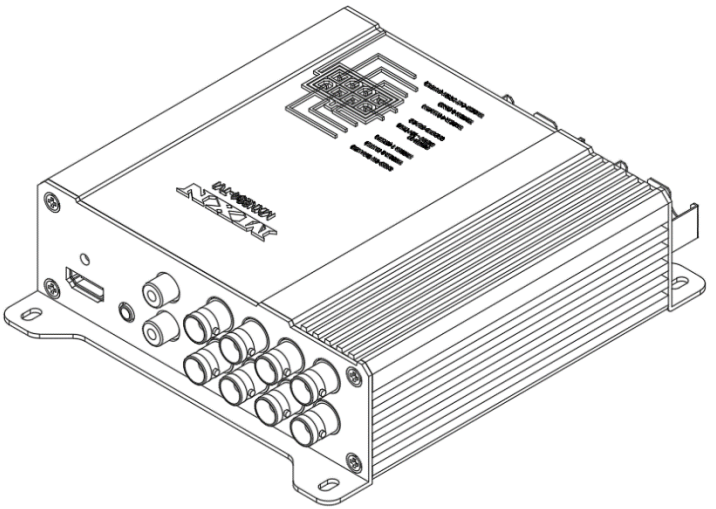
OWNER'S MANUAL

PLEASE READ CAREFULLY BEFORE
USING THE PRODUCT.

HD MULTI-PURPOSE CAMERA CONTROL BOX



Model: MXN204-TVI

Design and specifications are subject to change without notice.

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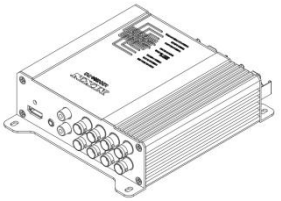
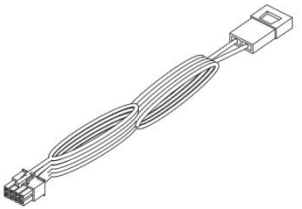
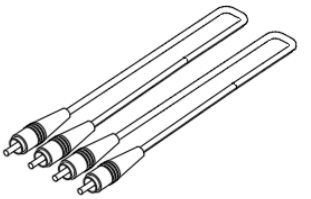
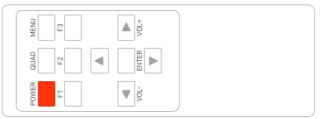
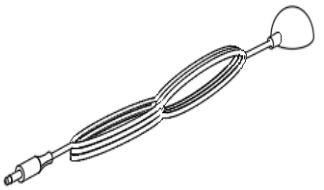
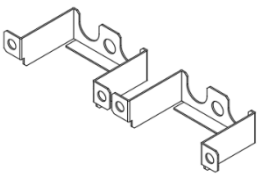
PACKAGE CONTENTS

		
CONTROL BOX	POWER CABLE	RCA CABLE
		
REMOTE CONTROLLER	IR RECEIVER	MANUAL
		
CABLE BRACKET	CABLE BRACKET SCREW	MOUNT SCREW

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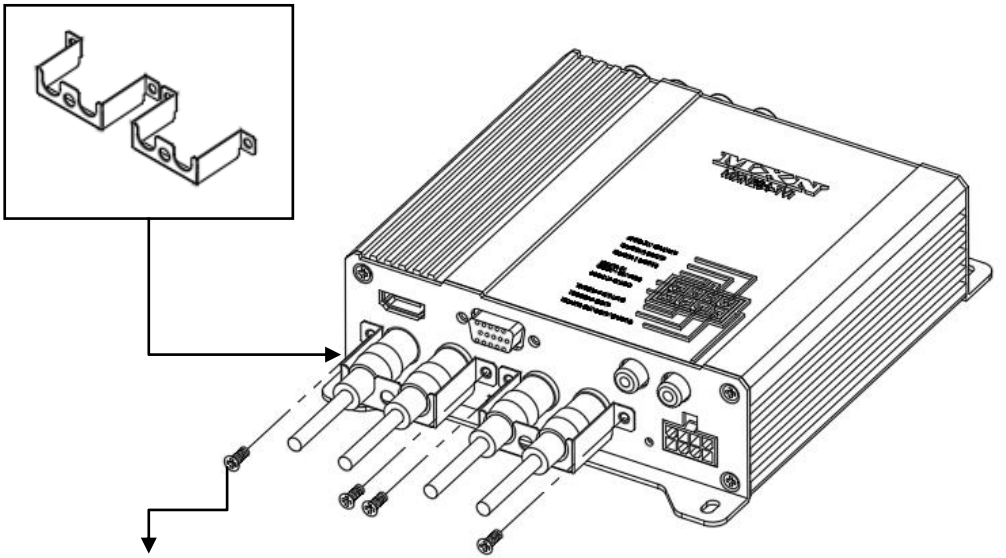
POWER CABLE	1
RCA CABLE	1
REMOTE CONTROLLER	1
IR RECEIVER	1
MANUAL	1
CABLE BRACKET	2
CABLE BRACKET SCREW (FH M3X5)	4
MOUNT SCREW (PH M4X30 STAINLESS)	4

■ INSTALLATION

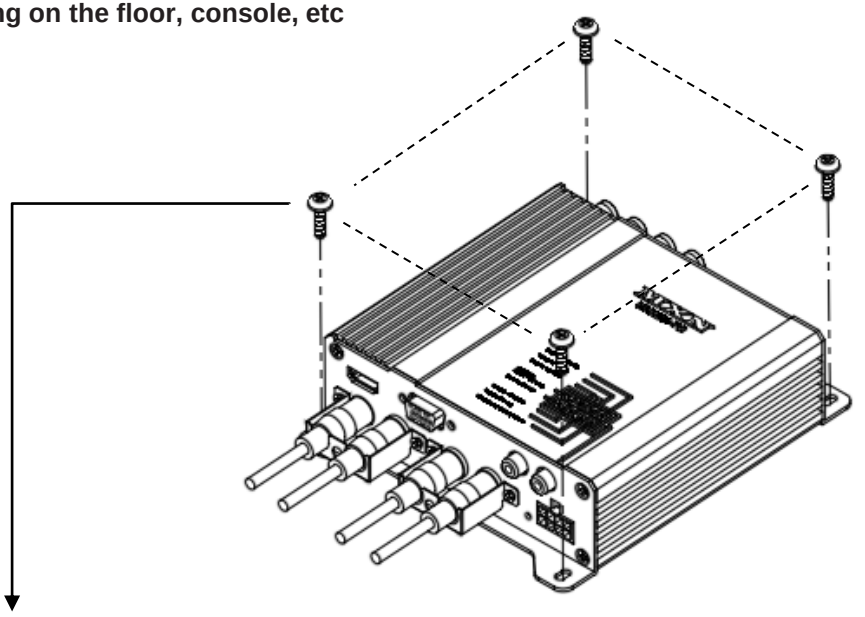
☐ **Bracket Cable**

: Fix the bracket jack with provided screw after connecting the cameras



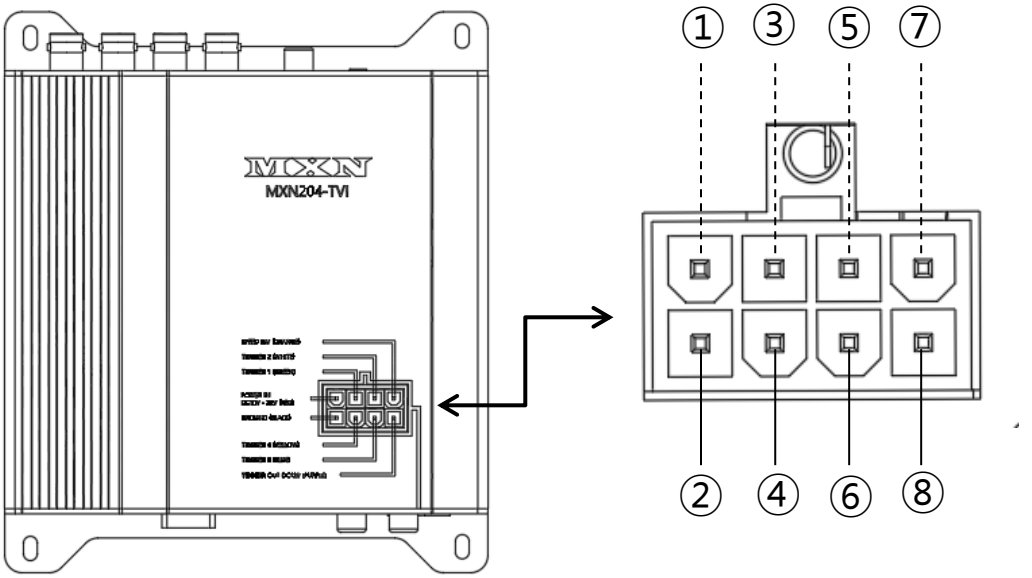
★ **SCREW : M3 X 5 4EA**

☐ **Mounting on the floor, console, etc**



★ **SCREW : M4 X 30 4EA**

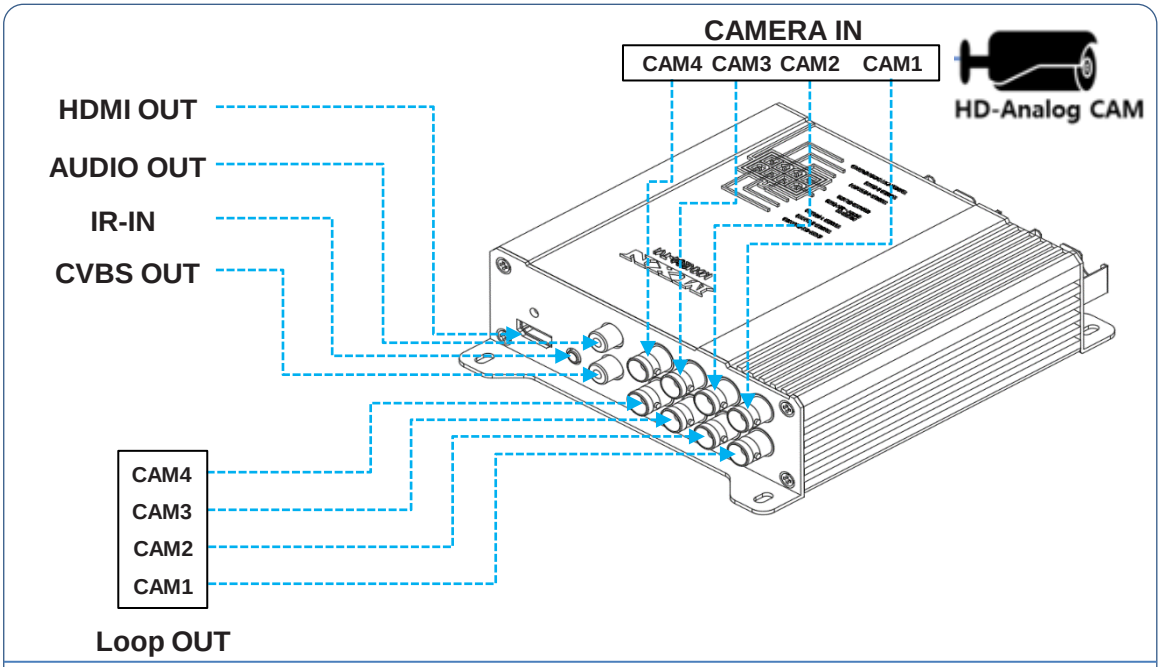
■ CONNECTION

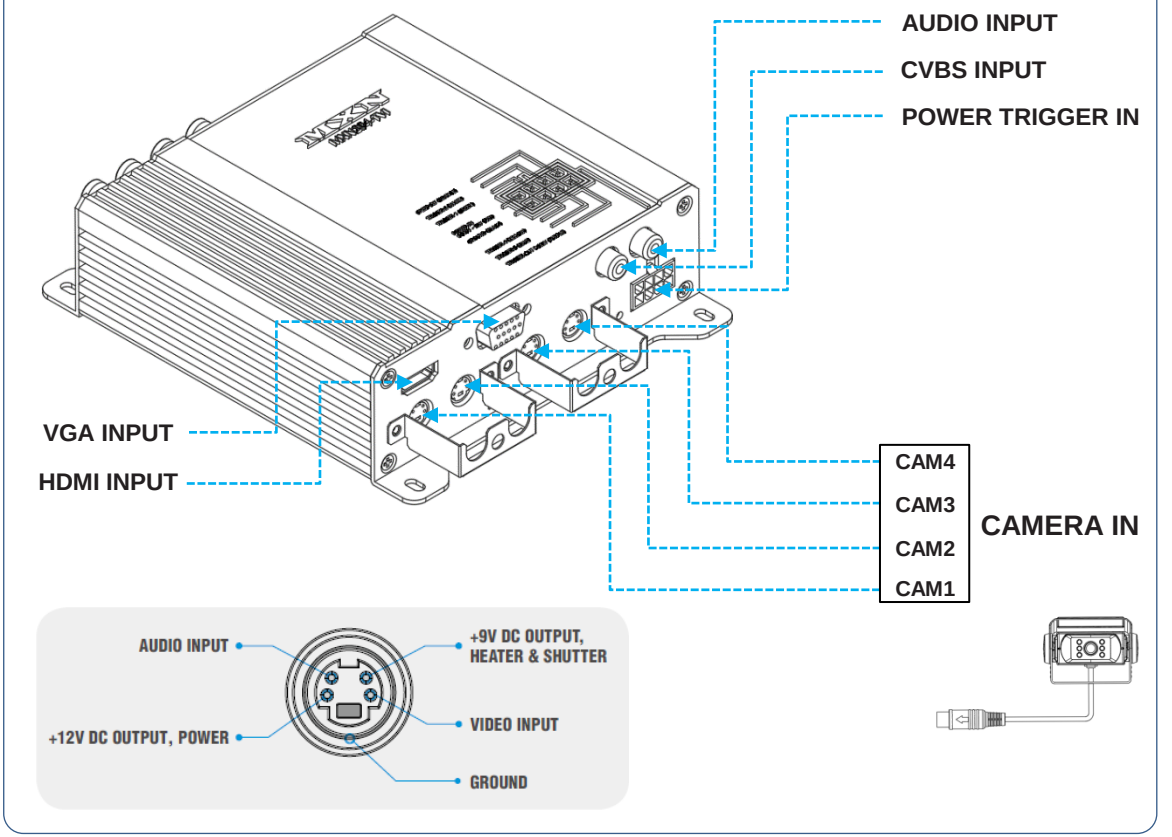


Power & Trigger wire connection

No.	WIRE COLOR	DESCRIPTION
①	RED	Power IN DC 10V ~32V
②	BLACK	Ground
③	GREEN	Trigger 1 IN (Power IN DC 10V ~32V)
④	YELLOW	Trigger 4 IN (Power IN DC 10V ~32V)
⑤	WHITE	Trigger 2 IN (Power IN DC 10V ~32V)
⑥	BLUE	Trigger 3 IN (Power IN DC 10V ~32V)
⑦	ORANGE	Speed Switch
⑧	PURPLE	Trigger Out DC12V (Max. 500mA)

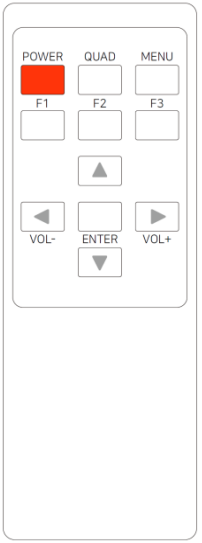
CONNECTION


CAMERA IN
CAM4 CAM3 CAM2 CAM1
HD-Analog CAM
HDMI OUT
AUDIO OUT
IR-IN
CVBS OUT
CAM4
CAM3
CAM2
CAM1
Loop OUT


AUDIO INPUT
CVBS INPUT
POWER TRIGGER IN
VGA INPUT
HDMI INPUT
CAM4
CAM3
CAM2
CAM1
CAMERA IN

AUDIO INPUT
+12V DC OUTPUT, POWER
+9V DC OUTPUT, HEATER & SHUTTER
VIDEO INPUT
GROUND

Remote Controller



① POWER button

Press POWER button to turn the control box on or off.

When a trigger signal is activated, the control box does not Respond at the remote control's signal.

(Please refer to TRIGGER MODE in MAIN MENU for further information)

Status of RED LED in IR Receiver

STANDBY : LED ON

POWER ON : LED OFF

IR SIGNAL : LED BLINK

② MENU button

Press MENU button for control box setting

③ QUAD button

Press QUAD button to display SPLIT4 of CAMERA input or BNC input

④ UP/DOWN button

Press UP/DOWN button for moving MENU

⑤ LEFT(VOL-)/RIGHT(VOL+) button

Press LEFT/RIGHT button to change MENU when MENU is on

Press LEFT/RIGHT button to control volume up and down when MENU is off

⑥ ENTER button

Press ENTER button to select MENU when MENU is on

Press ENTER button to change display mode as below sequence when MENU is off

CH1 → CH2 → CH3 → CH4 → SPLIT1 → SPLIT2 → TRIPLE → QUAD → CH1…

⑦ F1 button

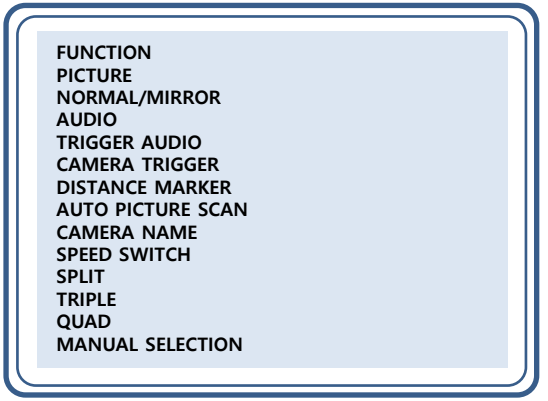
Press F1 button to select HDMI input

⑧ F2 button

Press F2 button to select VGA input

⑨ F3 button

Press F3 button to select RCA input



MENU TREE

Change the setting value by pressing the MENU button.

FUNCTION
Set functions on the monitor.

PICTURE
Set the color and brightness on the monitor.

NORMAL/MIRROR
Input video can be reversed

AUDIO
Set the audio ON/OFF.

TRIGGER AUDIO
Set the audio ON/OFF when entering the TRIGGER signal.

CAMERA TRIGGER
When entering the TRIGGER signal, the screen output.

DISTANCE MARKER
DISTANCE MARKER can be set according to the TRIGGER signal input.

AUTO PICTURE SCAN
Set the automatic sequence switching time.

CAMERA NAME
Set the camera name.

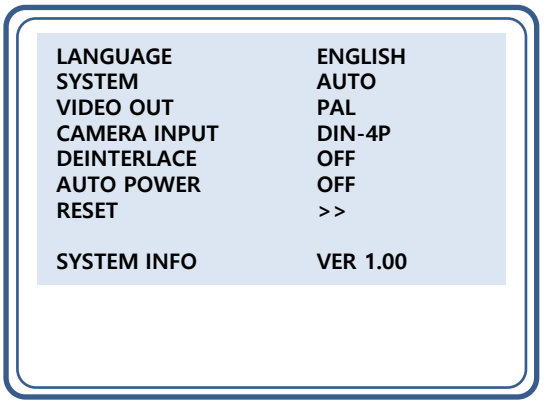
SPEED SWITCH
By receiving TACHO signal, you can set the operation at the corresponding frequency.

SPLIT
Display the camera video at the set position on the SPLIT screen.

TRIPLE
Display the camera video at the set position on the TRIPLE screen.

QUAD
Display the camera image on the QUAD screen at the set position.

MANUAL SELECTION
When the SELECTION button is pressed, the output screen is set.



FUNCTION

LANGUAGE
Provide 6 Multi-lingual OSD [ENGLISH, SWEDISH, DANISH, NORWEGIAN, DUTCH, FINNISH].
Select the preferred LANGUAGE.

SYSTEM
Select AUTO/TVI/AHD/NTSC/PAL

VIDEO OUT
Select NTSC/PAL for video output format

CAMERA INPUT
Select DIN-4P/BNC for camera input

DEINTERLACE
Select the DEINTERLACE function for NTSC/PAL video input signals

AUTO POWER
Select monitor activation functions as below.
[AUTO] The Control box remembers the last settings from its memory.
[ON] The Control box is turned on with the 『Power-ON』 mode automatically.
[OFF] The Control box is turned on with the 『Stand-By』 mode automatically.

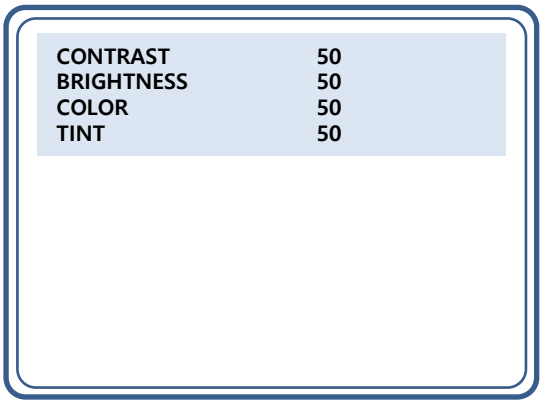
RESET
Press “>>” button to enter the factory default settings.

SYSTEM INFO
Refers to the system information of the monitor.

NOTE
• VIDEO OUT
- It is recommended to set VIDEO OUT to PAL when using the camera with PAL or 1080P25
- It is recommended to set VIDEO OUT to NTSC when using NTSC or 1080P30.

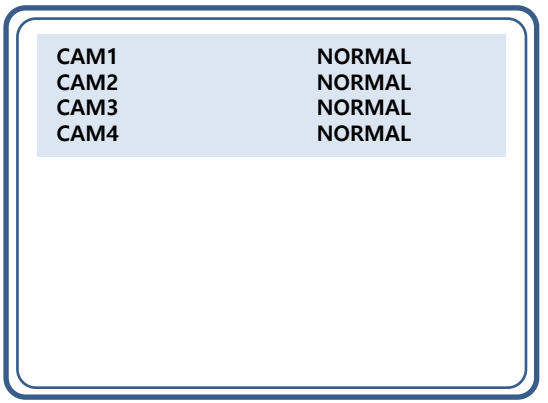
• Deinterlace ON: No shaky video
- Afterimages and cracked images occur when the object is moving (EVEN/ODD deviation, see the attached image)
- Aliasing is seen on a small split screen due to down scale
- Not available when the MIRROR function is ON (only possible when deinterlace is OFF)

• Deinterlace OFF: Shaky video visible
- No afterimages and cracked images are visible when the object is moving
- Image quality deterioration occurs due to the use of line doubling in large size division
- No cascading effect on small split screens



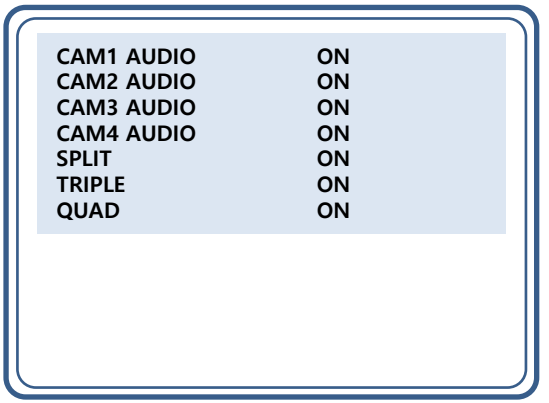
PICTURE MENU

Press [LEFT/RIGHT] button to adjust the PICTURE of the monitor.
PICTURE MENU is for the settings of PICTURE from CAM1, CAM2, CAM3, CAM4, SPLIT1, SPLIT2, TRIPLE, QUAD mode.



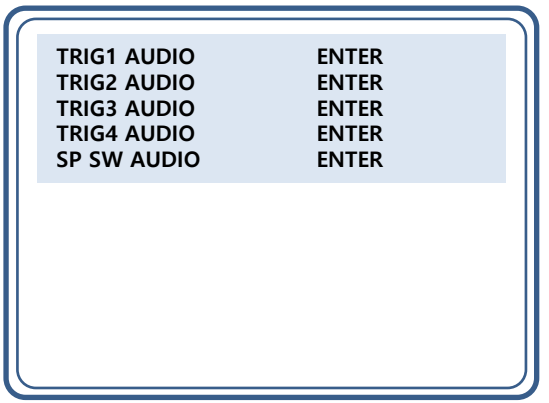
NORMAL/MIRROR

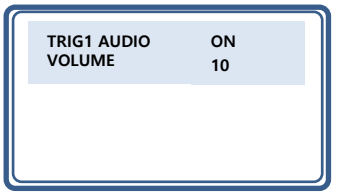
Each camera (CAM1/CAM2/CAM3/CAM4) can be switched between NORMAL& MIRROR image.



AUDIO

Audio ACTIVATED Mode in normal mode.
When the mode is [ON], audio will be on (activated)
When the mode is [OFF], audio will be off (mute).





TRIGGER AUDIO

Audio ACTIVATED Mode in Trigger mode.

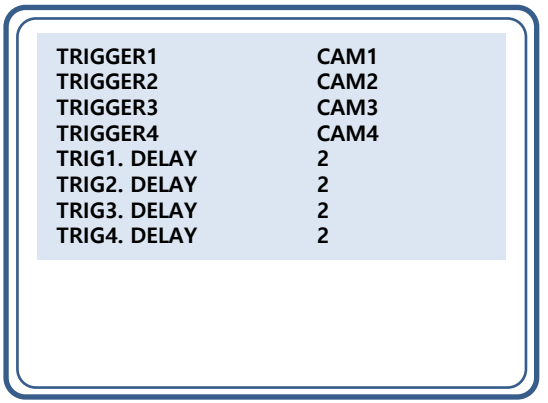
Choose the trigger and then press [ENTER].

The Audio settings menu will be shown as below.

When the mode is [ON], audio will be on(activated).

When the mode is [OFF], audio will be off (mute).

The user can adjust the volume.

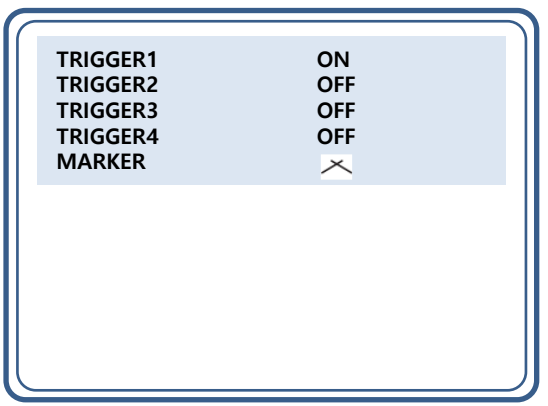


CAMERA TRIGGER

TRIGGER 1/2/3/4 (Trigger source selection)
Select the required trigger source at CAM1/CAM2/CAM3/CAM4/SPLIT1/ SPLIT2/TRIPLE / QUAD

REMARK
TRIGGER PRIORITY: TRIGGER 1 > TRIGGER 2 > TRIGGER 3 > TRIGGER 4

TRIG. DELAY
When a TRIGGER wire is connected to a pulse DC power signal (e.g.direction indicator lights) then the [TRIGGER DELAY] function avoids repeating ON/OFF of the monitor.



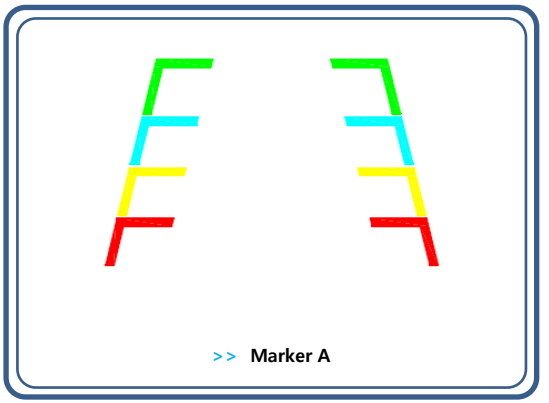
DISTANCE MARKER

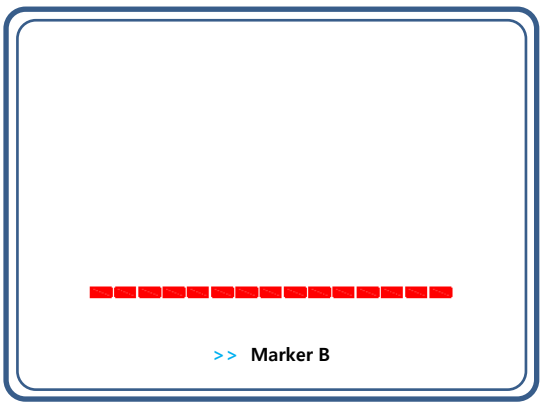
Select ON to have DISTANCE MARKER for CAM1, CAM2, CAM3, CAM4.

DISTANCE MARKER is displayed as the trigger signal is activated

MARKER

Select of DISTANCE MARKER. or ____





DISTANCE MARKER ADJUSTMENT

Users can make adjustments by pressing the SELECT button in the menu. (It is not available on the split mode screen)

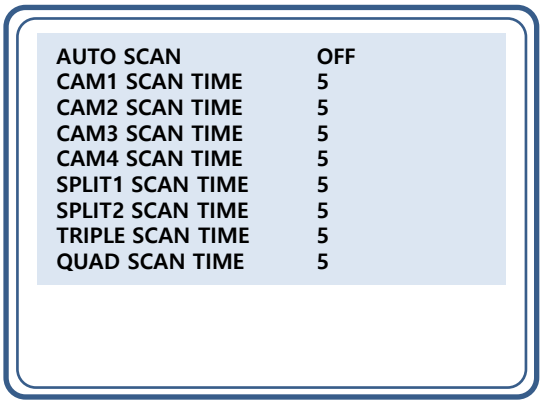
Marker A- Parking line

The left/right/both markers will be selected in order each time you press the SELECT button. When the marker is red it can be adjusted UP/DOWN or LEFT/RIGHT.

When both distance markers are RED, you can adjust both markers LEFT/RIGHT/UP/DOWN.
When the left distance marker is RED, the left marker can be adjusted LEFT/RIGHT.
When the right distance marker is RED, the right marker can be adjusted LEFT/RIGHT.

Marker B- Horizontal line

Users can adjust the line UP/DOWN.
Users can adjust the horizontal line by pressing [UP/DOWN] buttons.



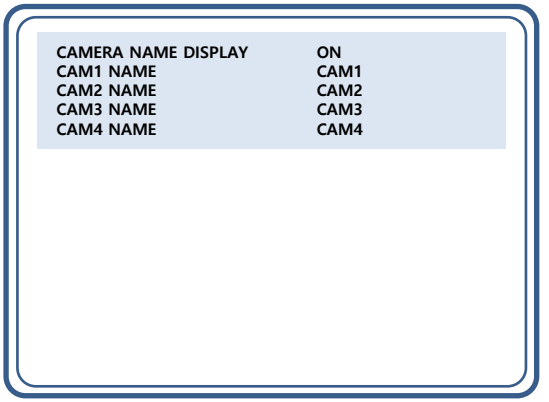
AUTO PICTURE SCAN

Each scanning time of CAM1/CAM2/CAM3 /CAM4/SPLIT1/SPLIT2/TRIPLE/QUAD can be managed.

REMARK

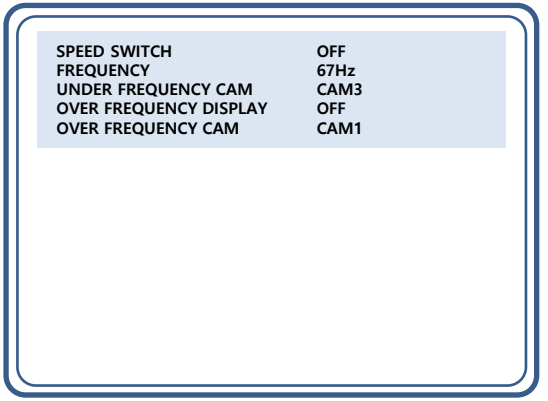
If the SCAN TIME is set as[0], monitor skips its channel during scanning.

Press [UP] button for 4 seconds to ACTIVATE / INACTIVATE auto scanning function.



CAMERA NAME

CAMERA NAME can be selected as CAM1, 2, 3, 4/REAR/LEFT/RIGHT/FRONT.

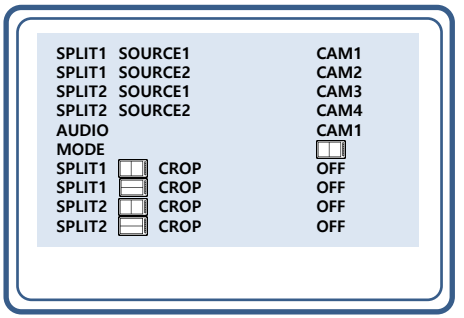


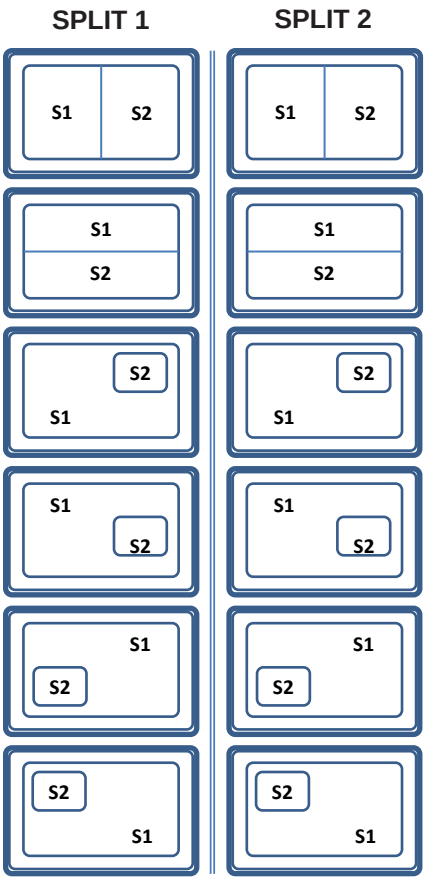
SPEED SWITCH

The orange wire needs to be connected with the vehicle's tacho signal and via MENU the SPEED SWITCH needs to be selected ON. At FREQUENCY 67Hz setting(and the most common used tacho signal) the selected camera will be displayed during a speed of 0~33km/h. Select the concerning camera via『UNDER FREQUENCY CAM』(At a different type of tacho signals the FREQUENCY needs to be adjusted higher or lower than the example)

Over 33km/h(72Hz) the selected camera will be switched OFF automatically. When the speed slows down, then the selected camera will be switched ON automatically again at 30km/h. Instead of automatic switch OFF at a speed over 33km/h it is also possible to activate another video source, such as a navigation picture from an optional navigation computer. In this case user needs to select 『OVER FREQUENCY DISPLAY: ON』 and user needs to select 『OVER FREQUENCY CAM』

In case of TRIGGER activation with the『SPEED SWITCH ON』 mode, then TRIGGERS 1~ 4 will nullify 『SPEED SWITCH』 function.



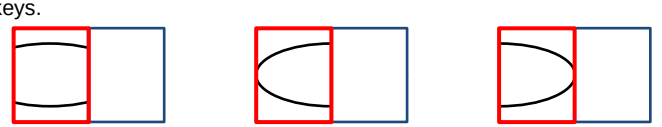


SPLIT configuration:

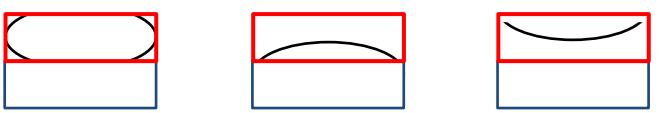
SOURCE 1		Select S1 Camera(CAM1~CAM4).
SOURCE 2		Select S2 Camera(CAM1~CAM4).
SOURCE 3		Select S3 Camera(CAM1~CAM4).
SOURCE 4		Select S4 Camera(CAM1~CAM4).
AUDIO		Select SPLIT of Audio(CAM1~CAM4).
MODE		Select SPLIT MODE
SPLIT1	**CROP**	Select Scale or None Scaled Display
SPLIT1	**CROP**	Select Scale or None Scaled Display
SPLIT2	**CROP**	Select Scale or None Scaled Display
SPLIT2	**CROP**	Select Scale or None Scaled Display

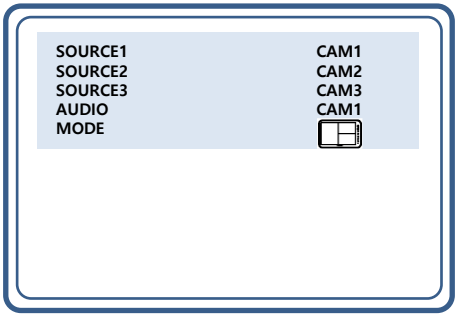
- To use CROP mode, turn on in the menu and press the ENTER (SELECT) button to display a red border on the video of the channel to be adjusted.
* You can enter the adjustment mode only in the CROP mode.
- Press the ENTER (SELECT) button to select the channel (SOURCE1,2) to be adjusted.

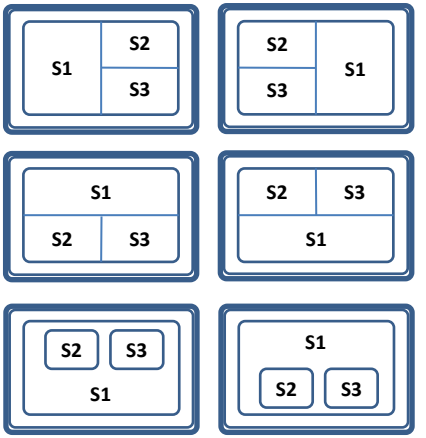
Horizontal SPLIT CROP
- Adjust by moving the screen to be displayed in the selected channel using the left/right keys.



Vertical SPLIT CROP
- Adjust by moving the screen to be displayed using the Up/Down keys in the selected channel.

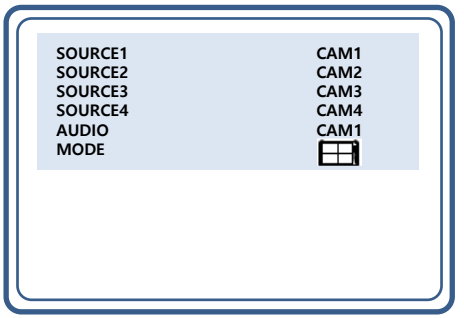


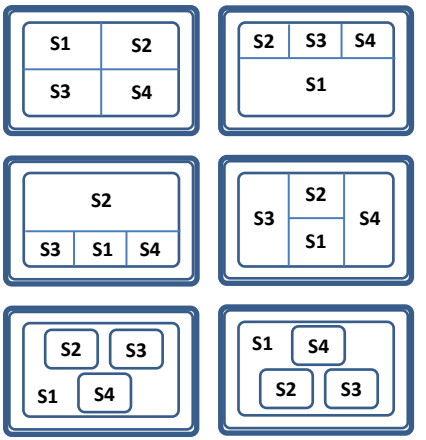




TRIPLE configuration:

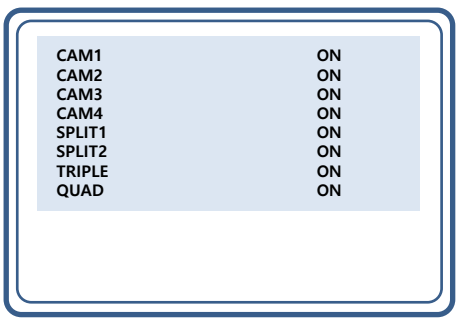
SOURCE 1 Select S1 Camera(CAM1~CAM4).
SOURCE 2 Select S2 Camera(CAM1~CAM4).
SOURCE 3 Select S3 Camera(CAM1~CAM4).
AUDIO Select TRIPLE of Audio(CAM1~CAM4).
MODE Select TRIPLE MODE





QUAD configuration:

SOURCE 1 Select S1 Camera(CAM1~CAM4).
SOURCE 2 Select S2 Camera(CAM1~CAM4).
SOURCE 3 Select S3 Camera(CAM1~CAM4).
SOURCE 4 Select S4 Camera(CAM1~CAM4).
AUDIO Select QUAD of Audio(CAM1~CAM4).
MODE Select QUAD MODE



MANUAL SELECTION

When you manually press the channel select button, only the camera selected ON and the display mode selected ON are displayed.
Manually pressing the channel select button skips the camera selected OFF and display mode selected OFF.

NOTE
Triggers neglect the MANUAL SELECTION settings. In case of Trigger activation, these ON/ OFF settings will be ignored.

MENU LOCK ON/OFF FUNCTION

LOCK ON/OFF FUNCTION

The setup menu can be locked to ban any unauthorized users.

LOCK ON mode

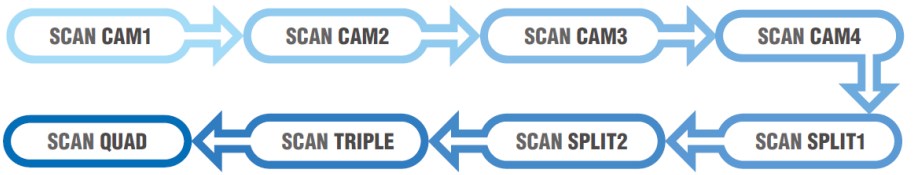
At the Power-ON mode, press the [DOWN] button for 10 seconds to activate the LOCK ON function.
When [LOCKED] is displayed on the screen, the user can use only [POWER, SELECT, VOLUME] buttons and the user can edit settings for the PICTURE menu.

LOCK OFF mode

At the Power-ON mode, press [DOWN] button for 10 seconds to activate the LOCK OFF function.
When [UNLOCKED] is displayed on the screen, the user can use all the functions of the setup menu.

SCAN ON/OFF FUNCTION

At the Power-ON mode, press the [UP] button for 4 seconds to activate the Auto Scan Picture function.
During the Auto Scan Mode, press the [UP] button for 4 seconds to deactivate Auto Scan Picture function.



SPECIFICATIONS

MODEL : MXN204-TVI

Power Input	DC 10V~32V
Power Consumption	Max. 30Watt
Video System	HD-TVI (25fps, 30fps, 50fps, 60fps), AHD (25fps, 30fps) CVBS-PAL, CVBS-NTSC
Camera Input (4-pin mini DIN)	4CH, Composite Video 1Vp-p 75Ω (MXN configuration)
Video Input (BNC)	4CH, Composite Video 1Vp-p 75Ω
A/V Input (HDMI)	1CH, Up to 2160p 50/60
A/V Input (RCA)	1CH, Composite Video 1Vp-p 75Ω 1CH, Audio, 150mV RMS 47K
Video Input (D-Sub)	1CH, VGA, R/G/B Video 0.7Vp-p, H/V Sync, I^2C
A/V Output (HDMI)	1CH, HDMI 1.3, 1080p 50/60
Video Output (BNC)	4CH, Loop out, Composite Video 1Vp-p 75Ω
A/V Output (RCA)	1CH, Composite Video 1Vp-p 75Ω 1CH, Audio, 150mV RMS 47K
Operating Temperature	-25℃ ~ +75 ℃
Storage Temperature	-30℃ ~ +85 ℃
Ambient Condition	Indoor use only
Vibration	5.5G
Dimension	162 (W) X 43 (H) X 140 (D) mm
Weight	700g
Supplied Accessory	Power cable (1) RCA cable (1) Remote Controller (1) IR Receiver (1) Cable bracket (2) Screw kits (1) Manual (1)

COMMENTS

1. BNC Output(Loop out)

1) In case you connect MXN TVI cameras to the 4-pin mini-DIN inputs, then the BNC Video output signal (loop out) is TVI 1080P/30fps.
2) In this case, if you use a CVBS monitor, then you can not see the camera picture from BNC Video out, because CVBS monitors are not compatible with the TVI signal.
3) In case you use a (MXN) TVI monitor, then you can see the camera picture via the BNC Video out.
4) In case you connect (MXN) CVBS camera models to the 4-pin mini-DIN inputs, then a CVBS monitor can be connected to the BNC Video output. (loop out)

2. Camera Input

1) Select DIN-4P or BNC for camera input
2) In case you connect cameras via the BNC input, then "CAMERA INPUT" needs to be selected as "BNC" and in this case BNC's input cameras' video signal will be looped out via BNC output.
3) In case "CAMERA INPUT" is selected as "DIN-4P", then the 4-pin mini-DIN input camera's video signal will be looped out via BNC output.

3. HDMI Output

You can see camera pictures from the "CVBS output" and from the "HDMI output (connected via PC monitor's HDMI input) at the same moment.