CAMERA MONITORING SYSTEM (CMS) MIRROR REPLACEMENT

Installation and Programming Manual

- SCS-12R/D2T

- SCS-12R/D2TG

- SCS-12R/D2TGA

Camera Monitoring System
Installation and Programming Manual

Disclaimer

Stortech Electronics does its best to ensure the integrity and accuracy of the contents in this document and cannot guarantee this. The outcome of using this document shall be entirely the user's own responsibility. Stortech Electronics reserves the right to change the contents of this document without prior notice.

- Design and specifications are subject to change without prior notice.
- It is the responsibility of the user to ensure the products are services and maintained by a trained engineer.

Important Safety Instructions

1. Read, keep, and follow these instructions.
2. Only use the power supplies that are recommended in the manual, failure to do so could cause damage to the product.
3. Before cleaning, remove all cable connections from the control box.
4. When cleaning the product's surface, use a soft, dry cloth or a damp cloth. Do not use detergent or products that contain alcohol, solvents or surfactants or oil constituents. They may damage the product. Especially the viewing bubble/window)
5. Do not use excessive force when installing the product, the camera may be damaged and fail to work. If the warranty seal is damaged, the warrantee will become void.
6. Install or uninstall the product as described in the manual, failure to do so may damage the product, affect the functions and performance that could invalidate the warrantee.
7. Install the product by referring to "Installation & connection" in the user manual.
8. This product is designed to be installed by trained professionals, incorrect installation may cause the product not to perform as expected or to malfunction.

Contents

Overview

Basic Features

- 12.3" 1920 x 3(RGB) x 720 HD Monitor resolution
- 2 – 1 Monitor and recording function.
- Split screen display
- Traditional Rearview Mirror replacement
- 2-Channel 1080P camera input
- Day & Night (ICR) with 5 x 940nm, 5m Illumination
- WDR, BLS, De-noise
- Brightness 1,000cd/m^2 / Contrast 1,000:1
- Wide voltage input: 10 - 32V ; Support 12V or 24V automobile battery; with short circuit protection
- Anti-vibration: ISO 16750-3 (6.3G)
- Compliant with E-Mark / R46 standards

Features

- Supports recording within 3-sec of powering up and video playback.
- Supports Micro SD Card, 512G max.
- With ACC input, support ACC time lapse recording
- With built-in G-sensor, supports alarm recording by G-sensor collision detection.
- Supports GPS & Wi-Fi functions (Optional)

Packaging List

- Monitor x 2 (Left and Right hand sides)
- Dual True Day/night cameras x 2 (Left and Right hand sides)
- Remote control x 1 (Requires 1 x CR2025 button battery)
- Main harness x 1

	Caution	
⚡	Risk of electric shock Do not open	⚠
Caution: to reduce the risk of electric shock, Do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.		

⚡ This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute risk of electric shock to persons.

⚠ This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

🚮 This symbol is intended to alert the user not to dispose of electrical and electronic equipment.

⚠ Occasionally, a few highlights or dark spots may occur on the LCD screen. This is a common phenomenon in active-matrix display technology and does not necessarily indicate any defect or fault.

CAUTION
You are cautioned that any changes or modifications not expressly approved in this manual could void your warrant and necessitate expensive repairs.

Installation

## Connection Diagram

Class II camera

Class IV camera

12.3" Digital colour LCD screen

GPS antenna (optional)

SD Card Slot

1. Single red wire to power wire of DC: 10-32V.
2. Single orange wire to ACC
3. Single black wire to GND.
4. Single white wire to Camera_L.
5. Single blue wire to Camera_R.

N.B. when testing the monitor in a lab, pair up the orange ACC wire with the red power wire to ensure the monitor powers up.

Light level sensor

Remote Control sensor

Mounting bracket installation point

- Select a suitable location on the vehicle for the camera, such as in the image on the left.
- Prior to mounting the camera:
  - Create a hole in the vehicle for the camera's cable to feed through.
  - Connect the camera to the display screen add power.
  - Loosen the 4 screws on the front and adjust the cameras position while viewing the screen.
  - Once in position, re-tighten the 4 screws.
  - While maintaining the position and direction of the camera fix to the vehicle body with ST4*20 mounting screws.

Universal bracket

Operation Instruction

CONNECTIONS

Connections

- Single Red Wire: To +ve Power supply for DC: 10 ~32V.
- Single Orange Wire: To ACC.
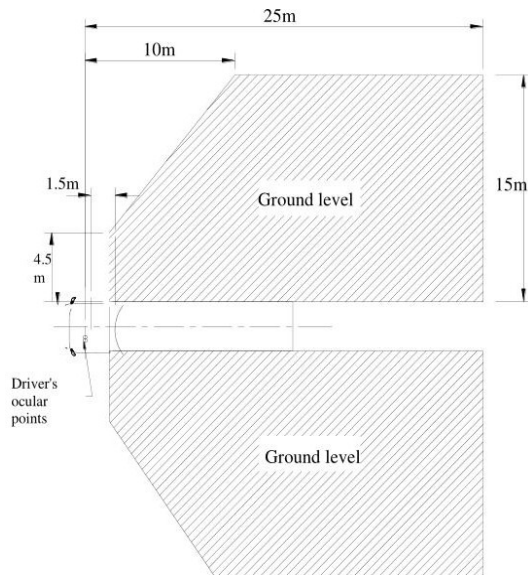- Single Black Wire: To GND
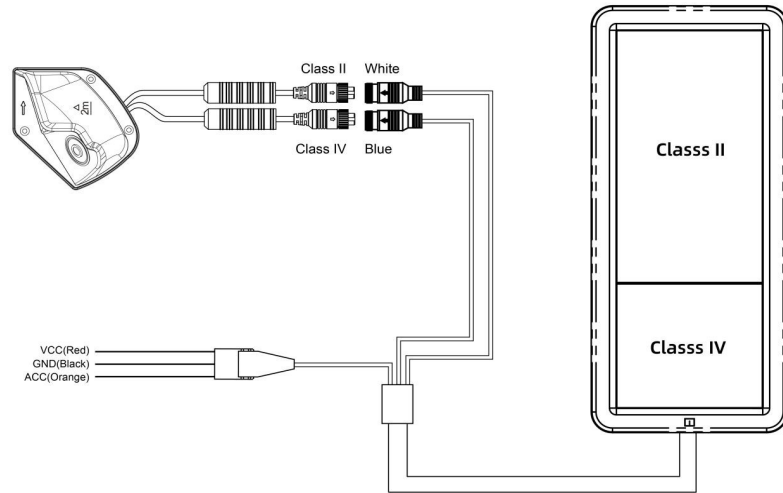
Installation

- 12.3" HD Review Electronic Mirro System, according to regulation R46.
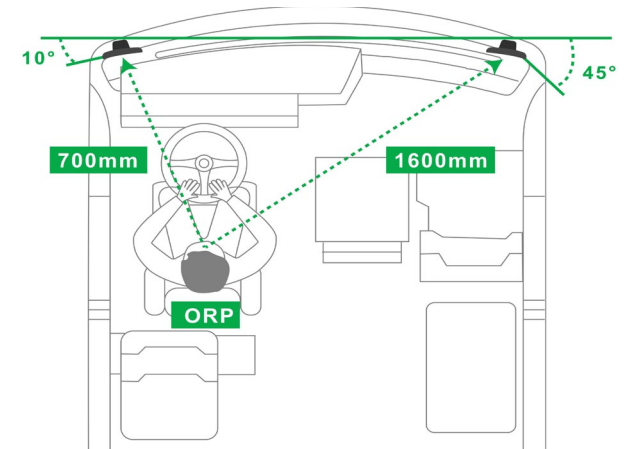
- Class II fields of vision
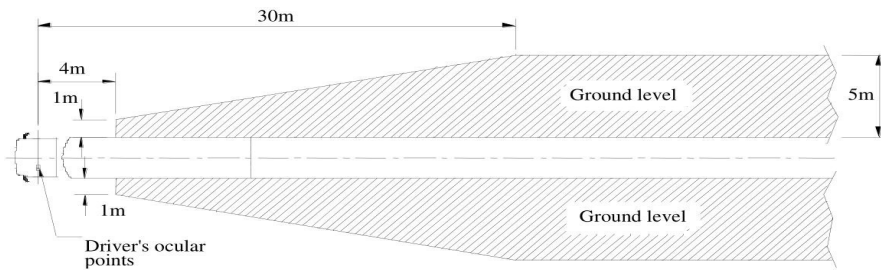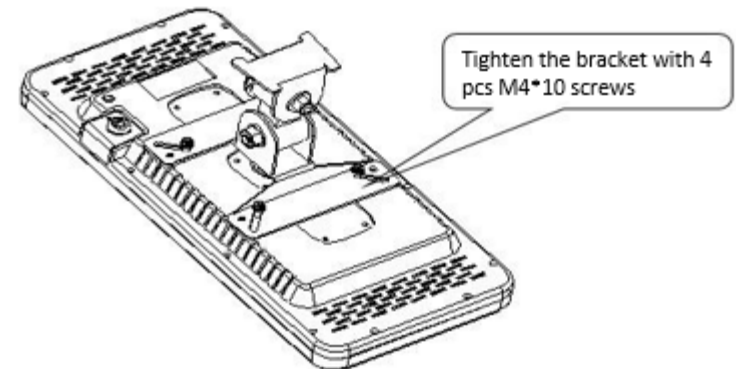

- Class IV fields of vision
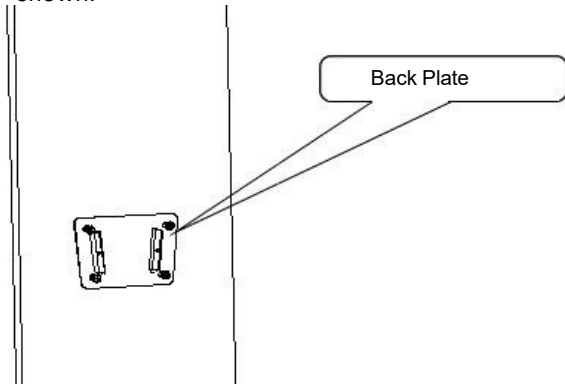

Monitor

- Distance between the monitor and the ORP

- Lock the monitor and the bracket with supplied screws (4 * M4*10)

Tighten the bracket with 4 pcs M4*10 screws

Operation Instruction

Monitor

- Fix the back plate to the right place in a vehicle with four screws as shown.

Back Plate

- Hang the monitor and bracket upside down to the back plate as, adjust the angle of the monitor, then fix with the corresponding screws (2 pcs * M3).

N.B. The side with infrared window should face downwards.

Insert the bracket to the hook of the back plate and tighten with 2 pieces of M3 screws
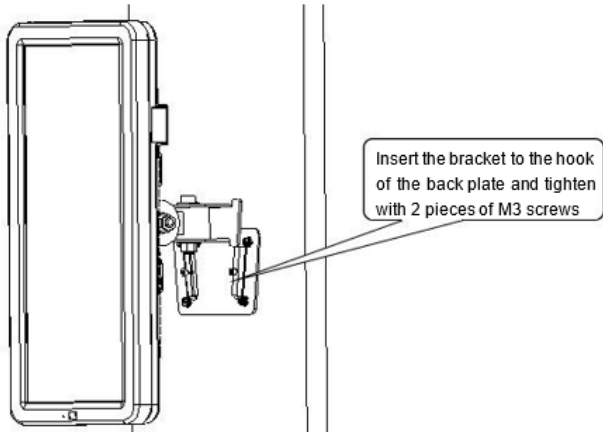
Camera

- The installation position of the horizontal distance and height is shown below.

S≥500mm

S

ORP=635mm

2000mm≤x≤2200mm
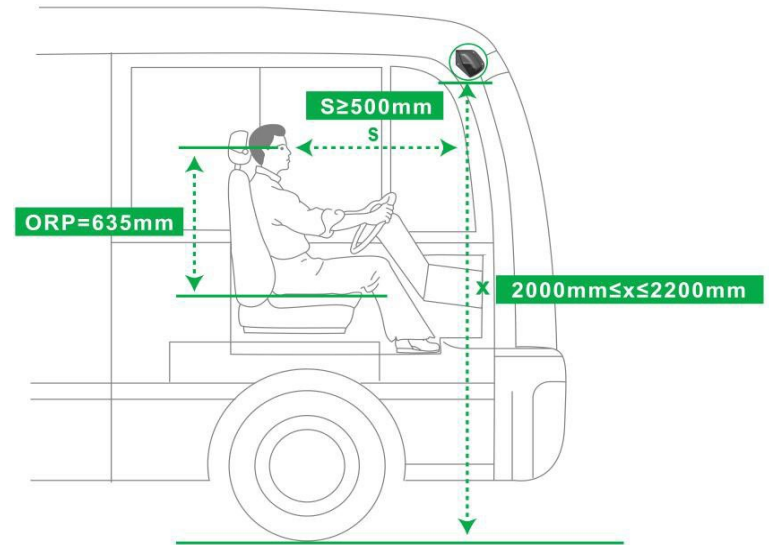
- Connect the camera and display, loosen the 3 screws on the front of the camera. After installation, tighten the screws to fix the camera in place.

Vertical to ground

Loosen the screws
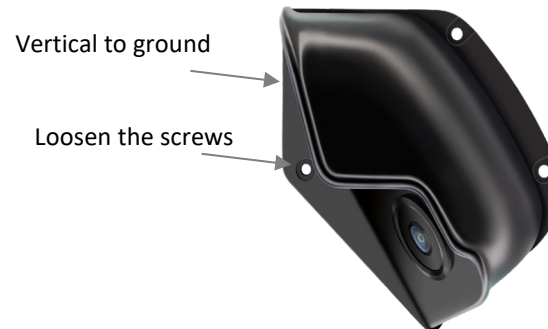
IR REMOTE CONTROL

1. **VOL:** ▷ Move menu cursor right & increase volume
2. **VOL:** ◁ Move menu cursor left & decrease volume
3. **UP:** △ Move menu cursor up.
4. **DOWN:** ▽ Move menu cursor down.
5. **REST:** Reset the system
6. **AV:** Start / Stop recording
7. **SEL:** Select the menu the cursor has highlighted.
8. **MENU:** Exit to the main menu or return to the previous menu.
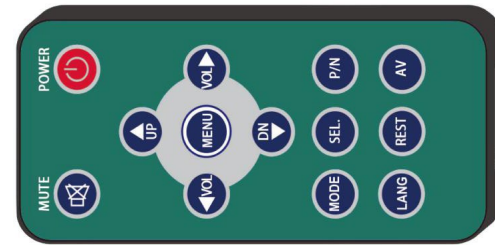
MENU OPERATION

Desktop

- The remote control is needed to Switch on and off the monitor.
- Menu: Press and hold for 3 sec to unlock the menu, a short press to open the Home Menu
- AV: Start / Stop recording

Home Menu

- Press the IR remote control left/right button + "SEL" button to access the corresponding menu.

Record Control

o Move the cursor to the "Record Control" icon, press "SEL" button on the IR remote control to start/stop video recording.

Playback

o Date: Select the date of the video to playback, by selecting one of the four buttons "previous year/month or next year/month.

o On the section of the interface indicating the days, only those highlighted in white signals recording exists on those days. After selecting the day, press "SEL" button to enter the file selection interface.
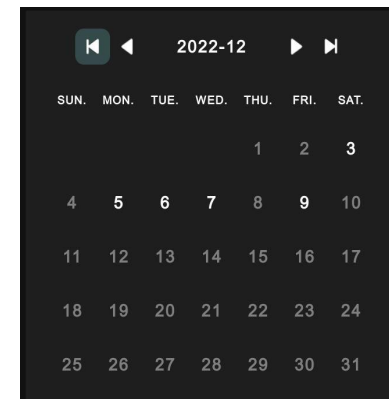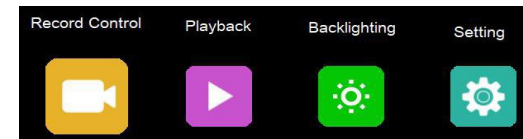
File List

- **Type:** Video file type selection, including Normal and Event
- **Hour:** Time period containing the video files
- **Search:** Displays video files list based on filter criteria.
- **Select:** Select recording file.
- **All:** Select / unselect all files.
- **Play:** Play the video recording
  Description: Once the cursor is over the selected file, press "SEL" to toggle between select/deselect the file.

Playback Control

- The upper section of the playback control panel shows the progress back, the current time and total duration. By moving the cursor on to the progress bar and pressing "Left/or Right" buttons of the IR Controller to fast forward/rewind the video.
- The bottom section contains four buttons. Play previous video, pause/play, play next video and return to the previous interface. Use the IR remote controller to hide/show the playback control panel. When the hidden, the background becomes transparent and only the progress bar is displayed at the bottom of the interface.
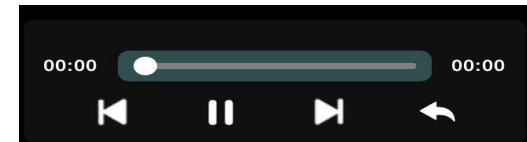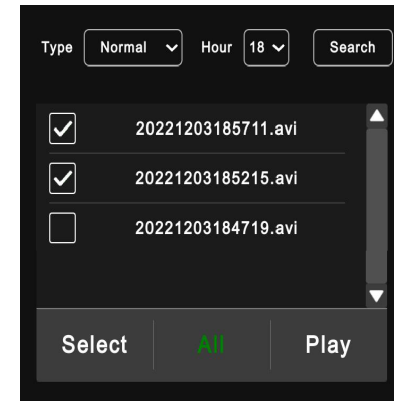

Backlighting

The menu will display (see right) when automatic backlight is off.
- ○ The backlight adjustment range is 0 ~ 60, adjusted by the left and right keys of the IR remote controller.
- ○ Press Menu on the IR remote controller to return to the previous menu.

The menu will display (see right) when automatic backlight is on.
- ○ When on, the interface has an extra slider bar for Nighttime adjust mode. While adjusting the automatic mode is disabled.
- ○ The night-time adjust level can never exceed the day mode level.
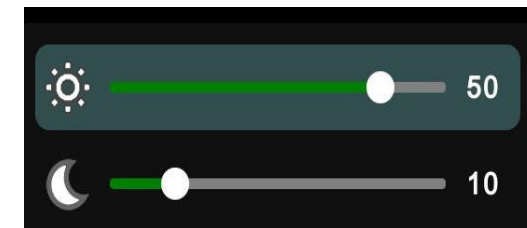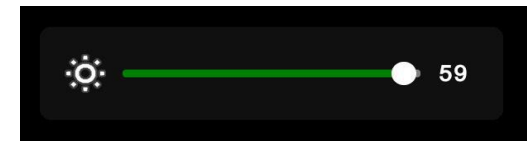
Setting

Function Description
- **Display:** Screen parameter settings.
- **Record:** Video recording settings.
- **System:** System configuration.
- **Disk:** Memory card management**.**
- **Calibration:** Calibrating grid lines Green, Yellow, Red
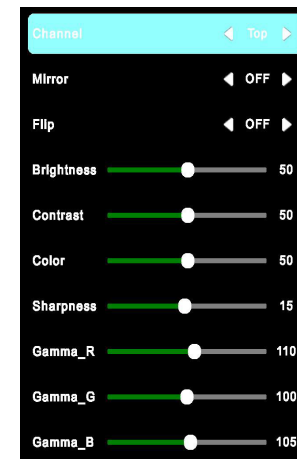- **Reset:** Restore factory settings.
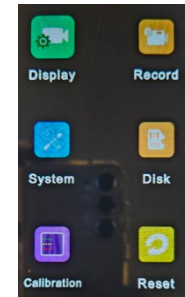
Setting

Function Description: Select the different options using the up and down keys, while the values are changed using the left and right keys.

The following options are set independently for the top and bottom channels.
- **Channel:** Camera channel selection, Top and Bottom respectively.
- **Mirror:** Left and right flip switch.
- **Flip:** Up and down flip switch.
- **Brightness:** Screen brightness adjustment.
- **Contrast:** Screen contrast adjustment.
- **Colour:** Screen saturation adjustment.
- **Sharpness:** Screen sharpness adjustment.

The following options are set for both the top and bottom channels.
- **Gamma_R:** Display Gamma red component adjustment.
- **Gamma_G:** Display Gamma green component adjustment.
- **Gamma_B:** Display Gamma blue component adjustment.

Record

Function Description: Different options are selected using the up and down keys, while the values are changed using the left and right keys.
- **Power on Rec:** Default to off. Once set to on, the system will automatically record on power up.
- **File Length:** Max length of each video file set to 5mins / 10mins / 15mins.
- **Resolution:** Selected between 720P/ 1080P.
- **Bitrate:** Video bit rate set to Low / Middle / High
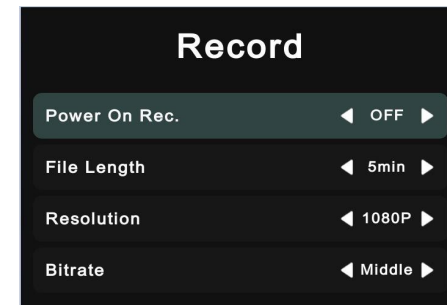
System

- To enter the Dimmer setting interface, select Dimmer and press "SEL" button on the IR remote controller.

- To enter the Date & Time setting interface, select Date & Time and press "SEL" button on the IR remote controller.

    Dimmer

    o When Auto is On, the monitor turns on the automatic backlight function and switches the monitor to brighten/darken depending on the ambient light levels.

    o When Auto is Off, the backlight level of the monitor is set according to the backlight brightness of the Day mode between 0 ~ 60.

    Date & Time

    Function Description: The year, month, day, hour and minute can be set and saved.

    o **Select:** Toggle from the date/time row to the keypad.

    o Use the ←, ↑, ↑, & → arrows to move between the number on the keypad.

    o Select to "**Select**" a number, from the date/time row. "**Del**" deletes the numbers selected in the Date/time row.

    o **Menu:** Toggle from the keypad to the date/time row.

    o **Apply:** You must select "Apply" for any setting changes to be saved.

    o **Number 0** ~ 9: Select the desired number on the numeric keyboard and click "SEL" to confirm the input, then click "MENU" to exit.

    o **Del:** Delete button, when selected click "SEL" on the IR remote controller to confirm the deletion.
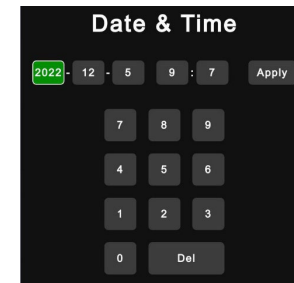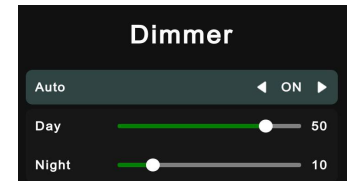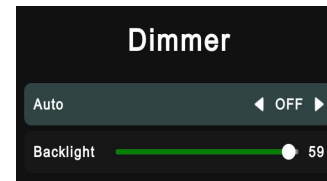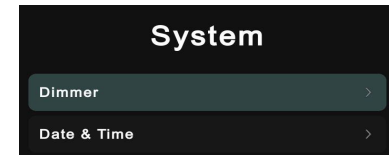
Disk

- o **Total:** Total disk capacity.
- o **Free:** Current remaining capacity
- o **Format:** To format the SD Card, press the "SEL" button on the IR remote controller to format the storage media.
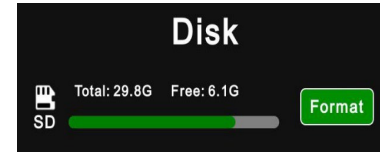

Upgrade

When the SD card contains the upgrade file, the version number will be displayed. Click the down arrow to view the upgrade package. Click "Upgrade to enter the upgrade interface. The system will automatically reboot on completion of the upgrade.

N.B. During the upgrade process do not power off the device, otherwise unpredictable consequences may occur.
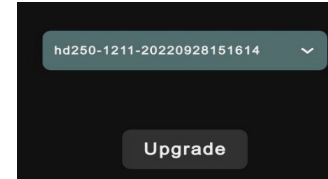

Calibration

- **Enable**: On / Off
- **Side:** Right / Left
- **Config:** Adjusting each lines vertical position and length. Use the ←, ↑, ↑, & → arrows to move the vertical position and length. Use the P/N button to toggle between the Green, yellow and red lines.
- **Menu:** To exit the Config page.
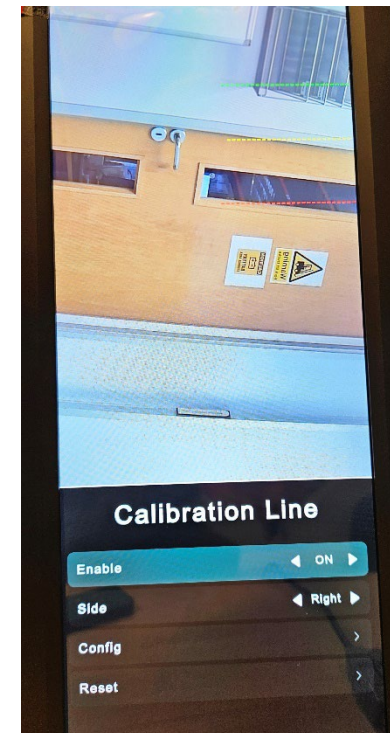
Reset

Reset: Restore factory settings button, click OK to enter the reset mode. All parameters will be restored to default values. The system will reboot after completion. Click cancel to exit.
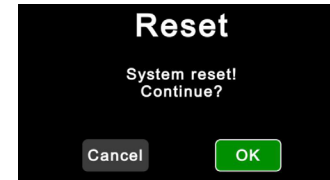
e-mirror with AI option only

Button Panel Instructions:

- ± Moves the cursor
- ▽ Enter the selected button
- **M:** Exit AI menu.

IR Instructions:

- ◁▷ : Moves the cursor
- **SEL:** Enter the selected button
- **MENU:** Exit AI menu.

Function Description: Adjust settings related to AI features.
- **Channel :** Camera channel selection, Top, and Bottom respectively.
- **Enable:** Choose whether to enable AI.
- **Full Chn Detect:** Enable full channel detection.
- **BSD Side:** Switch Left/Right BSD lines' shape.
- **BSD Line:** Choose whether to display BSD lines.
- **BSD Config:** Enter BSD Configuration menu.
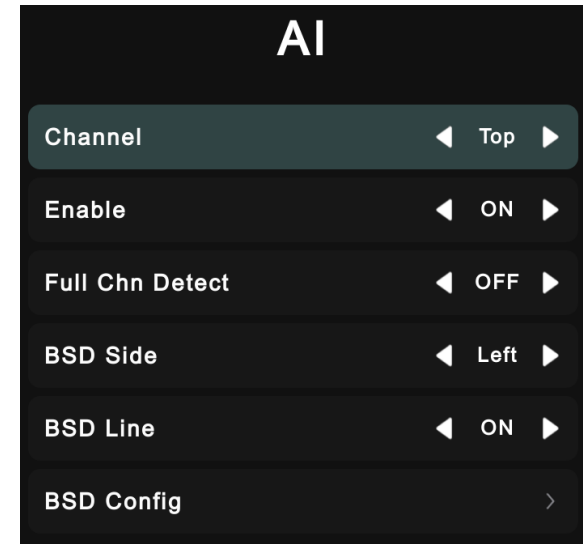
BSD Configuration mode:

- Press the **UP / DOWN / VOL ◁ / VOL▷** button of the IR remote control to adjust the position of the BSD line.

- Press the **P/N** button of the IR remote control to switch the BSD line focus.

- Press the **Menu** button of the IR remote control to exit BSD configuration mode.
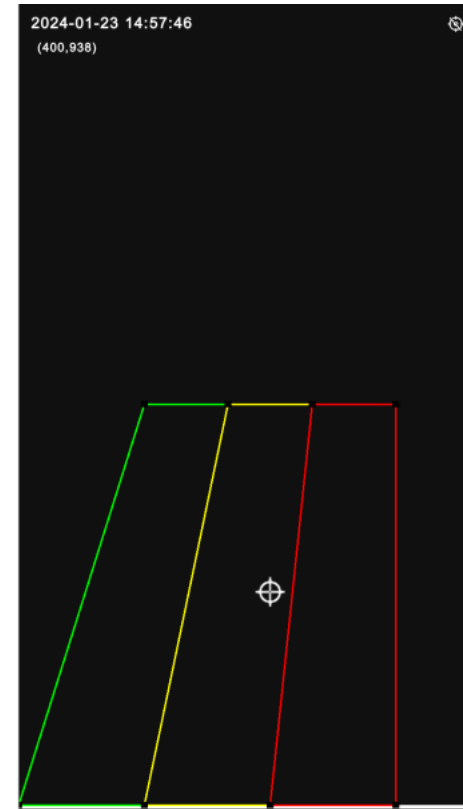
Specifications

MONITOR	
LCD Size	12.3"
Resolution	1,920(H) X 720(V) 3(RGB)
Contrast	1,000:1
Maximum Brightness	1,000cd/m^2
Response Time	120ms
Start-up Time	3 sec
Viewing Angle	Hor. L (85) R (85) Ver. UP (85) Down (85)
Video Synchronisation	Yes
Video Compatibility	PAL / NTSC auto-switching
Video Input	2-Channel Supporting
Video Compatibility	2 x 720P @ 30ips
Video Display	Split Screen
Remote Control	Full-functional
Recording	Supports 1 x 512GB SD Card
ENVIRONMENTAL	
Operating Temperature	-30°C - +70°C, RH90%
Storage Temperature	-40°C - +80°C, RH90%
Shockproof range	6.3G
ELECTRICAL	
Power input	10 – 32V DC
MECHANICAL	
Materials	Plastic & With Black Rubber Painted
Dimensions (HxWxD)mm	330.6 x 148 x 38.5mm
CAMERA	
Imaging Device	1/2.8" Colour CMOS Sensor
Effective Pixels	1920(H) x 1080(V)
Resolution	1080P
Min. Illumination	Colour: 0.01Lux @ F1.2/ 0.0Lux Monochrome (IR LEDs On)
IR Illumination	6 x 850nm – 10 Illumination
Scanning System	Progressive Scan
Video Output	1 V pk-pk 75Ω

Back Light Compensation	Auto
Gamma	0.45
AGC	Auto
White Balance	Auto
WDR	>100dB
Electronic Shutter	1/30(1/25) ~ 1/50,000 Seconds
LENS	
Focal Length	2.3mm (Lower Camera) / 6.0mm (Upper Camera)
Field of View (H)	132°(H) x 73°(V) Class IV / 55°(H) x 30°(V) Class II
Lens / Mount Type	Fixed Iris / Mega pixel Board-in type
ENVIRONMENTAL	
Operating Temp/ Hum	-40°C ~ +105°C /95% RH
Storage Temperature	-50°C - +110°C, RH95%
Ingress Protection / Vandal Resistance	IP69K / IK10 (not antenna)
ELECTRICAL	
Power	12 - 24V DC
MECHANICAL	
Colour / Material	Black, Metal
Dimensions(HxWxD) mm	67.78 s 127.15 x 126.63mm
CERTIFICATION	
	CE/UKCA IP69K, R46, ISO 16750-3

UK
CA C E

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