

Product Manual



Product Information

523.6mm

320.6mm

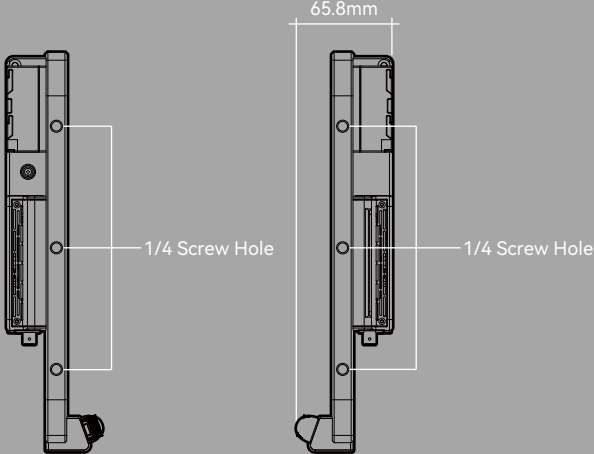
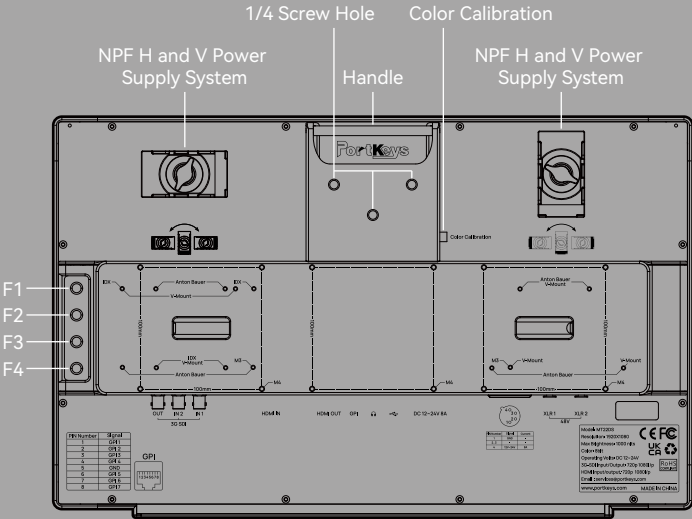
21.5"

Power Switch
F5 F6 F7 F8 PBP R90° MIRROR
HDMI SDI 1 SDI 2 Overlay Image
Capture Image Hyaline Image
Exit Menu Knob

XLR 2 48V XLR 1 48V DC 12~24V 8A DC 12~24V 8A
GPI HDMI OUT HDMI IN SDI IN 1 SDI IN 2 SDI OUT 1

1/4 Screw Hole

Video Source Switch & Flip



Basic Parameters

Screen Size	21.5"
Dimension:	523.6×320.6×65.8mm
Viewing Angle:	80 /80 /80 /70
Brightness:	1000nits
Resolution:	1920x1080
Contrast Ratio:	1000:1
Color Gamut:	Rec.709
Color Depth:	8bit
Weight:	5.8kg
Material:	Aluminum Alloy
Input Voltage:	DC 12~24V
Maximum Power:	60W
Fan:	Yes
Menu Language:	English / Simplified Chinese
Operating System:	Portkeys OS

Packing List

MT22DS Monitor	Power Cable 12V8A
M2.5Inner Allen Key	Crystal Dropping Glue Button
Folding Holder	Micro USB Flash Drive
Serial Communication to 5-pin Aviation Connector	

HDMI Input / Output Signal

1920×1080p@23.97Hz,24Hz,25Hz,29.97Hz,30Hz,50Hz,59.94Hz,60Hz

1920×1080psf@23.97Hz,24Hz,25Hz,29.97Hz,30Hz

1920×1080i@50Hz,59.94Hz,60Hz

1280×720p@50Hz,59.94Hz,60Hz

720×576p&720×576i@50Hz

720×480p&720×480i@50Hz,59.94Hz,60Hz

Interface

Video Input/Output	Input Interface: 3G SDI X 2、GPI、HDMI
	Output Interface: 3G SDI、HDMI
Signal Conversion	HDMI IN to SDI OUT、SDI IN to HDMI OUT、 Waveform OUT、3D LUT OUT
	Upgrade Firmware、Load LUT、Freeze-frame JPG Image Loading、Third-party JPG Image Loading、 JPG Instruction Manual Loading
Audio Input /Output	Input Interface: XLR 1、XLR 2 (48V Phantom)
	Output Interface: 3.5mm Headphone Jack
Power Input /Output	Input Interface: 4 Pin XLR 12~24V
	Output Interface: USB 5V、Wireless Video
	Transmission Power Supply Plate
Color Calibration Port	Color Calibration
Built-in Speaker	4Ω3W

Adaptable Battery Plate

V-mount Plate:	Sony V-mount
AB Mount Plate:	Anton Bauer Mount
IDX Plate:	Sony V-mount / Anton Bauer Mount

SDI Input / Output Signal

1920×1080p@50fps,59.94fps,60fps

1920×1080p@50Hz,59.94Hz,60Hz YUV422

1920×1080p@23.98Hz,24Hz,25Hz,29.94Hz,30Hz YUV444/YUV422

1920×1080psf@23.98Hz,24Hz,25Hz,29.97Hz,30Hz YUV444/YUV422

1920×1080i@50Hz,59.94Hz,60Hz YUV444/YUV422

1280×720p@50Hz,59.94Hz,60Hz YUV444/YUV422

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Operation Instruction

Brief: All operations of the MT22DS can only be accessed via external buttons.



(Menu Knob)

Introduction to External Button Operations on the Monitor

①

Use the "Knob" to select functions and adjust parameters;

Press the "Knob" to select parameters;

Scroll the "Knob" left or right to adjust parameters;

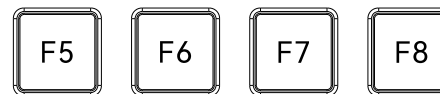
②

Rotate "Knob" left or right to adjust the volume

Button Introduction



(Buttons on the back)



(Front Buttons)

The above 8 buttons are custom function buttons. You can replace or adjust these functions in the "Software Settings" menu.

(Refer to picture 1)

Function Setup

Function 1	Peaking
Function 2	False Color
Function 3	Check Field
Function 4	Guides
Function 5	Waveform
Function 6	Audio Meters
Function 7	H2V Crop
Function 8	PBP(PIP)
GPI Waveform	RGB WF
Back	↩

(Picture 1)



When the MT22DS is connected to two or more signal sources, multiple signal source screens can be displayed simultaneously;
(This function is invalid when there is only one signal source; when two or three signals are connected, press this button to enter the multi-screen interface.)



Rotate the image by 90°;
When the "PBP" function is enabled, you can select an individual screen to rotate.



Mirror the image in four directions: left/right/up/down;
When the "PBP" function is enabled, you can select an individual screen to mirror using the "Video Source Switch" button.



Switch the signal source of the image through the button;
When the "PBP" function is enabled, you can use the "Video Source Switch" button to change the signal source for a selected screen.



When a U-disk is inserted, use this button to capture the current screen and save it to the U-disk.



When a U-disk is inserted, an image can be overlaid onto the current screen. The image can be obtained via "capture image" or manually added to the 'Capture' folder on the U-disk.

Note: The images must be in 16:9 1920x1080 JPG format and cannot exceed 1MB, or the overlay will invalid.



Press the button and then use the "Knob" to adjust the transparency of the image overlay.



Exit the menu or software function interface.

Multi-Screen Operation

Dual-screen

When two or three signals are connected, press the "PBP" button to enter the multi-screen interface. The "Signal Button" light will light up. (the monitor automatically recognizes the number of connected signals)



(PBP button)

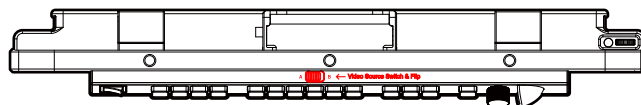


(Dual-screen interface)

The signal highlighted in blue indicates the current audio input.



(Triple-screen interface)



(Video Source Switch and Flip)

When the screen interface is in dual-screen mode, use the "Video Source Switch and Flip" button to select the A/B image for 90° rotation, mirroring, and other functions.



(Signal button)

When the screen interface is in triple-screen mode, you can turn off a signal by pressing any signal button (the signal button light will turn off, indicating the signal is off), entering dual-screen mode

Triple-screen

When three signals are connected, press the "PBP" button to enter the multi-screen interface. The "Signal Button" light will light up. (the monitor automatically recognizes the number of connected signals)



(PBP button)



(Triple-screen interface)

In the triple-screen interface, press the "R 90°" button or the "Mirror" button, and the three screens will change synchronously.

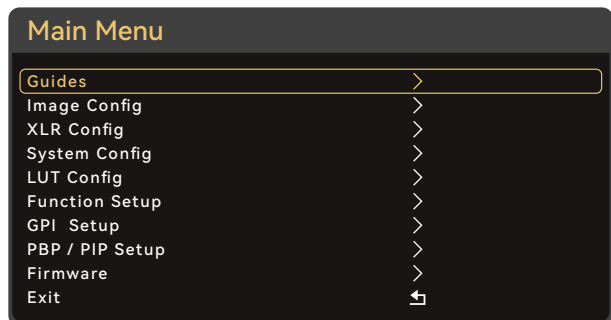


(Triple screen - Rotate 90°)



(Triple screen - Mirror)

Menu Introduction



Bring up the
main menu



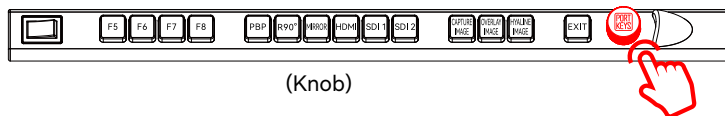
Press the exit button,
complete the adjustment

Main Menu

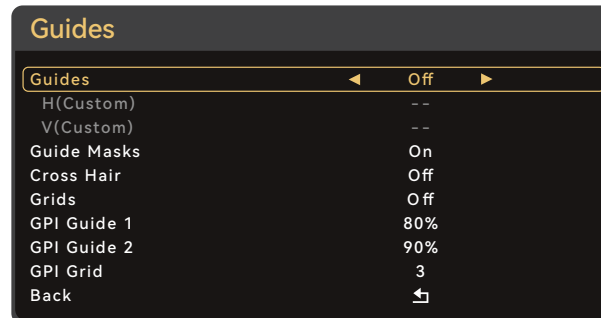
Use the "Knob" to bring up the main menu interface.

The main menu includes settings for:

"Guides", "Image Config", "XLR Config", "System Config", "LUT Config",
"Function Settings", "GPI Settings", "PBP", and "Firmware"



Guides



Guides:

Off / 80% / 90% / 1:1 / 16:9 / 9:16 / 15:9 / 4:3 /
1.5:1 / 1.85:1 / 2:1 / 2.35:1 / 2.39:1 / Custom



H(Custom):

1~100% (Adjustable when the Guides is set to "Custom")

V(Custom) :

1~100% (Adjustable when the Guides is set to "Custom")

Guide Masks:

On / Off

Cross Hair:

On / Off

Grids:

Off / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9

Image Config

GPI Guide 1:

Off / 80% / 90% / 1:1 / 16:9 / 9:16 / 15:9 / 4:3 / 1.5:1 / 1.85:1 /
2:1 / 2.35:1 / 2.39:1 / Custom

GPI Guide 2:

Off / 80% / 90% / 1:1 / 16:9 / 9:16 / 15:9 / 4:3 / 1.5:1 / 1.85:1 /
2:1 / 2.35:1 / 2.39:1 / Custom

GPI Grid:

1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9

Image Config

Brightness	50
Contrast	50
Chroma	50
Sharpness	3
Tint	50
Color Temperature	6500K
Backlight	10
Anamorphic	1X
GPI Anamorphic	1.33X
Back	↩

Brightness:

0~100

Sharpness:

0~10



Contrast:

0~100

Tint:

0~100

Chroma:

0~100

Color Temperature:

5600K / 6500K / 7500K / 9300K / Manual

Backlight:

1~10

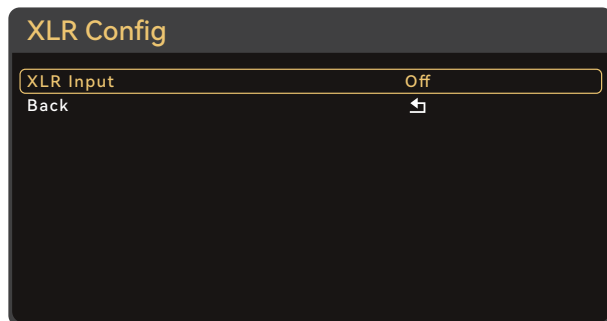
Anamorphic:

1X / 1.33X / 1.42X / 1.5X / 1.6X / 1.66X / 1.85X / 2X / 2.35X / User

GPI Anamorphic:

1X / 1.33X / 1.42X / 1.5X / 1.6X / 1.66X / 1.85X / 2X / 2.35X / User

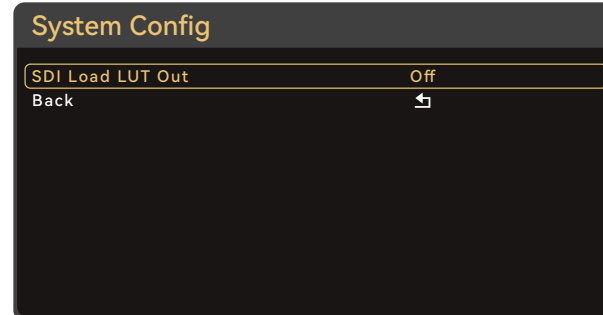
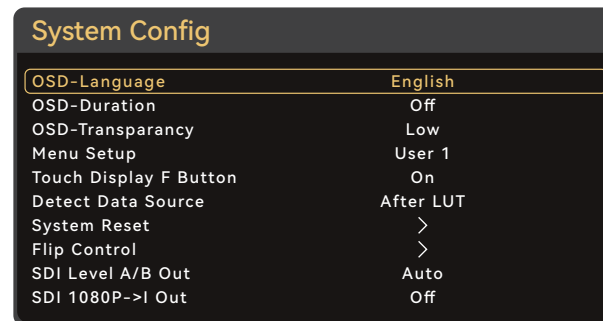
XLR Config



XLR Input:

On / Off

System Config



OSD-Language:

Simplified Chinese / English

OSD-Duration

Off / 5 Sec / 10 Sec / 15 Sec / 20 Sec / 25 Sec / 30 Sec

OSD-Transparency:

Off / Low / Medium / High

Menu Setup:

User 1 / User 2 / User 3 / User 4 / User 5

Touch Display F Button:

On / Off

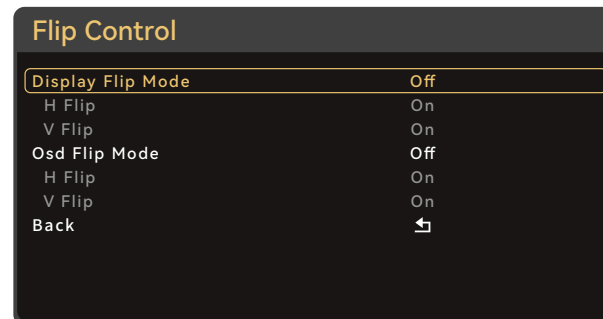
Detect Data Source:

Before LUT / After LUT

System Reset:

According to the popup, LUT reset operations can be performed.
(Refer to picture 2)

Flip Control:



Display Flip Mode:

On / Off

Osd Flip Mode:

On / Off

H Flip:

On / Off

H Flip:

On / Off

V Flip:

On / Off

V Flip:

On / Off

SDI Level A/B Out:

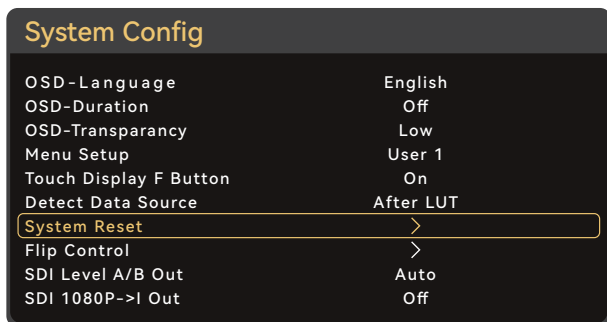
Auto / Level A / Level B

SDI 1080P->I:

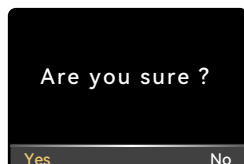
On / Off

SDI Load LUT Out:

On / Off

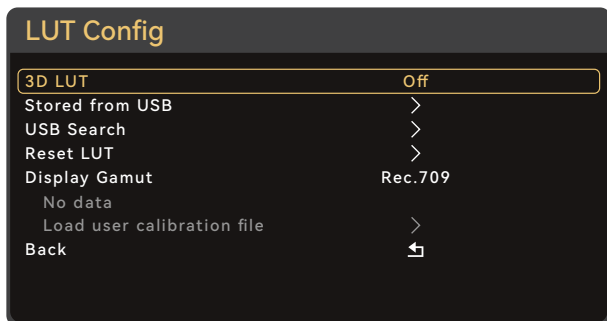


(Press to confirm)



(Picture 2)

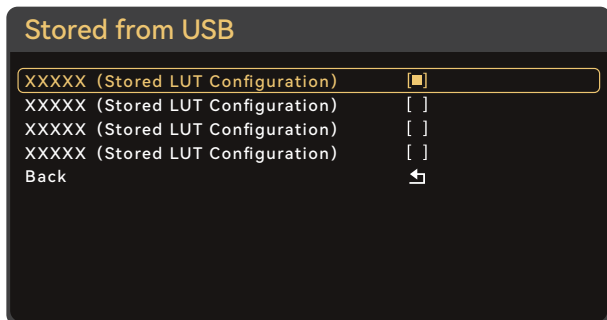
LUT Config



3D LUT:

On (Null) / Off

Stored from USB:

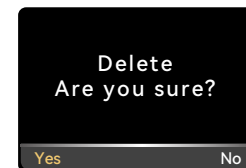


Select a file name, and press the "Knob" to load the LUT.

To delete the LUT file, long press the "Knob" exceeds three seconds, According to the popup, LUT file deletion operations can be performed. (Refer to picture 3)

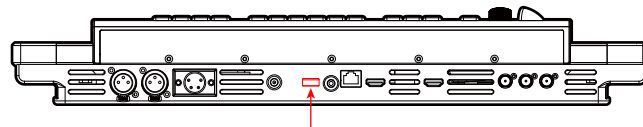


(long press exceeds three seconds)



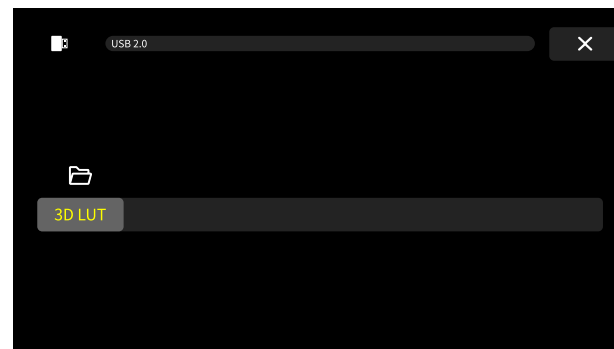
(Picture 3)

Stored from USB:

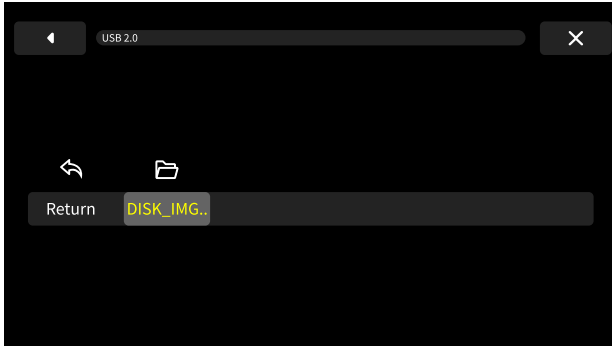


(USB Interface)

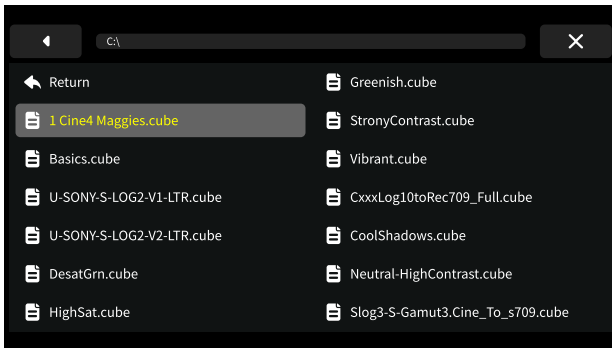
Save the LUT file (XXXXX.cube) to the root directory of the U-disk, then insert the U-disk containing the LUT file into the USB port of the MT22DS.



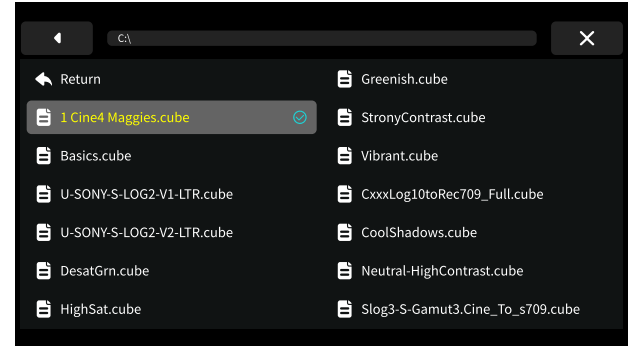
Use the "Knob" to find the "USB Search" interface in the "LUT Config".



Select the U-disk name option to enter the LUT file browsing interface. (Refer to picture 4)



(Picture 4)

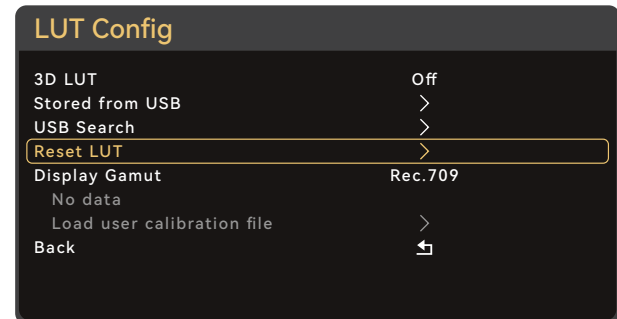


Press the "Knob". When the selected box shows the "✔", the LUT is loaded and saved to the "User Storage" interface.

Note: LUT files support repeated storage. If you want to delete them, please enter the user storage interface. LUT file format is .Cube, supporting 16/17/32/33/64/65 precision (LUT_3D_SIZE)

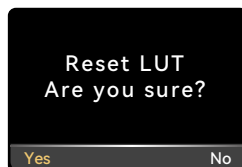
Reset LUT:

According to the popup, LUT reset operations can be performed . (Refer to picture 5)





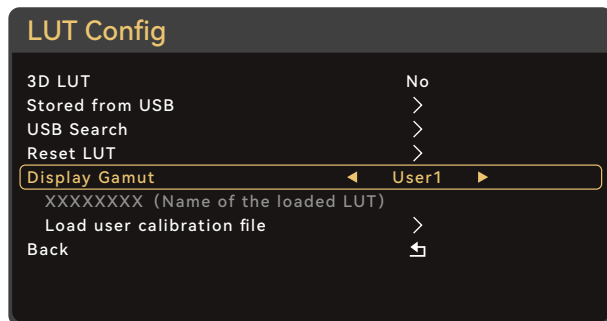
(Press to confirm)



(Picture 5)

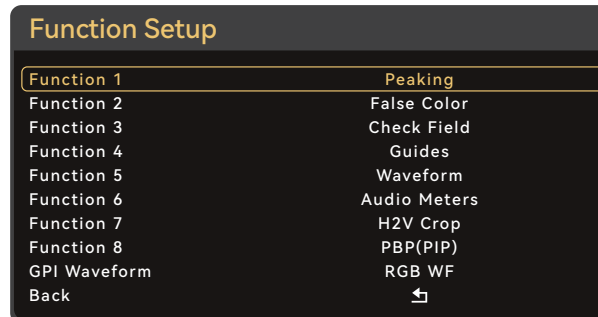
Display Gamut:

Bypass / Rec.709 / User 1 / User 2



When the color gamut is set to "User 1" or "User 2," you can load LUT files in the "Load User Calibration File" option (the loading steps are the same as the "USB Search" function). The name of the loaded file will be displayed below the "Color Gamut" option.

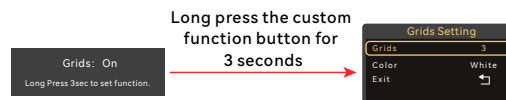
Function Setup



Software Function

*Peaking	*Audio Meters	Input SDI 2
False Color	3D LUT	Input HDMI
*Zebra	*Time Code	Check Field*
*Underscan	H2V Crop	*Guides*
Waveform	PBP(PIP)	*Cross Hair
*Rectangle Crop	Input SDI 1	*Grids*

Note: Set functions in the custom function keys (F1-F8).
Long press the custom function key (F1-F8) for 3 seconds to bring up the parameters settings box.



Note: Continuously pressing the custom function button can adjust the corresponding function parameter.

Peaking Setting

Peaking Setting

Factor	◀ ▶
Color	Red
Style	Colour
Grayscale Level	100%
Frame	>
Masks	On
Exit	

Peaking Setting → Factor

Sensitivity	◀ 1 ▶
Peak Thresh	30
Brightness	0
Contrast	0
Thickness	10
Back	↩

Sensitivity:

1-10

Contrast:

-100 - +100

Peak Thresh:

0-100

Thickness:

1-10

Brightness:

-100 - +100

Color:

Red / Green / Blue / White

Style:

Colour / Grayscale / Colour (Edge Enhance)

Grayscale Level:

0% / 50 / 100%

Peaking Setting → Frame

X Start	◀ 0% ▶
Y Start	0%
Wide	100%
Height	100%
Reset	>
Back	↩

X Start:

0%-99%

Y Start:

0%-99%

Wide:

1%-100%

Height:

1%-100%

Reset:

Press the "Knob" to reset the Peaking Frame

Masks:

On / Off

False Color Setting

False Color Setting		
Underexposure	◀	-1 ▶
Overexposure	◀	101 ▶
IRE Indication	◀	On ▶
Exit		

Underexposure("User mode" is adjustable):

-7 - 15

Overexposure("User mode" is adjustable):

85-110

IRE Indication:

On / Off

Zebra Setting

Zebra Setting	
Zebra	◀ On ▶
Area Option	High
Enable	On
IRE	100
Range	--
Color	Red
Exit	

Zebra:

On / Off

Area Option:

Low / Medium / High

Enable:

On / Off

IRE:

-7 - 109

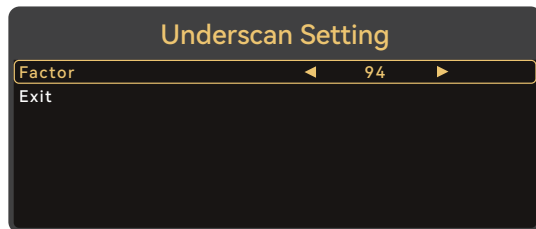
Range (Adjustable when the "Area Option" is set to "Medium") :

±0 - ±30

Color:

White / Red / Green / Blue

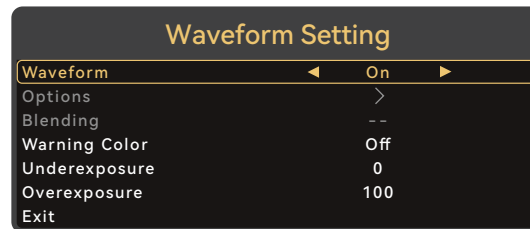
Underscan Setting



Factor:

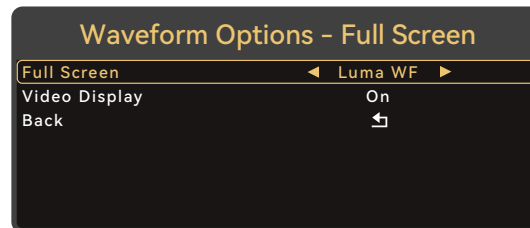
50-100

Waveform Setting



Waveform:

Off / Full Screen / Four Screen / All Types / User Mode



Full Screen:

Luma WF / RGB WF / VectorScope / Luma HIS / RGB HIS

Video Display:

On / Off

Waveform Options - User Mode

Luma Waveform	◀ ▶
RGB Waveform	>
VectorScope	>
Luma Histogram	>
RGB Histogram	>
Back	↶

Luma Waveform

Luma Waveform	◀ On ▶
Position	L+B
Back	↶

Luma Waveform:

On / Off

Position:

L+T / M+T / R+T / L+C / R+C / L+B / M+B / R+B

RGB Waveform

RGB Waveform	◀ On ▶
Position	R+B
Back	↶

RGB Waveform:

On / Off

Position:

L+T / M+T / R+T / L+C / R+C / L+B / M+B / R+B

VectorScope

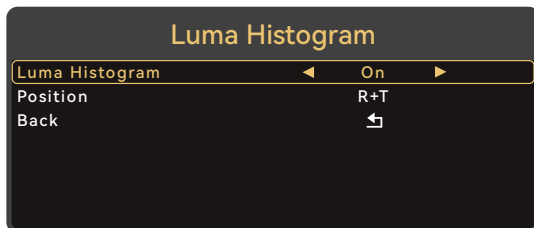
VectorScope	◀ On ▶
Position	M+B
Back	↶

VectorScope:

On / Off

Position:

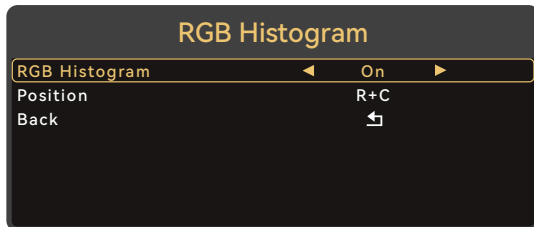
L+T / M+T / R+T / L+C / R+C / L+B / M+B / R+B

**Luma Histogram:**

On / Off

Position:

L+T / M+T / R+T / L+C / R+C / L+B / M+B / R+B

**RGB Histogram:**

On / Off

Position:

L+T / M+T / R+T / L+C / R+C / L+B / M+B / R+B

Blending ("Fullscreen" or "User Mode" adjustable) :

Off / Low / Medium / High

Warning Color:

On / Off

Underexposure:

-7 - 50

Overexposure:

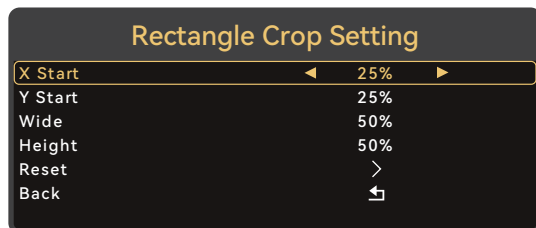
50-100

Rectangle Crop Setting



Rectangle Crop:

On / Off



X Start:

0%-99%

Y Start:

0%-99%

Wide:

1%-100%

Height:

1%-100%

Reset:

Press the "Knob" to reset Rectangle Crop

Audio Meters Setting



Audio Meters:

On / Off

Audio Channel:

2 Channel / 8 Channel

Position:

Top / Division / Bottom

Time Code Setting

Time Code Setting	
Time Code	◀ On ▶
Position	L+T
Exit	

Time Code:

No / Off

Position:

L+T / M+T / R+T / L+C / R+C / L+B / M+B / R+B

Guides Setting

Guides Setting	
Guides	◀ 80% ▶
H (Custom)	--
V (Custom)	--
Color	White
Thickness	2
Guide Masks	On
Exit	

Guides :

Off / 80% / 90% / 1:1 / 16:9 / 9:16 / 15:9 / 4:3 / 1.5:1 / 1.85:1 / 2:1 / 2.35:1 / 2.39:1 / Custom

H (Custom) :

1~100% (Adjustable when the Guides is set to "Custom")

V (Custom) :

1~100% (Adjustable when the Guides is set to "Custom")

Color:

White / Red / Green/ Blue / Black

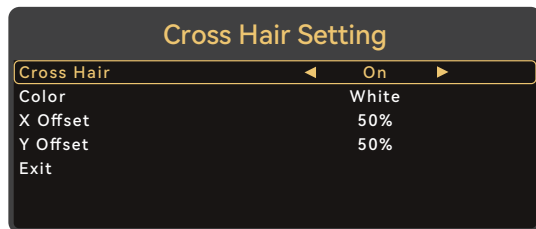
Thickness:

0-50

Guide Masks:

On / Off

Cross Hair Setting



Cross Hair Setting	
Cross Hair	◀ On ▶
Color	White
X Offset	50%
Y Offset	50%
Exit	

Cross Hair:

On / Off

Color:

White / Red / Green / Blue / Black

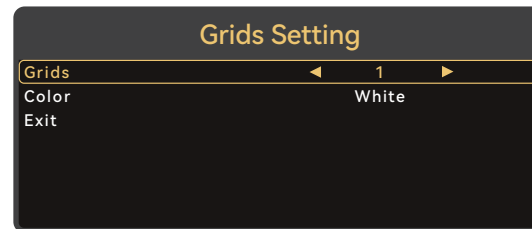
X Offset:

0%-100%

Y Offset:

0%-100%

Grids Setting



Grids Setting	
Grids	◀ 1 ▶
Color	White
Exit	

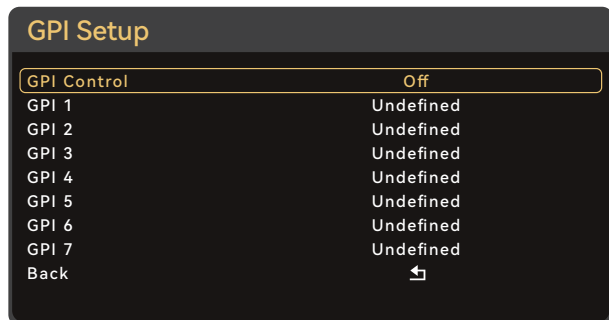
Grids:

Off / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9

Color:

White / Red / Green / Blue / Black

GPI Setup



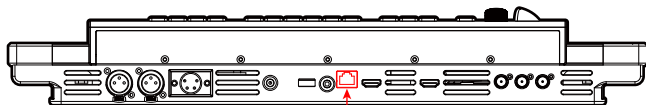
GPI Control:

On / Off

GPI 1 / 2 / 3 / 4 / 5 / 6 / 7:

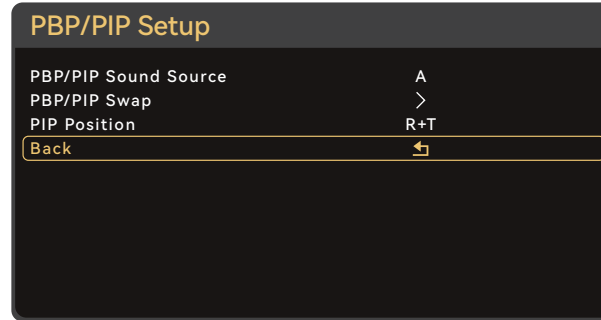
Use the "Knob" to switch software functions.

Guide 1	Input SDI 2	Y [Tally]	Mono [CheckF]	Zebra
Guide 2	Input HDMI	Underscan	3D LUT	Audio Meters
Cross Hair	Anamorphic	Red [CheckF]	Waveform	Time Code
Grid	R [Tally]	Green [CheckF]	False Color	Rectangle Crop
Input SDI 1	G [Tally]	Blue [CheckF]	Peaking	Backlight



(GPI Interface)

PBP/PIP Setup



PBP/PIP Sound Source:

A / B / C

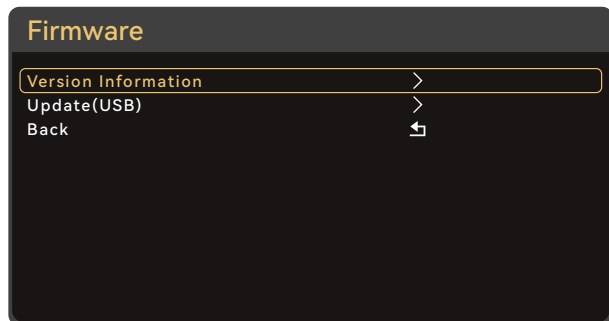
PBP/PIP Swap:

In dual-screen mode, use the "knob" to switch the screens left and right.

PIP Position:

R+T / L+B / R+B / L+T

Firmware



Version Information:

Check the firmware version according to the popup window.(Refer to picture 6)

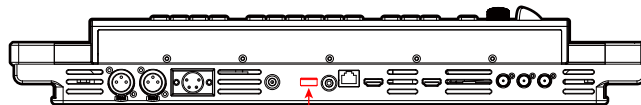


(Press to confirm)



(Picture 6)

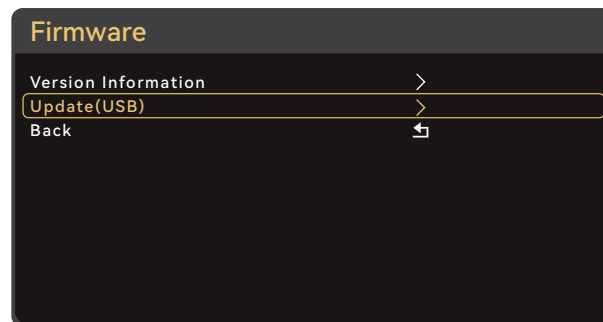
Update(USB)



(USB Interface)

Save the upgrade file (MT22DS.bin) to the root directory of the U-disk, then insert the U-disk into the USB port of the MT22DS.

Use the "Knob" to find the "Software Upgrade (USB)" option in the "Firmware" section to upgrade the firmware. (Refer to picture 7)



(Press to confirm)



(Picture 7)