Multi-Format Field Monitor

FM-073SCH

User's Guide

BON ELECTRONICS
http://www.bon.co.kr

Contents

2

Introduction

FM-073SCH is an 1100 cd/m² super bright on-camera monitor for DSLR and ENG cameras. New features such as H/V level meter, auto flip, still image overlay, and PIP are included.

Features

Superbright LCD Screen for Sunlight Visibility

Auto Flip

Firmware Update with USB Memory

Focus Assistance/False Color

Waveform/Vectorscope

DSLR Scales

Closed Caption (CEA-608/708)

Time Code

8~16ch Audio Level Meter

Video Exposure Range Check

IMD Mode

AFD & V-CHIP(SDI Only)

Various Markers

H/V Delay

Pixel-to-Pixel View

Tally LED Control Output R/G/B/W Internal Patterns Rack & VESA Mount (Option)

HDMI to SDI, SDI to HDMI Conversion (Same Quality Conversion)

Auto Luminance Control

Auto Color Temperature Adjustment

Horizontal/Vertical Angle Level Meters

3G SDI input (Level A/B)

1~16Ch Audio Level Meters

Safety Instructions

- To help avoid damaging your monitor, connect only one power (AC or DC) in operation.

- Rough handling of product may cause physical damage or malfunction.

- Never insert anything metallic into the monitor openings. Doing so may create the danger of electric shock.

- To avoid electric shock, never touch the inside of the monitor. Only a qualified should open the monitor's case.

- Openings in the monitor cabinet are provided for ventilation. To prevent overheating, these openings should not be blocked or covered.

- Put your monitor in a location with low humidity and a minimum of dust. Avoid places like damp basement or dusty hallways.

- Place the monitor on a solid surface and treat it carefully. The screen is made of glass and can be damaged if dropped or sharply hit.

- Do not attempt to remove the back cover, as you will be exposed to a shock hazard. The back cover should only be removed by qualified service personnel.

- Unplug the monitor power before you connect external devices to the monitor.

- If your monitor does not operate normally, or if there are any unusual sounds or smells coning from it, unplug it immediately and contact us.

- Please do not disassemble the monitor. No service will be provided in that case.

- Displaying fixed picture for a long time may cause an afterimage or dead spots. To recover LCD pixels, display whole white picture on screen for a n hour or two and pixels will be recovered.

- No service will be provided for user's own color calibration.

4

Front
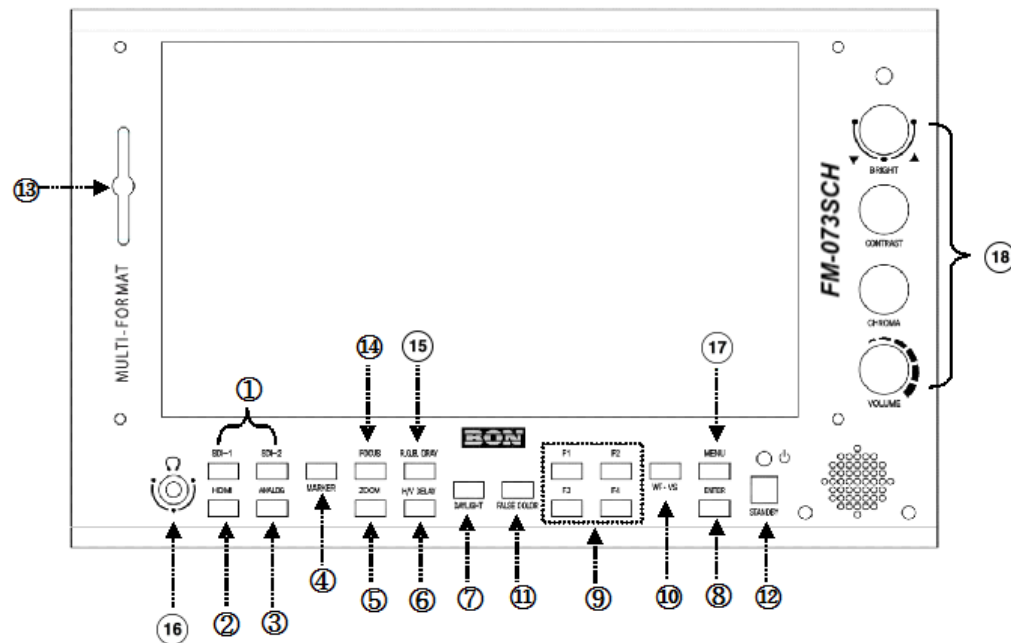
1,2) SDI, HDMI Input Selection

3) Analog Input Selection

Switch input in the order of : YPbPr(Component), CVBS1, CVBS2, CVBS3(Composites)

4) Marker On/Off

5) Zoom

Switch zoom mode in the order of : Pixel to Pixel, User Zoom, DSLR Zoom

Pixel to Pixel

Shows the original picture with 1:1 pixel mapping. If the picture is larger than the monitor's LCD resolution, the center part of the picture is shown. Use knob to see a different part of the picture. 5 parts are selectable : CENTER, TOP-LEFT, TOP-RIGHT, BOTTOM-LEFT, BOTTOM-RIGHT.

User Zoom

This is a custom zoom mode which user can set the zoom level. Turn the knob to set your own zoom level in this mode.

5

DSLR Zoom

This zoom-in/out preset allows fully scaled-up monitoring of contracted video from DSLRs. Zoom-in/out area can also be customized to allow partial or full view.

To choose camera type, press Menu and choose Video, choose a DSLR camera from Canon 5D Mark II/7D, 60D, Nikon D800, Sony A77, Panasonic GH2 and Canon 5D Mark III.

6) H/V Delay

H/V Delay allows you to check the outside signal of active picture area. This mode is for broadcast professionals. By pressing the button, it switches the mode in the order of : H Delay, V Delay, H/V Delay, Off.

7) Daylight

This button switches luminance level in the order of : Indoor, Outdoor, Daylight, Auto. Press this button to switch the luminance to see the screen comfortably. Daylight mode provides maximum luminance for sunlight visibility. If you choose Auto, the luminance changes automatically for the environment.

8) Enter

Enter Key.

9) Function Keys

User-preferred function can be assigned to function keys. Assignable functions are listed below.

● ALM (Audio Level Meter) Display On/Off

● Aspect On/Off

● Scan Mode

● IMD Display

● Exposure Range Check

● Audio Mute

● Freeze On/Off

● H/V Flip On/Off

● 1:1 Scan On/Off

● Caption Display

● Time Code

6

10) Waveform / Vectorscope

Waveform enables users to check the luminance level. Vectorscope is for checking chrominance values of the picture. The mode is switched in the order of : Waveform, Waveform Parade, Vectorscope, Wide Waveform, Full-Screen Waveform, Full-Screen Vectorscope.

```
* Some afterimage might be left on Waveform when the input picture
freezed long on interlace signal.

* On SDI 2K input with Psf scanning mode, displaying Circle or
Horizontal Line pattern might cause an afterimage effect. However, it
will be disappeared after the picture is changed.
```

11) False Color

Shows pictures in specific colors as its luminance level other than the original colors. Much exposed area is filled with red while little exposed area is purple.

```
* 10-bit, 12-bit Dithered gradient pattern might not be displayed
clearly in this mode.
```

12) Power Button

Power turns off when pressed for one second.

13) Tally Lamp

Tally lamp displays Red, Green, Amber color tally.

14) Focus Assist

Displays focus area when pressed. The focus sensitivity is adjustable on the display menu.

15) R/G/B/Gray Only

Displays Red, Green, Blue or Gray only as the button is pressed.

16) Audio Out

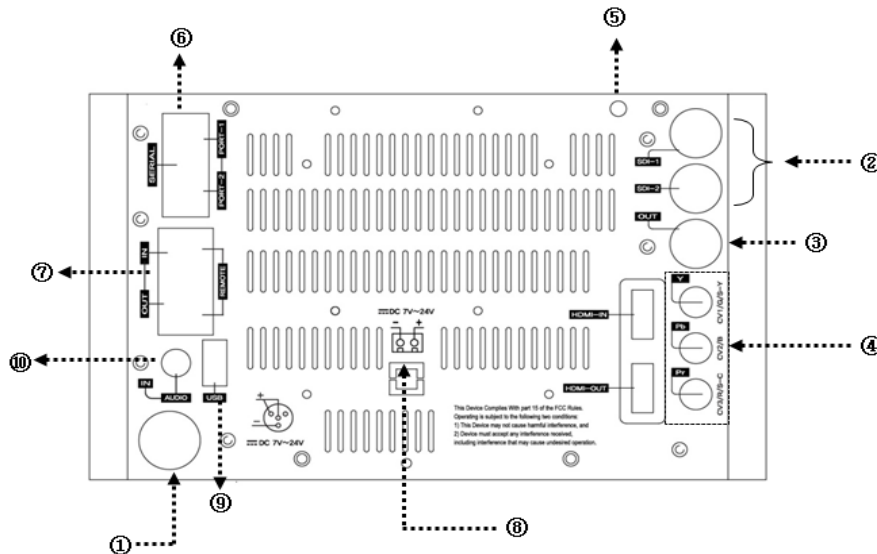Stereo phone jack for audio output.

17) Menu Button

Menu and Exit button.

18) Knobs

Brightness, Contrast, Chroma, Volume adjustable knobs. The brightness knob is also used as arrow knob to move up and down on the menu, User Zoom, etc.

7

1) DC Power Jack

7V ~ 24V DC power can be used.

2) SDI 1, 2 Input Ports

HD SDI or SD SDI input ports. SDI signal should be fulfill SMPTE standards.

3) SDI Loop-Through and HDMI-to-SDI Out Port

This port can be used either SDI Loop-through or SDI out of HDMI-to-SDI converter.

4) Component YPbPr or CVBS 1,2,3 Input Ports

Component YPbPr or CVBS(Composite) input ports.

5) Tally Input

To display Red, Green, Amber tally.

6) Update Port (RJ-11 Jack)

Serial communication port for updating firmware or monitor control.

7) Control Port

Monitor control port. The detail is in the chapter "Remote Terminal Assignment Connection"

8

8) Internal Power Port

External battery power connection port. (7V ~ 24V)

9) USB Port

USB firmware update port.

Tally

Tally mode displays Red, Green, Amber color by the input from tally (RJ-45 GPI) input port.

Audio Level Meters

Audio level meters displays max 16 channels. But it depends on the number of channels contained in the signal itself. For example, if the signal contains 2 channels, the audio level should be 2 channels.

The odd channels are displayed in the left, whereas the even channels are in the right. The position of the meters can be set to top or bottom of the screen on the AUDIO section of the menu.

9

OSD Menu

Menu opens up by pressing Menu button. This button also works as Exit button on the Menu. The brightness knob works as up/down arrow. To select something, press either enter button or the knob.

* The menu may disappear on no signal or instable signal input.

* Menu setting is saved for each input mode. So the user should make selection on an appropriate input mode.

VIDEO
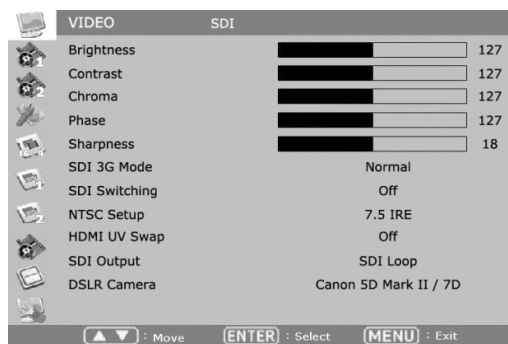
Brightness

Adjust brightness. Default: 127.

Contrast

Adjust contrast. Default: 127.

Chroma (Hue)

Adjust chroma. Default: 127.

Phase

Adjust phase. Default: 127.

Sharpness

Adjust sharpness. Default: 18.

SDI 3G Mode

Set this mode if the input is 3G HD SDI. SDI 3G mode support SMPTE standards listed below:

▸ A_MS1_YCbCr422_10

10

: 3G SDI Level-A Mapping Structure 1 – YCbCr 4:2:2/10 bit

▸ A_MS2_YCbCr444_10

: 3G SDI Level-A Mapping Structure 2 – YCbCr 4:4:4/10 bit

▸ A_MS2_RGB444_10

: 3G SDI Level-A Mapping Structure 2 – RGB 4:4:4/10 bit

▸ A_MS3_YCbCr444_12

: 3G SDI Level-A Mapping Structure 3 – YCbCr 4:4:4/12 bit

▸ A_MS3_RGB444_12

: 3G SDI Level-A Mapping Structure 3 – RGB 4:4:4/12 bit

▸ A_MS4_YCbCr422_12

: 3G SDI Level-A Mapping Structure 4 – YCbCr 4:2:2/12 bit

▸ B_MS1_YCbCr422_10

: 3G SDI Level-B Mapping Structure 1 – YCbCr 4:2:2/10 bit

▸ B_MS2_YCbCr444_10

: 3G SDI Level-B Mapping Structure 2 – YCbCr 4:4:4/10 bit

▸ B_MS2_RGB444_10

: 3G SDI Level-B Mapping Structure 2 – RGB 4:4:4/10 bit

▸ B_MS3_YCbCr444_12

: 3G SDI Level-B Mapping Structure 3 – YCbCr 4:4:4/12 bit

▸ B_MS3_RGB444_12

: 3G SDI Level-B Mapping Structure 3 – RGB 4:4:4/12 bit

▸ B_MS4_YCbCr422_12

: 3G SDI Level-B Mapping Structure 4 – YCbCr 4:2:2/12 bit

▸ B_2X_DS1_YCbCr422_10

: 3G SDI Level-B Data Stream 1 – YCbCr 4:2:2/10 bit, Dual Link SMPTE-372M

▸ B_2X_DS2_YCbCr422_10

: 3G SDI Level-B Data Stream 2 – YCbCr 4:2:2/10 bit, Dual Link SMPTE-372M

Especially for 3G Level B signals, the format should be set manually.
Also, be aware that the format information might be lost on power down.

SDI Switching

Set this mode for smooth SDI switching between two SDIs. (e.g. SDI 1 to SDI 2)

NTSC Setup

Select 0 IRE or 7.5 IRE. 7.5 IRE works on NTSC or SD YUV.

HDMI UV Swap

Sometimes UV signal might be opposite such input as PC RGB or such resolution as PC's. Turn this mode on to see correct color when the incorrect color displayed on this kind of input.

SDI Output

Sets SDI Output to either SDI loop-through or HDMI-to-SDI conversion out.

HDMI Output

Sets HDMI Output to either SDI loop-through or HDMI-to-SDI conversion out.

DSLR Camera

Set which DSLR camera you use for DSLR Zoom mode. DSLR Zoom mode can be set by pressing Zoom button in the front.

12
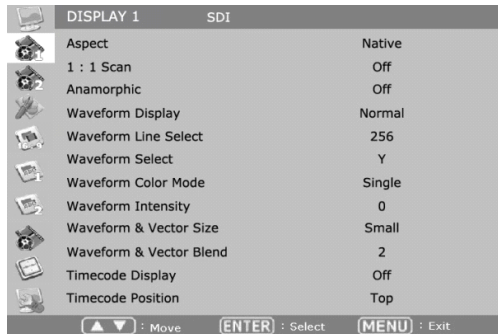
DISPLAY 1

Aspect

Set the aspect ratio of the screen. 16:9, 4:3, Native(Original) are selectable.

1:1 Scan

Set this on to display picture in 1:1 pixel mapping.

Anarmorphic

Set this mode to resize the screen to 3.56:1, 2.74:1, 2.59:1, 2.55:1, 2.40:1, 2.39:1, 2.35:1, 1.85:1, 1.75:1, 1.66:1, or 1.37:1.

Waveform Display

Select waveform display mode. Choose Normal to analyze whole screen, choose Line Select to analyze a specific line of the screen.

Waveform Line Select

Select the line when you select Line Select mode for Waveform display.

Waveform Color Mode

Choose either Single or Mixed.

Waveform Intensity

Set waveform color's intensity between 0~63.

WFM & Vector Size

Set Waveform and Vectorscope size among three kinds.

WFM & Vector Blend

Set transparency of Waveform and Vectorscope window between 0~6.

13

14

```
YCbCr
YCbCr is a digital color reproduction standard. Y is for luminance, Cb
is for blue strength, Cr is for red strength.
```

Timecode Display

Set this mode on to display timecode from SDI signal. Select the appropriate timecode that you wish to display among LTC (Longitudinal Time Code), VITC (Vertical Interval Time Code), DVITC (Digital Vertical Interval Time Code).

Timecode Position

Set Top or Bottom position for timecode.

DISPLAY 2

DISPLAY 2	SDI	
Exposure Range Check		Off
Y Range Max		940
Y Range Min		64
C Range Max		940
C Range Min		64
Blink Color		Red
Blink Time		1 sec
Focus Assist		Off
Focus Assist Color		Red
Focus Assist Level		20
False Color		Off

▲ ▼ : Move   ENTER : Select   MENU : Exit

Exposure Range Check (Video Range Check)

Checks Y, C level and displays over-exposed or under-exposed area on screen. The base value can be Y, Cb, or Cr.

Y Range Max / Min

Set Y range value for range check.

C Range Max / Min

Set C range value for range check.

Blink Color

The filled area color by range check can be either Black, Blue, Green or Red.

Blink Time

Set blinking time of the area between 1 to 5 seconds.

Focus Assist

Turns on Focus Assist mode. This mode can be set also by pressing Focus Assist button in front.

Focus Assist Level (Sensitivity)

The sensitivity of the focus assist function can be set between 0 to 48.

Focus Assist Color

Set brush color of focus assist mode among Blue, Green, and Red.

False Color

Shows pictures in specific colors as its luminance level other than the original

15

colors. Much exposed area is filled with red while little exposed area is purple.

* 10-bit, 12-bit Dithered gradient pattern might not be displayed
clearly in this mode.

COLOR

COLOR	SDI	
Dithering		Off
Auto Color Temperature		Off
Color Temperature		6500K

▲ ▼ : Move   [ENTER] : Select   [MENU] : Exit
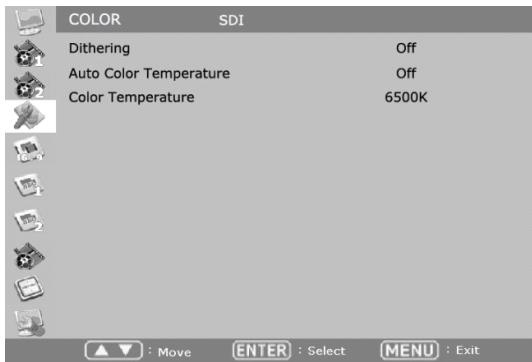
Dithering

Set this mode on to display gradient more smoothly.

Auto Color Temperature

Set this mode on to adjust color temperature by temperature change. Its output might incorrect on some harsh environment.

Color Temperature

VAR, 3200K, 5400K, 6500K, 9300K color temperatures are preset and selectable by user. On User mode, user can adjust RGB gain and bias. Adjusting on User mode is recommended to professional users.

17

MARKER

```
MARKER          SDI
Marker Ratio                    4 : 3
Center Marker                    On
Safety Area 16:9                88%
Safety Area 4:3                 88%
Marker Color                   White
Marker Mat                    Normal
Marker Thickness                 4
User Marker H1                   0
User Marker H2                   0
User Marker V1                   0
User Marker V2                   0

 [▲ ▼] : Move   [ENTER] : Select   [MENU] : Exit
```
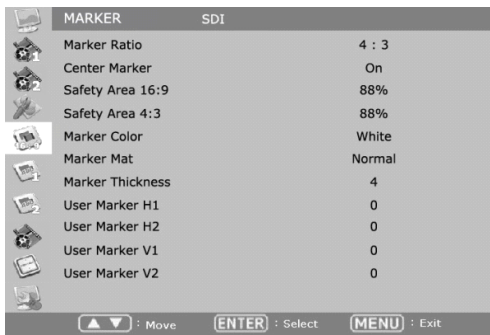
Marker Ratio

Select one of preset markers or user marker. To display marker, press Marker button in front of the monitor.

Center Marker

Set preference to display center marker or not.

Safety Area 16:9

Adjust size of the safety area when marker displayed on 16:9 screen.

Safety Area 4:3

Adjust size of the safety area when marker displayed on 4:3 screen.

Marker Color

Select marker's color among White, Red, Green, Blue, Gray and Black.

Marker Mat

Set how to display outside of the safety area. Normal, Half(Gray), Black are selectable.
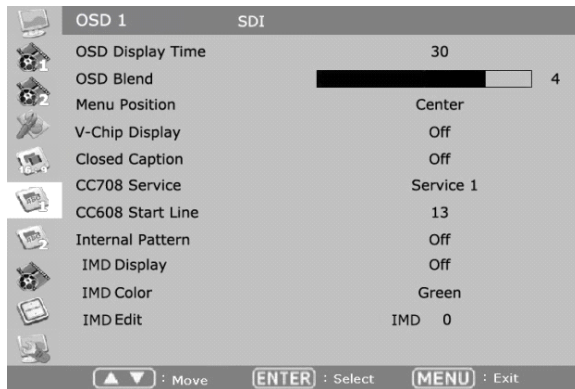
Marker Thickness

Set marker thickness between 1 to 10.

User Marker H1 / User Marker H2 / User Marker V1 / User Marker V2

Set user marker's position. H1 for left, H2 for right, V1 for top, V2 for bottom. The positions are saved as the selected marker name such as USER1.

18

OSD 1

OSD 1   SDI
OSD Display Time   30
OSD Blend   ▮▮▮▮▮▮▮▮   4
Menu Position   Center
V-Chip Display   Off
Closed Caption   Off
CC708 Service   Service 1
CC608 Start Line   13
Internal Pattern   Off
IMD Display   Off
IMD Color   Green
IMD Edit   IMD   0

[▲ ▼] : Move   [ENTER] : Select   [MENU] : Exit

OSD Display Time

Set OSD menu display time. Choose 0 for infinite.

OSD Blend

Set transparency of the menu between 0 to 5.

OSD Position

Set menu position among Left Top, Right Top, Left Bottom, Right Bottom and Center.

V-Chip

SD-SDI, Composite signal might contain V-Chip data. Turn this mode on to display V-Chip information on screen.

Closed Caption

Select one of 608 Line 21, 608 VANC, 608 Transcoded, 708 to display Closed Captions. In special condition such as menu display status, captions are not displayed.

CC708 Service

Select one of CC service as your preference.

Service 1: general captions.

Service 2: translated captions.

Service 3,4: not assigned.

CC608 StartLine

Display line of captions are selectable by user. (e.g. 13)

19

Internal Pattern

To test monitor display without signal, turn this mode on. Several patterns such as Color Bars, Blue, Green, Red, White and Black are selectable.

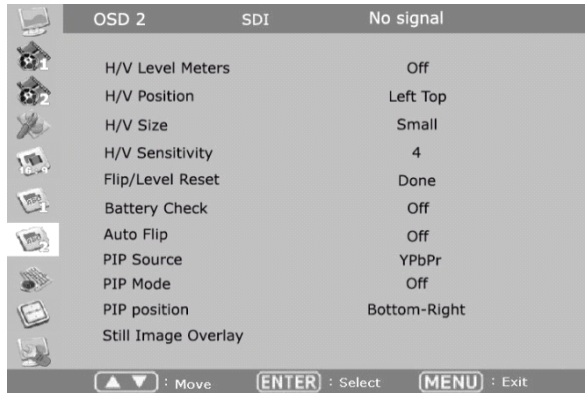### IMD Display

Set this mode on to display IMD text on screen.

IMD Color

Select IMD text color among Red, Green, and Amber.

IMD Edit

Set the IMD source ID to display on screen.

20

OSD 2

H/V Level Meters

Displays the horizontal and vertical angle on screen.

H/V Position

Arranges Level Meters' position.

H/V Size

Adjusts Level Meters' size.

H/V Sensitivity

Adjusts Level Meters' sensitivity.

Flip/Level Reset

Resets the flip and angle meters.

Battery Check

Turns on battery checker display.

Auto Flip

Sets Auto Flip on/off.

```
* If you use 'Still Image Overlay' feature often, please make sure
'Still Image Overlay' is turned off before using Auto Flip.
```

PIP Source (Analog & SDI)

Sets the source input for Picture in Picture function.

```
* Please note that only 1 Analog - 1 SDI combination can be displayed as
Picture-in-Picture.
```

PIP Mode

Selects PIP mode among Large PIP, Small PIP, Side by Side.

PIP Position

Sets PIP position.

Still Image Overlay (SDI)

Turns on this feature to overlays the stored picture. After it turned on, additional menus will be displayed as a new page on the screen like below.

To store a picture or for configuration, use these 4 menus appeared on the screen.

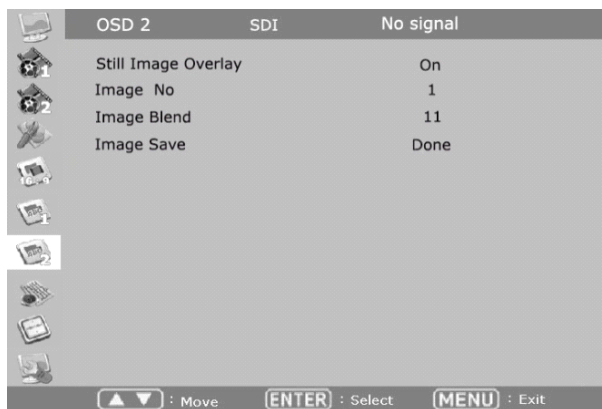* Please note that only SDI picture can be stored.

Image No.

User can save up to 4 pictures for Still Image Overlay. Set the image number from 1 to 4 on this menu.

Image Blend

Sets the image's transparency when it overlays on the screen.

Image Save

This menu is the trigger to save image. Select 'Apply' to save current screen to overlay it later.

22
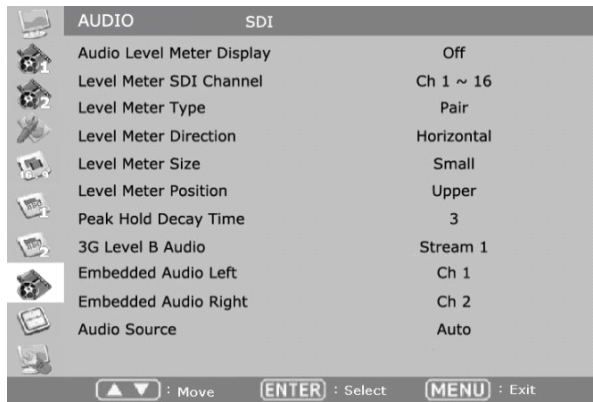
AUDIO

Audio Level Meter

Turns on/off audio level meters.

Level Meter SDI Channel

Set the audio channels to display.

Level Meter Type

Select one of two types: pair or group.

Level Meter Direction

Select one of two orientations : Horizontal or Vertical.

Level Meter Size

Select the size of the meters : Small or Large.

Level Meter Position

Select the position of the meters : Upper or Lower.

Peak Hold Decay Time

Set the decay time of the meters.

3G Level B Audio

Select one audio signals when there are two inputs.

Embedded Audio Left

Select audio channel for left (Ch 1 ~ 15)

23

Embedded Audio Right

Select audio channel for right (Ch 2 ~ 16)

Audio Source

Select audio source among Auto / SDI / Line In / HDMI

Audio Output

Select audio output among Left, Right, Left/Right.

GPI
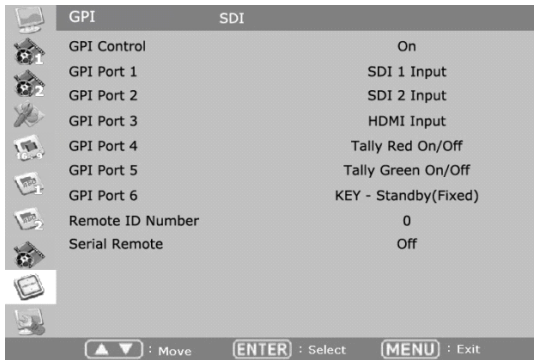
GPI Control

Turns on/off external monitor control function.

GPI Port 1,2,3,4,5,6

Assigns each GPI port's function. (e.g. SDI 1 input, HDMI input, Tally Red) See **EXTERNAL REMOTE CONTROLLING** section for details.

Remote ID Number

Assigns the ID for the monitor to control through serial port. 0 to 99 can be assigned.

Serial Remote

Turns serial remote function on. All front buttons are locked on this mode. To exit from this mode, press and hold Menu button for 3 seconds.

SYSTEM

SYSTEM	SDI	
Function 1		Audio Level Meter
Function 2		Time Code
Function 3		Exposure Range Check
Function 4		Freeze On/Off
Back Light		15
Front Button LED		On
Front Button Lock		Off
Update Firmware		No
Setup Load		Factory Default
Setup Save		User 1
Firmware Version		V 0 . 57 . 3
Operating Time		0 Hours

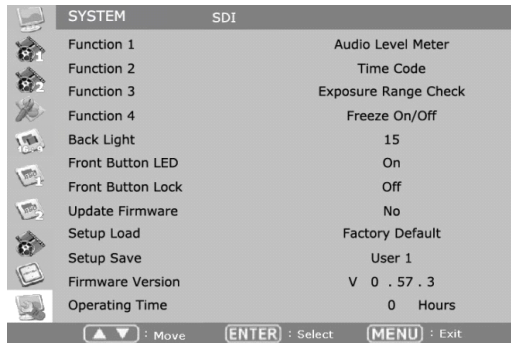▲ ▼ : Move   [ENTER] : Select   [MENU] : Exit

Function 1,2,3,4

Assigns a function to each function button. See **FRONT** section for detail.

Backlight

Set the backlight intensity from 0 to 40. An LCD panel requires more than 30 minutes to be settled to a new backlight value.

Front Button LED

Set front LEDs on/off status.

Font Button Lock

Locks front buttons not to work. Press and hold Menu button for 3 seconds to exit from this mode.

Update Firmware

Turns update mode on. Select Serial or USB port for update. After firmware update, the monitor should be turned off/turned on, and Factory Default should be loaded before use.

Setup Load

Load monitor settings from Factory Default, User 1/2/3/4.

Setup Save

Save current monitor setting to use later. 4 settings can be saved.

Firmware Version

This version number is required when you request for service.

26

Operating Time

This indicates total hours that the monitor operated.

27

External Remote Control

Connecting GPI Port(RJ-45)

Turning the monitor off is recommended before cable connection. Assignable functions are listed below.

Function Name	Description
SDI-1 Input	Switches the input to SDI-1
SDI-2 Input	Switches the input to SDI-2
HDMI Input	Switches the input to HDMI
YPbPr Input	Switches the input to YPbPr
CVBS-1 Input	Switches the input to CVBS-1
CVBS-2 Input	Switches the input to CVBS-2
CVBS-3 Input	Switches the input to CVBS-3
KEY-UP ▲	CURSOR UP on Menu Control.
KEY-DOWN ▼	CURSOR DOWN on Menu Control.
KEY- MENU	Menu On/Off
KEY-ENTER	Enter Button
Aspect	Aspect On/Off
1:1 Scan On/Off	1:1 SCAN Function On/Off
H/V Delay On/Off	H/V Delay Function On/Off
TC Display On/Off	TC Display On/Off
ALM Display On/Off	Audio Level Meters Display On/Off
Freeze On/Off	Freeze Frame On/Off
Front Button LED On/Off	Front Button LED On/Off.
Tally Red On/Off	Tally Red LED On/Off
Tally Green On/Off	Tally Green LED On/Off

Backlight

Set the backlight intensity from 0 to 40. An LCD panel requires more than 30 minutes to be settled to a new backlight value.

Front Button LED

Set front LEDs on/off status.

28

List of Compatible Video Formats (HDMI/Composite)

| NO | Signal Input Formats | INPUT | | | OUTPUT |
| | | Composite SD-YPbPr | HD-YPbPr/HDMI | | HDMI to SDI (Convert) |
			Normal	Convert	
1	NTSC	O	O	O	O
2	PAL	O	O	O	X
3	720*576/50i	X	O	O	O
4	720*480/59.94i	X	O	O	O
5	720*480/60i	X	O	O	O
6	720*576/50p	X	O	O	X
7	720*480/59.94p	X	O	O	O (480i)
6	720*480/60p	X	O	O	O (480i)
8	1280*720/23.98p	X	O	O	X
9	1280*720/24p	X	O	O	X
10	1280*720/25p	X	O	O	X
11	1280*720/29.97p	X	O	O	X
12	1280*720/30p	X	O	O	X
13	1280*720/50p	X	O	O	O
14	1280*720/59.94p	X	O	O	O
15	1280*720/60p	X	O	O	O
16	1920*1080/50i	X	O	O	O
17	1920*1080/59.94i	X	O	O	O
18	1920*1080/60i	X	O	O	O
19	1920*1080/23.98p	X	O	O	O
20	1920*1080/24p	X	O	O	O
21	1920*1080/25p	X	O	O	O
22	1920*1080/29.97p	X	O	O	O
23	1920*1080/30p	X	O	O	O
24	1920*1080/50p	X	O	O	O

| 25 | 1920*1080/59.94p | X | O | O | O |
| 26 | 1920*1080/60p | X | O | O | O |

List of Compatible Video Formats (SDI)

NO	Input Signal Formats	HD/SD-SDI			
		Single	3G YUV4:2:2	3G YUV4:4:4	3G RGB444
1	NTSC	√	-	-	-
2	PAL	√	-	-	-
3	525/60i (SD)	√	-	-	-
4	625/50i (SD)	√	-	-	-
5	720*480/59.94p	-	-	-	-
6	720*576/50p	-	-	-	-
7	1280*720/23.98p	-	-	-	-
9	1280*720/24p	-	-	-	-
9	1280*720/50p	√	-	√	√
10	1280*720/59.94p	√	-	√	√
11	1280*720/60p	√	-	√	√
12	1920*1035/59.94i	√	-	√	√
13	1920*1035/60i	√	-	√	√
14	1920*1080/50i	√	-	√	√
15	1920*1080/59.94i	√	-	√	√
16	1920*1080/60i	√	-	√	√
17	1920*1080/23.98p	√	-	√	√
18	1920*1080/23.98psf	√	-	√	√
19	1920*1080/24p	√	-	√	√
20	1920*1080/24psf	√	-	√	√
21	1920*1080/25p	√	-	√	√
22	1920*1080/25psf	√	-	√	√
23	1920*1080/29.97p	√	-	√	√
24	1920*1080/29.97psf	√	-	√	√
25	1920*1080/30p	√	-	√	√
26	1920*1080/30psf	√	-	√	√
27	1920*1080/50p	-	√	-	-
28	1920*1080/59.94p	-	√	-	-
29	1920*1080/60p	-	√	-	-

31

30	2048*1080/23.98p	√	-	-	√
31	2048*1080/23.98psf	√	-	-	√
32	2048*1080/24p	√	-	-	√
33	2048*1080/24psf	√	-	-	√
34	2048*1080/25p	-	-	-	√
35	2048*1080/25psf	-	-	-	√
36	2048*1080/29.97p	-	-	-	√
37	2048*1080/30p	-	-	-	√

Specifications

|		
Input	2 x BNC	HD/SD-SDI, 3G/1.485G/270M
	1 x HDMI	HDMI, (with HDCP v.1.1), 19pin Female
	3 x RCA	Analog(YPbPr/CVBS)
Output	1 x BNC	SDI Loop-through or HDMI-to-SDI Conversion Out
	1 x HDMI	HDMI (with HDCP v.1.1), 19-pin Female
Format	SMPTE 425M AB	1080p (60,59.94,50), Direct Mapping(MS1,2,3,4)
		2 x HD-SDI(3G), 2 x SMPTE 292M
	SMPTE 274M	1080i /60, 59.94, 50 /24sf, 23.98sf
		1080p /30, 29.97, 25, 24, 23.98
	SMPTE 296M	720p / 60, 59.94, 50
	SMPTE 260M	1035i / 60, 59.94
	SMPTE 259M,125M	480i / 60, 59.94
	ITU R-BT.656	576i / 50
	HDMI	up to 1080 / 60i
	Analog (Composite)	1.0Vp-p(with sync), NTSC/PAL
AUDIO	1 x Phone Jack In	Line In(Stereo)
	1 x Phone Jack Out	Headphone Out(Stereo)
	Speakers	0.5W, Mono
I/O Port	1x GPIO Port	TTL Level, RJ-45 port
	1x USB Port	for Firmware Update
	Tally Output Control	Sink Current 0.5A max, with RJ-45 port
LCD	Size	7.0"
	Resolution	1024 x 600
	Pixel Pitch	0.15 x 0.15 mm
	Color Depth	8 bits (6 bits + 2 bits FRC)
	Viewing Angle	R/L:170, U/D:170 degree
	Luminance of White	1.100 cd/m²
	Contrast	800 : 1
	Display Area (H x V)	153.6 x 90.0 mm (6.1 x 3.5 inches)
Operation Environment	Power Requirements	DC 7V ~ 24V, AC 100 - 230V (50Hz/60Hz)
	Power Consumption	18W
	Temperature	-10°C ~ 40°C
	Humidity	20% ~ 80% RH
Appearance	Weight	1.3kg (2.86 lbs), without stand
	Dimensions	210 x 151 x 78 mm (8.3 x 6.0 x 3.1 inches)
Accessories		Manual (CD), Cleaner, DC Adapter, AC Power Cord
Options		Acrylic Protector, Sun Hood, Pouch, DV Battery Mount, V-Mount, Anton Bauer Mount, D-Tap Power Cable, Stand

This specifications are subject to change without prior notice for
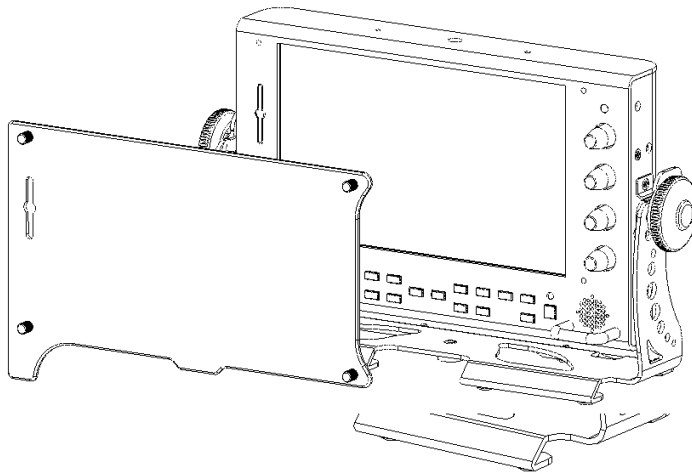product improvement.

Dimensions
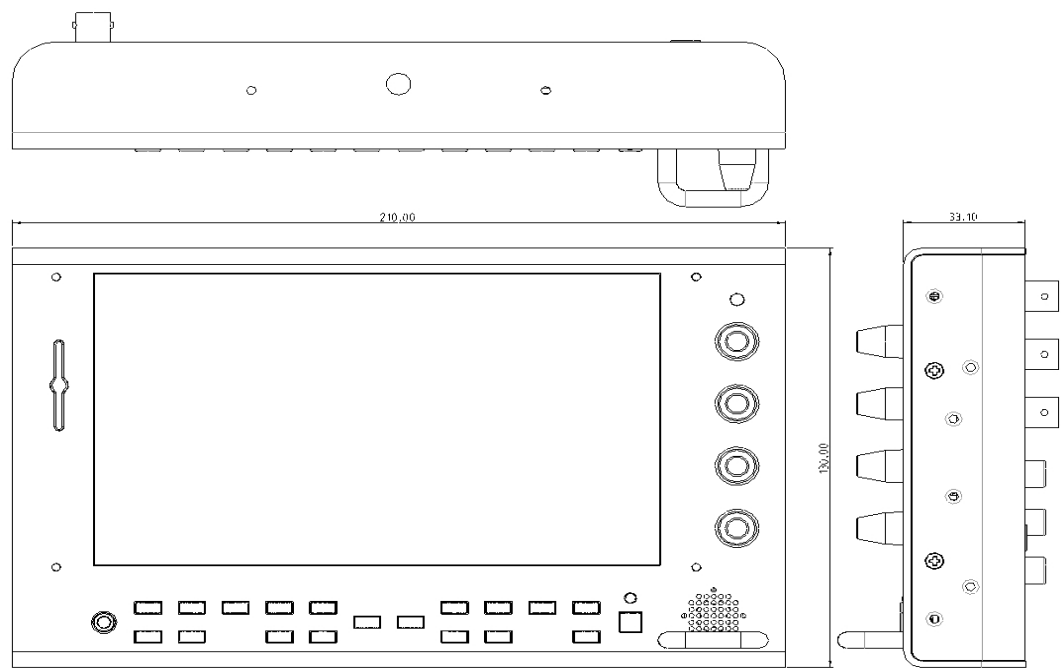
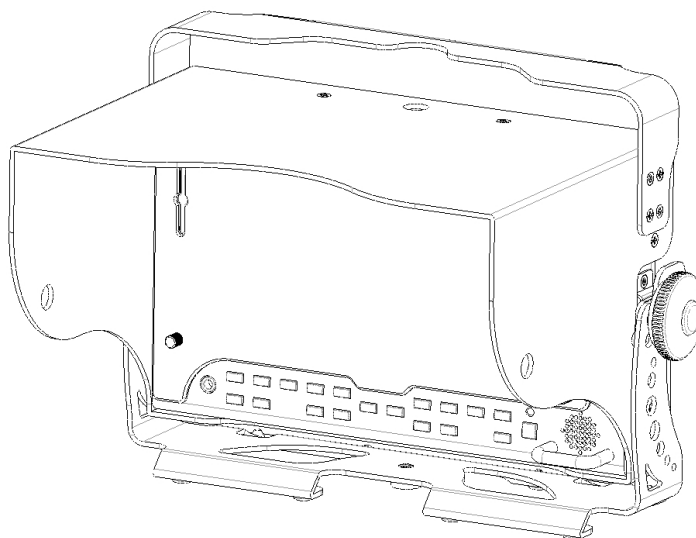| MODEL	Unit	W	H	D	Remark
FM-073SCH	mm	210.0	151.0	78.3	without stand
	inches	8.3	6.0	3.1	

35

Accessories
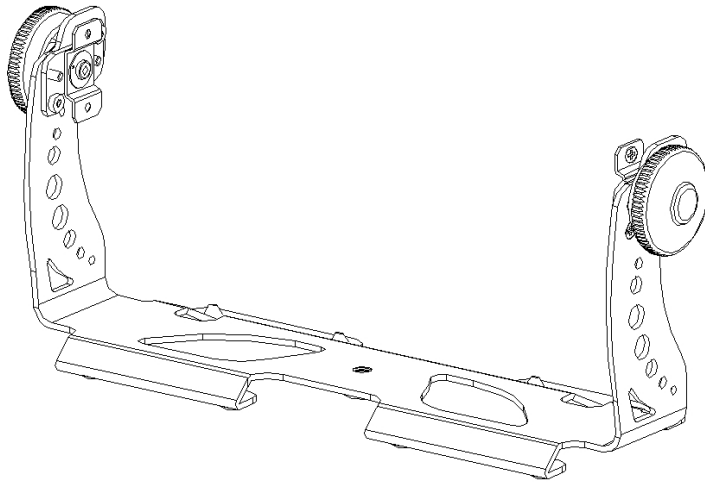
Stand

Acrylic Protector

Hood

36

Troubleshooting

Try these if you have trouble in using the monitor. Call for Service if you can't solve the problem even after you tried these solutions.

Symptom	Solution
Power isn't turned on	Check Connectivity of Power Cable between Outlet and the Monitor. Press and Hold Power button for more than one second. Try with Other Monitor or Electric Device using the same Power Cable. Check if battery voltage is above 7V when the monitor powered by battery.
Screen is Black and All Button Lights are On in startup process	Reconnect the Power and Restart the Monitor. (Call for Service if the Symptom appeared more than 3 times)
Screen is Black on Startup and there's neither BON Logo nor "No Signal" Display, but Buttons are Working	Reconnect the Power and Restart the Monitor. (Call for Service if the Symptom appeared more than 3 times)
There's a delay in BON Logo Display on Startup	It is normal and No Reaction Required.
BON Logo appeared on Startup, but No Screen Output when Input Signal Connected	Remove Input Cable and Check if "No Signal" appears on Screen. - restart the Monitor if you can't see "No Signal" - Make Monitor "Factory Default" and Try again and Try again - Check the Cable Connectivity - Try with Different Cable - Check the Input Format and Frequency - Try with Different Input Device. If successful, the Failed Input Device may Generate Non-Standard Signal (Please Inform Us its Model Name).
"No Signal" appears on the Screen	Check the Input Selection. Make Monitor "Factory Default" and Try again. Try with Different Input Cable. Check the Cable Connection. Check if the Input Format and Frequency is Supported. Try with Different Input Device. If successful, the Failed Input Device may Generate Non-Standard Signal (Please Inform Us its Model Name).

37

Strange Color on BON Logo on Startup	Reconnect the Power and Restart the Monitor. (Call for Service if the Symptom appeared more than 3 times)
the Startup Logo Color was ok but Strange Color on Active Screen	Make Monitor "Factory Default" and Try again. Select Test Pattern(Internal Pattern) in the menu and See if R,G,B Color is Correct. Check the Input Selection. Try with Different Cable. Check if Each Cable is correctly Connected when you use Component as Input.
Screen Position Mismatch	Make Monitor "Factory Default" and Try again. Reconnect the Power and Restart the Monitor. Try with Different Input Device. If successful, the Failed Input Device may Generate Non-Standard Signal (Please Inform Us its Model Name).
No Audio Output	Check if the Volume level is 0. Display the Audio Level Meters and See its output.
Colors look different between different models	Give your Monitor 1 hour warmup time. Because Different Panels have different Characteristics, Colors might look Different.
Colors look different between same models	Give your Monitor 1 hour warmup time. Same Panels are not exactly same but they have a tolerance range among them by the Panel Manufacturer, so Colors might look Different. * The tolerance range is in Panel Standard Document included in CD

38

Warranty Information

Free Service

If the product needs to be repaired in 12 months from the purchase.

Exceptions

- damage caused by accident, abuse, misuse, water, flood, fire, or other acts of nature or external causes
- damage caused by service performed by anyone who is not an authorized service provider
- damage to a product that has been modified or altered without the written permission of BON

Service to be Charged

If the product needs to be repaired after 12 months from the purchase.

Modification of Product

Dimensions, specifications or design of the product are subject to change without prior notice for product improvement.

Caution on Menu Operation

OSD Menu might be freezed or broken on very high-quality or complicated pictures input. In that case, turn off the power for 5 seconds and turn it on to make Menu works.

Caution for Monitor Placement

For long lifetime and proper operation of the monitor, all surface of the monitor should not be blocked by any material for ventilation.

BON ELECTRONICS

Corporate Headquarters

Tresebelle-Sky 2F, 1479 Gayang-2, Gangseo-gu, Seoul, South Korea

Research / Service Center

Vision Tower 7F, 1481 Gayang-2, Gangseo-gu, Seoul, South Korea

Telephone

+ 82 2 2659 0333

FAX

+ 82 2 2659 8133

Web

http://www.bon.co.kr

Email

salesbon@bon.co.kr

40