s; DL 42 Mbit/sWCDMA: UL 384 kbit/s; DL 384 kbit/s
Wireless Mobile Network Service Use	Voice services are not supported at system level
SIM Card Size	Nano
Wi-Fi Standard	Frequency Bands: 2.4GHz and 5GHz, Standards: 802.11 a/b/g/n/ac
Maximum Wi-Fi Transmission Rate	Up to 600.4 Mbps (802.11ax, 80MHz). Actual data throughput depends on MCS index, channel bandwidth and RF conditions.
Wi-Fi Security Standards	WEP, WPA/WPA2-PSK, WPA2 Enterprise
Data Download	USB 3.0 (Mobile Caddy Unit) using MDR-Dashboard and USB 2.0 Flash drive with FAT32 format (Docking Station)
Video Search by time/date	MDR-Dashboard
Review Alarm Events	MDR-Dashboard
View Exported Recordings	MDR-Player
Mobile Network and Wi-Fi Server Functionality	MDR-Player
Communication Protocol	TCP/IP, UDP, DHCP, TFTP, FTP, HTTP/HTTPS, SNMP, ONVIF, RTSP
Operating Temperature Range	-40°C to 75°C (ISO 16750-4)

Power Supply Output Parameters	Active 12V & max. 1A, 36V short-to-rail protection, short-to-GND protection
AI Detection Features	Front detection: Forward Collision Warning (FCW), Headway Monitoring Warning (HMW), Lane Departure Warning (LDW), Pedestrian Collision Warning (PSW); Driver monitoring: Driver Drowsiness Warning (DDW), Driver Attention Warning (DAW), Phone Usage Warning, No Seatbelt Warning, Smoking Warning, Facial Recognition, No Driver Warning
AI Calibration Methods	Auto-Calibration, For Calibration Details see Installation Guide
Mounting Direction/Angle	Any mounting direction

19 Approvals

CE
UKCA
UNECE Regulation No. 10 Revision 6 ("E-marking")
FCC
IC



FCC Statement:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

MDR-742 Series FCC ID: R5XMDR742

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.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

US Responsible Party	Brigade Electronics Inc
Address	1976 W Tyson Rd, Portland, IN 47371, United States
Contact Information	+1 (260) 766-4343 corey.heniser@brigade-inc.com
Website	https://brigade-electronics.com/en-us/

ISED Statement:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

MDR-742 ISED ID: 12141A-MDR742

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) L'appareil ne doit pas produire de brouillage;*
 - 2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Cet émetteur ne doit pas être colocalisé ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.*

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS-102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf. Cet émetteur ne doit pas être Co-placé ou ne fonctionnant en même temps qu'aucune autre antenne ou émetteur. Cet équipement devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.

Canada Responsible Party	Brigade Electronics (Canada) Ltd.
Address	c/o Dentons Canada LLP, 20th Floor, 250 Howe Street Vancouver, BC V6C 3R8, Canada
Contact Information	604-687-4460 contact@brigade-electronics.ca
Website	https://brigade-electronics.com/en-ca/

EU Declaration of Conformity:



Hereby, Brigade Electronics Group PLC, Ruben Willems, Brigade House, The Mills, South Darenth DA4 9BD, UK, declares that the radio equipment type Mobile Digital recorder system with model numbers MDR-742XX-XX(XX) is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: www.brigade-electronics.com

Additional information:

North American Variants:

4G

- Operational Frequency Band: LTE: B2, B4, B5, B12, B13, B14, B66, B71
- Maximum Transmitted Power: 26dBm EIRP

3G

- Operational Frequency Band: WCDMA: B2, B4, B5
- Maximum Transmitted Power: 22dBm EIRP

Wi-Fi (2.4G)

- Operational Frequency Band: 2412 - 2472 MHz, 2422 – 2462MHz
- Maximum Transmitted Power: 16 dBm EIRP

Wi-Fi (5G)

- Operational Frequency Band: 5180 – 5700MHz, 5190 – 5670MHz, 5210 – 5610MHz, 5745 – 5825MHz, 5755 – 5795MHz, 5775MHz
- Maximum Transmitted Power: 16 dBm EIRP

European Variants:

4G

- Operational Frequency Band: LTE: B1, B3, B7, B8, B20, B28
- Maximum Transmitted Power: 25 dBm EIRP

3G

- Operational Frequency Band: WCDMA: B1, B8
- Maximum Transmitted Power: 25dBm EIRP

Wi-Fi (2.4G)

- Operational Frequency Band: 2412 - 2472 MHz, 2422 – 2462MHz
- Maximum Transmitted Power: 16 dBm EIRP

Wi-Fi (5G)

- Operational Frequency Band: 5180 – 5700MHz, 5190 – 5670MHz, 5210 – 5610MHz, 5745 – 5825MHz, 5755 – 5795MHz, 5775MHz
- Maximum Transmitted Power: 16 dBm EIRP

Restrictions in the 5GHz band:

The 5150 to 5350 MHz frequency range is restricted to indoor use in: AT, BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HR, HU, IE, IS, IT, LI, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, UK(NI).

20 Glossary

- 3G** – Third Generation
- 4G** – Fourth Generation
- AC** – Adaptor Cable
- ADAS** – Advanced Driving Assistant System
- ADPCM** – Adaptive Differential Pulse-code Modulation
- AI** – Artificial Intelligence
- G711U** – Narrowband audio codec
- G711A** – Narrowband audio codec
- Alarms** – An “EVENT” that has been configured (in the MDR unit settings) to be an alarm. Alarms are identified as orange video channel data on the playback timeline. These are displayed in the real-time alarm log in the MDR-Dashboard and MDR Mobile Apps. Alarms can generate email alerts and trigger automatic downloads (dependant on MDR-Dashboard configuration).
- AHD** – Analog High Definition
- Automatic Download** – A download that is set up in the MDR-Dashboard to automatically download data related to an occurring “Alarm” or “Event” between user-defined times. Configured under Download in MDR-Dashboard.
- APN** – Access Point Name
- AVI** – Audio Video Interleaved
- BD** – Blind Detection
- CAN** – Controller Area Network
- CBR** – Constant Bit Rate
- CE** – Conformité Européenne
- CH** – Channel
- CHAP** – Challenge Handshake Authentication Protocol
- CIF** – Common Intermediate Format (¼ D1 format)
- CPU** – Central Processing Unit
- CU** – Control Unit
- D1** – D1 is full standard resolution for 25FPS (PAL) and 30FPS (NTSC)
- DFC** – Driver Facing Camera
- DHCP** – Dynamic Host Configuration Protocol
- DS** – Docking Station
- DST** – Daylight Saving Time
- EDGE** – Enhanced Data GSM Environment
- EIA** – Electronic Industries Alliance
- Events** – An activation of an input e.g., Sensor input (trigger 1-8), G Sensor, Over speed etc. Events are identified as red vertical lines on the playback timeline. These are not shown in the real-time alarm log.
- EXP** – Expansion
- FCC** – Federal Communications Commission
- FCW** – Front Collision Warning
- FPB** – Fireproof box
- FTP** – File Transfer Protocol
- GB** – Gigabyte
- GHz** – Gigahertz
- GND** – Ground
- GPIO** – General Purpose Input/output
- GPRS** – General Packet Radio Service
- GPS** – Global Positioning System
- GSC** – G-sensor Cable
- G-Sensor** – measure of acceleration/shock of the vehicle
- GSM** – Global System for Mobile Communications
- GUI** – Graphical user interfaces
- H.264** – Video compression standard
- H.265** – Video compression standard
- HD1** – Half Definition compared to Full Definition (See D1)
- HD** – High Definition
- HDD** – Hard Disk Drive
- HMW** – Headway Monitoring
- HSDPA** – High Speed Downlink Packet Access
- HSPA** – High Speed Packet Access
- HSUPA** – High Speed Uplink Packet Access
- HTTP** – Hypertext Transfer Protocol
- HTTPS** – Hypertext Transfer Protocol Secure
- IC** – Industry Canada
- ID** – Identification
- IO** – Input/output
- iOS** – iPhone Operating System (Apple Inc.)
- IP** – Internet Protocol
- IR** – Infra-red
- IT** – Information technology
- Km/h** – Kilometres per hour
- LAN** – Local Area Network
- LED** – Light Emitting Diode
- LDW** – Lane Departure Warning
- MAC** – Media Access Control
- MB** – Megabyte
- MCU** – Mobile Caddy Unit
- MD** – Motion Detection
- MDR** – Mobile Digital Recorder
- MHz** – Megahertz
- MPH** – Miles per hour
- NET** – Network
- NTSC** – National Television System Committee
- ONVIF** – Open Network Video Interface Forum
- OSD** – On-screen Display
- PAL** – Phase Alternating Line
- PAP** – Password Authentication Protocol
- PC** – Personal Computer
- PCW** – Pedestrian Collision Warning
- PN** – Part Number
- PTZ** – Pan, Tilt and Zoom
- PWR** – Power
- REC** – Record
- RES** – Resolution
- RP** – Remote Panel
- RPC** – Remote Panel Cable
- RTSP** – Real Time Streaming Protocol
- S/N** – Serial Number
- Scheduled Download** – A download that is manually setup from in the MDR-Dashboard (to be downloaded when the selected MDR connects to the server). Configured under Server in MDR-Dashboard.
- SD** – Secure Digital
- SIM** – Subscriber Identity Module
- SMTP** – Simple Mail Transfer Protocol
- SNTP** – Simple Network Time Protocol
- SPD** – Speed
- SQL** – Structured Query Language
- SSL** – Secure Sockets Layer
- TB** – Terabyte
- TCP** – Transmission Control Protocol
- TFTP** – Trivial File Transfer Protocol
- TIA** – Telecommunications Industry Association
- TLS** – Transport Layer Security
- TRIG** – Trigger
- UDP** – User Datagram Protocol
- UKCA** – UK Conformity Assessed
- UNECE** – United Nations Economic Commission for Europe
- USB** – Universal Serial Bus
- V** – Voltage
- VBR** – Variable Bit Rate
- VGA** – Video Graphics Array
- VIC** – Video Input Cable
- VL** – Video Loss
- VOC** – Video Output Cable
- W** – Watt, standard unit of power
- WCDMA** – Wide Code Division Multiple Access
- Wi-Fi** – Wireless Fidelity
- WEP** – Wired Equivalent Privacy
- WPA** – Wi-Fi Protected Access
- WPA2-PSK** – Wi-Fi Protected Access II
- WPA2-Enterprise** – Wi-Fi Protected Access II Enterprise

21 Disclaimer

Mobile digital recorder systems are an invaluable driver aid but do not exempt the driver from taking every normal precaution when conducting a manoeuvre. No liability arising out of the use or failure of the product can in any way be attached to Brigade or to the distributor.

Dénégation

Les enregistreurs numériques portables sont une aide précieuse pour le conducteur, mais celui-ci doit toutefois prendre toutes les précautions nécessaires pendant les manœuvres. Brigade ou ses distributeurs n'assument aucune responsabilité résultant de l'utilisation ou d'un défaut du produit.

Haftungsausschluss

Mobile Datenaufzeichnung Systeme sind für den Fahrer eine unschätzbare Hilfe, ersetzen aber beim Manövrieren keinesfalls die üblichen Vorsichtsmaßnahmen. Für Schäden aufgrund der Verwendung oder eines Defekts dieses Produkts übernehmen Brigade oder der Vertriebshändler keinerlei Haftung.

Condizioni di Utilizzo

I sistemi di registrazione digitale mobile costituiscono un prezioso ausilio alla guida, ma il conducente deve comunque assicurarsi di prendere tutte le normali precauzioni quando esegue una manovra. Né Brigade né il suo distributore saranno responsabili per eventuali danni di qualsiasi natura causati dall'utilizzo o dal mancato utilizzo del prodotto.

Aviso legal

Sistemas móviles grabadora digital son una ayuda inestimable driver pero no exime al conductor de tomar todas las precauciones normales al realizar una maniobra. Ninguna responsabilidad que surja del uso o fallo del producto puede de alguna manera acoplarse a la brigada o al distribuidor.

Declinação de responsabilidade

Celular gravador digital de sistemas são uma inestimável driver de auxílio, mas não isentam o driver de tomar todas normal precaução ao realizar uma manobra. Nenhuma responsabilidade decorrente da utilização ou falha do produto pode de qualquer maneira ser anexado ao de bombeiros ou para o distribuidor.

Vrijwaring

Mobiele digitale recorder systemen zijn een waardevolle hulp voor de bestuurder, maar stelt de bestuurder niet vrij van de normale voorzorgsmaatregelen bij het uitvoeren van een manoeuvre. Geen aansprakelijkheid voortvloeiend uit het gebruik of falen van het product kan op één of andere manier aan Brigade of aan de distributeur worden toegekend.

Отказ от обязательств

Системы видеорегистрации оказывают водителю неоценимую помощь при маневрировании, но не освобождают его от обязанности соблюдения обычных мер предосторожности. В ином случае компания Brigade или дистрибьютор не несет ответственность, возникающую в ходе использования или по причине неисправности данного продукта.

Hatırlatma

Mobil Sayısal Kayıt Cihazları sürücünün önemli bir yardımcısı olmakla birlikte, manevra esnasında sürücü bir kaza olmaması için her türlü önlemi almalıdır. Brigade veya bölgesel dağıtıcıları yapılacak yanlış bir uygulama ve sonucunda oluşabilecek maddi ve/veya manevi kayıplardan sorumlu tutulamaz.

Uwaga

Systemy mobilnych cyfrowych rejestratorów są niezastąpioną pomocą dla kierowcy, ale jego posiadanie nie zwalnia kierowcy z zachowania szczególnej ostrożności podczas manewrów. Żadna kolizja drogowa ani jej skutki nie mogą obciążać producenta urządzenia oraz jego dystrybutorów.

Specifications subject to change. Sous réserve de modifications techniques. Änderungen der technischen Daten vorbehalten. Specifiche soggette a variazioni. Las especificaciones están sujetas a cambios. Wijzigingen in specificaties voorbehouden. As especificações estão sujeitas a alterações. Спецификация может изменяться. Brigade Electronics belirttiği özellikleri haber vermeksizin istediği zaman değiştirebilir. Specyfikacja techniczna może ulec zmianie.

