BM12 V2.3
Specification

Last updated: 2013.06.18
Model: QVI-BM12-Main-V2.3 IF / Product code: QVI-BM12-1207-003

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1.1 Main specification

1. Compatibility
   BMW New 1,3,5,7 series 6.5'' & 8.8'' &10.2''

2. Product composition
   Multimedia Interface * 1ea

3. MULTIMEDIA INTERFACE input spec.
   3 * A/V input (external video input)
   1 * CVBS input (rear camera source input)
   1 * Analog RGB input (navigation system output)
   1 * LCD input (car system input)

4. MULTIMEDIA INTERFACE output spec.
   1 * LCD output

5. POWER spec.
   input power : 8VDC ~ 18VDC
   consumption power : 5WATT

6. Switch input mode
   Input video skip function : able to select whether to use the respective input video sources or not via DIP switch.
   Able to change input modes via remote control.
   Able to detect rear camera via CAN or rear lamp cable.
1.2 Features

- Installation from the direction of the command
- NAVI, DVD and DTV control via I-drive controller
- Control position of the DVD, navigation image
- Screen Display improvement (user convenience-intended interface)
- Mode change via original button (Menu button in I-DRIVE)
- Provided Power cable for connecting with rear camera
- Able to support PIP (Picture in Picture), display original Navi and external display at the same time
1.3 System diagram

- NAVIGATION Input (Analog RGB)
- A/V 1
- A/V 2
- A/V 3
- CVBS (Rear camera)
- Car Screen Input (CAR MAIN BOARD)
- Remote control
- Switch for source toggle
- Power Input (+8VDC ~ +18VDC)
- Dip S/W
- Rear Camera
- VIDEO CIRCUIT
- VIDEO MUX
- MCU
- DISPLAY
- Car Installation OEM LCD
- HEADREST MONITOR
- A/V OUT
- OEM Button (Can Interface)
1.4 Components

- Mode cable * 1EA (HARETC0001)
- IR cable * 1EA (HIRCAB0002)
- MONITOR POWER cable * 1EA (HPOWER0023)
- LCD cable * 1EA (HLCDCA0005)
- A/V cable * 1EA (HAVCAB0002)
- REAR CAMERA POWER cable * 1EA (HARETC0002)
- RGB cable * 1ea (HNAVIC0004)
- POWER cable (7P) * 1EA (HPOWER0002)
- Remote control * 1ea (REMOTE0001)
1.5 Exterior

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>POWER</td>
</tr>
<tr>
<td>2</td>
<td>RGB(IN)</td>
</tr>
<tr>
<td>3</td>
<td>REAR CAMERA POWER</td>
</tr>
<tr>
<td>4</td>
<td>A/V(IN/OUT)</td>
</tr>
<tr>
<td>5</td>
<td>LCD-OUT</td>
</tr>
<tr>
<td>6</td>
<td>LCD-IN</td>
</tr>
<tr>
<td>7</td>
<td>POWER OUT</td>
</tr>
<tr>
<td>8</td>
<td>IR</td>
</tr>
<tr>
<td>9</td>
<td>MODE</td>
</tr>
<tr>
<td>10</td>
<td>LED</td>
</tr>
<tr>
<td>11</td>
<td>DIP switch</td>
</tr>
</tbody>
</table>

**Dimension**

- Horizontal length: 150.4mm
- Vertical length: 99.4mm
- Height: 23.2mm

Image: Car-Solutions.com
# 2.1 DIP switch

<table>
<thead>
<tr>
<th>PIN</th>
<th>Function</th>
<th>Dip S/W Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Displaying RGB input</td>
<td>ON : skip RGB mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF : display RGB mode</td>
</tr>
<tr>
<td>2</td>
<td>Displaying A/V 1</td>
<td>ON : skip A/V 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF : display A/V1</td>
</tr>
<tr>
<td>3</td>
<td>Displaying A/V 2</td>
<td>ON : skip A/V 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF : display A/V2</td>
</tr>
<tr>
<td>4</td>
<td>Displaying A/V 3</td>
<td>ON : skip A/V 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF : display A/V3</td>
</tr>
<tr>
<td>5</td>
<td>Setup of monitor size</td>
<td>ON : 6.5&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF : 8.8&quot; 10.2&quot;</td>
</tr>
<tr>
<td>6</td>
<td>Car model Setup</td>
<td>ON : 3D GUI Model</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF : General GUI Model</td>
</tr>
<tr>
<td>7</td>
<td>Setup of rear camera use</td>
<td>ON : CVBS4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF : MAIN</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Unavailable</td>
</tr>
</tbody>
</table>

※ ON : DOWN / OFF : UP
default : ON (DIP #8)

※ DIP S/W usage example
- Input Mode : A/V2, A/V3
- Original Navigation
- External rear camera

▷ DIP S/W : 1,2 \(\rightarrow\) ON (skip INPUT MODE)
▷ DIP S/W : 3 \(\rightarrow\) OFF (display A/V2)
▷ DIP S/W : 4 \(\rightarrow\) OFF (display A/V3)
▷ DIP S/W : 5 \(\rightarrow\) OFF(8.8inch & 10.2inch)
▷ DIP S/W : 6 \(\rightarrow\) OFF
▷ DIP S/W : 7 \(\rightarrow\) ON (for external rear camera)
▷ DIP S/W : 8 \(\rightarrow\) OFF
2.2 Setup for car model & navigation

FACTORY mode – Press ◀ button 2 seconds long on the remote control.

Setup for car model

UTIL - CAR MODEL
Selecting model of the car

F20 : 1,3,5,7 series 6.5", 8.8"
F20-7 : New UI 8.8", 10.2"  

* Set pin#5 of DIP switch to the right size of the monitor after selecting model of the car. (Refer to page 8.)

Setup for navigation

UTIL – NAVI MODEL
Definition of the navigation

DEFAULT : default, 400x234, low definition
KD-900(WVGA) : 800x480 in high definition, for Chinese
MYVI(WVGA) : 800x480 in high definition, for Domestic
MD7000(WVGA) : 800x480 in high definition, for Domestic
GI8000(WVGA) : 800x480 in high definition, for Domestic
GI5000(WVGA) : 800x480 in high definition, for Domestic
I-ONE(WVGA) : 800x480 in high definition, for Domestic
WP9200(WVGA) : 800x480 in high definition, for Israel
HDMI(When SMI is installed) : 800x480 in high definition

IMAGE
Adjusting the position and the size of navigation

H-POSITION : moving in horizontal Direction
V-POSITION : moving in vertical direction
H-SIZE : adjusting the horizontal size of the navigation

* Go into FACTORY/ IMAGE (as shown right) and adjust the position and the size of the navigation after setting the definition of the navigation.
2.3.1 FACTORY mode

FACTORY mode – Press ▶ button 2 seconds long on the remote control.

**UTIL - AVOUT SELECT**
Selecting background sound After returning navigation or original mode

DEFAULT : Selecting AV sound just before changing navigation or original mode from the AV mode

AV 1~3 : Sound of the selected AV source 1~3

**UTIL - FACTORY RESET**
FACTORY MODE RESET
2.3.2 FACTORY mode

FACTORY mode – Press ◀ button 2 seconds long on the remote control.

I_DRV - I_DRV REMOTE
Selecting model of navigation and DTV respectively to control I_DRV function

ML 740T
ARION
PANASONIC
HSD100
COMTEC
NET770
PIioneer
ML100
USER(When use IR Memory value)

• Selecting NAVIGATION model : in RGB mode
• Selecting DVD model : in A/V mode

I_DRV / I_DRV CONTROL
Selecting whether to use I_DRV function or not

ON / OFF
2.3.3 FACTORY mode

FACTORY mode – Press ◀ button 2 seconds long on the remote control.

**I_DRV – IR MEMORY**
Set DVD, DTV remote control value to control with I-Drive
- To use this function, select User Mode on I_DRV-I_DRV REMOTE.

**DVD / DTV**

**I_DRV – HANDLE MODE BUTTON**
Select Handle Voice Button (Switch Mode)

**ON / OFF**

**I_DRV – MEMORY BUTTON**
Set up car audio number 8 (Switch Mode + Aux Switch)

**ON / OFF**
**2.4.1 Input DVD, DTV I-DRIVE**

**What is IR-MEMORY Mode?**
Is to allow I-Drive to control other DVD or DTV (besides the existing; for example: SANYO, NECVOX) by register remote control value.

1. Press ‹ button 2 seconds long on the remote control or press UP→DOWN→UP→MENU button in order for Factory Mode, select I-DRV → IR MEMORY.

You can set AS Source for DTV and DVD in IR MEMORY.

2. As shown above, select menu that you want to use and input DVD remote control button value. (If you want to register DTV remote control button value, after selecting IR MEMORY – DTV, you can register button value with these following steps.)

Example)
a. Select POWER button on OSD menu and press I-Drive button you want to use
b. If the marked part above is blinking, press POWER button in DVD remote control (continue)
2.4.2 Input DVD, DTV I-DRIVE

Example) continue from slide 13

c. While pressing button, remote control’s value will appear (picture above) in green color and automatically saved.
d. Repeat this step for input other button value on OSD menu.

③ After value input, select INPUT on OSD menu, press YES button (picture above) for saving input value and press NO for cancel all input value. (if saved, DVD TYPE and DTV TYPE will be changed automatically to USER)

If SUCCESS word appears, input values are successfully saved, user can control input DVD with touch screen.
But, at this time, Factory-I_DRV-I_DRV REMOT must be changed into USER.
## 2.5 Original Button Usage

### Table: Button Usage

<table>
<thead>
<tr>
<th>Mode</th>
<th>Key</th>
<th>Operation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Mode</td>
<td>MENU</td>
<td>Press long</td>
<td>Changing modes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Press short</td>
<td>Getting back to Original image</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Press short</td>
<td>Changing modes</td>
</tr>
<tr>
<td>Audio</td>
<td>Audio Button no.8</td>
<td>Press short</td>
<td>Changing modes + Changing car AUX</td>
</tr>
<tr>
<td>Rear Camera</td>
<td>(Steering wheel)</td>
<td>Press short</td>
<td>Activating PIP function</td>
</tr>
</tbody>
</table>

**I-Drive button (6.5 inches)**
# 2.5 Original Button Usage

## Whole Mode

<table>
<thead>
<tr>
<th>Mode</th>
<th>Key</th>
<th>Operation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>MENU</td>
<td>Press long</td>
<td></td>
<td>Changing modes</td>
</tr>
<tr>
<td></td>
<td>Press short</td>
<td></td>
<td>Getting back to Original</td>
</tr>
<tr>
<td></td>
<td>Press short</td>
<td></td>
<td>Changing modes</td>
</tr>
</tbody>
</table>

## Audio button no.8

<table>
<thead>
<tr>
<th>Mode</th>
<th>Key</th>
<th>Operation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Press short</td>
<td></td>
<td>Changing modes + Changing car AUX</td>
</tr>
</tbody>
</table>

## AV1, AV2, AV3

<table>
<thead>
<tr>
<th>Mode</th>
<th>Key</th>
<th>Operation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▼</td>
<td>Press this button 2 seconds long in the direction of 6 O’clock</td>
<td>Activating PIP function</td>
</tr>
</tbody>
</table>

## Rear Camera

<table>
<thead>
<tr>
<th>Mode</th>
<th>Key</th>
<th>Operation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▼</td>
<td>Press this button 2 seconds long in the direction of 6 O’clock</td>
<td>Activating PIP function</td>
</tr>
</tbody>
</table>
2.6 Remote control usage

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER &amp; PIP</td>
<td>Unavailable</td>
</tr>
<tr>
<td>MENU</td>
<td>Activating OSD menu</td>
</tr>
<tr>
<td>OK</td>
<td>Making a selection, changing image display</td>
</tr>
<tr>
<td>▲</td>
<td>Moving upward (If you press this button 2 seconds long, “Hot key” function will activate/deactivate.)</td>
</tr>
<tr>
<td>▼</td>
<td>Moving downward</td>
</tr>
<tr>
<td>◀</td>
<td>Moving leftward (If you press this button 2 seconds long, you can get access to the factory mode.)</td>
</tr>
<tr>
<td>▶</td>
<td>Moving rightward (If you press this button 2 seconds long, you can reset all the data about user environment.)</td>
</tr>
</tbody>
</table>

**What is Hot Key function?**
You can use this function via pressing number “1” button next to the radio button. You can change audio source to the external AUX with this function. (original function of BMW) Our device let it change to an external video source for driver to use this function via this button. So, you can change sources (audio<->video) by pressing this button without any other install process.

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2.7.1 Setup for rear view camera

FACTORY mode – Press button 2 seconds long on the remote control.

UTIL - REAR SELECT
Selecting how to detect the rear view camera

LAMP: Detecting the rear view camera via rear lamp (Installer must connect “Rear-C” cable of the power cable to the rear lamp of the car.)

CAN: Detecting the rear view camera via CAN signal (Installer must connect “CAN” cable of the power cable to the “CAN” cable of the car.)

• While installing rear view camera: Pull down DIP switch pin#7 to set it as “ON”. (Refer to page 9.)

PARK
PARK ENABLE: Selecting whether to display the parking guide line or not on rear gear (default: ON)

PARK SETUP: Adjusting the position of the parking guide line (available in PARK SETUP -> H-POSITION, V-POSITION)

SAFE ENABLE: If your car is connected with CAN cable and it is in "ON" state, you can NOT watch DVD or A/V except original image or navigation while driving. At that time the screen get back to the main (default: OFF)

a. If you want to get to the FACTORY mode, set the gear as rear state and press “LEFT” button 2 seconds long on the remote control (as shown left top)
b. If you set ‘PARK ENABLE’ as “ON” state, there will be the rear view parking guide line. (as shown right top)
Setup for displaying rear view

1 Series (F20) : Press button short on steering wheel, you can choose full screen or PIP screen as shown below.
**2.7.2 Setup for rear view camera (8.8”)**

**Setup for displaying rear view**

1 Series (F20): Press the button about 2 seconds long on i-Drive, you can choose full screen or pip screen as shown below.

- **< Full real view on screen >**
- **< PIP screen >**
2.7.2 Setup for rear view camera (8.8”)

In case of 3D GUI (PDC)

1. After setting Dip Switch NO.6 to “ON”, Select Car model “F20”
   (FACTORY MENU → CAR MODEL → F20)
   ※ If PIP Screen is unstable in “F20” car model, select “F20-7”

2. After setting Dip Switch NO.6 to “ON”, Select Car model “F20-7”
   (FACTORY MENU → CAR MODEL → F20-7)
2.8 Parking guide line

Factory Default: DISPLAY - DISABLE
You can enter “Park setup” in Factory Menu and move “H-POS → V-POS” in sequence by pressing “OK” button on the remote control.

**H-POS**
If you need to move the horizontal position, press △, ▽ buttons on the remote control.

**V-POS**
If you need to move the vertical position, press △, ▽ buttons on the remote control.
### 2.8.1 OSD (on screen display)

**Analog RGB Mode**

<table>
<thead>
<tr>
<th>IMAGE</th>
<th>COLOR</th>
<th>OSD</th>
<th>UTIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRIGHTNESS</td>
<td>RED : Adjusting red</td>
<td>LANGUAGE : Choosing OSD language while using Touch OSD (English, Chinese only)</td>
<td>FACTORY RESET : Resetting all the data about the relevant mode (applicable to navigation, A/V, DTV, rear mode respectively)</td>
</tr>
<tr>
<td>CONTRAST</td>
<td>GREEN : Adjusting green</td>
<td>TRANS : Adjusting transparency of OSD</td>
<td></td>
</tr>
<tr>
<td>SHARPNESS</td>
<td>BLUE : Adjusting blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USER IMAGE</td>
<td>USER COLOR : Selecting a color option among set color options</td>
<td>H_POSITION, V_POSITION : Positioning OSD menu</td>
<td></td>
</tr>
</tbody>
</table>

![OSD Menu Screenshots](image-url)
# 2.8.2 OSD (on screen display)

## Video mode

<table>
<thead>
<tr>
<th>IMAGE</th>
<th>OSD</th>
<th>UTIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRIGHTNESS</td>
<td>LANGUAGE : Choosing OSD language while using Touch OSD (English, Chinese only)</td>
<td>FACTORY RESET : Resetting all the data about the relevant mode (applicable to navigation, A/V, DTV, rear mode respectively)</td>
</tr>
<tr>
<td>CONTRAST</td>
<td>TRANS : Adjusting transparency of OSD</td>
<td></td>
</tr>
<tr>
<td>CONTRAST</td>
<td>H_POSITION, V_POSITION : Positioning OSD menu</td>
<td></td>
</tr>
<tr>
<td>HUE</td>
<td>USER IMAGE : Selecting one among 4 color options</td>
<td></td>
</tr>
<tr>
<td>SHARPNESS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Troubleshooting

Q. I can not switch A/V sources
A. Check IR or Ground cable connection. Check LED lamps in the interface, if it is not on, check power cable.

Q. All I got on the screen is black.
A. Check second LED lamp of the interface is on, if not, check A/V sources connected are working well. (Second lamp indicates AV sources connected works well.) Check interface connection has been done well.

Q. Displayed image color is not proper (too dark or unsuitable color)
A. Try to select “INITIAL” in OSD menu, if it does not work, inform to manufacturer.

Q. I want to watch the rear camera on the screen
A. Set the DIP switch #7 as state “ON”.

Q. Unwanted A/V mode is displayed. (A/V source switching order: OEM->RGB->AV1->AV2->AV3)
A. Check DIP Switch Setting.

Q. OEM image is not displayed.
A. Check interface’s LCD In/Out cable connection. If the status keeps on, inform to manufacturer.

Q. Screen only displays white color.
A. Check LCD out cable is connected well, if this status keeps, inform to manufacturer.

Q. After setting PIP function, I got only half OEM image at the right in the screen.
A. This is not an error, just caused by user’s setting mistake, user should set to “Split Screen” in the OEM menu.

Q. Rear CAM does not appear, when car is in reverse after CAN wiring.
A. Operate “FACTORY MODE”, then select “UTIL → Rear Select” If it is set as “LAMP”, change it to “CAN” by remote or keypad.

※ LAMP : In case of connecting “Rear-C” wire of Power Cable to Rear Lamp in vehicle.
   CAN : In case of detecting Rear Cam thru CAN signal. (CAN must be wired)