Operating Instructions
VTM7003QMA

BOYO®
VISION

7" COLOR LCD WATERPROOF QUAD MONITOR WITH TOUCH-SCREEN

Please read this manual thoroughly before operating the unit,
and keep it for future reference.

V1.0

Contents

1. Precautions

● Storage and Keeping

1. Do not expose the monitor to excessive heat or cold. The storage temperature of this device -22℉~176℉, and the operating temperature is -4℉~158℉. The humidity is Rh90%.
2. Never use this device where it is damp, such as close to wash basin, kitchen, swimming pool and the like (except for monitor designed to be weatherproof).
3. Never use this device in a dusty or smoky condition.
4. Avoid dropping or striking this device.
5. Avoid using this device in enclosed spaces, areas with excessive vibration or subject to severe impacts.
6. Never puncture, scratch or use abrasive cleaning materials on this device.
7. Do not place cables where they may be pinched or stepped on.
8. Leave at least a 2" space between the monitor and walls, cabinets or other objects to allow adequate air circulation around the unit.

● Operating Precautions

1. The device may be powered by a 12 or 24 volt automotive battery or vehicle electrical system
2. Make sure all cables are connected properly. Observe polarity. Improper cable connections may damage the monitor. Remove the power cable connections when you do not intend to use the unit.
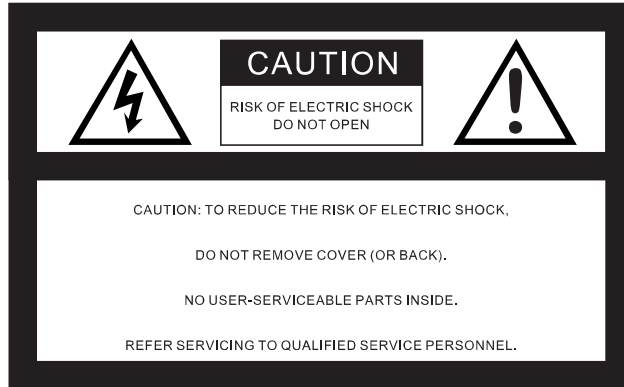
⚠ Warning!

1. High voltage inside. The enclosure shall not be opened unless by professionals.
2. Do not watch the video while driving unless you are backing up the vehicle.

⚠ Special Notice

Occasionally, a few highlights or dark spots may occur on the LCD screen. This is a very common phenomenon in active matrix display technology, and doesn't necessarily indicate any defects or faults. Never try to repair this device by yourself. In case of any problems, please turn off the display at once and notify our company or authorized dealer. The monitor is a complex device. Any disassembly or modification may lead to damage and void the warrantee.

● Maintenance

1. Remove all the cable connections from the monitor before cleaning the unit.
2. Use a mild household detergent and clean the unit with a slightly damp,soft cloth.
   Never use strong solvents such as thinner or benzine, as they might damage the finish
   of the device.

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 waste electrical and electronic equipment.

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

● Declaration of conformity
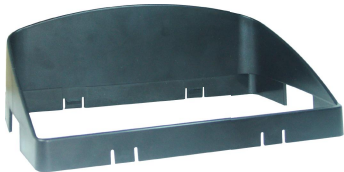
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

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2. Accessories

U- Support Bracket	Center Mount Bracket
AV and Power Supply Adapter Cable	IR Remote Control
Sun Shield	Angle Adjustment Screws
4P Female - RCA Male Cables	Manual

⚠ Special Notice
Accessories may be different for different applications.

3. Monitor installation
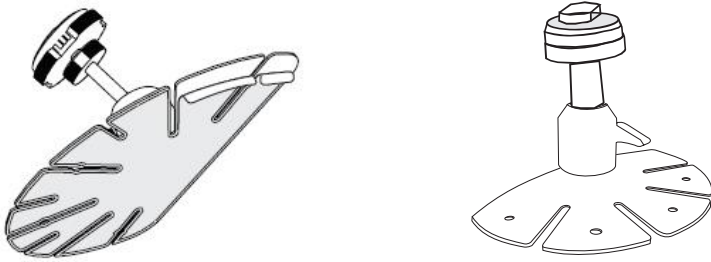
Center Mount Bracket
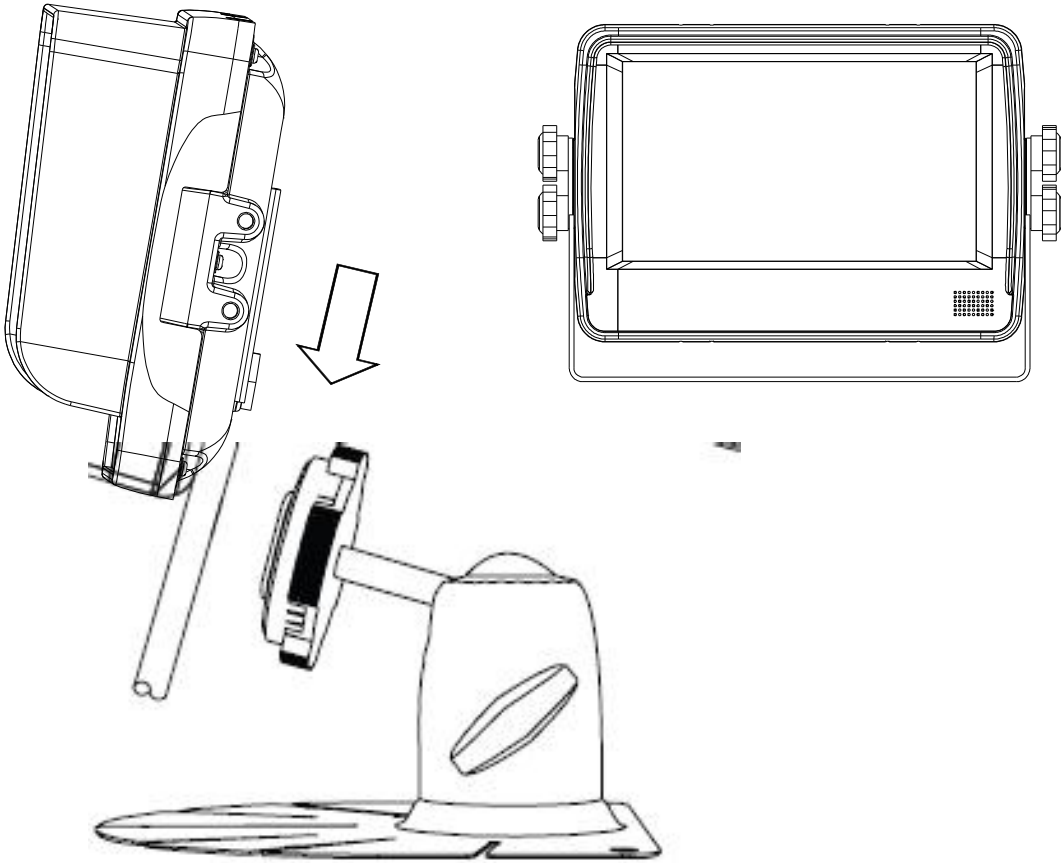
4. Connections
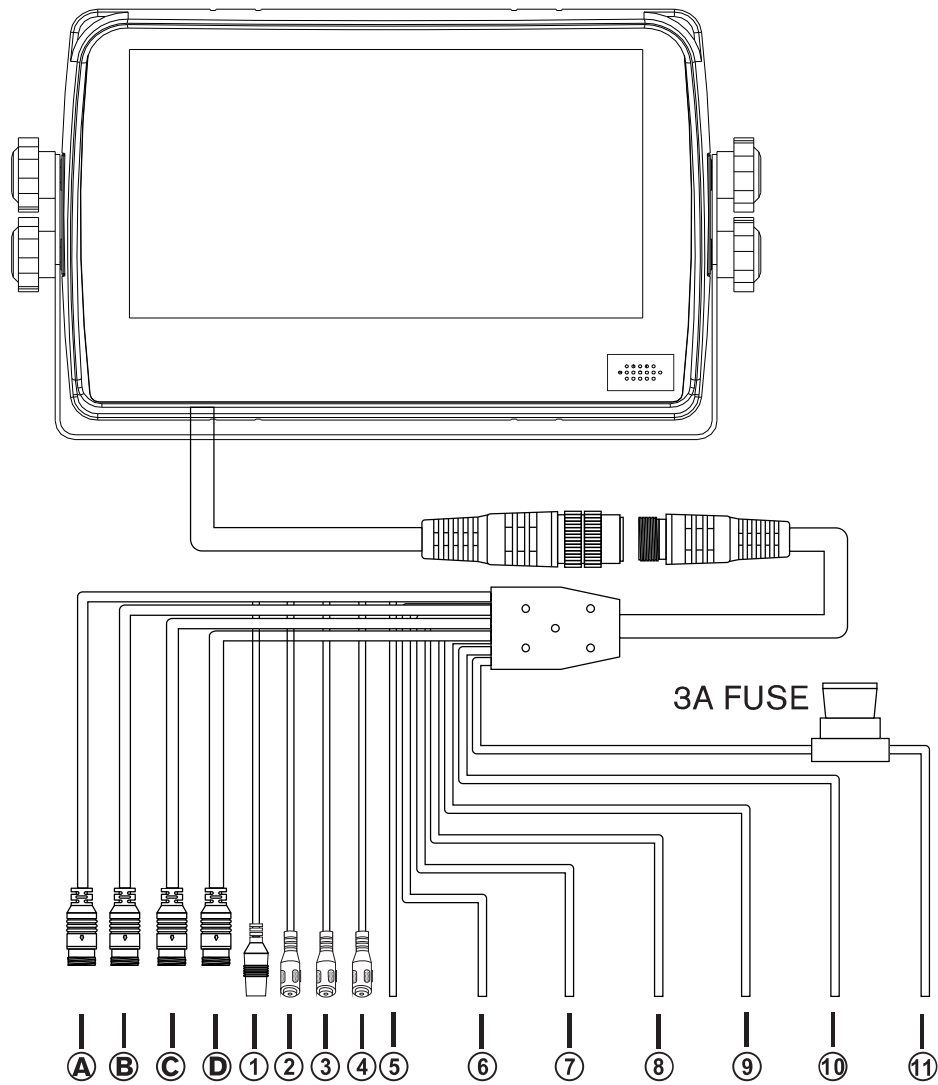
Ⓐ Camera 4 　　Ⓑ Camera 3 　　Ⓒ Camera 2 　　Ⓓ Camera 1

① AUX audio input 　　② Green: Rec. V. output 　　③ Yellow : Live V. output

④ White: Audio output 　　⑤ White: Trigger 1 　　⑥ Blue: Trigger 2

⑦ Green: Trigger 3 　　⑧ Brown: Trigger 4 　　⑨ Yellow: Split trigger

⑩ Black : Ground 　　⑪ Red: Power

5. Monitor Operations

①   Remote signal receiver window

②   Power off/on button

③   To increase / decrease the volume and switch between values

        of each sub-menu

④   Menu selection and display mode (single, dual, triple, quad-view,

        PIP image) selection

⑤   Menu control button

⑥   Jump key selector. Fast jump to the display mode specified

        by SYSTEM SETUP - JUMP KEY

6. Remote Operations

	MUTE	POWER	
①	🔇	⏻	②
④	▲ UP		③
⑥	◀VOL	MENU	VOL▶	⑦
⑤	DN ▼		⑨
⑧	MODE	SEL.	P/N	⑩
⑪	LANG	REST	AV	⑬
			⑫
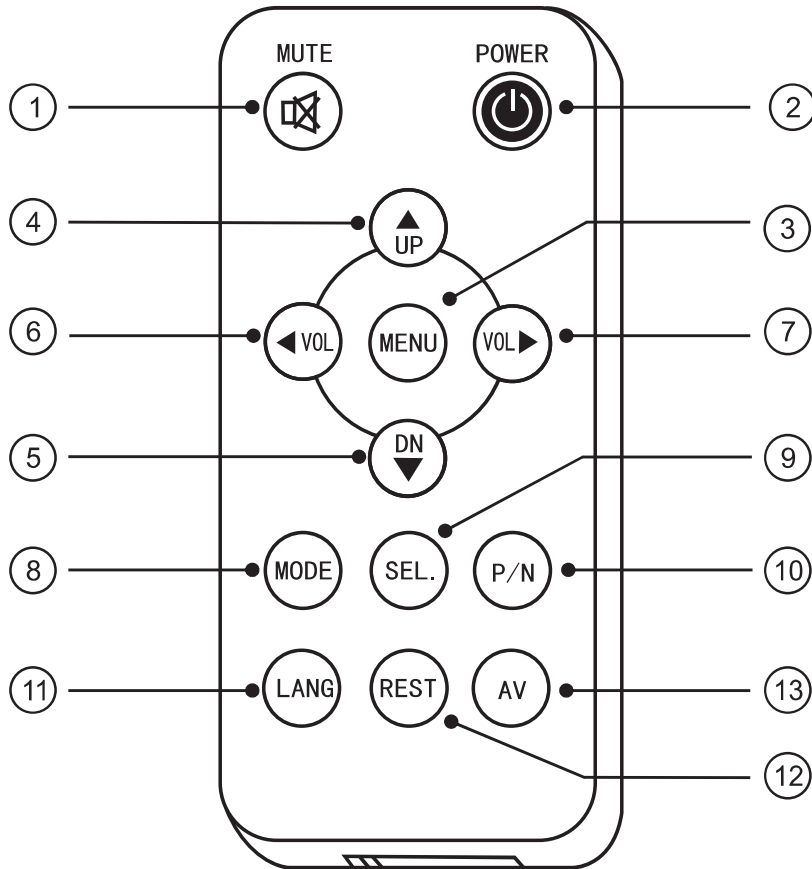
⚠WARNING

1. Please align the remote control with the remote signal receiver window to operate.
2. Never disassemble the remote control or allow it to drop, or get wet.

① MUTE
To mute / unmute the volume

② POWER
Power off/on button

③ MENU
Menu control button

④ UP
Menu selection up

⑤ DN
Menu selection and display mode (single, dual, triple, quad-view, PIP image) selection

⑥ VOL−
To decrease the volume and switch between values of each sub-menu

⑦ VOL+
To increase the volume and switch between values of each sub-menu

⑧ MODE
Menu selection and display mode (single, dual, triple, quad-view, PIP image) selection

⑨ SEL.
Jump key selector. Fast jump to the display mode specified by SYSTEM SETUP - JUMP KEY

⑩ P/N
PAL/NTSC TV system selector

⑪ LANG
Language selection

⑫ REST
To restore factory settings

⑬ AV
Jump key selector. Fast jump to the display mode specified by SYSTEM SETUP - JUMP KEY

7. Menu and Touch-Screen Operations
7.1 OSD Setting

```
            MAIN MENU
CAMERA              SETUP
OSD                 SETUP
SYSTEM              SETUP
TRIGGER             SETUP
TRIGGER             PRIORITY
RESET               ALL
```

M

S

```
            MAIN MENU
CAMERA              SETUP
OSD                 SETUP
SYSTEM              SETUP
TRIGGER             SETUP
TRIGGER             PRIORITY
RESET               ALL
```

─ / ＋

```
        OSD   SETUP

SCALE               ON
INPUT  SCAN         OFF
BOUNDARY            WHITE
LANGUAGE            ENGLISH
V19:E00A20130723 (to be updated)
```
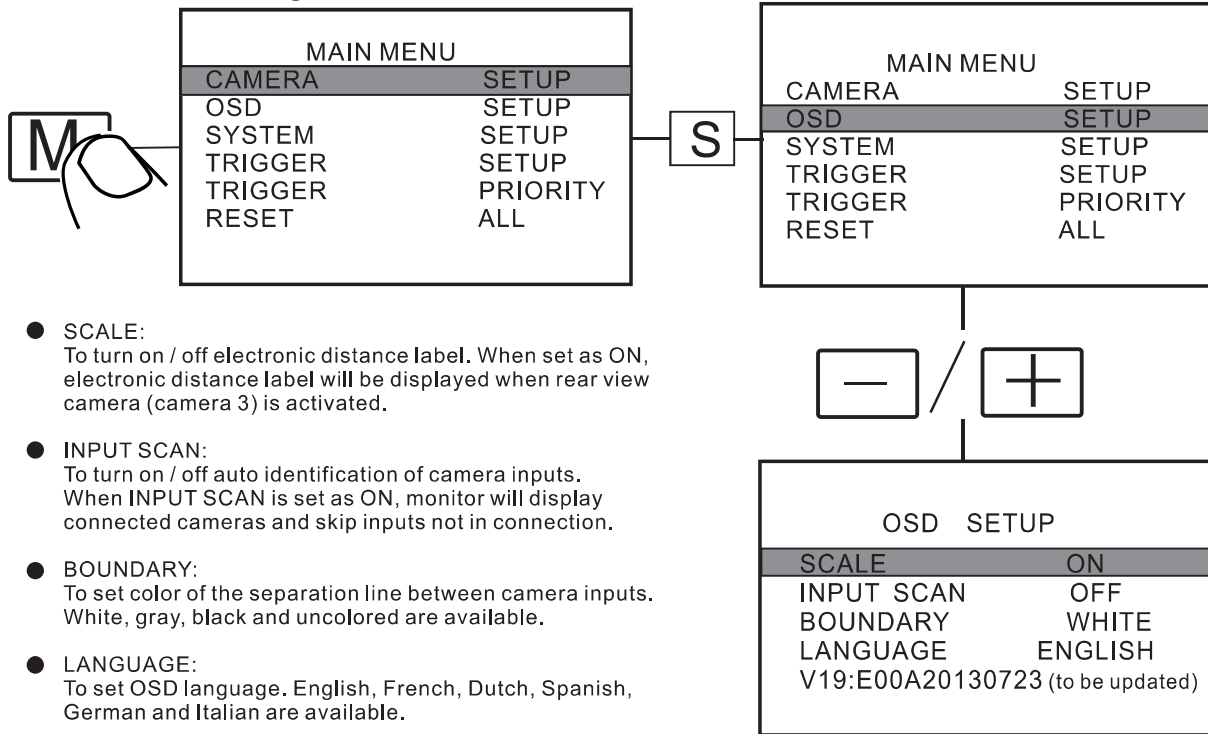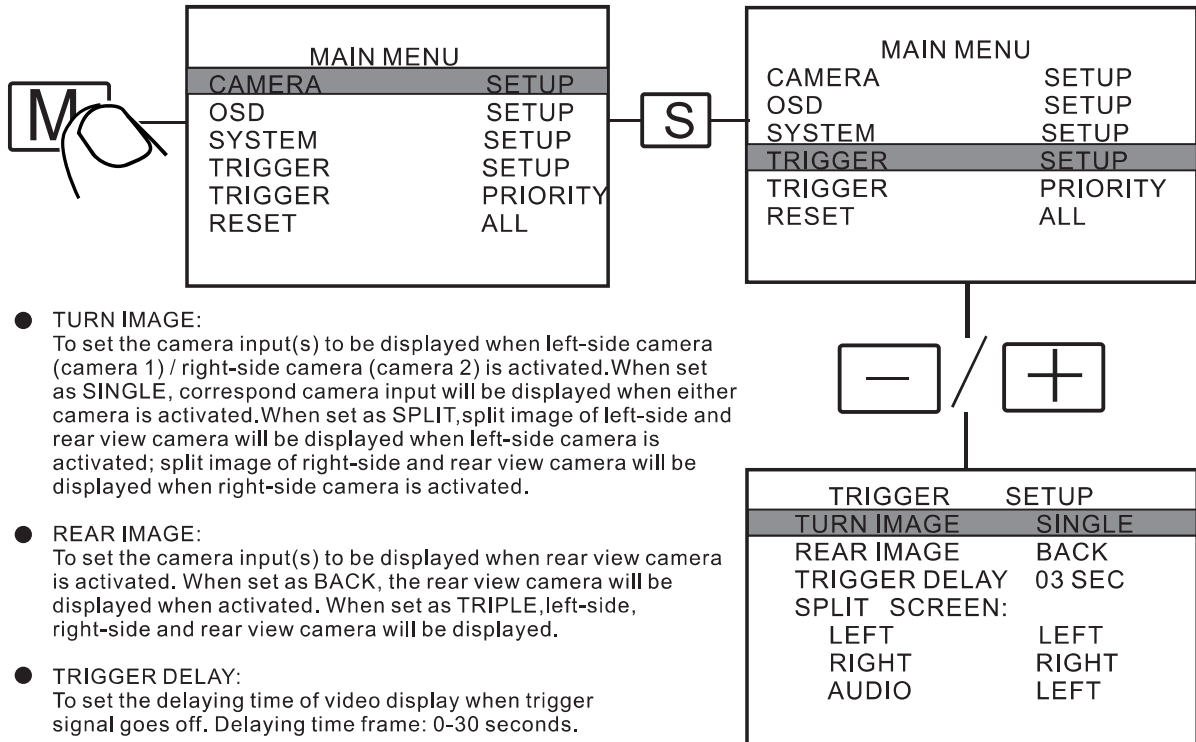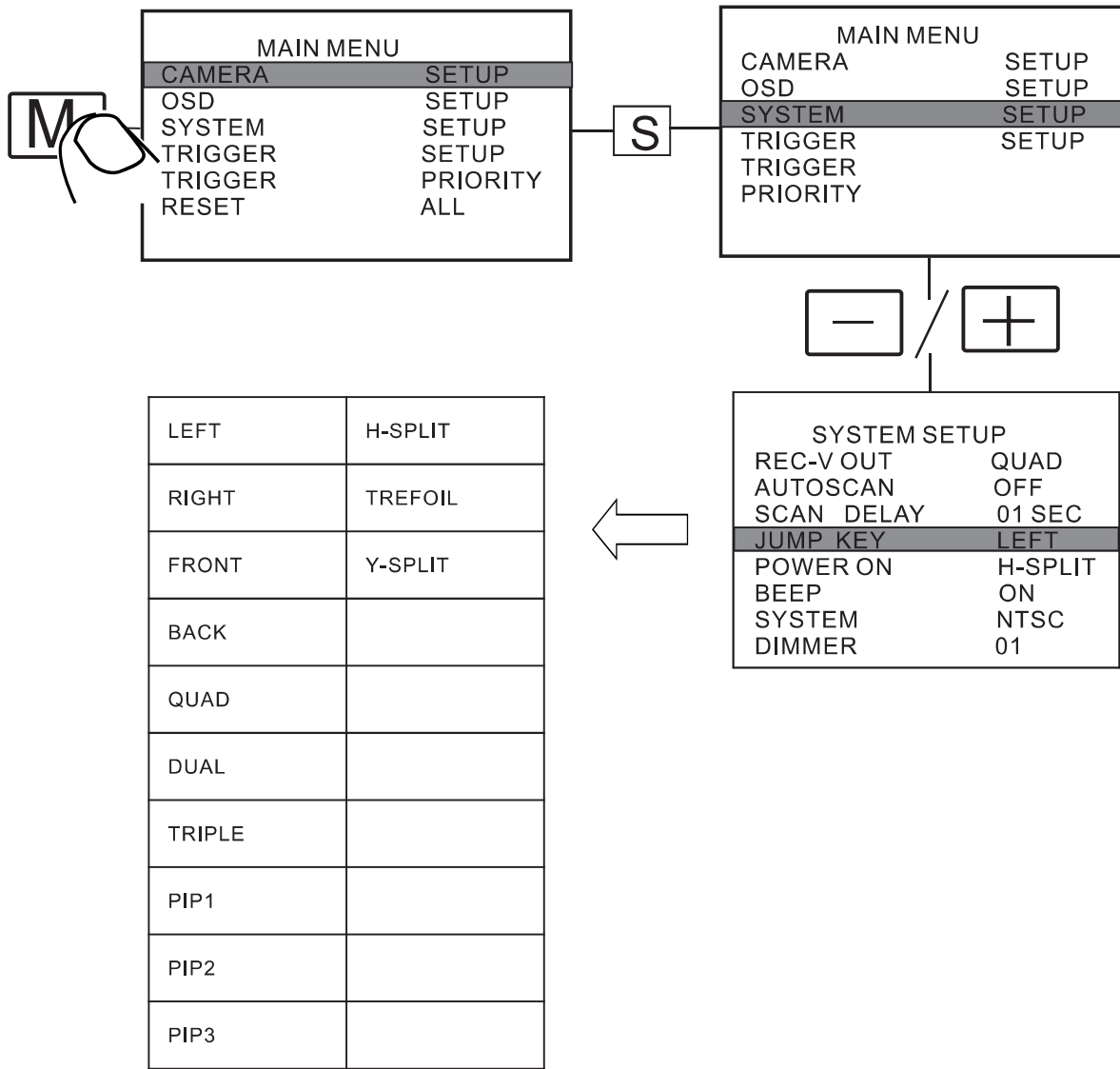
- **SCALE:**
  To turn on / off electronic distance label. When set as ON, electronic distance label will be displayed when rear view camera (camera 3) is activated.

- **INPUT SCAN:**
  To turn on / off auto identification of camera inputs. When INPUT SCAN is set as ON, monitor will display connected cameras and skip inputs not in connection.

- **BOUNDARY:**
  To set color of the separation line between camera inputs. White, gray, black and uncolored are available.

- **LANGUAGE:**
  To set OSD language. English, French, Dutch, Spanish, German and Italian are available.

- **SOFTWARE VERSION:**
  To be updated at all times.

7.2 Trigger Setting

```
            MAIN MENU
CAMERA              SETUP
OSD                 SETUP
SYSTEM              SETUP
TRIGGER             SETUP
TRIGGER             PRIORITY
RESET               ALL
```

M

S

```
            MAIN MENU
CAMERA              SETUP
OSD                 SETUP
SYSTEM              SETUP
TRIGGER             SETUP
TRIGGER             PRIORITY
RESET               ALL
```

─ / ＋

```
      TRIGGER      SETUP
TURN IMAGE         SINGLE
REAR IMAGE         BACK
TRIGGER DELAY      03 SEC
SPLIT  SCREEN:
  LEFT             LEFT
  RIGHT            RIGHT
  AUDIO            LEFT
```

- **TURN IMAGE:**
  To set the camera input(s) to be displayed when left-side camera (camera 1) / right-side camera (camera 2) is activated.When set as SINGLE, correspond camera input will be displayed when either camera is activated.When set as SPLIT,split image of left-side and rear view camera will be displayed when left-side camera is activated; split image of right-side and rear view camera will be displayed when right-side camera is activated.

- **REAR IMAGE:**
  To set the camera input(s) to be displayed when rear view camera is activated. When set as BACK, the rear view camera will be displayed when activated. When set as TRIPLE,left-side, right-side and rear view camera will be displayed.

- **TRIGGER DELAY:**
  To set the delaying time of video display when trigger signal goes off. Delaying time frame: 0-30 seconds.

- **SPLIT SCREEN:**
  To set the camera input(s) to be displayed when "split"trigger wire is activated. LEFT / RIGHT is to set the camera input to be displayed on the left / right side of monitor screen. AUDIO is to set the audio output from any of the four cameras.

7.3 Jump Key Setting

```
              MAIN MENU
    CAMERA            SETUP
    OSD               SETUP
    SYSTEM            SETUP
    TRIGGER           SETUP
    TRIGGER           PRIORITY
    RESET             ALL
```

M

S

```
              MAIN MENU
    CAMERA            SETUP
    OSD               SETUP
    SYSTEM            SETUP
    TRIGGER           SETUP
    TRIGGER
    PRIORITY
```

— / **+**

LEFT	H-SPLIT
RIGHT	TREFOIL
FRONT	Y-SPLIT
BACK	
QUAD	
DUAL	
TRIPLE	
PIP1	
PIP2	
PIP3	

```
         SYSTEM SETUP
    REC-V OUT        QUAD
    AUTOSCAN         OFF
    SCAN  DELAY      01 SEC
    JUMP  KEY        LEFT
    POWER ON         H-SPLIT
    BEEP             ON
    SYSTEM           NTSC
    DIMMER           01
```

● REC-V OUT:
To set the camera input(s) to be recorded when connected to DVR via the green RCA wire.
Left-side, right-side, front view, rear view camera and quad view image can be selected.

● AUTOSCAN:
To set the auto scanning function. When AUTOSCAN is set as ON,
monitor will automatically switch between connected camera inputs and quad image.

● SCAN DELAY:
To set the switching time of AUTOSCAN. Switching time frame: 0-60 seconds.

● JUMP KEY:
To set the shortcut display mode from the 13 modes to the left.It can be activated by jump key selector.

● POWER ON:
To set the default display model from the 13 modes to the left or STANDBY mode.

● BEEP:
To turn on / off the warning tone. Default setting is ON and there will be a beeping sound when menu is being operated.

● SYSTEM:
To set TV system: PAL / NTSC.

● DIMMER:
To set the camera input(s) to be displayed when "split"trigger wire is activated.
LEFT / RIGHT is to set the camera input to be displayed on the left / right side of monitor screen.
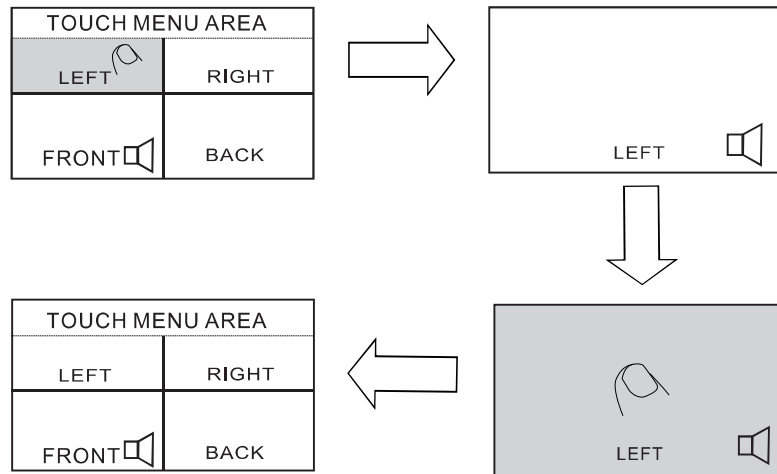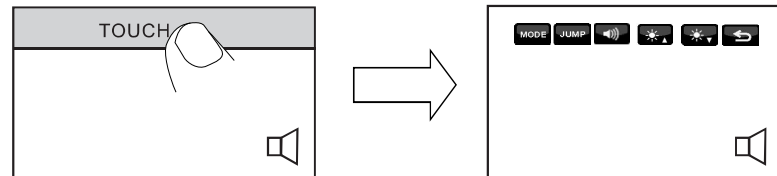AUDIO is to set the audio output from any of the four cameras.

7.4 Touch-Screen Operations

7.4.1 Switch to full screen by touching any channel in multi-viewing mode

TOUCH MENU AREA	
LEFT	RIGHT
FRONT	BACK

LEFT

LEFT

| TOUCH MENU AREA	
LEFT	RIGHT
FRONT	BACK

7.4.2 Buttons function of touch menu (not available in DVD/VGA/aux channel or when auto scan is on)

TOUCH

MODE JUMP

(1) **MODE**   Touch   1 / 2 / 3 / 4

(2) **JUMP**   Touch   The previous display mode / The display mode preset in JUMP KEY

(3)   Touch   vol ||||||||||||| —— 15

(4)   Brightness increase / decrease

(5) Touch [↩] ⟹

```
┌──────────────────────────────────────┐
│  [↑]      MAIN MENU          [↩]      │
│        CAMERA      SETUP              │
│        OSD         SETUP              │
│        SYSTEM      SETUP              │
│        TRIGGER     SETUP              │
│  [↓]   TRIGGER     PRIORITY           │
│        RESET       ALL                │
│          [←]          [→]             │
└──────────────────────────────────────┘
```

again

Touch [↩] ⟹

┌──────────────────────────────┐
│ The previous display   │
│   mode   │
│   │
└──────────────────────────────┘
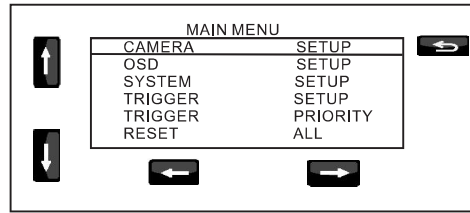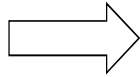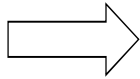
(6) [↑] [↓]   Menu selection up/down

(7) [←] [→]   Switches between values of each sub-menu

7.4.3 Exchange picture locations of any two cameras displayed in multi-viewing mode

LEFT	RIGHT
FRONT	BACK

Touch till areas darkended and release fingers →

BACK	RIGHT
FRONT	LEFT

7.4.4 Exchange picture locations of two cameras in dual / triple-viewing mode (1 displayed, 1 hidden)
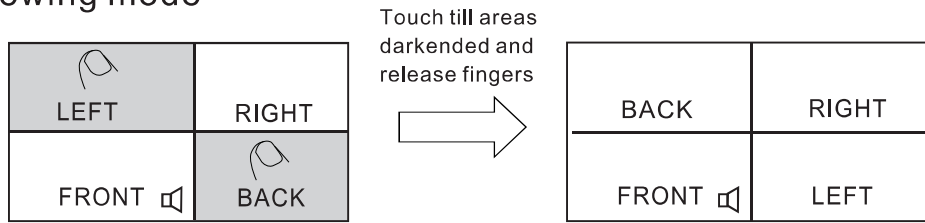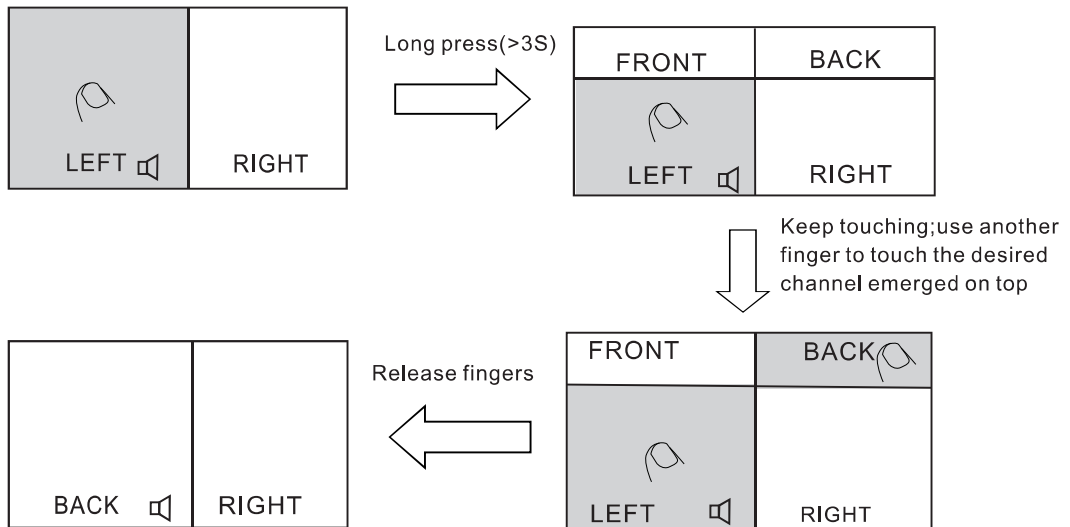
LEFT	RIGHT

Long press(>3S) →

FRONT	BACK
LEFT	RIGHT

Keep touching;use another finger to touch the desired channel emerged on top ↓

FRONT	BACK
LEFT	RIGHT

← Release fingers

BACK	RIGHT

7.4.5 Switch to the next display mode

LEFT	RIGHT

Touch and slide to the right →

LEFT	RIGHT
	FRONT
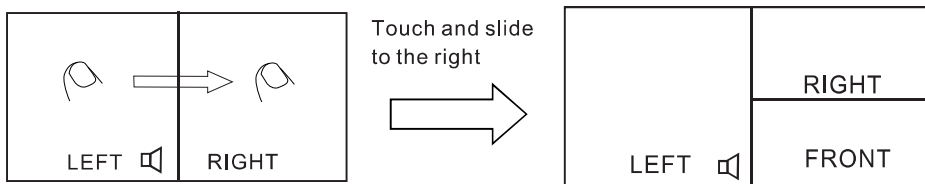
7.4.6 Switch to the previous display mode

LEFT	RIGHT

Touch and slide to the left →

LEFT	FRONT	RIGHT
	BACK	

7.4.7 Decrease the volume

```
┌──────────┬──────────┐        Touch the right corner    ┌──────────┬──────────┐
│          │        ⌒ │        and slide downwards        │          │          │
│          │          │                                   │                     │
│          │       ⇩  │        ══════▷                    │   VOL  ‖‖‖‖‖‖‖‖‖‖------  13 │
│  LEFT ◁) │  RIGHT ⌒ │                                   │  LEFT      ◁)    RIGHT │
└──────────┴──────────┘                                   └──────────┴──────────┘
```

7.4.8 Increase the volume

```
┌──────────┬──────────┐        Touch the right corner    ┌──────────┬──────────┐
│          │        ⌒ │        and slide upwards          │          │          │
│          │       ⇧  │                                   │                     │
│          │          │        ══════▷                    │   VOL  ‖‖‖‖‖‖‖‖‖‖‖-----  15 │
│  LEFT ◁) │  RIGHT ⌒ │                                   │  LEFT ◁)      RIGHT │
└──────────┴──────────┘                                   └──────────┴──────────┘
```
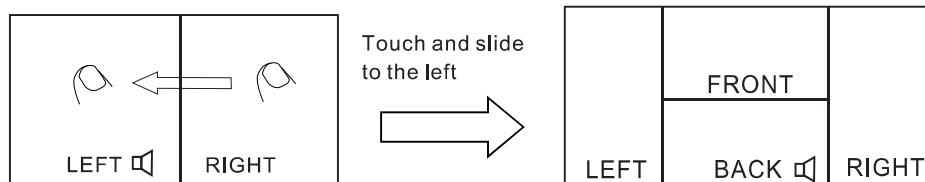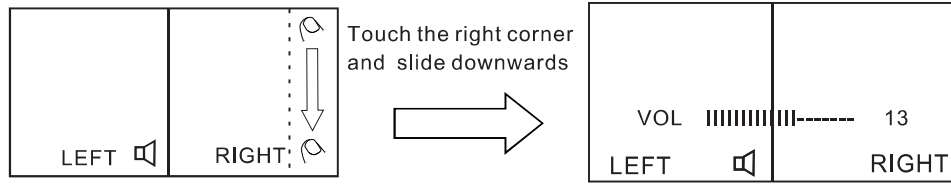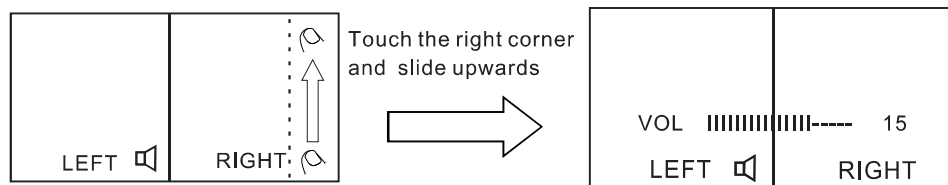
8. Specifications

Dimension	7"
TV System	NTSC/PAL
Resolution	800 (W) × 3 (RGB) × 480 (H)
Brightness	400cd/㎡
Contrast	500:1
Viewing Angle	U: 50, D: 70, L: 70, R: 70
Aspect Ratio	16:9
Pixel Pitch (mm)	0.0642 (W) x 0.1790 (H)
Operating Temperature	-4°F~158°F
Storage Temperature	-22°F~176°F
Power Consumption	Max. 25W
Power Output to Camera	Max. 4 × 300mA, 12V
Power Supply	10V~32V
Video Input	4 video inputs for camera - peak value: 1Vp-p, impedance: 75 ohm 1 DVD input - peak value: 1Vp-p, impedance: 75 ohm
Audio Input	4 audio inputs for camera - peak value: 1Vp-p, impedance: 4.7K ohm 1 DVD audio input - peak value: 1Vp-p, impedance: 4.7K ohm
Video Ouput	1 REC Video output - peak value: 1Vp-p, impedance: 75 ohm
Audio Output	1 REC audio output - peak value: 1Vp-p, impedance: 4.7K ohm

9. Troubleshooting

The symptoms described below do not necessarily mean a failure within the display. Please check the following items before you initiate request for repair.

Symptom	Possible Causes/Solutions
No picture, no sound	Improper connection of automobile adapter. Use of un- authorized power supply. Power switch is on OFF position.
No picture	Check whether AV cable is properly connected.
No sound	Check whether audio wire is properly connected or the sound volume is turned off or set too low.
Dark picture	Check whether brightness and contrast are adjusted correctly; Check whether the environmental temperature is too low.
No color	Adjust the color settings.
Upside down or lateral inverted picture	Use the remote control horizontal /vertical selection switch to set proper orientation
No reverse gear activated screen(i.e. Picture)	The black wire of the monitor AV cable to the reversing light may be loose. The red wire from the monitor may be loose.

WARNING

Monitor systems are strictly intended to be installed as a supplement and not intended for use as substitutes for rear-view mirror devices, or for any other standard motor vehicle equipment required to be installed on vehicles by law. Our products are no substitute for proper defensive driving techniques, observance of traffic laws and motor vehicle safety regulations.

Serial No:	Stock code: