Instruction Manual

High-Definition Link for BMW
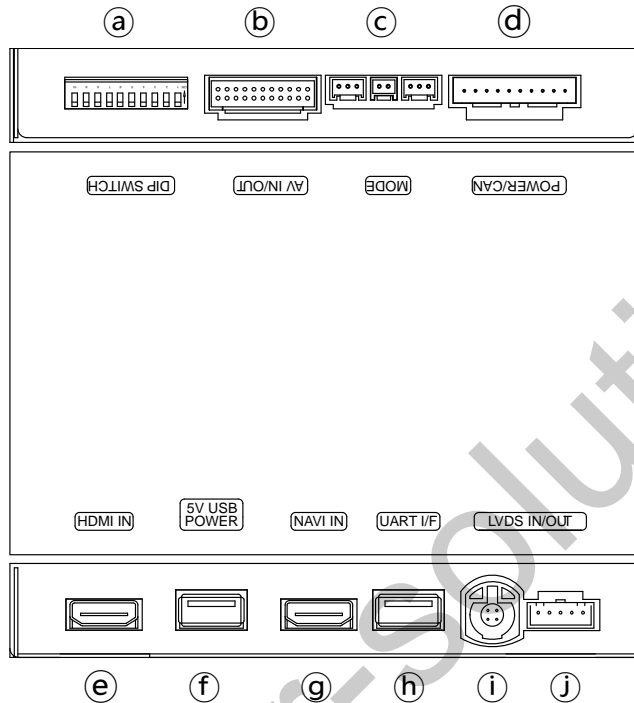

DIP SWITCH   AV IN/OUT   MODE   POWER/CAN

HDMI IN   5V USB POWER   NAVI IN   UART I/F   LVDS IN/OUT

Contents

Cautions

- You should check the names and colors of each wires exactly, before you connect the wires.
  ex) CAN HIGH: White wires / CAN LOW: Blue wires

- The 'POWER / CAN Cable' should always be connected last and be disconnected first.

- The 'Mode Switch' is an optional part to change modes forcibly without CAN-BUS.
  Generally, the CAN-BUS wires are connected for changing modes by original buttons.

- When the reverse gear is not detected by CAN-BUS,
  the 'REVERSE 12V IN wire' should be spliced with 12V power of reverse light.

- **HDMI device-related**
  - HDMI mode accepts general-screen resolution of HDMI devices.

  - Generally, '5V 1A Power output(5V USB POWER)' is a standard voltage for charging smartphone.
    If you need higher voltage than 5V, you should add a separate power supply.

- **Navigation(GPS) box-related**
  - When you connect the power wires(B+, ACC) to the navigation(GPS) box,
    the 'NAVI (12V) OUT wire supported by the device should be spliced with an ACC wire of navigation box.

  - After installation is done, select an applicable navigation(GPS) box model in the 'Navigation model selection menu' of setting mode.

  - The navigation box should be powered off before unplugging the HDMI cable.

Exterior

(a) DIP SWITCH

(b) AV IN / OUT

(c) MODE

(d) POWER / CAN

(e) HDMI IN

(f) 5V USB POWER

(g) NAVI IN

(h) UART I/F

(i) LVDS IN

(j) LVDS OUT

Components

Power / CAN Cable   LVDS Cable   AV IN / OUT Cable   5-pin Micro USB Cable

Optional Parts(sold separately))

Mode Switch   HDMI Extender
(For stick type HDMI device)

Full Installation Diagram
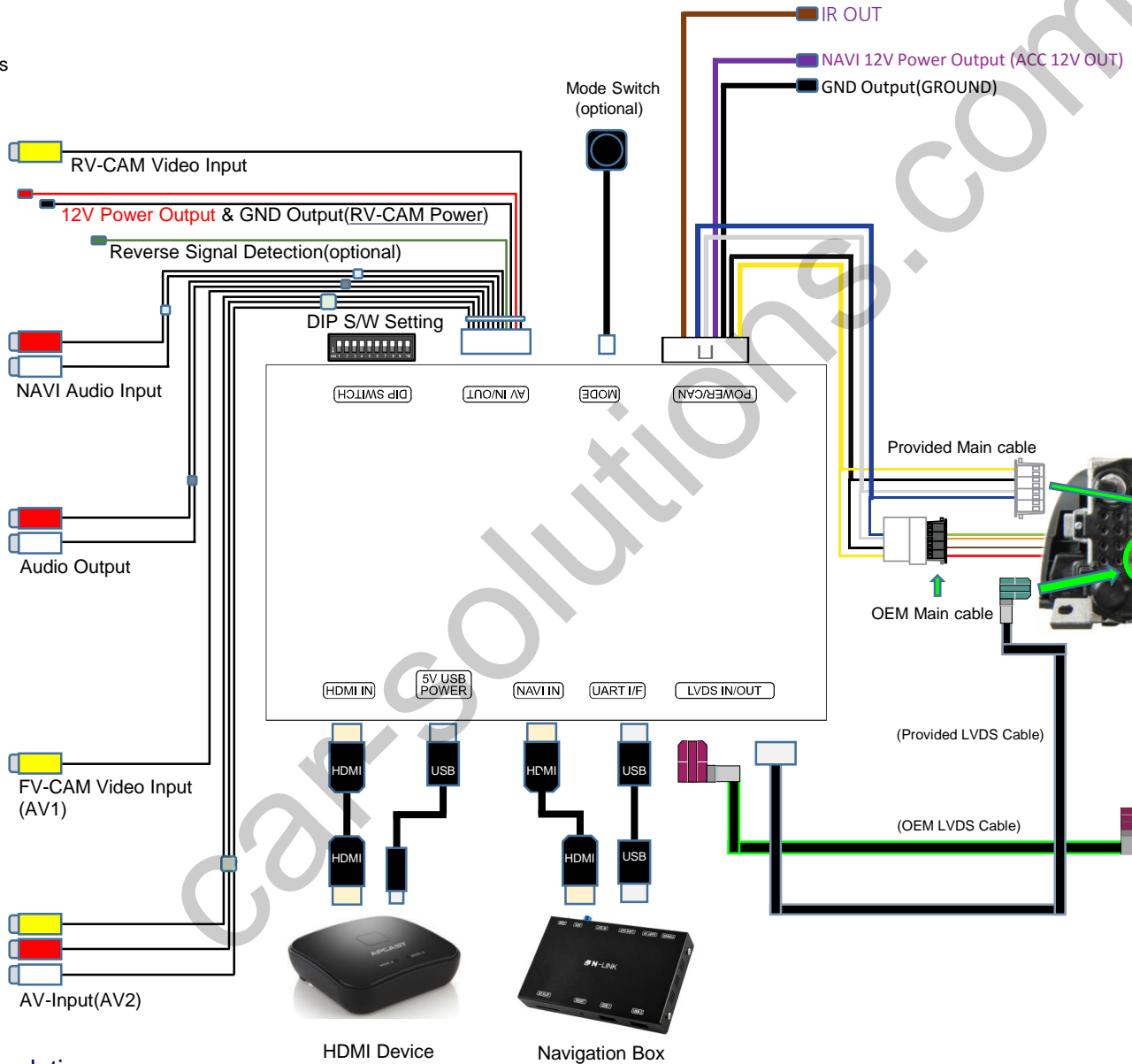
※ Optional External Devices

External Rear View Camera

Audio(AUX) Output of Navigation Box
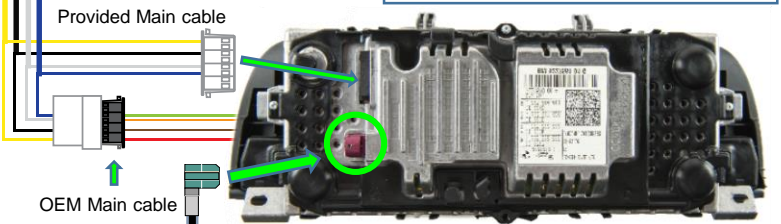
Auxiliary(AUX) Input of the car

External Front View Camera

AV device (ex: DTV Box, Divx)

RV-CAM Video Input

12V Power Output & GND Output(RV-CAM Power)

Reverse Signal Detection(optional)

NAVI Audio Input

Audio Output

FV-CAM Video Input (AV1)

AV-Input(AV2)

DIP S/W Setting

Mode Switch (optional)

IR OUT

NAVI 12V Power Output (ACC 12V OUT)

GND Output(GROUND)

DIP SWITCH   AV IN/OUT   MODE   POWER/CAN

HDMI IN   5V USB POWER   NAVI IN   UART I/F   LVDS IN/OUT

HDMI   USB   HDMI   USB

HDMI   HDMI   USB

Provided Main cable

OEM Main cable

HDMI Device

Navigation Box
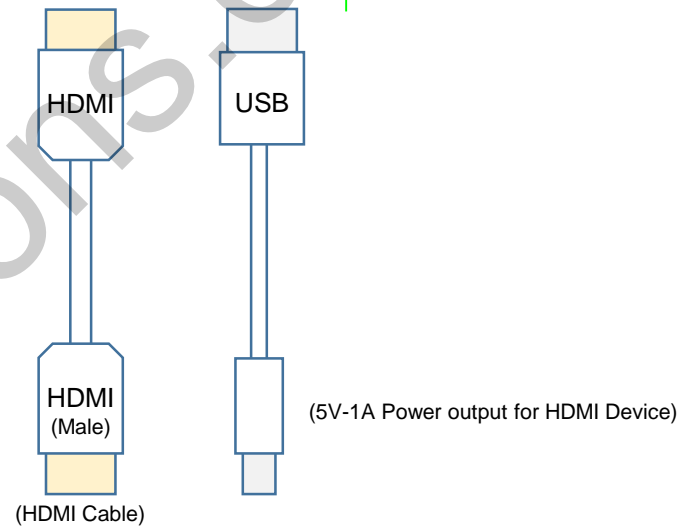
(Provided LVDS Cable)
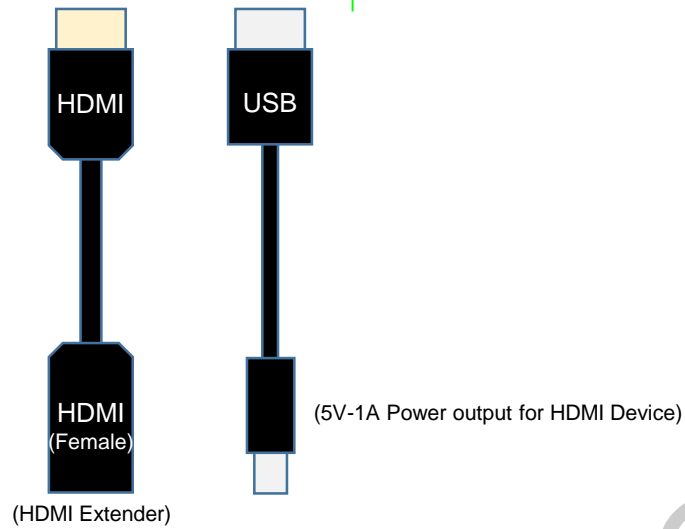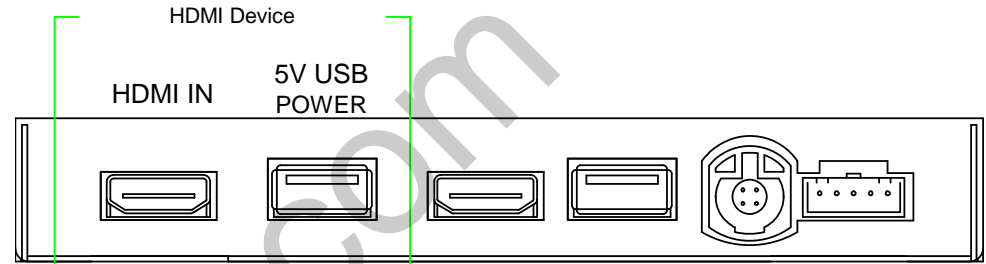
(OEM LVDS Cable)

OEM Head Unit

※ CAN HIGH / LOW Pin Specification

Monitor Main-Harness

- Pin # 5 = CAN HIGH (Light green / Orange)
- Pin # 6 = CAN LOW (Light green)
- Pin # 3 = GND(Brown)
- Pin # 1 = Head Unit Power(Red / Yellow)

HDMI Connection Diagram

HDMI Device

HDMI IN   5V USB POWER

HDMI

USB

HDMI
(Female)

(5V-1A Power output for HDMI Device)

(HDMI Extender)

'Stick Type' HDMI Devices

HDMI Device

HDMI IN   5V USB POWER

HDMI

USB

HDMI
(Male)

(5V-1A Power output for HDMI Device)
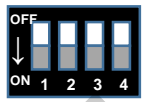
(HDMI Cable)
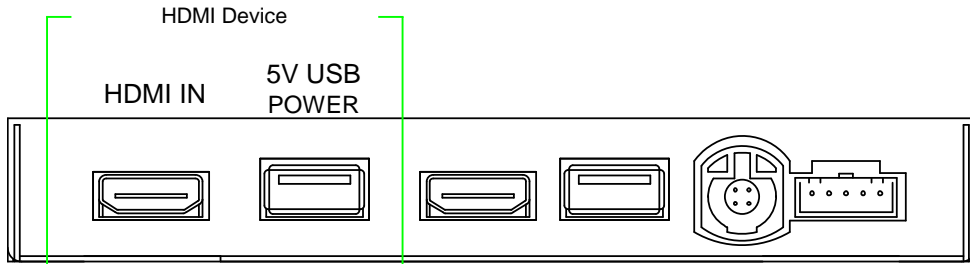
'Dongle & Adapter' Type HDMI Devices

Navigation Connection Diagram

Navigation(GPS) Box

NAVI IN UART I/F LVDS IN / OUT

HDMI

Touch screen panel

HDMI

iNAVI - CUBE

Navigation(GPS) Box

NAVI IN UART I/F LVDS IN / OUT

HDMI USB

Touch screen panel

(USB cable connecting is for 'N-Link' only.)

USB

N-LINK

DMB GPS AV OUT AV OUT LVDS OUT UART I/F POWER

SD SLOT RESET USB 1 USB 2

HDMI

Microcity - N-Link
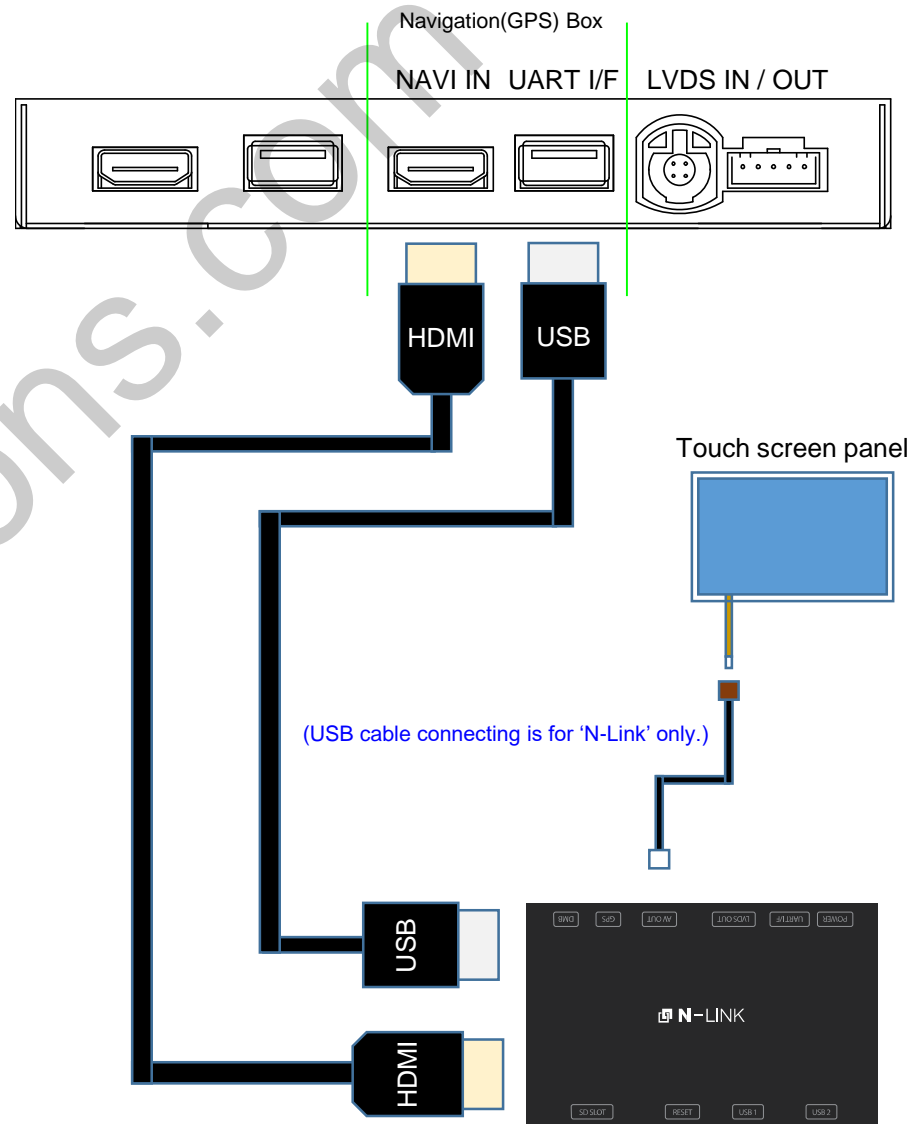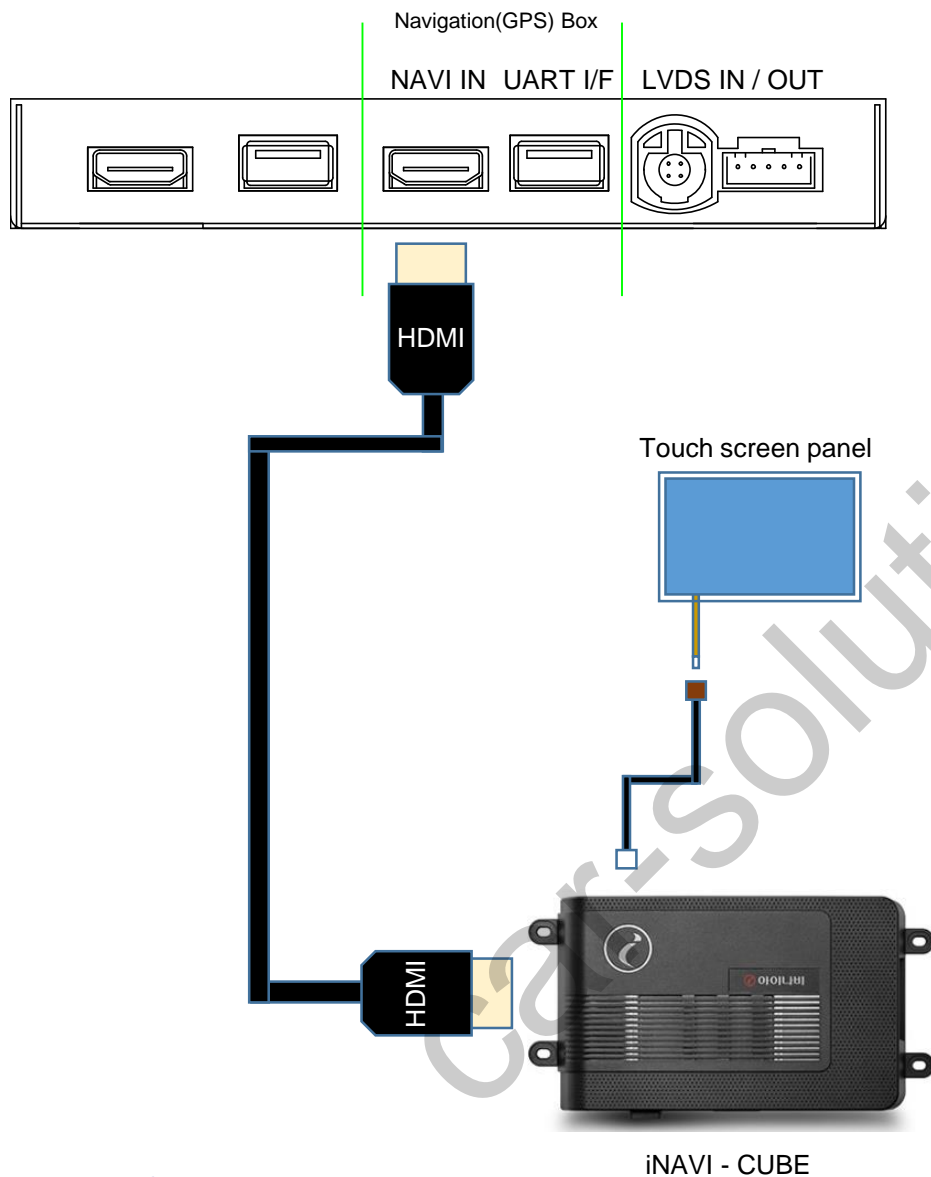
Compatibility Chart for Navigation(GPS) box models

Model		Country	Dip S/W (Navigation)	Required Parts		
	MICROCITY N-Link	South Korea	-	HDMI Cable	USB A-A Cable	Hazard Module (Refer to Page.11)
	iNAVI X1 CUBE	South Korea	800*480 OFF(↑): 1, 2, 3, 4 / 1280*480 BMW ON(↓): 1 / OFF(↑): 2, 3, 4	HDMI Cable (HDMI to HDMI)		
	MYVI MS1400 Digital	South Korea	OFF(↓): 1, 2, 3 ON(↑) : 4	HDMI Cable (HDMI to HDMI)		

- The device supports navigation(GPS) box models equipped with 'Digital video output'.

- It does not support the 'RGB video signals'.

LVDS Connection Diagram

HDMI IN   5V USB POWER   NAVI IN   UART I/F   LVDS IN / OUT

Monitor(OEM)

(Provided LVDS Cable)
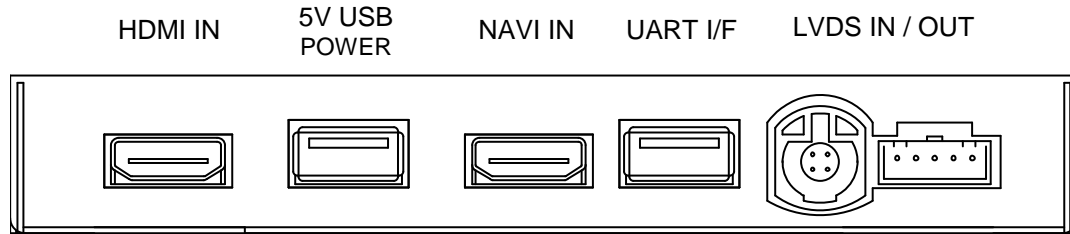
'Genuine(OEM) LVDS connector' should be connected to LVDS IN / OUT port

'Provided LVDS connector' should be connected to the monitor instead to the genuine connector.

(OEM LVDS Cable)

Head Unit
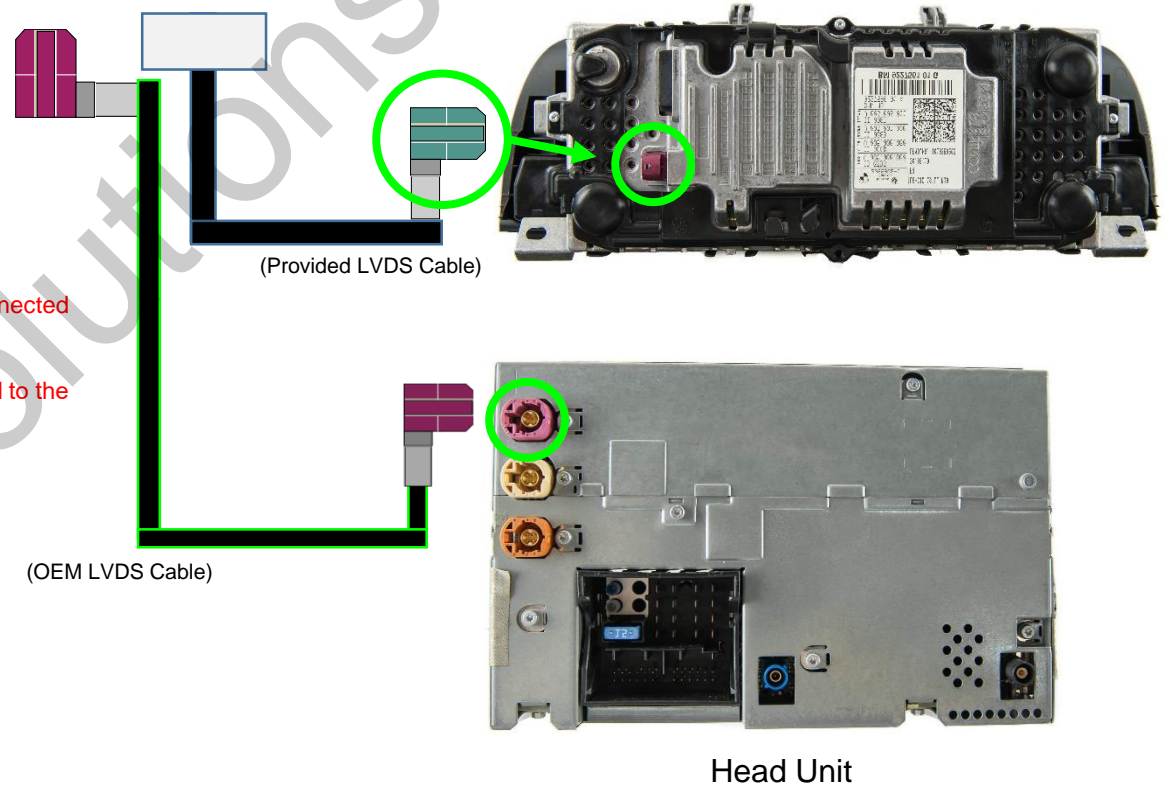
Hazard Module Connection

POWER / CAN   MODE TOUCH-IN   AV IN / OUT   DIP SWITCH

Hazard button

6-pin Hazard connector

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |

REAR CAMERA
REAR 12V
REVERSE 12V IN
NAVI AUD IN L
NAVI AUD IN R
AUDIO OUT L
AUDIO OUT R
AV1 IN V
AV2 IN V
AV2 IN R
AV2 IN L

Old Version Module

Hazard Module (3-Pin)

IR IN
GND
Hazard Light

GROUND
IR OUT

New Version Module

Hazard Module (4-Pin)

Benz Hazard Light

BMW/AUDI Hazard Light

IR IN
GND
(20 cm)

(100 cm)

1 2 3
4 5 6

■ Pin # 5 = Hazard(-) (Brown/Blue)

*Hazard Module is just available with 'Smart Drive function of N-Link' navigation in South Korea.

Body Connector specifications

Length : 100 cm

Length: 150 cm

Length : 20 cm

POWER / CAN connector pins: 1 BAT +, 2 GROUND, 3 GROUND, 4 NAVI 12V OUT, 5 CAN H, 6 CAN L, 7, 8 IR OUT, 9, 10

MODE connector pins: 1 2

AV IN / OUT connector: REAR CAMERA, REAR 12V, GROUND REVERSE 12V IN, IR OUT, NAVI AUD IN R, NAVI AUD IN L, AUDIO OUT R, AUDIO OUT L, AV1 IN V, AV2 IN V, AV2 IN R, AV2 IN L

Push Switch
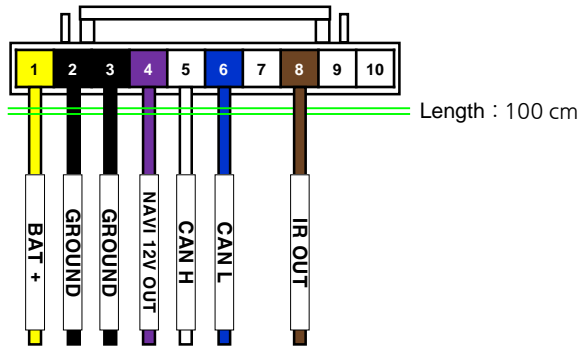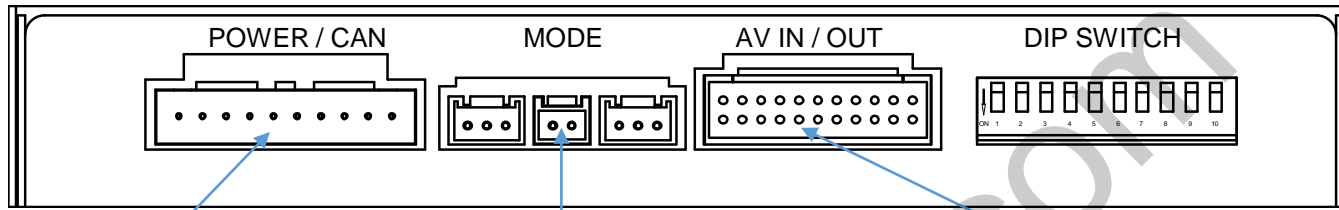
1	BATTERY POWER INPUT
2	GND INPUT
3	GND OUTPUT
4	ACC(12V) POWER OUTPUT
5	PAS CAN HIGH
6	PAS CAN LOW
7	-
8	IR OUT
9	-
10	-
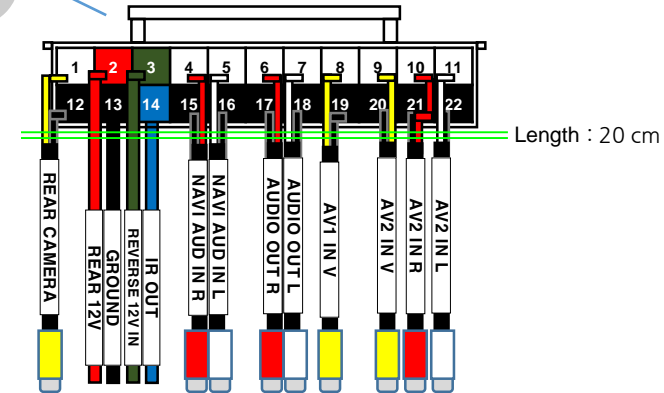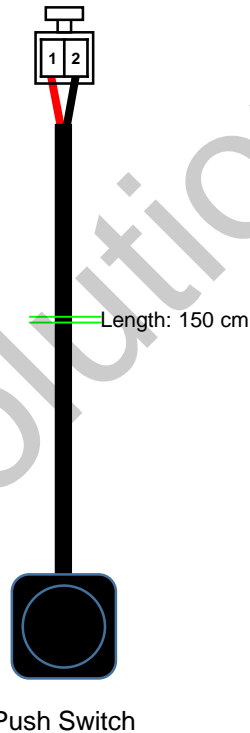
1	RV-CAM VIDEO INPUT	12	GND(RV-CAM VIDEO)
2	RV-CAM POWER OUT	13	GND OUTPUT(RV-CAM)
3	REVERSE DETECTION	14	IR OUT
4	NAVI AUX INPUT R	15	GND(NAVI AUX IN R)
5	NAVI AUX INPUT L	16	GND(NAVI AUX IN L)
6	AUDIO OUTPUT R	17	GND(AUDIO OUT R)
7	AUDIO OUTPUT L	18	GND(AUDIO OUT L)
8	AV1 VIDEO INPUT	19	GND(AV1 VIDEO IN)
9	AV2 VIDEO INPUT	20	GND(AV2 VIDEO IN)
10	AV2 AUDIO INPUT R	21	GND(AV2 AUDIO IN R)
11	AV2 AUDIO INPUT L	22	GND(AV2 AUDIO IN L)

• The colors of each wires can be changed under manufacturer's circumstance.

Car Compatibility Chart

Car Models	Production Year	Specific Models
3 Series	2009 -2012	E90, E91, E92, E93
5 series	2009	E60,E61
5 series	2009-2012	F10, F11 , F07(5GT)
6 Series	2011 -2012	F12, F13
7 Series	2009 -2013	F01, F02
X1series	2009 -	E84
X3 series	2011 - 2013	F25
X5 series	2009 -2013	E70
X6 series	2010 - 2013	E71, E72
Z4	2012 -	E89
Mini	2009 -	Equipped 6.5 inch screen with Visual boost
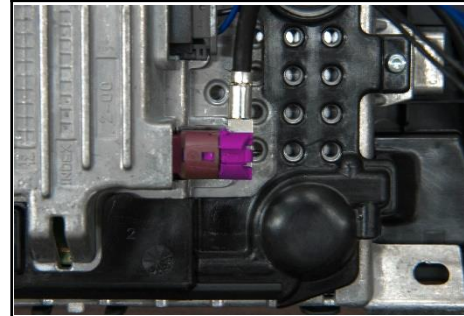
The device supports the BMW original screen equipped with '4-pin LVDS round connector' only.

Please check the specification of original LVDS connector on the sidelines of a production year.

Activation by original buttons of BMW

BMW iDrive Controller

For BMW

Button	Function	Operation	Remarks
1 MENU	Changing Modes	Press the button 2 seconds long.	Order: HDMI → NAVI → AV2 → OEM
1 MENU	Shortcut to each modes	Press the button 2 times. < OEM → NAVI > Press the button 4 times. < OEM → AV2 >	
1 MENU	Back to OEM	Press the button short.	Return to the OEM mode in any modes.
1 MENU	System Locking / Unlocking	Press the button 10 seconds long.	If you visit car service center, you can lock the all functions of the device. It is only possible to use the OEM functions under it is locked.
◄ LEFT PUSH	Changing mode to Front View Camera mode(AV1)	Changing mode to Front View Camera mode(AV1)	Push the button left 2 seconds long.
► RIGHT PUSH	Changing mode to PIP(Rear)	Push the button right 2 seconds long. (Only Rear,AV1)	You can use this function only for 3 modes. (Full, PIP Mode1, PIP Mode2)
2 BACK	Reset to factory default setting and power.	Press the button 10 seconds long.	You can use this function when you get in trouble to see the screen while setting the screen.

Rear View PIP

(External Rear View Camera)

1. Rear, AV1 PIP MODE

Push the button right 2 seconds long

You can use this function only for 3 modes. (Full, PIP Mode1, PIP Mode2)

DIP Switch Settings

ON: ▼ OFF: ▲

Pin No.	ON(▼)	OFF(▲)
1	HDMI Mode	Skip HDMI Mode
2	Navigation Mode	Skip Navigation Mode
3	External Rear View Camera	Original Rear View Camera
4	External Front View Camera(AV1 Mode)	Skip External Front View Camera(AV1 Mode)
5	AV2 Mode	Skip AV2 Mode
6	Selection of car model	
7		
8		
9		
10	Connect i-drive can	Connect monitor can

No.6	No.7	No.8	No.9	No.10	Car Models
OFF(▲)	OFF(▲)	OFF(▲)	OFF(▲)	OFF(▲)	5(F10),6(F12),7(F01), 5GT(F07) / 10.2inch X5(E70),X6(E71), E60(Entire model) / 8.8 inch
OFF(▲)	OFF(▲)	OFF(▲)	OFF(▲)	ON(▼)	5(F10), 6(F12),7(F01),5GT(F07), (2012 ~ Connect i-drive can)
OFF(▲)	OFF(▲)	OFF(▲)	ON(▼)	OFF(▲)	2010 3(E90), X1,(E84),X3(F25), Z4(E89) 2nd Generation i-drive / 8.8 inch
OFF(▲)	OFF(▲)	OFF(▲)	ON(▼)	ON(▼)	MINI Visual Boost / 6.5 inch

* Among the BMW models[5 series(F10) and 5 GT(F07)] produced in 2013, most of them are equipped with 6 pin LVDS monitor connector but some of them are equipped with 4 pin LVDS monitor connector. Then, you should splice CAN wires connection under the i-Drive controller, separately.

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Settings

For BMW

Button		Function	Operation
1	OPTION	Enter into the setting menu	Press the button 5 seconds long.
2	BACK	Back to previous menu	Press the button short.
3	Selection	Select the menu and setting values.	Press the button short.
4	Turn the dial counterclockwise	Move the menu-pointer and adjust the setting values.	Move the pointer and setting values to up(↑) and left(←).
5	Turn the dial clockwise	Move the menu-pointer and adjust the setting values.	Move the pointer and setting values to down(↓) and right(→).

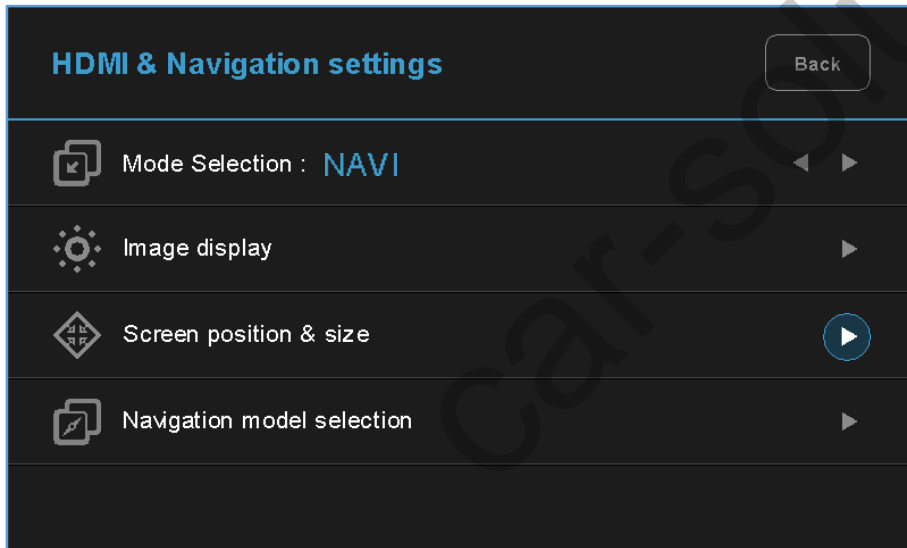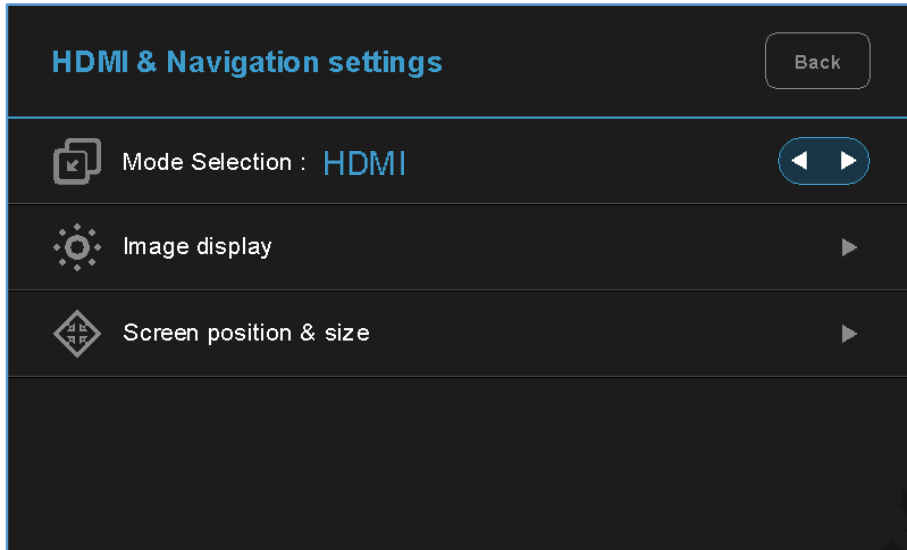## 1. Enter into the setting menu.

<Press the 'OPTION' button 5 seconds long.>

- HDMI & Navigation settings

- Rear view camera settings

- AV-input settings

- System settings

- System information

Settings

HDMI & Navigation settings `Back`

🔲 Mode Selection : **HDMI** ◀ ▶

🔆 Image display ▶

✛ Screen position & size ▶

HDMI & Navigation settings `Back`

🔲 Mode Selection : **NAVI** ◀ ▶

🔆 Image display ▶

✛ Screen position & size ▶

🔲 Navigation model selection ▶

2. HDMI mode settings

- Mode selection: HDMI ↔ NAVI

- Image display
  = Adjust the values of brightness and contrast
    Red-Green-Blue colors of HDMI display.

- Screen position & size
  = Entry Disabled / Not applicable.
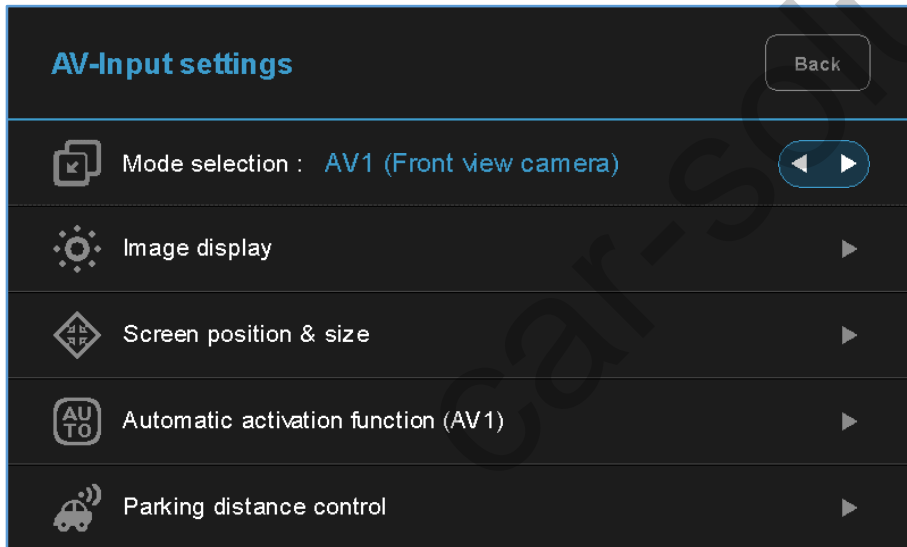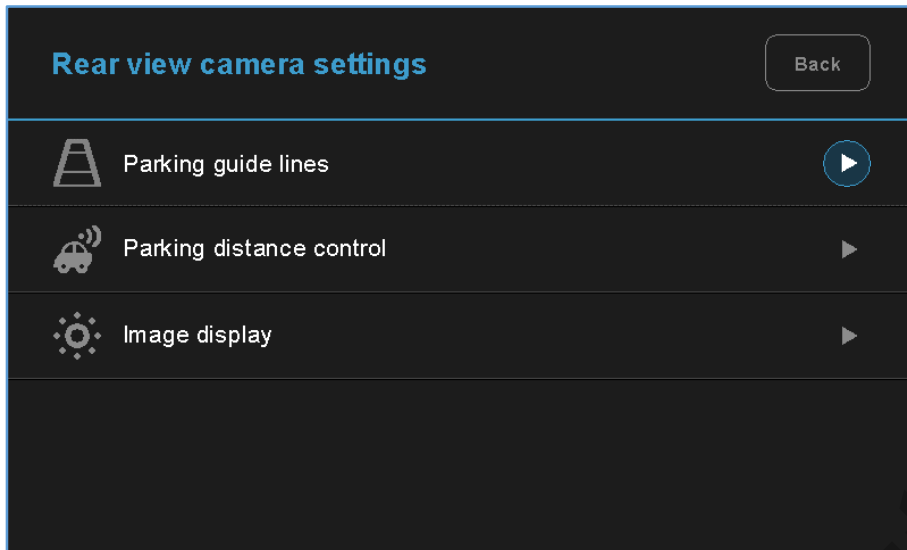
3. NAVI mode settings

- Mode selection: NAVI ↔ HDMI

- Image display
  = Adjust the values of brightness and contrast
    Red-Green-Blue colors of NAVI display.

- Screen position & size
  = Entry Disabled / Not applicable.

- Navigation Resolution selection

① 800 X 480   ② 1280 X 480

Settings

Rear view camera settings   Back

- Parking guide lines ▶
- Parking distance control ▶
- Image display ▶

AV-Input settings   Back

- Mode selection : AV1 (Front view camera) ◀ ▶
- Image display ▶
- Screen position & size ▶
- Automatic activation function (AV1) ▶
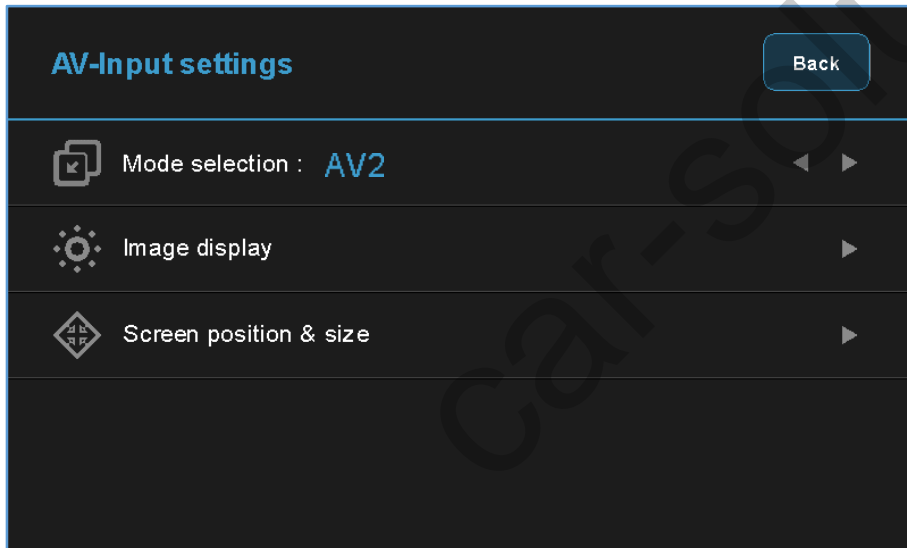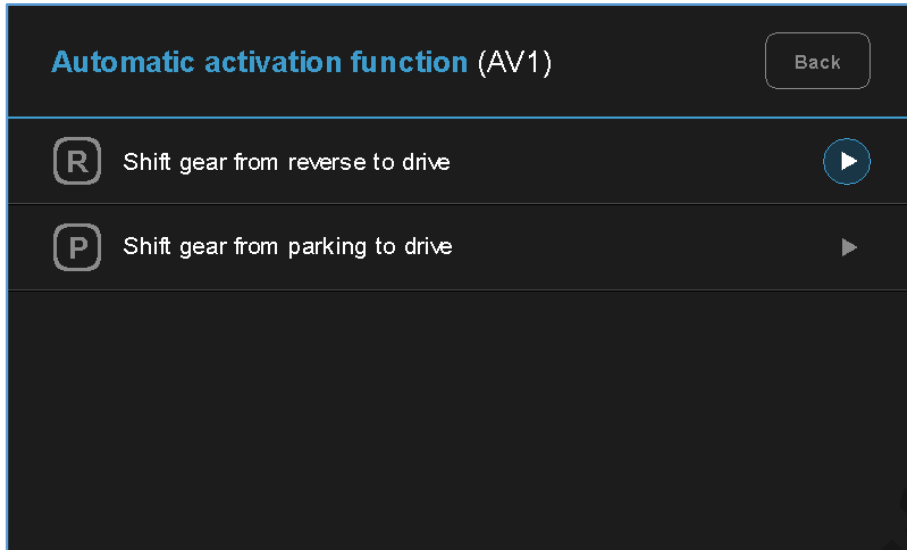- Parking distance control ▶

4. Rear view camera settings

- Parking guide lines
  - = Adjust position of parking guide lines and select the lines 'ON or OFF'.

- Parking distance control
  - = Adjust the position of parking distance control sensors to 'LEFT or RIGHT' and select the PDC 'ON or OFF'.

- Image display
  - = Adjust the values of brightness and contrast Red-Green-Blue colors of Rear view camera display.

5. AV1(Front view camera) settings

- Mode selection: AV1(Front view camera) ↔ AV2

- Image display
  - = Adjust the values of brightness and contrast Red-Green-Blue colors of AV1(Front view camera) display.

- Screen position & size
  - = Entry Disabled / Not applicable.

- Automatic activation function(AV1)
  - = * Please refer to next page.

- Parking distance control
  - = Adjust the position of parking distance control sensors to 'LEFT or RIGHT' and select the PDC 'ON or OFF'.

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Settings

Automatic activation function (AV1)   Back

| R | Shift gear from reverse to drive | ▶ |
| P | Shift gear from parking to drive | ▶ |

AV-Input settings   Back

⊡	Mode selection : AV2	◀ ▶
⚙	Image display	▶
✥	Screen position & size	▶

6. Automatic activation function(AV1)

- Shift gear from reverse to drive

- Shift gear from parking to drive

  * When you shift gear 'from reverse to drive' or 'from parking to drive',
    it just works automatically during the activation time you selected.

Activation time

☐ OFF   ☐ 8 seconds   ☑ 10 seconds   ☐ 15 seconds
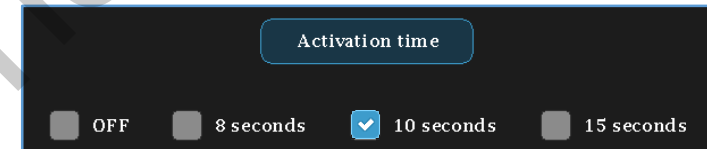
7. AV2 settings

- Mode selection: AV2 ↔ AV1(Front view camera)

- Image display
  = Adjust the values of brightness and contrast
    Red-Green-Blue colors of AV2 display.

- Screen position & size
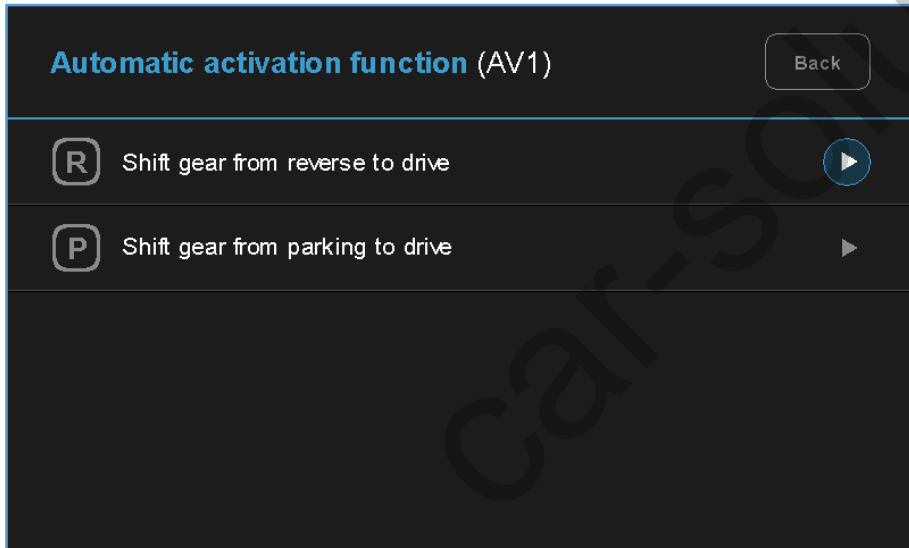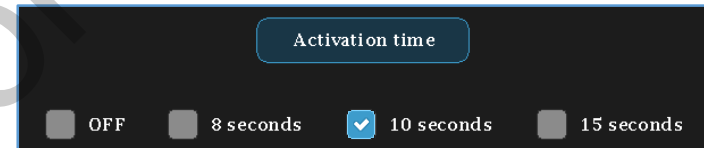 = Entry Disabled / Not applicable.
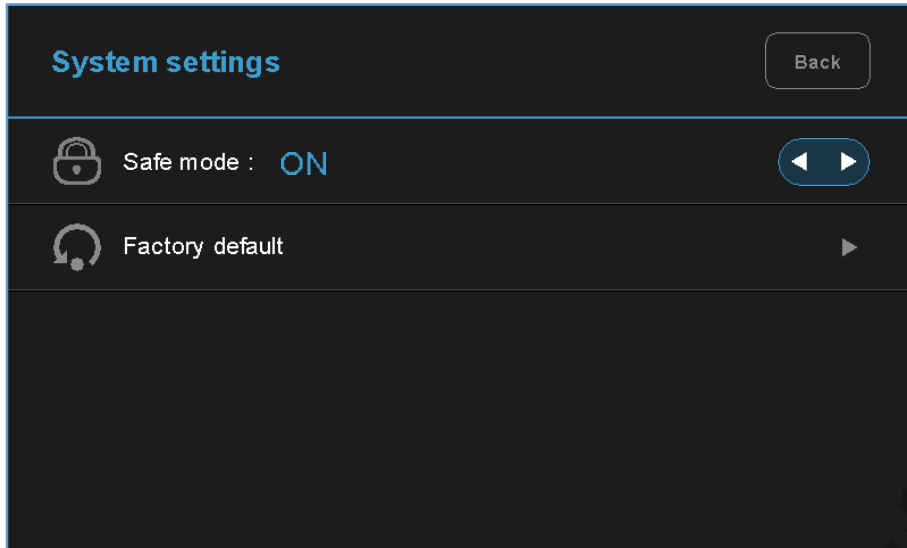
Settings
(SURROUND VIEW OPTION)

Keep the rear camera view

- Shift gear from reverse to drive

- Shift gear from parking to drive

* When you shift gear 'from reverse to drive' or 'from parking to drive', it just works during the activation time you selected.

Activation time			
☐ OFF	☐ 8 seconds	☑ 10 seconds	☐ 15 seconds

Automatic activation function (AV1)   Back

R	Shift gear from reverse to drive	▶
P	Shift gear from parking to drive	▶

Settings

System settings	Back
🔒 Safe mode : ON	◀ ▶
🔄 Factory default	▶

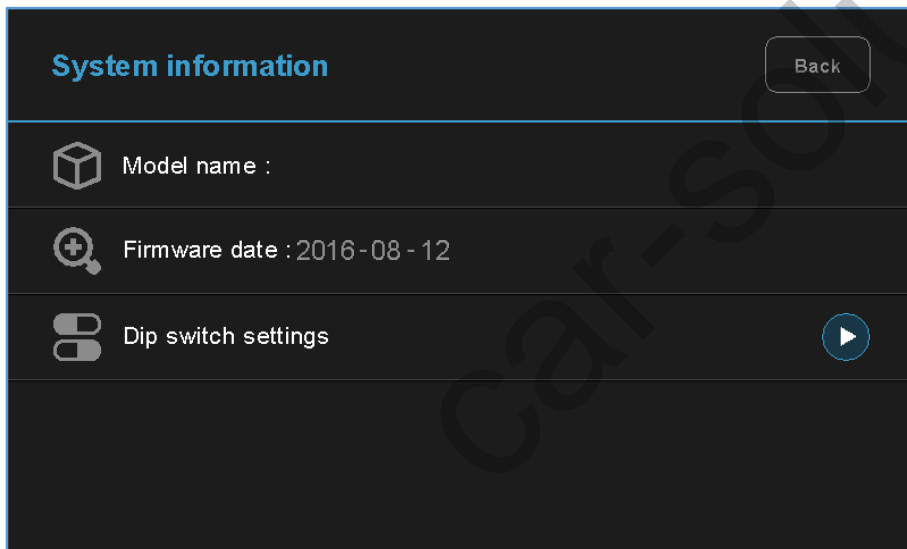| System information	Back
📦 Model name :	
🔍 Firmware date : 2016-08-12	
🔲 Dip switch settings	▶

8. System settings

- Safe mode
  = Select the one of two between 'ON and OFF'.

  * If you select 'ON', 3 modes(HDMI, NAVI and AV2) will be faded out when the car is driven.

- Factory default
  = Reset all setting values to factory default setting.

9. System information

- Firmware date : 2016 – 08 – 12 (Latest firmware date)

- = You can check the current firmware version date.

- Dip switch settings
  = You can check the current positions of dip switch settings.

Settings

System information - Dip switch settings [Back]

No.		
No. 1	HDMI	ON
No. 2	Navigation	ON
No. 3	External rear view camera	ON
No. 4	AV1	ON
No. 5	AV2	OFF
No. 6		ON
No. 7		OFF
No. 8	Selection of car model	OFF
No. 9		OFF
No. 10		ON

10. Information of Dip switch settings

* You can check the current positions of dip switch settings.

ex 1)
Actual DIP switch values. (→)

Appears on the setting menu. (↓)

No.		
No. 1	HDMI	ON
No. 2	Navigation	OFF
No. 3	External rear view camera	ON
No. 4	AV1	ON
No. 5	AV2	OFF
No. 6		OFF
No. 7		ON
No. 8	Selection of car model	OFF
No. 9		ON
No. 10		OFF

ex 2)
Actual DIP switch values. (→)

Appears on the setting menu. (↓)

No.		
No. 1	HDMI	ON
No. 2	Navigation	ON
No. 3	External rear view camera	OFF
No. 4	AV1	ON
No. 5	AV2	OFF
No. 6		ON
No. 7		OFF
No. 8	Selection of car model	OFF
No. 9		OFF
No. 10		OFF