

MURIDEO® User Manual

MU-GAX-8K

48 Gbps Generator and Analyzer



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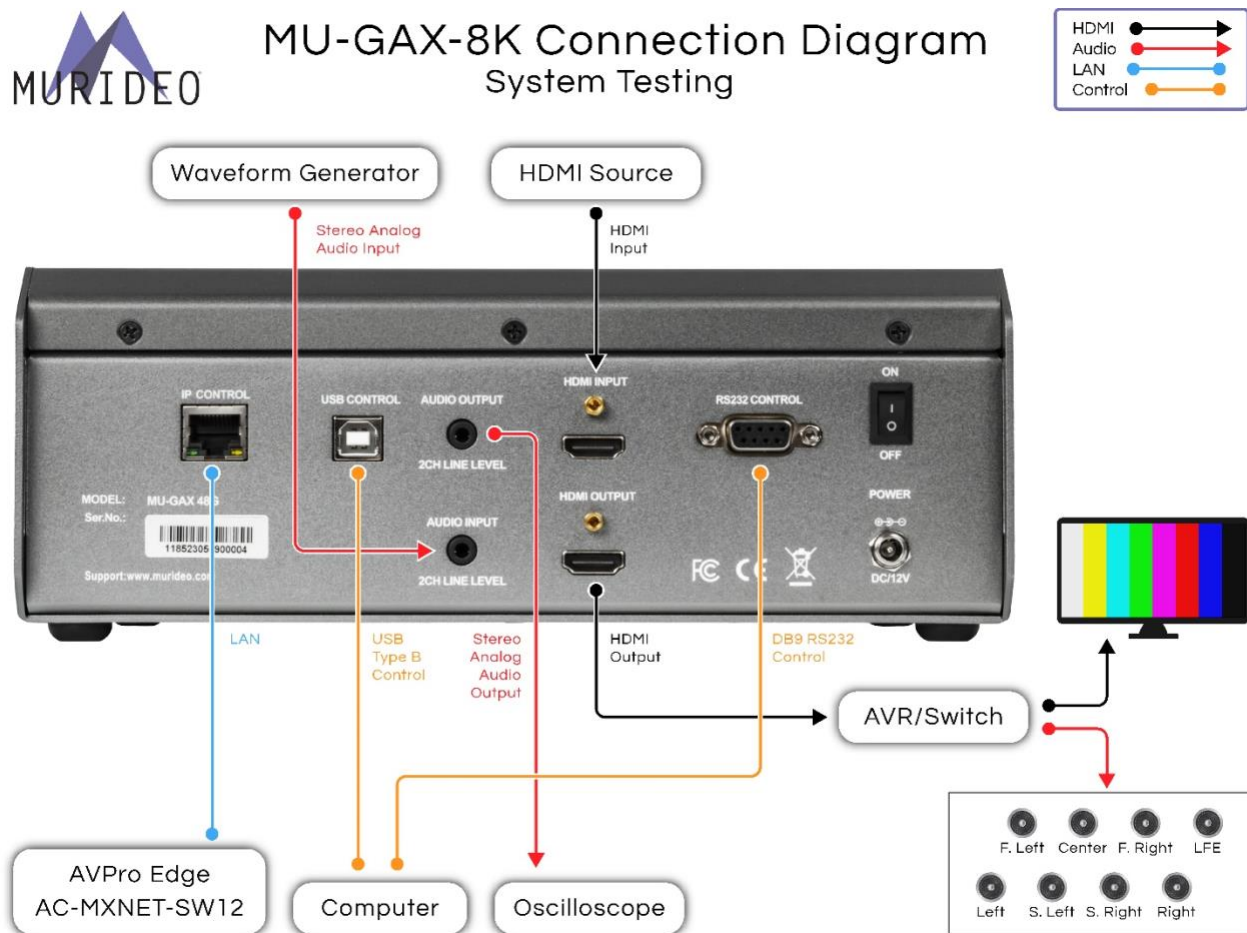
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Introduction

The Murideo MU-GAX-8K is a single-chassis, industrial-grade, benchtop 8K HDMI 2.1b full 48 Gbps signal generator and analyzer HDMI testing platform featuring Display Stream Compression 1.2, developed for the manufacturing segment that designs, installs, and maintains components or communication systems that incorporate HDMI electronics and protocols.

Scientifically accurate and constructed to laboratory-grade standards, the MU-GAX-8K is a high-performance HDMI test and development tool with DSC support from 9 Gbps to 48 Gbps. Manual Fixed Rate Link lane assignment and selectable DSC enable simultaneous testing for bandwidth and compression.

Comprehensive HDMI InfoFrame signal data construction and analysis is possible for audio clock regeneration N and CTS values, HDR metadata, HDR byte extraction and pixel data interpretation, HDMI Video Identification Code mapping, plus Auxiliary Video Information and Source Product Description analysis. Hybrid Log Gamma is supported, and there are eight user HDR metadata memory slots.



Features

- Extended Range FRL6-48 Gbps 8K/60 fps Bandwidth Capability
- Support for Display Stream Compression 1.2b, Including HDR and HLG
- Up to 8-Channel LPCM Audio Analysis with Companion Volume Unit Meter
- Seven provided EDIDs and 10 User EDID Memory Slots; Eight User HDR Metadata Slots
- Laboratory-grade Industrial Build Quality

Product Overview

Whats in the box

MU-GAX-8K

1 x Power Supply

Specifications

Video Output	
Video Resolutions	Up to 8K/60 fps, 4:2:0 (4K/120 fps, 4:4:4)
DCI Resolutions	Up to DCI 4K (4096x2160 60 fps)
VESA Resolutions	Up to 1920x1200 60 fps
HDR Formats	4:2:0, 4:2:2, 4:4:4 (10-, 12-bit Deep Color) HDR10 and HLG
Chroma Subsampling	4:2:0, 4:2:2, 4:4:4
Deep Color	Up to 12-bit
Audio	
Audio Formats Supported HDMI	Up to LPCM 7.1 CH
Audio Formats Supported Analog TRS	PCM 2.0 CH
Other	
Bandwidth	48 Gbps (FRL6)
VESA Display Stream Compression 1.2a	Up to 48 Gbps (FRL6)
HDCP	HDCP 2.3 and earlier
Control	
Ports	LAN, DB-9, USB 2.0 Type-B, Keypad
HTTP GUI	Yes
Ports	
HDMI Source	Type A
HDMI SINK	Type A
LAN HTTP GUI	RJ45
Audio Input	Analog 3.5 mm TRS
Audio Output	Analog 3.5 mm TRS
RS232/ISP	DB-9 or USB 2.0 Type-B
Environmental	
Operating Temperature	23°F to 125°F (-5°C to 51°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Humidity Range	5% to 90% RH (No Condensation)
Power	
Power Consumption	36 watts Max
Power Supply	Input: 100-240 VAC ~ 50/60Hz Output: 12 VDC @ 5A

Front Panel Overview



1 - Generator Indicator Lights

- HPD - Hot Plug Detect is received on the HDMI Output Port
- HDCP - HDCP is being generated on the HDMI Output Port

2 - Analyzer Indicator Lights

- STATUS - HDMI Video/Audio is being received on the HDMI Input Port
- FRL - HDMI 2.1 Fixed Rate Link is being received on the HDMI Input Port

3 - Signal Generator Buttons

- 8K -** Press to jump directly to 8K UHD output timings
- » Use the Up or Down arrows to navigate to a desired timing
 - Press OK to select an 8K timing
 - » Press the BACK button to return to the menu, or
 - » Press the HOME button to view the Generator/Analyzer Split Screen

- 4K -** Press to jump directly to 4K UHD output timings
- » Use the Up or Down arrows to navigate to a desired timing
 - Press OK to select a 4K timing

- 4K DCI -**
- Press once more to toggle 4K DCI timings
 - » Use the Up or Down arrows to navigate to a desired 4K DCI timing
 - Press OK to select a 4K DCI timing
 - » Press the BACK button to return to the menu, or
 - » Press the HOME button to view the Generator/Analyzer Split Screen

- HD -** Press to jump directly to HD and Full HD output timings
- » Use the Up or Down arrows to navigate to a desired timing
 - Press OK to select a timing
 - » Press the BACK button to return to the menu, or
 - » Press HOME to view the Generator/Analyzer Split Screen

- Pattern -** Press to jump directly to the Pattern Select Menu
- » Use the Up, Down, Left, or Right arrows to navigate to desired test pattern
 - Press OK to select a pattern
 - » Press the BACK button to return to the menu, or
 - » Press the HOME button to view the Generator/Analyzer Split Screen

- DSC -** Press to jump directly to the HDMI 2.1 FRL/DSC Menu
- » Press the Up or Down arrows to navigate to a desired FRL rate or TDMS
 - Press OK to select a FRL rate or TDMS
 - » Press the BACK button to return to the menu, or
 - » Press the HOME button to view the Generator/Analyzer Split Screen

- HDR -** Press to jump directly to the HDR Output Menu
- » Use the Up or Down arrows to navigate to the desired HDR format • Press OK to select an HDR format
 - » Press the BACK button to return to the menu, or
 - » Press the HOME button to view the Generator/Analyzer Split Screen

3 - Signal Generator Buttons - Cont'd

HDCP - Press to jump directly to the HDCP Output Menu

- » Press the Up or Down arrows to navigate to the desired HDCP format, or to turn HDCP off
 - Press OK to select
- » Press the BACK button to return to the menu, or
- » Press the HOME button to view the Generator/Analyzer Split Screen

SINK INFO - Press to display EDID information from the sink device connected to the HDMI Output Port

4 - Signal Analyzer Buttons - Use these buttons to navigate to Signal Analyzer Functions

MONITOR - Press to view the incoming signal detected at the HDMI Input Port on the front panel display screen to 4K output timings

- » Use the Up or Down arrows to navigate to the desired timing
 - Press OK to select

SIGNAL

INFORMATION - Press to display the incoming Audio and Video information at the HDMI Input Port

EDID - Press to display the EDID Selection Menu

ERROR RATE - Press to display the Error and Signal Loss Menu

5 - Menu Navigation

ARROW

BUTTONS - These are the primary buttons for menu navigation

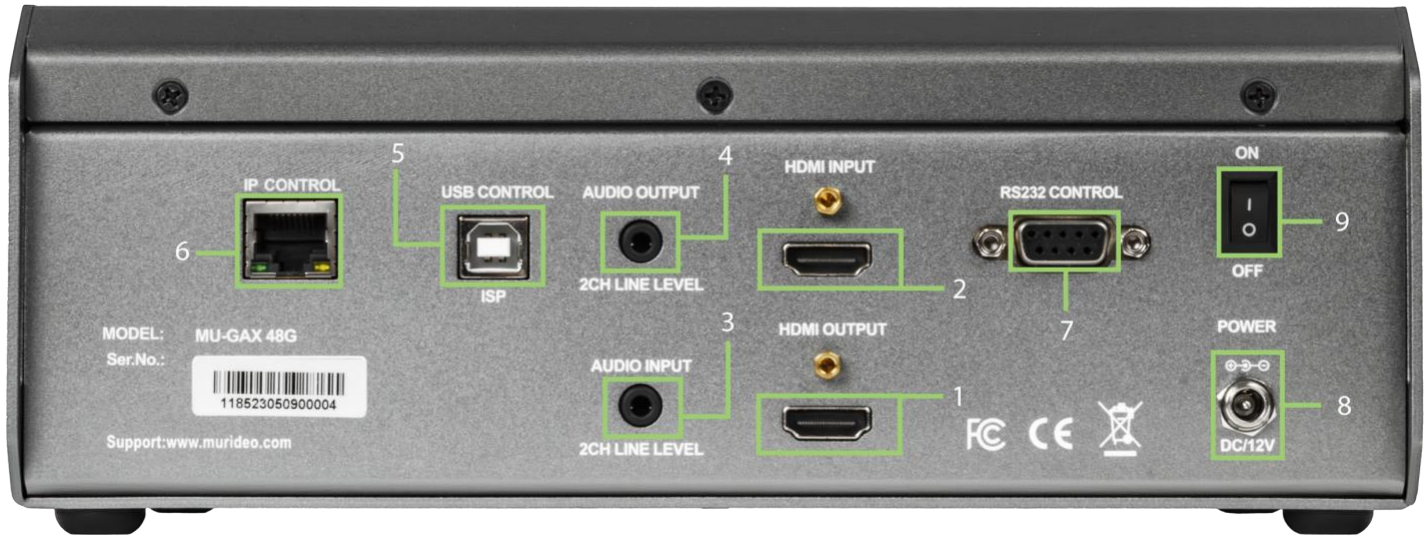
- » Use the Up or Down arrows to page through video test patterns on the HOME screen

OK - Press this button after you have highlighted your menu item to confirm your selection.

HOME - Press this button to return to the SG/SA Home Combo Screen

BACK - Press this button to return to the previous menu or exit

Rear Panel Overview



Connections

1. HDMI Output
 - Connect a known, working HDMI cable from the MU-GAX-8K HDMI Output to the device undergoing testing

2. HDMI Input
 - Connect a known, working HDMI cable from the device undergoing testing to the MU-GAX-8K HDMI Input

3. Audio Input
 - 2-Channel Line Level External Audio Input
 - 3.5 mm TRS input for connection of an external audio source to the MU-GAX-8K for audio test tones or audio clips.

4. Audio Output
 - Channel Line Level Audio Output
 - 3.5mm TRS Output for connecting the MU-GAX-8K to an external audio playback device.

Control Ports

The MU-GAX-8K has multiple format connections to control the MU-GAX-8K remotely, or to facilitate firmware updates.

5 - RS-232 Control (USB 2.0)

- Use a USB 2.0 Type-B data cable to connect the MU-GAX-8K to a computer. The default baud rate is 115200. Once connected, the unit is controllable via RS-232. This connection can be used for any of the MU-GAX-8K software packages.

6 - IP Control

- Use an Ethernet cable to connect the MU-GAX-8K to a network for access to the HTTP UI. Note: To work properly the computer and the MU-GAX-8K must be on the same network. The default IP address is 192.168.1.239 and may be changed in the System Setup Menu (available in the Signal Generator Menu).

7 - RS232 Control (DB9)

- Use a DB-9 cable to connect the MU-GAX-8K to a serial controller. The default baud rate is 115200. Once connected, the unit is controllable via RS-232. This connection can be used for any of the MU-GAX-8K software packages.

Power

8 - 12 VDC/3A

- Connect the MU-GAX-8K included power supply unit. **Note:** Only use the included power supply.

9 - Power Switch

- Power the MU-GAX-8K ON (up position) or OFF (down position)

Using the MU-GAX-8K

Murideo recommends taking time to become familiar navigating the MU-GAX-8K menu architecture prior to first use.

1. Verify the MU-GAX-8K is powered on using the rear panel switch.
2. Connect a high-performance HDMI cable between the MU-GAX-8K HDMI OUTPUT (generator) port and the HDMI INPUT (analyzer)port.
3. The Home Screen is the MU-GAX-8K default menu when the unit is powered on. Pressing the HOME button at any time will return the display to Home Screen status. Press SG or SA to select the function the MU-GAX-8K will perform.
 - SG - Signal Generator
 - SA - Signal Analyzer

For the following example, press the SG button. The screen will change to SG SETTING.

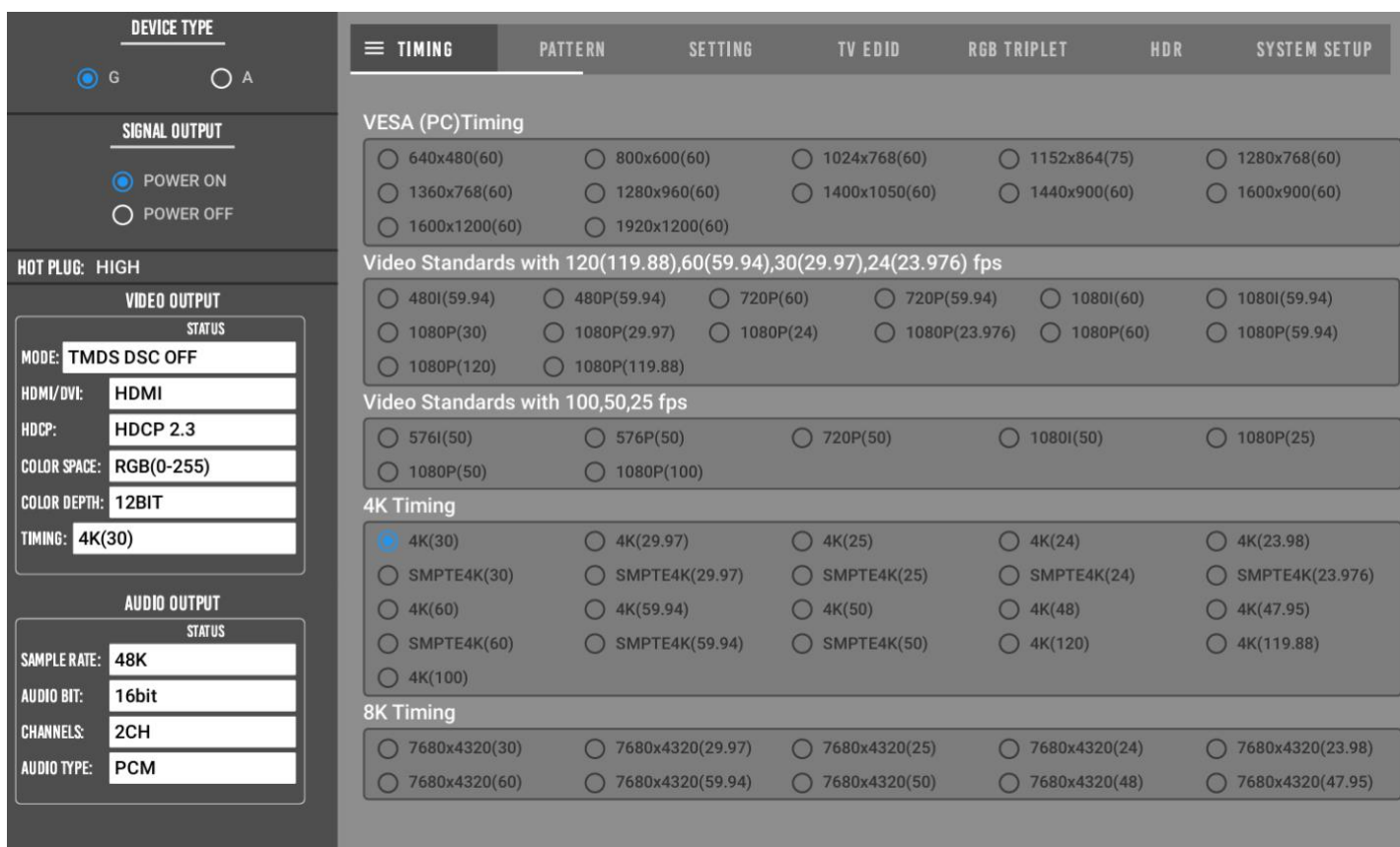
4. Under SG SETTING, the Up or Down arrow buttons navigate through the category of Menu selections listed in the left panel half of the display screen.
At the top, the TIMING & RESOLUTION menu will be highlighted in blue, signifying it as the currently selected menu option.
5. Press the GREEN OK button.
6. On the left panel of the display screen, TIMING & RESOLUTION is no longer highlighted in blue and the lettering has changed to white. In the right panel of the display screen, under OPTIONS, note that 8K TIMING has become highlighted in ORANGE, and the lettering has changed to white.
Note: that when powered up for the first time, HD TIMING is the default. Use the Up or Down arrows to navigate to a different timing option. With 8K TIMING highlighted, pressing OK once more changes the display to a full width 8K TIMING screen. Use the Up or Down arrows to navigate to the desired video standard and resolution.
7. Pressing the BACK button returns to each previous selection, and then to the main SG Menu panel.
8. Use the Down arrow button to navigate to and highlight the PATTERN SELECT Menu.
9. Press the OK button.
10. The display screen will change to the full-width Pattern Select sub-screen and a layout depicting available pattern choices. The Down arrow navigates to additional patterns.
11. Use the Up / Down / Left / Right arrow buttons to navigate to a pattern for generation. Press the BACK button to return to the SG SETTING Menu screen, or the HOME button to return to the Home Screen.

Signal Generator

Pressing the SG button calls up the Signal Generator Settings menu. It contains the following options for generated video signals:

- TIMING & RESOLUTION
- COLOR SPACE
- BT 2020 SETTINGS
- COLOR DEPTH
- FRL / DSC SETTINGS
- HDMI / DVI SETUP
- HDR SETTING
- PATTERN SELECT
- HDCP SETTING
- SG EDID INFO
- AUDIO SETTING
- SYSTEM SETUP

TIMING & RESOLUTION:



The screenshot displays the 'TIMING' menu with the following sections:

- DEVICE TYPE:** G (selected), A
- SIGNAL OUTPUT:** POWER ON (selected), POWER OFF
- HOT PLUG:** HIGH
- VIDEO OUTPUT:**
 - MODE: TMDS DSC OFF
 - HDMI/DVI: HDMI
 - HDCP: HDCP 2.3
 - COLOR SPACE: RGB(0-255)
 - COLOR DEPTH: 12BIT
 - TIMING: 4K(30)
- AUDIO OUTPUT:**
 - SAMPLE RATE: 48K
 - AUDIO BIT: 16bit
 - CHANNELS: 2CH
 - AUDIO TYPE: PCM
- TIMING Menu Options:**
 - VESA (PC) Timing:** 640x480(60), 800x600(60), 1024x768(60), 1152x864(75), 1280x768(60), 1360x768(60), 1280x960(60), 1400x1050(60), 1440x900(60), 1600x900(60), 1600x1200(60), 1920x1200(60)
 - Video Standards with 120(119.88),60(59.94),30(29.97),24(23.976) fps:** 480i(59.94), 480P(59.94), 720P(60), 720P(59.94), 1080i(60), 1080i(59.94), 1080P(30), 1080P(29.97), 1080P(24), 1080P(23.976), 1080P(60), 1080P(59.94), 1080P(120), 1080P(119.88)
 - Video Standards with 100,50,25 fps:** 576i(50), 576P(50), 720P(50), 1080i(50), 1080P(25), 1080P(50), 1080P(100)
 - 4K Timing:** 4K(30) (selected), 4K(29.97), 4K(25), 4K(24), 4K(23.98), SMPTE4K(30), SMPTE4K(29.97), SMPTE4K(25), SMPTE4K(24), SMPTE4K(23.976), 4K(60), 4K(59.94), 4K(50), 4K(48), 4K(47.95), SMPTE4K(60), SMPTE4K(59.94), SMPTE4K(50), 4K(120), 4K(119.88), 4K(100)
 - 8K Timing:** 7680x4320(30), 7680x4320(29.97), 7680x4320(25), 7680x4320(24), 7680x4320(23.98), 7680x4320(60), 7680x4320(59.94), 7680x4320(50), 7680x4320(48), 7680x4320(47.95)

Related menus facilitate selection of the resolution and frame rate (frequency) of the generated video signal. They provide the following options:

- 8K TIMING
- 4K TIMING
- 4K DCI TIMING (Press 4K button to toggle between 4K and 4K DCI timing)
- HD TIMING
- VESA TIMING (Available in IP or USB GUI Only)
- SD TIMING (Available in IP or USB GUI Only)

PATTERN SELECT:

Select one of 36 Test Patterns

DEVICE TYPE
TIMING
PATTERN
SETTING
TV EDID
RGB TRIPLET
HDR
SYSTEM SETUP

DEVICE TYPE

G A

SIGNAL OUTPUT

POWER ON
 POWER OFF

HOT PLUG: HIGH

VIDEO OUTPUT

STATUS

MODE: **TMDS DSC OFF**

HDMI/DM: **HDMI**

HDCP: **HDCP 2.3**

COLOR SPACE: **RGB(0-255)**

COLOR DEPTH: **12BIT**

TIMING: **4K(30)**

AUDIO OUTPUT

STATUS









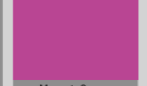

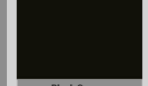

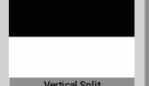






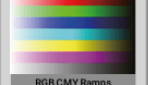
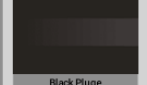
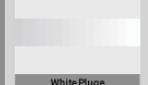
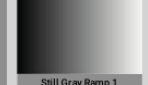
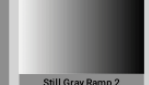



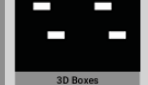




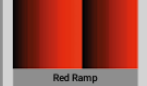
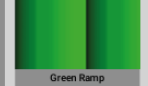
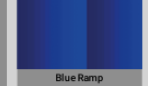

SAMPLE RATE: **48K**

AUDIO BIT: **16bit**

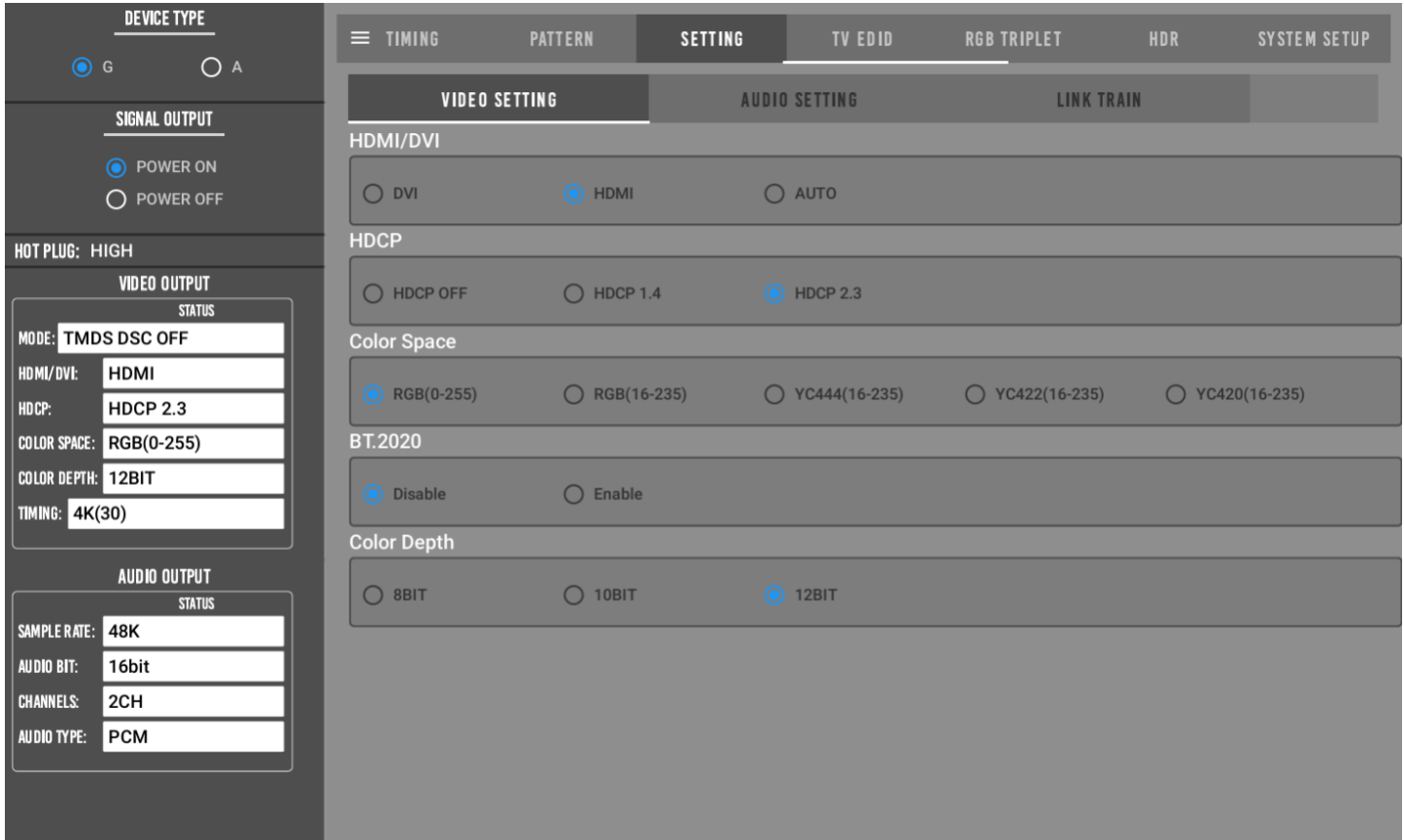
CHANNELS: **2CH**

AUDIO TYPE: **PCM**

FPGA

 100% Color Bars	 75% Color Bars	 8 Step Gray Bars	 16 Step Gray Bars	 Red Screen	 Green Screen
 Blue Screen	 Cyan Screen	 Magenta Screen	 Yellow Screen	 Black Screen	 White Screen
 Vertical Split	 Horizontal Split	 Multiburst Ver.	 Multiburst Hor.	 Quarter Block 1	 Quarter Block 2
 Alternate W.B.	 RGB CMY Ramps	 Black Pluge	 White Pluge	 Still Gray Ramp 1	 Still Gray Ramp 2
 Simple Bars	 Border Lines	 Window	 3D Boxes	 Line V.Scroll	 Line H.Scroll
 A/V Sync	 Gray Ramp	 Red Ramp	 Green Ramp	 Blue Ramp	 Moving Ball

Video Settings:



HDMI / DVI SETUP - Used to set signal type for the HDMI OUTPUT port

- DVI - Sets output to DVI (RGB 4:4:4)
- HDMI - Sets output to HDMI (RGB/YUV)
- AUTO - Based on the EDID of the connected device

HDCP SETTING - Set the encryption type for the HDMI Output of the MU-GAX-8K

- HDCP OFF
- HDCP 1.4
- HDCP 2.3 (with HDCP 2.2 Fallback)

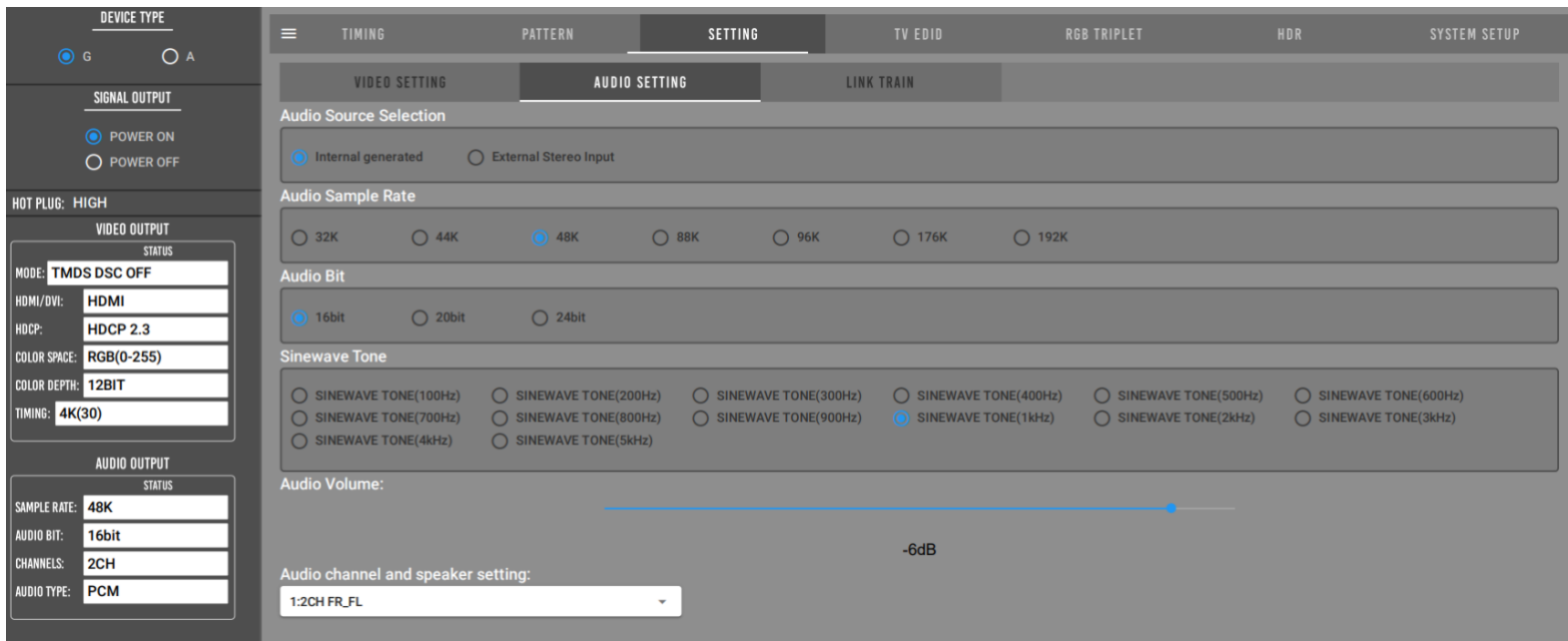
COLOR SPACE - Select the desired color space of the generated signal

BT 2020 SETTINGS - Enable or Disable BT 2020

COLOR DEPTH - Select color bit depth of the generated signal

AUDIO SETTING:

Select the Desired HDMI Audio Source



The screenshot shows the following settings in the AUDIO SETTING menu:

- Audio Source Selection:** Internal generated (selected), External Stereo Input
- Audio Sample Rate:** 32K, 44K, 48K (selected), 88K, 96K, 176K, 192K
- Audio Bit:** 16bit (selected), 20bit, 24bit
- Sinewave Tone:** SINEWAVE TONE(100Hz), SINEWAVE TONE(200Hz), SINEWAVE TONE(300Hz), SINEWAVE TONE(400Hz), SINEWAVE TONE(500Hz), SINEWAVE TONE(600Hz), SINEWAVE TONE(700Hz), SINEWAVE TONE(800Hz), SINEWAVE TONE(900Hz), SINEWAVE TONE(1kHz) (selected), SINEWAVE TONE(2kHz), SINEWAVE TONE(3kHz)
- Audio Volume:** -6dB
- Audio channel and speaker setting:** 1:2CH FR_FL

- **PCM AUDIO**
 - Audio Sampling Rate
 - Audio Bit Depth
 - Sine Wave Tone (Hz)
 - Audio Volume (dBFS)
 - Channel Config
- **EXT. ANALOG L/R INPUT**

FRL / DSC SETTINGS:

Select the desired Fixed Rate Link Trained Data Rate or enable Display Stream Compression

SG EDID INFO:

Displays the manufacturer's listed capabilities for the HDMI Sink Device connected to the MU-GAX-8K HDMI Output port

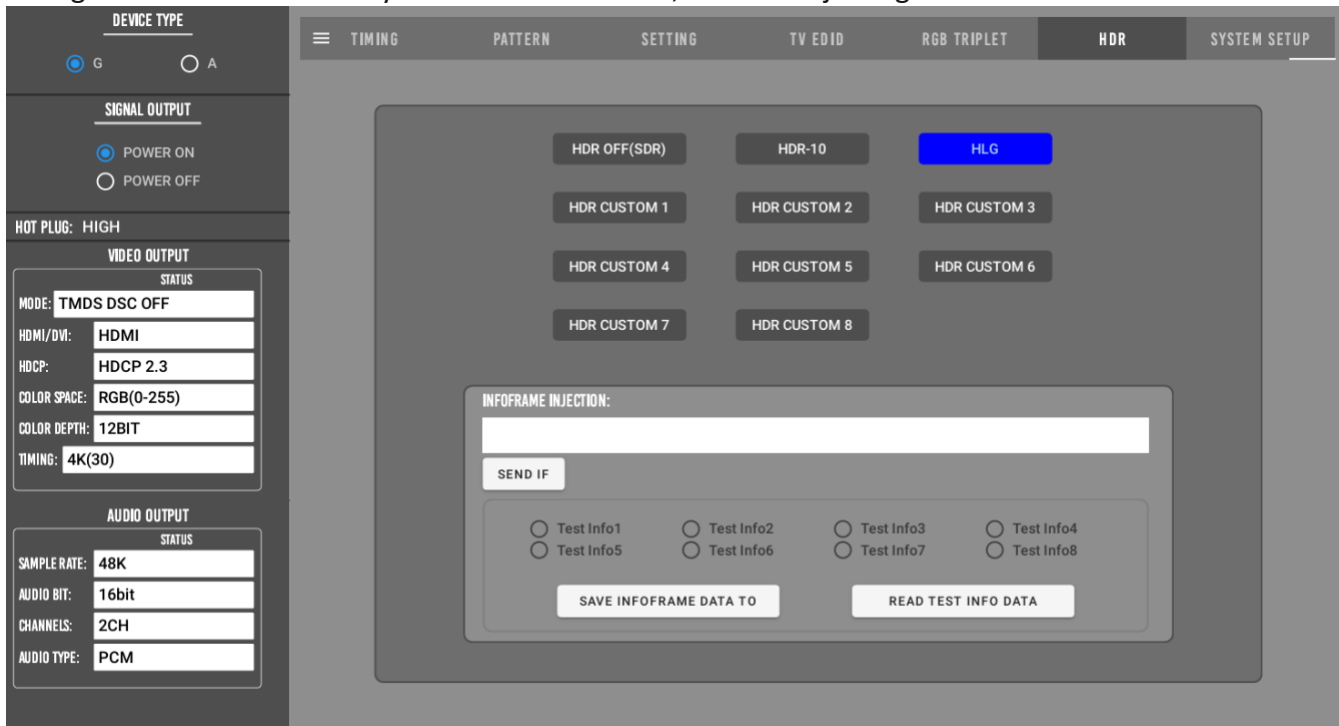
RGB Triplet:

Use this menu to create a custom window test pattern.



HDR SETTING:

Change HDR metadata for any of the FPGA Patterns, and test injecting info-frame data.



SYSTEM SETUP:



General device setup and MU-GAX-8K management options, including:

(Use any arrow key to advance the selection cursor)

- IP Management
 - DHCP On / Off
- FIRMWARE INFO
- FAN CONTROL
- Update Firmware
- Reboot
- RESET SG SETTINGS OR SA SETTINGS
 - **Factory Defaults Signal Generator**
 - » Resolution – 1920x1080p60 (RGB 4:4:4) 8-bit
 - » Pattern – 100% Color Bars
 - » Audio – PCM 48KHz – 2.0CH
 - **Factory Defaults Signal Analyzer**
 - » EDID – FRL_48G_8K_2CH_HDR_DSC
 - » SA Volume – 25%

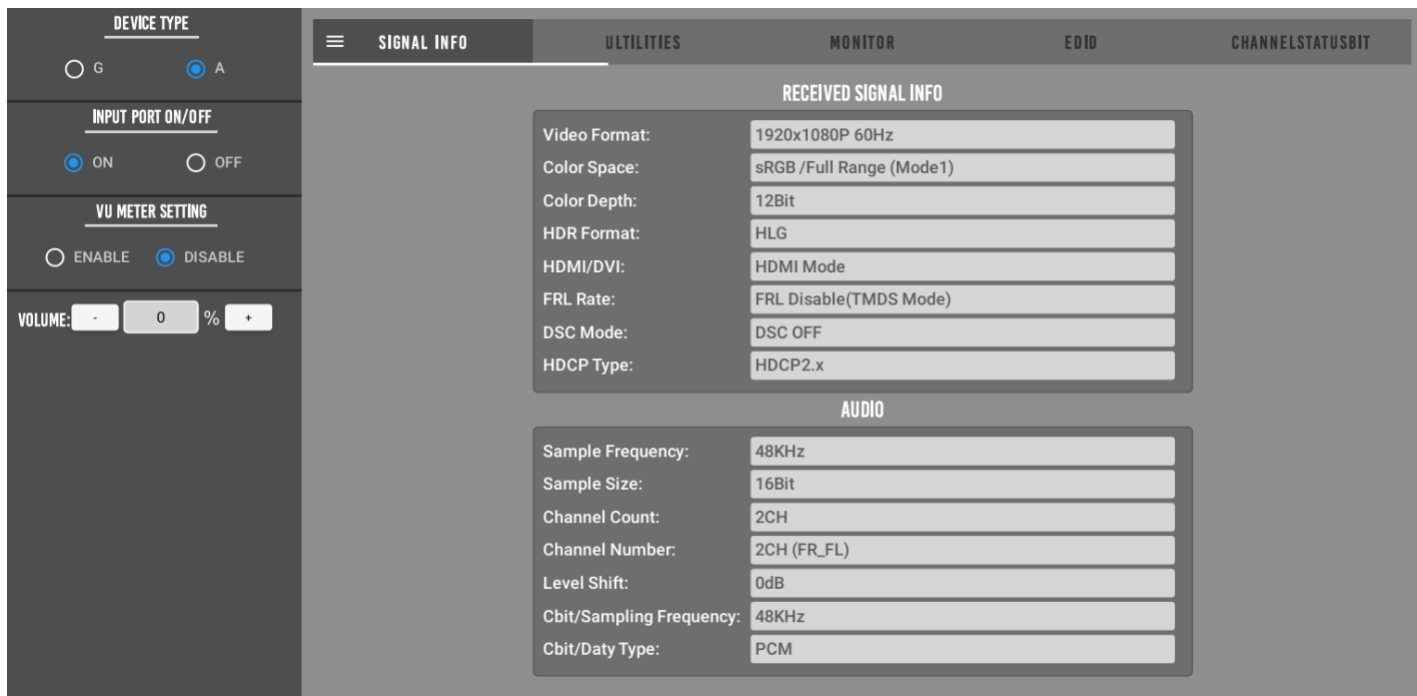
Signal Analyzer

Pressing the SA button calls up the Signal Generator Settings menu. It contains the following options for generated video signals:

- SIGNAL INFO
- EDID SELECT
 - Press OK to call up the EDID Selection menu for:
 - Preset EDIDs
 - User EDIDs that can be set to the HDMI Input Port.
- ERROR RATE
- SA VOLUME
 - Raise or lower the volume of the internal speaker output.
- VU METER
 - Enable or disable the VU METER on the MU-GAX-8K Menu Screen.

Signal Info

A full width Received Signal Info window displays the composition of the incoming Video and Audio signal received at the HDMI Input Port.



The screenshot shows the 'SIGNAL INFO' menu with the following settings:

RECEIVED SIGNAL INFO	
Video Format:	1920x1080P 60Hz
Color Space:	sRGB /Full Range (Mode1)
Color Depth:	12Bit
HDR Format:	HLG
HDMI/DVI:	HDMI Mode
FRL Rate:	FRL Disable(TMDS Mode)
DSC Mode:	DSC OFF
HDCP Type:	HDCP2.x

AUDIO	
Sample Frequency:	48KHz
Sample Size:	16Bit
Channel Count:	2CH
Channel Number:	2CH (FR_FL)
Level Shift:	0dB
Cbit/Sampling Frequency:	48KHz
Cbit/Daty Type:	PCM

On the left side of the menu, there are controls for:

- DEVICE TYPE:** Radio buttons for G and A (A is selected).
- INPUT PORT ON/OFF:** Radio buttons for ON and OFF (ON is selected).
- VU METER SETTING:** Radio buttons for ENABLE and DISABLE (DISABLE is selected).
- VOLUME:** A slider set to 0%.

Utilities:

This menu analyzes and displays the HDMI Info-frame data of the device connected to the MU-GAX-8K.

DEVICE TYPE

G A

INPUT PORT ON/OFF

ON OFF

VU METER SETTING

ENABLE DISABLE

VOLUME: %

SIGNAL INFO |
 UTILITIES |
 MONITOR |
 EDID |
 CHANNELSTATUSBIT

Note: HDMI infoframe data analyzer is only for technical engineer to check whether the dataframe of HDMI is right or not (based on HDMI and CEA-861 documents).

InfoFrame Type code	0x87
InfoFrame Version	0x01
InfoFrame Length	0x1A
Check sum	0xAF
Data Byte 1	0x03
Data Byte 2	0x00
Data Byte 3	0x90
Data Byte 4	0x33
Data Byte 5	0xC4
Data Byte 6	0x86
Data Byte 7	0x4C
Data Byte 8	0x1D
Data Byte 9	0xB8
Data Byte 10	0x0B
Data Byte 11	0xD0
Data Byte 12	0x84
Data Byte 13	0x80
Data Byte 14	0x3E
Data Byte 15	0x13
Data Byte 16	0x3D
Data Byte 17	0x42
Data Byte 18	0x40
Data Byte 19	0xEB
Data Byte 20	0x03
Data Byte 21	0x32
Data Byte 22	0x00
Data Byte 23	0xEB
Data Byte 24	0x03
Data Byte 25	0x84
Data Byte 26	0x03

|
 11-HDR

Analysis report:

Hybrid Log-Gamma (HLG) based on ITU-R BT.2100-0
 Static Metadata Type 1
 display primaries_x[0]: 13200
 display primaries_x[0]: 34500
 display primaries_x[1]: 7500
 display primaries_y[1]: 3000
 display primaries_x[2]: 34000
 display primaries_y[2]: 16000
 white_point.x : 15635
 white_point.y: 16450
 max_display mastering luminance: 1000
 min_display mastering luminance: 50
 MCLL: 1000
 MFLL: 900

DEVICE TYPE

G A

INPUT PORT ON/OFF

ON OFF

VU METER SETTING

ENABLE DISABLE

VOLUME: %

SIGNAL INFO |
 UTILITIES |
 MONITOR |
 EDID |
 CHANNELSTATUSBIT

Note: HDMI infoframe data analyzer is only for technical engineer to check whether the dataframe of HDMI is right or not (based on HDMI and CEA-861 documents).

InfoFrame Type code	0x84
InfoFrame Version	0x01
InfoFrame Length	0x0A
Check sum	0x53
Data Byte 1	0x11
Data Byte 2	0x0D
Data Byte 3	0x00
Data Byte 4	0x00
Data Byte 5	0x00
Data Byte 6	0x00
Data Byte 7	0x00
Data Byte 8	0x00
Data Byte 9	0x00
Data Byte 10	0x00

|
 9-AUDIO_INF

Analysis report:

Audio Coding Type: L-PCM
 Audio Channel Count: 2 channels
 Sampling Frequency: 48 kHz
 Sample Size: 16 bit

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MURIDEO ~ 2222 E 52ND ST N STE. 101 SIOUX FALLS, SD 57104 ~ 1-877-886-5112 ~ +1-605-330-5491 ~ SUPPORT@MURIDEO.COM

DEVICE TYPE

G A

INPUT PORT ON/OFF

ON OFF

VU METER SETTING

ENABLE DISABLE

VOLUME: %

SIGNAL INFO **UTILITIES** MONITOR EDID CHANNELSTATUSBIT

Note: HDMI infoframe data analyzer is only for technical engineer to check whether the dataframe of HDMI is right or not (based on HDMI and CEA-861 documents).

InfoFrame Type code	0x82
InfoFrame Version	0x02
InfoFrame Length	0x0D
Check sum	0x4F
Data Byte 1	0x00
Data Byte 2	0x08
Data Byte 3	0x08
Data Byte 4	0x10
Data Byte 5	0x00
Data Byte 6	0x00
Data Byte 7	0x00
Data Byte 8	0x00
Data Byte 9	0x00
Data Byte 10	0x00
Data Byte 11	0x00
Data Byte 12	0x00
Data Byte 13	0x00

7-AVL_INF

Analysis report:

Colorspace: RGB
 RGB Quantization Range: Full Range
 VIC:16 1920x1080p @ 59.94/60Hz

Monitor:

A full-width Signal Monitor window displays characteristics of the incoming Video signal to enable users to measure a change in frame or complete signal loss over time.

DEVICE TYPE

G A

INPUT PORT ON/OFF

ON OFF

VU METER SETTING

ENABLE DISABLE

VOLUME: %

SIGNAL INFO UTILITIES **MONITOR** EDID CHANNELSTATUSBIT

Signal Monitor (Total time slot number is 2040, every time slot is 1~255 seconds or minutes)

TIME SLOT SETTING

EVERY TIME SLOT CONTAIN: Seconds Minutes

TOTAL TIME:

START TIME: M: 11 D: 17 TIME: 13 : 49 : 42

TRIGGER MODE

By frame image difference and loss of signal

Loss of signal only

WORKING STATUS

status monitor is working

stopped

10 20 30 40 50 60 70 80 90 100

```

1 11111111111111111100000000000000
101
201
301
401
501
601
701
801
901
1001
1101
1201
1301
1401
1501
1601
1701
1801
1901
2001
                    
```

NO:
TIME: H. M. SEC
TOTAL:
ERROR:

Edid:

This menu will give you the EDID information of the device that is connected to the MU-GAX-8K. This information includes the device's manufacturer, preferred timing, and more.

DEVICE TYPE
 G A

INPUT PORT ON/OFF
 ON OFF

VU METER SETTING
 ENABLE DISABLE

VOLUME: - 0 % +

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	00	FF	FF	FF	FF	FF	FF	00	37	18	01	00	01	00	00	00
10	04	19	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0	23
20	09	48	4C	21	08	00	81	80	95	00	90	40	81	00	B3	00
30	A9	40	D1	00	81	40	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	10	09	00	00	00	1E	01	1D	80	18	71	1C	16	20
50	58	2C	25	00	C4	8E	21	00	00	9E	00	00	00	FC	00	4D
60	58	58	2D	44	2D	32	0A	20	20	20	20	20	00	00	00	FD
70	00	16	3E	0E	50	10	00	0A	20	20	20	20	20	20	01	8D
80	02	03	3E	72	4B	90	1F	04	13	85	14	02	11	20	21	22
90	23	09	07	07	83	01	00	00	E2	00	0F	E3	05	03	01	7E
A0	03	0C	00	10	00	08	1E	20	C0	14	00	01	01	0C	08	20
B0	18	20	28	20	38	20	00	00	00	00	00	00	00	00	8C	0A
C0	D0	8A	20	E0	2D	10	10	3E	96	00	13	8E	21	00	00	18
D0	8C	0A	D0	90	20	40	31	20	0C	40	55	00	13	8E	21	00
E0	00	18	01	1D	80	18	71	1C	16	20	58	2C	25	00	C4	8E
F0	21	00	00	9E	00	00	00	00	00	00	00	00	00	00	00	8B

General Info:
 Manufacturer's Name: MXX
 Product Code: 1
 Video Signal Interface: Digital
 Color Bit Depth: Reserved
 Display Product Name: MXX-D-2

Video Information:
 Preferred Timing: 1920x1080@60Hz
 Detailed Timing: 1920x1080i@60Hz
 Extension Detailed Timing 1: 720x480@60Hz
 Extension Detailed Timing 2: 720x576@50Hz
 Extension Detailed Timing 3: 1920x1080i@60Hz
 Short Video Descriptor:
 1920x1080p@60Hz 16:9 Native

Audio Information:
 Audio Format: LPCM
 Audio Channel(s): 2
 Sample Frequency:
 48KHz
 44.1KHz
 32KHz
 Sample Bit:

Write EDID Step:
 1. Select one of USER define EDID (USER1~10) from Pull-down select box below.
 2. Read EDID from file (Open file).
 3. Write data to device.

EDID selection: 6-1080P_ZCH

Channel Status Bit:

This menu will read the embedded HDMI metadata and break it down to the bits and bytes.

DEVICE TYPE
 G A

INPUT PORT ON/OFF
 ON OFF

VU METER SETTING
 ENABLE DISABLE

VOLUME: - 0 % +

CHANNEL STATUS BIT
 READ

Byte	Bit Number							
	7	6	5	4	3	2	1	0
0X0	MODE_RX[1:0]		D_RX[2:0]			C_RX	B_RX	A_RX
0X0	0	0	0	0	0	0	0	0
0X0	GATEGORY_RX[7:0]							
0X0	0	0	0	0	0	0	0	0
0X0	CH_NUM_RX[3:0]				SOURCE_NUM[3:0]			
0X0	0	0	0	0	0	0	0	0
0X2	FS_EXT_RX[1:0]		CLKACCR_RX[1:0]			FS_RX[3:0]		
0X2	0	0	0	0	0	0	1	0
0XB	ORG_FS_RX[3:0]				WORD_LEN_RX[3:0]			
0XB	0	0	0	1	0	0	0	1
0X0	FS_COEF_RX[3:0]				Reserved	CGMS_A_VAL_RX	CGMS_A_RX[1:0]	
0X0	0	0	0	0	0	0	0	0
0X0	CBIT_BYTE6_RX[7:0]							
0X0	0	0	0	0	0	0	0	0
0X0	CBIT_BYTE7_RX[7:0]							
0X0	0	0	0	0	0	0	0	0

Troubleshooting

- During device testing that utilizes both Signal Generator and Signal Analyzer sections, verify the EDID selected on the Signal Analyzer matches the parameters of the Signal

Generator.

For Example:

- » On the Signal Analyzer, if the 4K30HZ_2CH EDID is selected, followed by selecting the Signal Generator Timing of 3840X2160@60Hz, the MU-GASX-48G will report the error message Pixel Rate Too High
- » When testing solo devices (a cable, a switcher, an extender; etc.) set the Signal Analyzer EDID on the MU-GAX-8K to FRL48G_8K_2CH_HDR_DSC
- Setting the EDID to this highest level enables testing of all timings and signal parameters available on the Signal Generator.

Firmware

- Field firmware updates are available via the USB Port or the HTTP GUI. When available, firmware updates will be posted to the Murideo.com website accompanied by complete instructions.

Warranty

AVPro Global Holdings (DBA MURIDEO) offers a 2 year international limited warranty for Murideo products. Products sold to the original purchaser are guaranteed to be free from defects in parts and workmanship under regular use. The warranty period commences on the date the item ships.

Attention:

An invoice with the name of the original purchaser, date of purchase, model number, and serial number of the product is proof of the purchase date. This International Limited Warranty is applicable and shall be honored in every country where MURIDEO or its Authorized Service Providers offer warranty service, subject to the terms and conditions detailed in this International Limited Warranty Statement. The following products are included in this warranty:

- Murideo SEVEN Series Generators
- Murideo SIX Series Generators
- Murideo SIX Series Analyzers
- Murideo Fox & Hound Series
- Murideo HDMI Test Monitor Series
- Murideo GAX Series
- Murideo STIX Series

During the warranty period, defective Murideo products will either be repaired or replaced with new, or like-new products, at Murideo's discretion. This International Limited Warranty covers the cost of service parts and labor required to restore Murideo products to fully functional, original performance condition. Murideo will, at its discretion, repair or replace any defective products or parts covered by this International Limited warranty with refurbished products or parts equivalent to new or like-new in functionality and performance. A product or part that is repaired or replaced under this International Limited Warranty shall be covered for the remainder of the original warranty period applying to the product or part, or for 90-days, whichever expires last. All exchanged parts and products under this International Limited Warranty will become the property of MURIDEO.

Obtaining Warranty Service

Warranty service or a Returned Merchandise Authorization (RMA) under this International Limited Warranty will be honored only if claims are made within the warranty period. For notifications to MURIDEO or products outside the warranty period, the process will be the same, but charges may apply. Contact details may be obtained on MURIDEO website <https://www.murideo.com/>

Customers are requested to perform the following actions before claiming a MURIDEO product to be defective:

- A. Owner must notify MURIDEO, during the warranty period, in writing of alleged defect, and allow MURIDEO a reasonable opportunity to inspect an alleged defective product.
- B. No product may be returned without consent from MURIDEO. The MURIDEO RMA # must accompany all returns, and all returns must be delivered to MURIDEO within the warranty period.
- C. Owner may, at their expense, return the alleged defective product freight pre-paid and in the original packaging to MURIDEO, accompanied by a brief statement explaining the alleged defect.
- D. If MURIDEO determines a returned product is not defective, or if MURIDEO determines that the defect is not covered by warranty, MURIDEO will return the product at the Owner's expense, freight collect, and Owner agrees to pay MURIDEO a reasonable cost for handling and testing the product.
- E. Upon determining that a returned product is defective, to receive warranty service, the Owner will need to present a copy of the invoice showing the original purchase transaction. If shipping the product, Owner will need to package it carefully and send it transportation prepaid, by a traceable insured method, to the MURIDEO Service Center. Package the product using adequate materials to prevent damage in transit. The original packaging is ideal for this purpose. Include the RMA #, your name, return shipping address, email address and telephone number where you may be reached during USA business hours inside the shipping package with the unit. Any replacement unit will be warranted under these Terms and Conditions for the remainder of the original warranty period, or ninety (90) days whichever is longer.

Refer to user manual, available for download on our website <http://www.murideo.com/> for important tips on how to operate and troubleshoot the product.

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<https://support.murideo.com/> Or call

+1-605-330-8491 for worldwide technical support

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- Damage or incompatibility caused by failure to perform a proper installation or to provide an appropriate operational environment for the product, including but not limited to unstable wired/wireless network connection and phone lines, bad grounding, external electro-magnetic fields, direct sunlight, high humidity and vibration.
- Damage caused by impact with other objects, dropping, falls, spilled liquids, or submersion in liquids.
- Damage caused by unauthorized repair or disassembling of the product.
- Damage caused by any other abuse, misuse, mishandling, or misapplication.
- Damage caused by third party peripherals (including but not limited to visible damages on motherboard or other electronic parts of the product such as burn spots after electric discharge, melting, fusing, splitting, etc.)
- Any unauthorized software or modification of built-in software not approved by MURIDEO.
- The serial number of the product (or serial number stickers of its parts) has been modified, removed, blurred or damaged.
- Defects caused by transportation, handling or customer abuse.

Thank you for choosing Murideo!
Please contact us with any questions, we are happily at your
service!



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