

July 2024

## Installation and Operation Manual



# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3

# Languages

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## Welcome

Thank you for purchasing a Blackmagic Audio Monitor for your production needs!

We hope you share our dream for the television industry to become a truly creative industry by allowing anyone to have access to the highest quality video equipment.

Audio monitoring is crucial for any video production workflow, whether it's broadcast, post production or live production. Blackmagic Audio Monitor gives you all the features of professional audio monitors in a compact rack mount design. You can connect to virtually all types of audio equipment for high quality monitoring. The original Blackmagic Audio Monitor supports 6G-SDI for connecting Ultra HD video up to 30 frames per second. Blackmagic Audio Monitor 12G supports 12G-SDI for connecting Ultra HD video up to 60 frames per second plus level A and B 3G-SDI video signal inputs. Additionally, Blackmagic Audio Monitor 12G G3 supports up to 12G-SDI via SMPTE 2110 IP video using 10G Ethernet.

This instruction manual contains all the information you need to start using your Blackmagic Audio Monitor.

Please check the support page on our web site at [www.blackmagicdesign.com](http://www.blackmagicdesign.com) for the latest version of this manual and updates to your Blackmagic Audio Monitor's internal software.

Keeping your internal software up to date will always ensure you get all the latest features.

When downloading software, please register with your information so we can keep you updated when new software is released. We are constantly working on new features and improvements, so we would love to hear from you!

A stylized, handwritten signature in black ink that reads "Grant Petty". The script is fluid and cursive.

**Grant Petty**

CEO Blackmagic Design

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# Getting Started

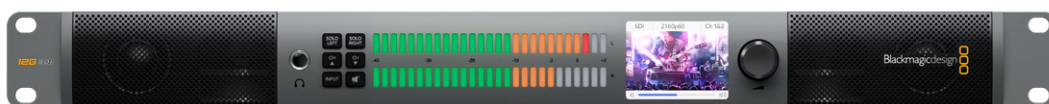
## Introducing Blackmagic Audio Monitor

Blackmagic Audio Monitor and Blackmagic Audio Monitor 12G are single rack real time audio monitoring solutions that can be used with a variety of video and audio sources in live, post production and broadcast environments.

Blackmagic Audio Monitor connects to SD/HD/3G/6G-SDI, digital AES/EBU and analog audio equipment to ensure outputs have the correct audio levels. The 12G model supports 12G-SDI so you can connect Ultra HD video up to 60 frames per second. Left and right channel LED level meters let you see where your audio is peaking and the built in LCD shows your SDI video input plus important information such as input connection type, video format, frame rate, audio channels and volume level.

You can monitor up to 16 channels of embedded SDI audio, or use XLR connectors for balanced analog and AES/EBU digital audio. There are also RCA connectors so you can plug in consumer equipment such as HiFi systems and iPods.

Your Blackmagic Audio Monitor includes two high quality internal full range speakers and two sub woofers that give you a wide range of frequencies for clear and deep sound reproduction, or you can connect a headset for confident sound monitoring that is great if you are in a noisy environment!



The front panel of Blackmagic Audio Monitor 12G



The rear panel of Blackmagic Audio Monitor 12G

Blackmagic Audio Monitor 12G G3 models also support receiving native 2110 streams including compressed 12G-SDI.



The front panel of Blackmagic Audio Monitor 12G G3

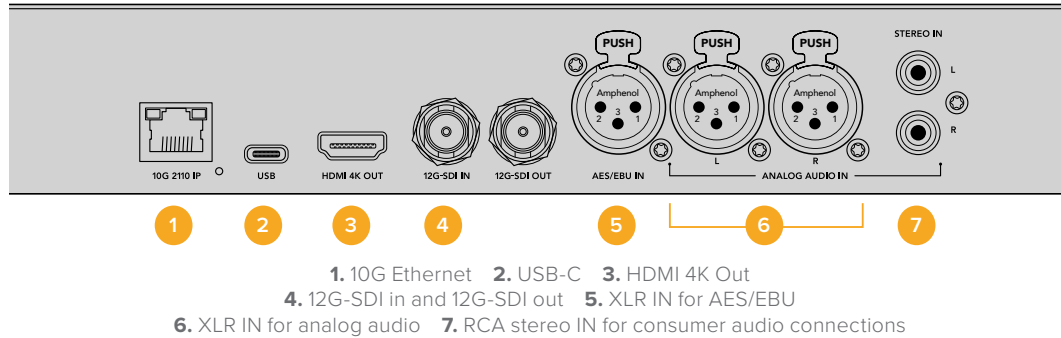


The rear panel of Blackmagic Audio Monitor 12G G3

## Plugging in Audio

Blackmagic Audio Monitor supports virtually all types of audio equipment! If you want to connect SDI signals in SD, HD, 2K or even Ultra HD, you can plug in via the SDI input using a standard BNC connector. The 12G model supports level A and B 3G-SDI video signal inputs.

Plug in using XLR connectors if you want to monitor digital AES/EBU audio from equipment including disk recorders and digital audio consoles, or from analog equipment such as audio mixers or Betacam SP decks. Analog audio from consumer equipment such as VCRs and DVD players can be connected using standard RCA connectors. You can also connect headphones via the 1/4" TRS headphone jack when you need to listen to your audio privately without disturbing others.



## Selecting your Audio Source

After plugging in your audio equipment to Blackmagic Audio Monitor, all you need to do is select your connection by pressing the INPUT button on the control panel. When your input is selected and audio is present, you'll notice the audio level meter LEDs illuminated. The audio level meter consists of 2 rows of colored LEDs and are brightly lit so you can easily confirm your audio input is working.

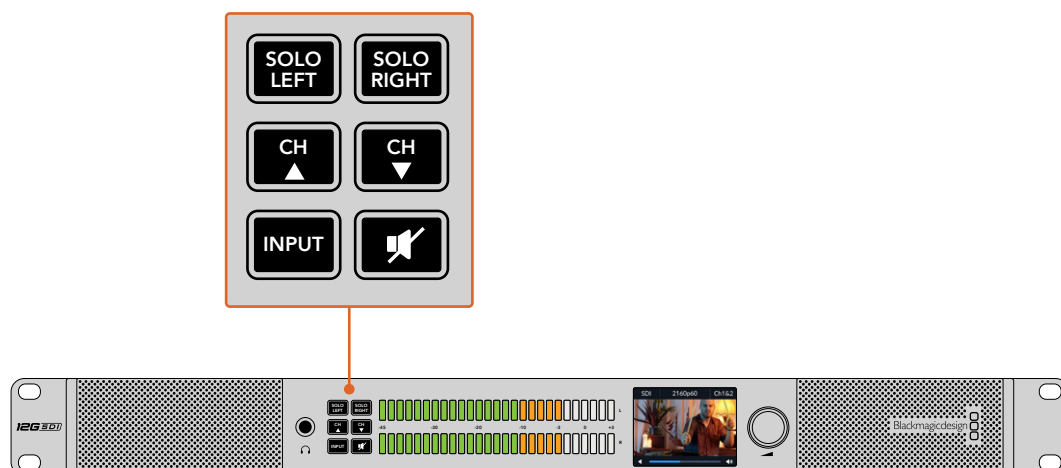
The INPUT button lets you cycle through your audio connections and you can see them on the color LCD with information including input type, audio channels and volume level. That's all you need to do to monitor audio with Blackmagic Audio Monitor.

## Connecting Video Outputs

If you need video as well as audio monitoring, Blackmagic Audio Monitor's video outputs let you monitor video with audio on a large screen, or connect to more video equipment.

The HDMI output and SDI loop output can be used to monitor video and embedded audio. You can connect to SD, HD, 2K and even Ultra HD capture devices such as DeckLink 4K Extreme with a single SDI cable. Connect video with embedded audio to recording decks such as HyperDeck Studio via SD/HD-SDI or the latest Ultra HD display and projectors via HDMI.

The Blackmagic Audio Monitor 12G G3 can also convert ST2110 inputs to HDMI and 12G-SDI as both outputs will follow the the SDI or 2110 inputs depending on which one is selected via the front panel's input button.



The selection buttons allow you to choose which input you wish to monitor, isolate left and right stereo channels, move up or down through available audio channels, and mute the speakers or headphones.

# Using Blackmagic Audio Monitor

Blackmagic Audio Monitor's control panel provides fast access to critical functions and status.

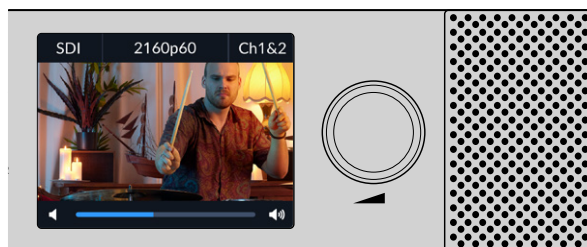
## LCD

The built in color LCD features a text overlay that displays important status information, such as your selected input, the video format if SDI is connected, selected audio channels, and the volume level for your speakers or headphones. The LCD will also display any incoming SDI video signal. If there is no SDI video detected, a music icon will be displayed.

The following information is displayed for each selected input:

### SDI Input

SDI, video format, selected audio channels.



The color LCD displays audio and video information including connection type, video format, selected audio channels and volume level



A music icon is displayed on the LCD unless monitoring an SDI or SMPTE 2110 signal

### 10G Ethernet 2110 Input

SMPTE-2110 IP video including SMPTE-2110-30 audio support.

### Balanced AES/EBU XLR input

AES/EBU, selected audio channels.

### Balanced XLR analog inputs

Analog, selected audio channels.

### Unbalanced RCA analog inputs

HiFi, selected audio channels.

## Audio Level Meters

Blackmagic Audio Monitor's level meters feature two banks of green, orange and red LEDs that show the strength of your audio levels. If all LEDs are lit, your audio levels are too high and are clipping.

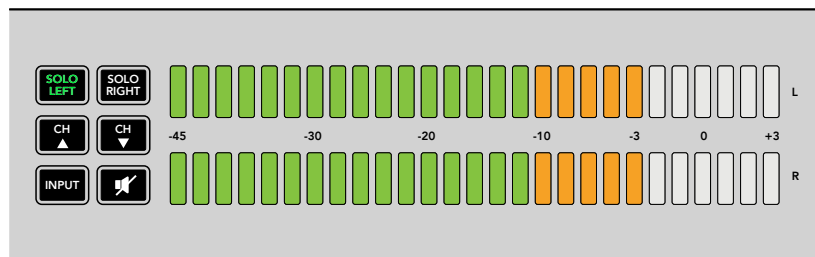
The behaviour of the audio level meters will change depending on which meter type setting you have selected in the Audio Monitor Setup utility. If you are using VU metering, adjust the output levels on your audio equipment so the meter peaks at the 0dB indicator on the control panel. This maximizes the signal to noise ratio and ensures your audio is at the highest quality. If your audio peaks beyond the 0dB indicator there is a high risk of sound distortion.

Please refer to the 'Audio Monitor Setup' section for information on installing Blackmagic Audio Monitor Setup and setting the level meter types.

## Control Panel Buttons

### Solo Left and Solo Right

These buttons let you isolate left and right channel audio so you can listen for any potential audio problems in each channel independently.



Selecting 'solo left' deactivates the right audio channel. The audio level meter will continue to display both levels

To monitor left channel audio:

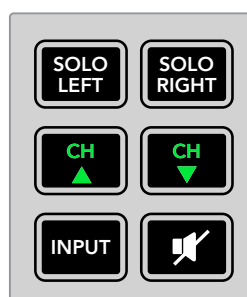
- 1 Press the 'solo left' button. The button will become backlit green and your audio will play through the left speaker only.
- 2 Press 'solo left' again to return to stereo audio monitoring.

To monitor the right channel audio repeat the steps pressing 'solo right' instead.

### Channel Up and Channel Down

These buttons let you cycle through the embedded audio channels in your SDI connection. For 3G-SDI, this includes up to 16 channels, or 8 pairs. Press the channel 'up' and 'down' buttons to move up or down through the embedded SDI audio channels.

Blackmagic Audio Monitor 12G supports 12G-SDI which includes up to 64 channels of audio, or 32 pairs of channels. Press and hold the arrow up or down buttons to quickly scroll through them.

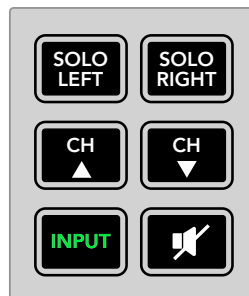


## Input

Repeatedly pressing the INPUT button cycles through the SDI, AES/EBU, SMPTE 2110, analog and HiFi inputs so you can select which video and audio equipment you wish to monitor.

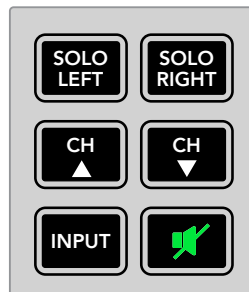
The selected audio input can be listened to via the built in speakers, plus you can monitor the audio on CH 1 & 2 of the HDMI output.

**NOTE** The HDMI output will display black video when the analog, AES/EBU or HiFi inputs are selected. The SDI Loop output always outputs the video and audio connected to the SDI input.



## Mute

This button mutes Blackmagic Audio Monitor's control panel speakers and headphones. Muting the audio will not affect your audio input and will only affect the speakers and headphones output. Pressing the MUTE button again will restore audio to the control panel speakers or headphones. Alternatively, increasing the volume will also restore audio.



## Volume

This knob adjusts the volume for the speakers or headphones independently. Volume level is displayed on the built in LCD. When headphones are connected, Blackmagic Audio Monitor's speakers will mute and audio is outputted via headphones. Volume can easily be adjusted up or down by turning the volume knob clockwise or counterclockwise.



The volume level is displayed on the control panel LCD.

# Audio Monitor Setup

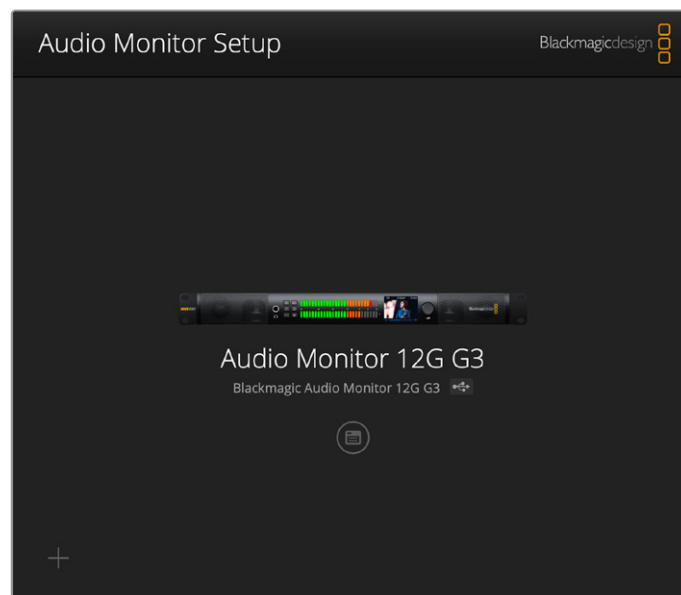
## Blackmagic Audio Monitor Setup

The Blackmagic Audio Monitor Setup utility is used to set your desired audio level meter type, plus update the internal software on your Blackmagic Audio Monitor.

When the original Blackmagic Audio Monitor is connected to a computer via USB, you can change the configure settings and update the internal software using the setup utility. On Blackmagic Audio Monitor 12G G3, you can also update the unit and change settings via USB or Ethernet.

To install Audio Monitor Setup:

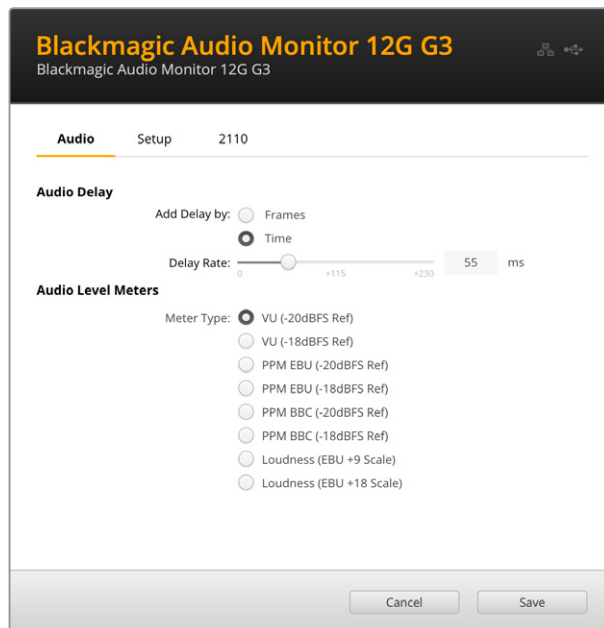
- 1 From a web browser navigate to [www.blackmagicdesign.com/support](http://www.blackmagicdesign.com/support) and download the latest Blackmagic Audio Monitor drivers.
- 2 When the file has finished downloading, double click the 'Install Audio Monitor' icon to run the installer. Follow the prompts to the end and press 'install' to install the software.
- 3 Once the software is installed, navigate to 'Blackmagic Audio Monitor' folder in your applications or programs folder and double click 'Audio Monitor Setup'.



Update your Blackmagic Audio Monitor's internal software and change configuration settings using the Blackmagic Audio Monitor Setup utility

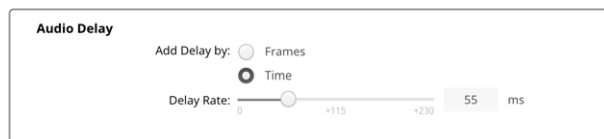
## Audio Tab

Click on the audio tab to reveal the audio delay and level monitoring settings.



### Audio Delay

Add an audio delay to the HDMI and SDI loop out connections by adjusting the slider. You can adjust the delay in frames or time in milliseconds.



### Audio Level Meters

You can select from VU, PPM or loudness meter types with EBU and BBC measurement scales. While the VU meter has now become standardized, PPM and loudness meters provide scaling systems and measurements for perceived loudness. The following table shows the supported audio level meters and measurement scale combinations.

| Meter Type | Scale Type     | Measurement Scale | How to Use      |
|------------|----------------|-------------------|-----------------|
| VU         | —              | -45 to +3         | Printed on unit |
| PPM        | EBU            | -12 to +12        | Stick-on label  |
| PPM        | BBC            | 1 to 7            | Stick-on label  |
| Loudness   | EBU +9         | -18 to +9         | Stick-on label  |
| Loudness   | EBU +18        | -36 to +18        | Stick-on label  |
| Loudness   | Full Scale +9  | -41 to -14        | Stick-on label  |
| Loudness   | Full Scale +18 | -59 to -5         | Stick-on label  |

## VU

This meter averages out short peaks and troughs in your audio signal. It's mostly used to monitor peaks in a signal, however, because of its averaging capability it can also be used to monitor the perceived loudness of your audio.

## PPM

This meter displays a "peak hold" feature that momentarily holds the signal peaks, and a slow fall back so you can easily see where your audio is peaking.

## Loudness

This meter displays the subjective quality of loudness in your audio signal. Today's broadcast standards include loudness metering for consistent audio loudness levels.

The VU and PPM meters feature a selectable reference level of -18dB or -20dB so you can monitor your audio to suit different international broadcasting standards.

Your Blackmagic Audio Monitor's LED reference behavior will change with each selected meter type. Stick-on labels with accurate dB reference scales are provided with your Blackmagic Audio Monitor to help you easily identify where your audio is peaking. To apply the stick on labels, simply peel and stick the desired scale in between the colored LED meters and over the current VU scale markings.

Two labels are provided for each audio level meter type and measurement scale. Label sheets are also available from your local Blackmagic Design support office.

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

Stick-on labels are provided so you can accurately identify where your audio is peaking for each meter type.

## Setup Tab

The setup tab lists the software version number and contains your Blackmagic Audio Monitor's network settings. You can also label your unit with a custom name. Naming the unit helps you quickly locate it when connected remotely. The setup tab also contains the network settings for the audio monitor.

To name your Blackmagic Audio Monitor 12G:

- 1 Click on the 'setup' tab.
- 2 Click the 'name' text box and enter a new label.
- 3 Click 'save' at the bottom right of the utility screen.

The screenshot shows the 'Setup' tab of the Blackmagic Audio Monitor 12G G3 utility. The interface is divided into three main sections: Audio, Network, and Reset. The 'Audio' section shows the unit name 'Blackmagic Audio Monitor 12G...' and software version 'Version 4.0'. The 'Network' section shows the network location 'Blackmagic-Audio-Monitor-12...', protocol 'DHCP', IP address '169.254.154.17', subnet mask '255.255.0.0', gateway '0.0.0.0', primary DNS '0.0.0.0', and secondary DNS '0.0.0.0'. The 'Reset' section has a 'Factory Reset' button. At the bottom, there are 'Cancel' and 'Save' buttons.

## Network Settings

Accessing your Blackmagic Audio Monitor 12G over a network is the easiest way to manage multiple units. You can do this using Blackmagic Audio Monitor Setup. By default, your Blackmagic Audio Monitor 12G is configured to DHCP so it will automatically acquire a network address, making it easy to immediately select it from the setup utility home screen.

If you are having trouble finding a Blackmagic Audio Monitor 12G on your network, or you have previously set it to use a static address incompatible with your current network, you may need to change its network settings locally. You can do this via USB.

## Allow Utility Administration

Blackmagic Audio Monitor Setup can be accessed when your audio monitor is connected via the network or via USB. To prevent users having access via the network, select USB only.

## Reset

Select 'factory reset' to restore your Audio Monitor 12G to factory settings.

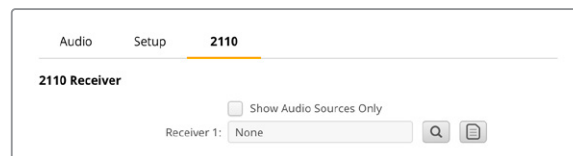
## 2110 Tab

Blackmagic Audio Monitor 12G G3 includes a tab for configuring SMPTE 2110 IP streams along with settings for the PTP grandmaster.

### 2110 Receiver

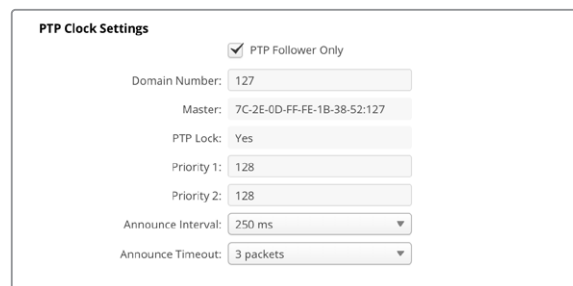
If you are mapping audio sources only, tick the checkbox to show audio sources only.

To route the stream you want to receive click on the magnifying glass to the right of the receiver field. This will open a window showing all available sources listed with the IP node and source label for the streams. Highlight a stream and click the select button. The window will close and the stream label will appear in the receiver field. You should now see the incoming source on the audio monitor LCD display.



### PTP Clock Settings

The PTP settings let you configure the settings for the PTP grandmaster.



When connecting Blackmagic Audio Monitor 12G G3 to a 10G network switch with a PTP grandmaster, the audio monitor needs to be set to follower mode to prevent a timing conflict. If you have connected the audio monitor to another 2110 IP unit such as a Blackmagic 2110 IP 3x3G Converter, set one to be the follower by ticking the checkbox

#### Domain Number

Enter the domain number to match that of the PTP grandmaster. This is commonly 127 but can be changed by entering a different domain number in the field.

#### Master

The master address field displays the MAC address of the PTP grandmaster. This is either a separate grandmaster device, or another Blackmagic 2110 IP unit.

#### PTP Lock

The PTP lock field will acknowledge when the audio monitor is locked to a PTP clock via Ethernet.

#### Priority

Priority 1 and 2 settings let you set the preferred PTP grandmaster available when there is more than one PTP grandmaster on the network. The lower the number suggests the higher priority.

#### Announce Interval and Timeout

The announce interval and timeout fields need to match the specifications of the PTP grandmaster which transmits sync messages typically every two seconds or 2000 ms. To change the frequency of the message use the menu to select a different time. The ranges available for announce interval and announce timeout will depend on your PTP grandmaster.

## Updating the Internal Software

- 1 Connect your Blackmagic Audio Monitor to your computer via USB or Ethernet.
- 2 Open Blackmagic Audio Monitor Setup.
- 3 Click the configuration icon and the utility will inform you if an update is required.
- 4 If an update is required, click the 'update' button and allow the software installation to complete.



Click the Update button to apply the internal software update.



A progress bar will show you the status of your update.

- 5 Click the 'close' button when the update is finished.

# Developer Information

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵
Meter Mode: Loudness (EBU +18 scale)↵
↵
```

The response will be

```
ACK:
AUDIO METER:
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵
↵
```

The response will be

```
ACK:
AUDIO INPUT:
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:
Gain: Speaker Stereo 0
Gain: Headphone Stereo 0
Mute: false
Solo: Off
Audio delay in ms: 0
Audio delay in frames: 0
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵
Gain: Speaker Stereo 125↵
Solo: Right↵
↵
```

The response will be

```
ACK:
AUDIO OUTPUT:
Gain: Speaker Stereo 125
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵
AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# Help

## Getting Help

The fastest way to obtain help is to go to the Blackmagic Design online support pages and check the latest support material available for your Blackmagic Audio Monitor.

### Blackmagic Design Online Support Pages

The latest manual, software and support notes can be found at the Blackmagic Design support center at [www.blackmagicdesign.com/support](http://www.blackmagicdesign.com/support).

### Blackmagic Design Forum

The Blackmagic Design forum on our website is a helpful resource you can visit for more information and creative ideas. This can also be a faster way of getting help as there may already be answers you can find from other experienced users and Blackmagic Design staff which will keep you moving forward. You can visit the forum at <https://forum.blackmagicdesign.com>

### Contacting Blackmagic Design Support

If you can't find the help you need in our support material or on the forum, please use the "Send us an email" button on the support page to email a support request. Alternatively, click on the "Find your local support team" button on the support page and call your nearest Blackmagic Design support office.

### Checking the Software Version Currently Installed

To check which version of Blackmagic Audio Monitor Setup is installed on your computer, open the About Blackmagic Audio Monitor Setup window.

- On Mac OS, open Blackmagic Audio Monitor Setup from the Applications folder. Select About Blackmagic Audio Monitor Setup from the application menu to reveal the version number.
- On Windows 10, open Blackmagic Audio Monitor Setup from the Blackmagic Audio Monitor Setup tile on your Start page. Click on the Help menu and select About Blackmagic Audio Monitor Setup to reveal the version number.

### How to Get the Latest Software Updates

After checking the version of Blackmagic Audio Monitor Setup installed on your computer, please visit the Blackmagic Design support center at [www.blackmagicdesign.com/support](http://www.blackmagicdesign.com/support) to check for the latest updates. While it is usually a good idea to run the latest updates, it is wise to avoid updating any software if you are in the middle of an important project.

# Regulatory Notices

## Disposal of Waste of Electrical and Electronic Equipment Within the European Union.



The symbol on the product indicates that this equipment must not be disposed of with other waste materials. In order to dispose of your waste equipment, it must be handed over to a designated collection point for recycling. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

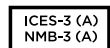
Operation is subject to the following two conditions:

- 1 This device may not cause harmful interference.
- 2 This device must accept any interference received, including interference that may cause undesired operation.



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

## ISED Canada Statement



This device complies with Canadian standards for Class A digital apparatus.

Any modifications or use of this product outside its intended use could void compliance to these standards.

Connection to HDMI interfaces must be made with high quality shielded HDMI cables.

This equipment has been tested for compliance with the intended use in a commercial environment. If the equipment is used in a domestic environment, it may cause radio interference.

# Safety Information

For protection against electric shock, the equipment must be connected to a mains socket outlet with a protective earth connection. In case of doubt contact a qualified electrician.

To reduce the risk of electric shock, do not expose this equipment to dripping or splashing.

Product is suitable for use in tropical locations with an ambient temperature of up to 40°C.

Ensure that adequate ventilation is provided around the product and that it is not restricted.

When rack mounting, ensure that the ventilation is not restricted by adjacent equipment.

No operator serviceable parts inside product. Refer servicing to your local Blackmagic Design service center.



Use only at altitudes not more than 2000m above sea level.

## State of California statement

This product can expose you to chemicals such as trace amounts of polybrominated biphenyls within plastic parts, which is known to the state of California to cause cancer and birth defects or other reproductive harm.

For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## European Office

Blackmagic Design B.V, Amsterdam Sloterdijk Teleport Towers Office 2.17, Kingsfordweg 151, Amsterdam, 1043GR.

# Warranty

## 12 Month Limited Warranty

Blackmagic Design warrants that this product will be free from defects in materials and workmanship for a period of 12 months from the date of purchase. If a product proves to be defective during this warranty period, Blackmagic Design, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, you the Customer, must notify Blackmagic Design of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by Blackmagic Design, with shipping charges pre paid. Customer shall be responsible for paying all shipping charges, insurance, duties, taxes, and any other charges for products returned to us for any reason.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Blackmagic Design shall not be obligated to furnish service under this warranty: a) to repair damage resulting from attempts by personnel other than Blackmagic Design representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non Blackmagic Design parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product. THIS WARRANTY IS GIVEN BY BLACKMAGIC DESIGN IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. BLACKMAGIC DESIGN AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. BLACKMAGIC DESIGN'S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE WHOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER BLACKMAGIC DESIGN OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. BLACKMAGIC DESIGN IS NOT LIABLE FOR ANY ILLEGAL USE OF EQUIPMENT BY CUSTOMER. BLACKMAGIC IS NOT LIABLE FOR ANY DAMAGES RESULTING FROM USE OF THIS PRODUCT. USER OPERATES THIS PRODUCT AT OWN RISK.

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# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## ようこそ

このたびはBlackmagic Audio Monitorをお買い求めいただき誠にありがとうございます。

最高品質のビデオ機器を誰もが利用できるようにすることで、テレビ業界を真にクリエイティブな業界にするという私たちの夢を、ユーザーの皆様と共有できれば幸いです。

オーディオモニタリングは、放送、ポストプロダクション、ライブプロダクションなどの分野に関わらず、ビデオ制作ワークフローにとって欠かせません。Blackmagic Audio Monitorは、コンパクトなラックマウントデザインに、プロ仕様のオーディオモニターのすべての機能を搭載しています。事実上、すべてのタイプのオーディオ機器に接続して、高品質モニタリングを実現できます。オリジナルのBlackmagic Audio Monitorは6G-SDIに対応しており、30fpsまでのUltra HDビデオを接続できます。Blackmagic Audio Monitor 12Gは12G-SDIに対応しており、60fpsまでのUltra HDビデオを接続できます。また、Level AおよびBの3G-SDIビデオ信号入力もサポートしています。Blackmagic Audio Monitor 12G G3は、10Gイーサネットを使用し、SMPTE 2110 IPビデオを介して、12G-SDIまで対応できます。

このマニュアルには、Blackmagic Audio Monitorを使用する上で必要な情報がすべて記載されています。

弊社ウェブサイト[www.blackmagicdesign.com/jp](http://www.blackmagicdesign.com/jp) のサポートページで、同マニュアルの最新バージョンを確認し、Blackmagic Audio Monitorのソフトウェアをアップデートしてください。ソフトウェアをアップデートすることで、常に最新の機能をお使いいただけます。ソフトウェアをダウンロードする際にユーザー登録をしていただければ、新しいソフトウェアのリリース時にお客様にお知らせいたします。私たちは、常に新機能の開発および製品の改善に努めていますので、ユーザーの皆様からご意見をいただければ幸いです。

Blackmagic Design CEO

グラント・ペティ

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# はじめに

## Blackmagic Audio Monitorについて

Blackmagic Audio MonitorおよびBlackmagic Audio Monitor 12Gは、1Uラックサイズの実タイムオーディオモニタリング・ソリューションで、ライブ、ポストプロダクション、放送などの環境における様々なビデオ/オーディオソースで使用できます。

Blackmagic Audio Monitorは、SD/HD/3G/6G-SDI、デジタルAES/EBU、アナログオーディオ機器への接続に対応しているため、正確なレベルでオーディオを出力できます。12Gモデルは、12G-SDIに対応しており、60fpsまでのUltra HDビデオを接続できます。LEDレベルメーターの左右のチャンネルでオーディオのピークを確認でき、LCDスクリーンにはSDIビデオ入力に加え、入力信号の接続の種類、ビデオフォーマット、フレームレート、オーディオチャンネル、ボリュームなどの重要な情報が表示されます。

16チャンネルまでのエンベッドSDIオーディオをモニタリングでき、XLRコネクタはバランスアナログおよびAES/EBUデジタルオーディオに使用できます。

Blackmagic Audio Monitorは、2つの高品質フルレンジ・スピーカーおよび2つのサブウーファを内蔵しており、広域の周波数でクリアかつディープなサウンドを再生できます。さらにヘッドフォンを接続すれば、騒がしい環境でも正確なサウンドモニタリングが可能です！



Blackmagic Audio Monitor 12Gのフロントパネル



Blackmagic Audio Monitor 12Gのリアパネル

Blackmagic Audio Monitor 12G G3は、ネイティブのST 2110ストリームの受信もサポートしており、これには圧縮12G-SDIも含まれます。



Blackmagic Audio Monitor 12G G3のフロントパネル



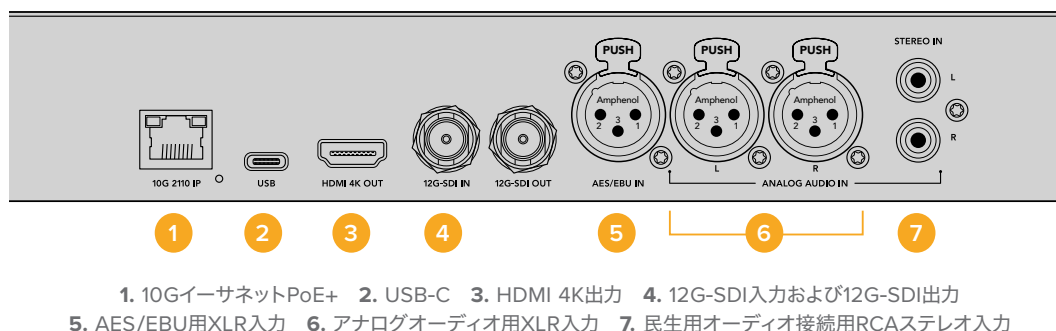
Blackmagic Audio Monitor 12G G3のリアパネル

## オーディオの接続

Blackmagic Audio Monitorは、事実上すべての種類のオーディオ機器に対応しています。SD/HD/2K/Ultra HDのSDI信号は、標準BNC端子を使用してSDI入力に接続できます。12Gモデルは、Level AおよびBの3G-SDIビデオ信号入力にも対応しています。

XLRコネクタを使用すれば、ディスクレコーダーやデジタルオーディオ機器などからのデジタルAES/EBUオーディオのモニタリング、あるいはオーディオミキサーやBetacam SPデッキなどのアナログ機器のモニ

タリングが可能です。ビデオデッキやDVDプレーヤーなど、民生用機器からのアナログオーディオは標準RCAコネクタで接続できます。周囲の邪魔にならないように1人でモニタリングする場合は、1/4インチTRSヘッドフォンジャックを使用してヘッドフォンを接続できます。



## オーディオソースの選択

オーディオ機器をBlackmagic Audio Monitorに接続したら、後はコントロールパネル上の「INPUT」ボタンを押して、インターフェースを選択するだけです。接続した入力を選択し、オーディオが入力されると、オーディオレベル・メーターのLEDが点灯します。オーディオレベル・メーターは2列のカラフルなLEDで構成されており、オーディオ入力が簡単に確認できるように明るく光ります。

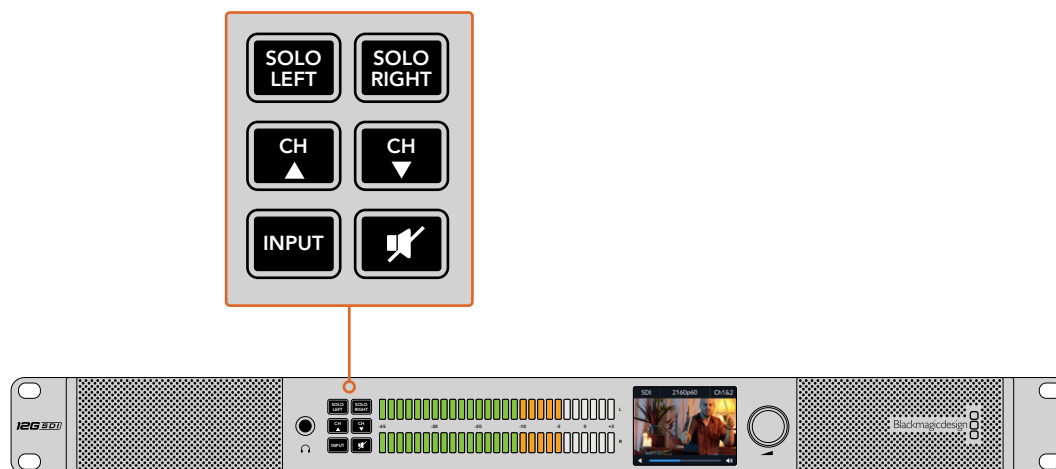
「INPUT」ボタンでオーディオ入力を選択し、LCDカラースクリーンで、入力信号、オーディオチャンネル、ボリュームなどの情報を確認できます。以上で、Blackmagic Audio Monitorでのオーディオモニタリングの準備は完了です。

## ビデオ出力の接続

オーディオモニタリングだけでなく映像も必要な場合は、Blackmagic Audio Monitorのビデオ出力を使用して、オーディオ付きビデオ大型スクリーンでのモニタリングや、他のビデオ機器への接続が可能です。

HDMI出力およびSDIループ出力は、ビデオやエンベデッドオーディオのモニタリングに使用できます。単一のSDIケーブルで、SD、HD、2K、さらにはDeckLink 4K ExtremeなどのUltra HDキャプチャーデバイスに接続できます。エンベデッドオーディオ付きのビデオを、HyperDeck Studioなどの収録デッキにはSD/HD-SDIで、最新のUltra HDディスプレイやプロジェクターにはHDMIで接続できます。

Blackmagic Audio Monitor 12G G3は、ST 2110入力をHDMIおよび12G-SDIにも変換できます。両出力は、フロントパネルの入力ボタンでSDIまたはST 2110のどちらが選択されているかにより変わります。



これらのボタンで、モニタリングしたい入力の選択、ステレオオーディオの左右チャンネルのソロ、オーディオチャンネルの選択（ボタンを上下に動かす）、スピーカー/ヘッドフォンのミュートが可能です。

# Blackmagic Audio Monitorの使用

Blackmagic Audio Monitorのコントロールパネルを使用して、重要な機能やステータスにすばやくアクセスできます。

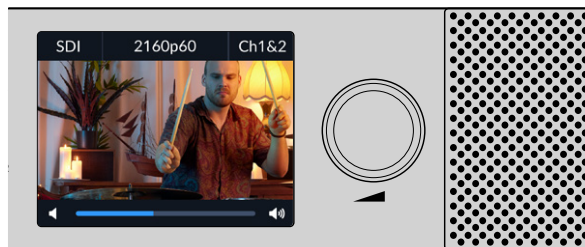
## LCD

内蔵カラーLCDには、選択されている入力、ビデオフォーマット (SDIが接続されている場合)、選択されているオーディオチャンネル、スピーカー/ヘッドフォンのボリュームなど、大切な情報がテキストオーバーレイで表示されます。またLCDには、入力されているあらゆるSDIビデオ信号が表示されます。SDIビデオが検出されない場合は、ミュージック (音符) アイコンが表示されます。

選択した入力に応じて、以下の情報が表示されます：

### SDI入力

SDI、ビデオフォーマット、選択オーディオチャンネル



カラーLCDは入力信号、ビデオフォーマット、選択オーディオチャンネル、ボリュームなど、オーディオ/ビデオの情報を表示します。



SDIまたはSMPTE 2110信号をモニタリングしていない場合は、LCDに音符アイコンが表示されます。

### 10GイーサネットST 2110入力

SMPTE-2110 IPビデオ。SMPTE-2110-30のオーディオサポートを含む。

### バランスAES/EBU XLR入力

AES/EBU、選択オーディオチャンネル

### バランスXLRアナログ入力

アナログ、選択オーディオチャンネル

### アンバランスRCAアナログ入力

HiFi、選択オーディオチャンネル

## オーディオレベル・メーター

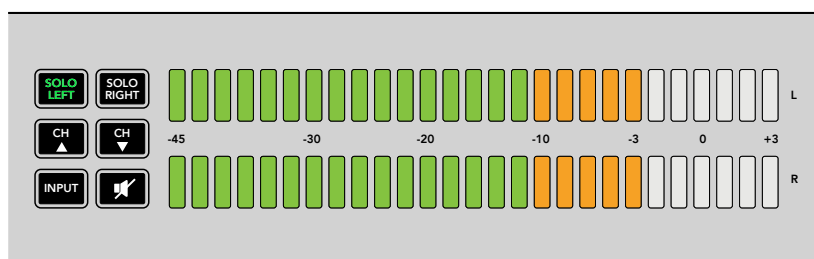
Blackmagic Audio Monitorのレベルメーターは、2列のLED（緑、オレンジ、赤）でオーディオレベルを表示します。すべてのLEDが光っている場合、オーディオレベルが高すぎるためクリッピングが発生します。

オーディオレベル・メーターの挙動は、Audio Monitor Setupユーティリティで選択されているメータータイプ設定によって異なります。VUメーターを使用している場合は、メーターのピーク値をコントロールパネルの0dBインジケーターに合わせてオーディオ機器の出力レベルを調整してください。これによりS/N比が最大化され、最高品質のオーディオが保証されます。ピーク値が0dBを超えると、ピークノイズが発生するリスクが高くなります。

Blackmagic Audio Monitor Setupのインストールおよびレベルメータータイプの設定に関する詳細は、「Audio Monitor Setup」セクションを参照してください。

## コントロールパネルボタン

これらのボタンで左右のオーディオチャンネルを分離し、個別にモニタリングしてオーディオの問題などを確認できます。



「SOLO LEFT」を選択すると、右チャンネルのオーディオがオフになります。オーディオレベルメーターは、左右両方のレベルを表示

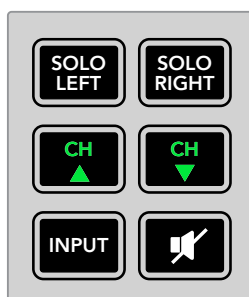
- 1 「SOLO LEFT」ボタンを押します。ボタンが緑に光り、左のスピーカーのみを通じてオーディオが再生されます。
- 2 「SOLO LEFT」ボタンを再度押すと、ソロが解除され元に戻ります。

右チャンネルのオーディオをモニタリングするには、上記と同じ手順で、代わりに「SOLO RIGHT」を押します。

### チャンネルアップ/チャンネルダウン(CH▲/CH▼)

これらのボタンでSDIインターフェースのエンベデッドオーディオチャンネルを選択できます。3G-SDIの場合、最大16チャンネルあるいは8ペアです。チャンネルアップ/チャンネルダウンボタンを押すと、エンベデッドSDIオーディオチャンネルを上下に移動できます。

Blackmagic Audio Monitor 12Gは12G-SDIをサポートしており、これには最大64チャンネルあるいは32ペアのチャンネルが含まれます。上下の矢印ボタンを長押しすると、これらのチャンネルをすばやくスクロールできます。

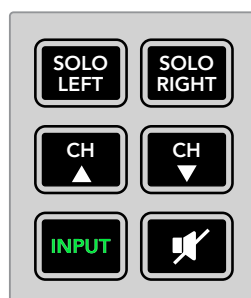


## 入力(INPUT)

「INPUT」ボタンを繰り返し押すと、SDI、AES/EBU、SMPTE 2110、アナログ、HiFi入力が順に切り替わり、モニタリングするビデオおよびオーディオ機器を選択できます。

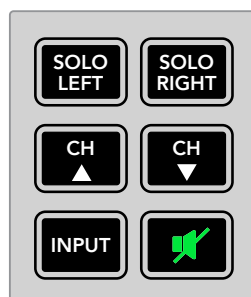
選択したオーディオ入力はい蔵スピーカーで聞くことができ、またHDMI出力のチャンネル1と2でもモニタリングできます。

**メモ** アナログ、AES/EBU、HiFi入力が選択されている場合、HDMI出力はブラックビデオとして表示されます。SDIループ出力は、SDI入力に接続されているビデオおよびオーディオを常に出力します。



## ミュート

ミュートボタンは、Blackmagic Audio Monitorのコントロールパネルのスピーカーおよびヘッドフォンをミュートします。オーディオのミュートはスピーカーおよびヘッドフォンの出力のみに影響します。オーディオ入力に対する影響はありません。ミュートボタンをもう一度押すと、コントロールパネルのスピーカーおよびヘッドフォンのオーディオが元に戻ります。または、ボリュームを上げてもオーディオが元に戻ります。



## ボリューム

ボリュームノブは、スピーカー/ヘッドフォンのボリュームを個別に調整します。ボリュームレベルはLCDスクリーンに表示されます。ヘッドフォンを接続すると、Blackmagic Audio Monitorのスピーカーはミュートされ、ヘッドフォンからオーディオが出力されます。ボリュームノブを時計回り/反時計回りに回して、簡単にボリュームを調整できます。



ボリュームレベルがコントロールパネルのLCDに表示されます。

# Audio Monitor Setup

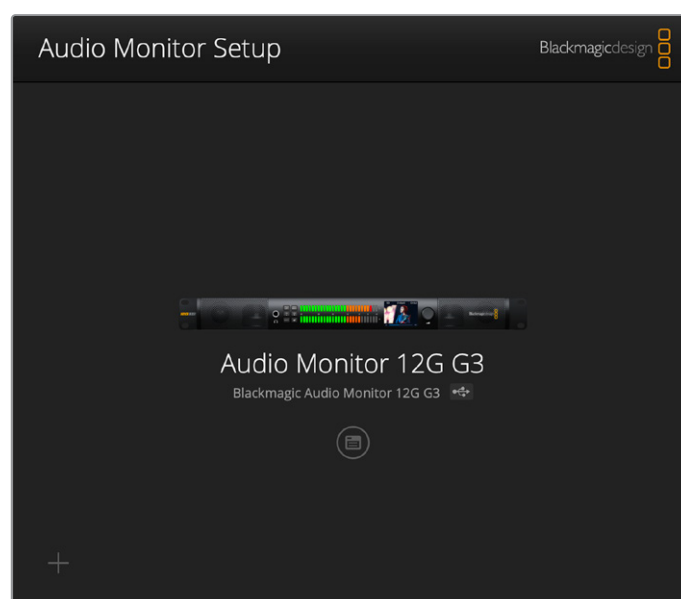
## Blackmagic Audio Monitor Setup

Blackmagic Audio Monitor Setupは、オーディオレベルメーターの種類の設定や、Blackmagic Audio Monitorの内部ソフトウェアのアップデートに使用します。

オリジナルのBlackmagic Audio MonitorをUSBでコンピューターに接続している場合、Setupユーティリティを使用して、コンフィギュレーション設定の変更や内部ソフトウェアのアップデートが行えます。Blackmagic Audio Monitor 12G G3では、ユニットのアップデートおよび設定の変更は、USBまたはイーサネットを介して実行できます。

Audio Monitor Setupをインストールする：

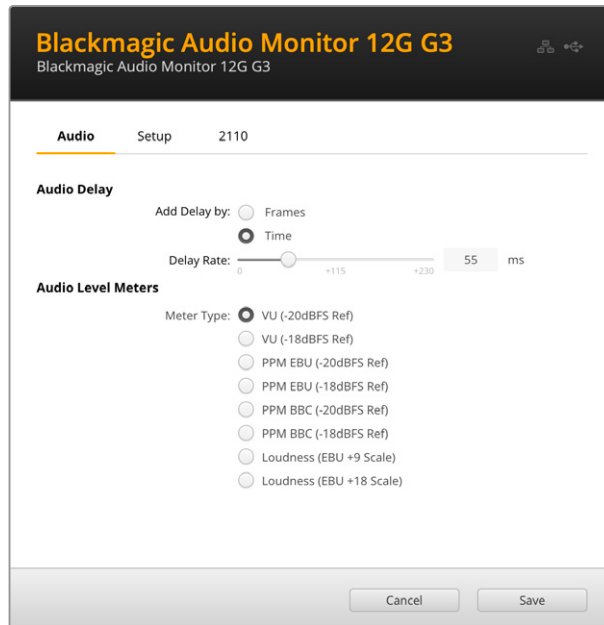
- 1 ウェブブラウザで[www.blackmagicdesign.com/jp/support](http://www.blackmagicdesign.com/jp/support)に行き、最新のBlackmagic Audio Monitor ドライバーをダウンロードします。
- 2 ファイルのダウンロードが完了したら、「Install Audio Monitor」アイコンをダブルクリックして、インストーラーを起動します。画面の指示に従い、「Install」を押してソフトウェアをインストールします。
- 3 ソフトウェアがインストールされたら、アプリケーションまたはプログラムフォルダーで「Blackmagic Audio Monitor」フォルダーへ行き、「Audio Monitor Setup」をダブルクリックします。



Blackmagic Audio Monitor Setupユーティリティを使用して、Blackmagic Audio Monitorの内部ソフトウェアのアップデートおよびコンフィギュレーション設定の変更を実行。

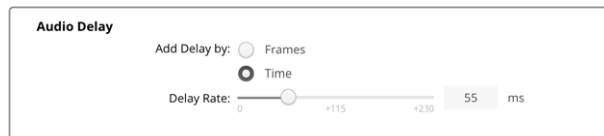
## Audio (オーディオ) タブ

「Audio」タブをクリックすると、オーディオ遅延およびレベルモニタリングの設定が表示されます。



### Audio Delay (オーディオ遅延)

スライダーを調整して、HDMIおよびSDIループ出力にオーディオ遅延を追加できます。遅延は、フレームまたはミリ秒単位で調整可能です。



### オーディオレベルメーター

メータータイプはVU、PPM、ラウドネスから、スケールタイプはEBUおよびBBCから選択できます。現在VUメーターが標準化されていますが、PPMおよびラウドネスメーターはスケーリングシステムや音量感の測定を行えます。以下の表は、サポートされているオーディオレベルメーターとそれぞれの測定スケールです。

| メータータイプ | スケールタイプ    | 測定スケール    | 使用方法     |
|---------|------------|-----------|----------|
| VU      | -          | -45 ~ +3  | ユニットに記載  |
| PPM     | EBU        | -12 ~ +12 | ステッカーラベル |
| PPM     | BBC        | 1 ~ 7     | ステッカーラベル |
| ラウドネス   | EBU +9     | -18 ~ +9  | ステッカーラベル |
| ラウドネス   | EBU +18    | -36 ~ +18 | ステッカーラベル |
| ラウドネス   | フルスケール +9  | -41 ~ -14 | ステッカーラベル |
| ラウドネス   | フルスケール +18 | -59 ~ -5  | ステッカーラベル |

## VU

VUメーターは、オーディオ信号の短いピークおよびボトムの平均値を表示します。VUメーターは信号のピーク値のモニタリングに使用されることが多いですが、信号の平均値を表示できるため、オーディオの聴感上の音量をモニタリングする際にも使用できます。

## PPM

PPMメーターは、「ピークホールド」機能に対応しています。この機能では、信号のピーク値の表示が保持されゆっくりと戻るため、オーディオのピーク値が簡単に確認できます。

## ラウドネス

ラウドネスメーターは、オーディオ信号の主観的音量を表示します。今日の放送基準では、ラウドネス計測を行い、一定したオーディオラウドネスレベルを提供することが求められています。

VUおよびPPMメーターは、リファレンスレベルを-18dBまたは-20dBから選択できるため、様々な国際放送基準に合わせたオーディオモニタリングが可能です。

Blackmagic Audio MonitorのLEDリファレンスの挙動は、選択されたメータータイプによって異なります。Blackmagic Audio Monitorには、正確なリファレンススケールが表示されたステッカーラベルが同梱されており、これらを使用してオーディオのピーク値を簡単に確認できます。ラベルを使用するには、ラベルをはがし、カラーLEDメーターの間のVUスケールマークに重ねて貼り付けます。

オーディオレベルメーターの各タイプおよび測定スケールごとに2枚ずつのラベルがあります。また、ステッカーラベルはBlackmagicサポートオフィスからでも入手可能です。

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

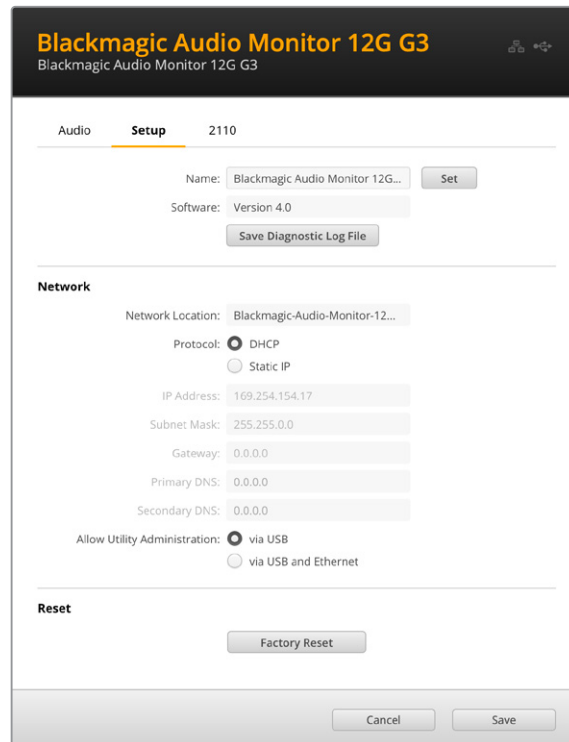
同梱のステッカーラベルを使用して、オーディオのピーク値を各メータータイプで正確に確認できます。

## Setup(セットアップ)タブ

「Setup」タブでは、ソフトウェアのバージョン番号が確認でき、Blackmagic Audio Monitorのネットワーク設定が行えます。また、ユニット名のラベルをカスタマイズすることも可能です。ユニット名をつけると、リモート接続の際に簡単に見つけられます。「Setup」タブには、Audio Monitorのネットワーク設定も含まれます。

Blackmagic Audio Monitor 12Gにユニット名をつける：

- 1 「Setup」タブをクリックします。
- 2 「Name」テキストボックスをクリックして、新しい名前を入力します。
- 3 右下の「Save」をクリックします。



### Network(ネットワーク)設定

ネットワークを介してBlackmagic Audio Monitor 12Gにアクセスすることは、複数のユニットを管理する最も簡単な方法です。これには、Blackmagic Audio Monitor Setupを使用します。Blackmagic Audio Monitor 12Gは、デフォルトでDHCPに設定されており、自動的にネットワークアドレスを取得するため、Setupユーティリティのホームスクリーンですぐに選択できます。

### Allow utility administration(ユーティリティ管理を可能にする)

ネットワークまたはUSBを介してAudio Monitorを接続することで、Blackmagic Audio Monitor Setupにアクセスできます。ネットワークを介してユーザーがアクセスできないようにするには、「via USB(USBを介して)」を選択します。

### Reset(リセット)

「Factory Reset(工場出荷時設定にリセット)」をタップすると、Audio Monitor 12Gが出荷時の設定に戻ります。

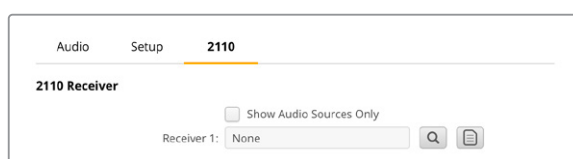
## 2110タブ

Blackmagic Audio Monitor 12G G3には、SMPTE 2110 IPストリームおよびPTPグランドマスターの設定を行うタブがあります。

### 2110 Receiver(レシーバー)

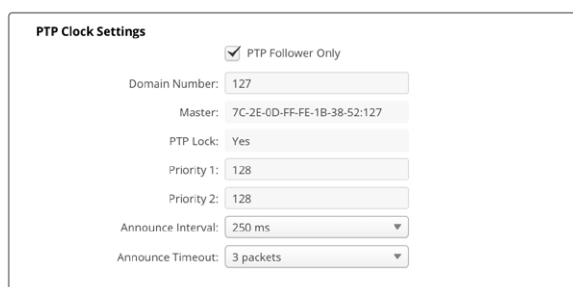
オーディオソースのみをマッピングしている場合、「Show Audio Sources Only(オーディオソースのみを表示)」チェックボックスにチェックを入れます。

受信したいストリームをルーティングするには、「Receiver」フィールドの右にある虫めがねアイコンをクリックします。使用可能なソースすべてが記載されたリストのウィンドウが開き、ストリームのIPノードとソースラベルが確認できます。ストリームをハイライトして、「Select」ボタンをクリックします。ウィンドウが閉じ、ストリームのラベルが「Receiver」フィールドに表示されます。Audio MonitorのLCDディスプレイに入力ソースが表示されます。



### PTP Clock Settings(PTPクロック設定)

この設定では、PTPグランドマスターの設定を調整できます。



PTPグランドマスターに接続した10GネットワークスイッチにBlackmagic Audio Monitor 12G G3を接続する際、タイミングの競合を防ぐためにAudio Monitorはフォロワーモードに設定されている必要があります。Audio MonitorをBlackmagic 2110 IP 3x3G Converterなどの他のST 2110 IPユニットに接続している場合、「PTP Follower Only(PTPフォロワーのみ)」チェックボックスにチェックを入れて、フォロワーに設定します。

#### Domain Number(ドメイン番号)

PTPグランドマスターに一致するドメイン番号を入力します。これは一般的に「127」ですが、「Domain Number」のフィールドに別のドメイン番号を入力することで変更できます。

#### Master(マスター)

マスターアドレスのフィールドには、PTPグランドマスターのMACアドレスが表示されます。これは、個別のグランドマスター・デバイス、あるいは他のBlackmagic 2110 IPユニットです。

#### PTP Lock(PTPロック)

このフィールドは、Audio Monitorがイーサネットを介してPTPクロックにロックされているかどうかを表示します。

### Priority(プライオリティ)

「Priority 1」と「Priority 2」設定では、ネットワーク上に複数のPTPグランドマスターがある場合、優先するPTPグランドマスターを設定できます。数字が小さいほど、優先順位が高くなります。

### Announce Interval(アナウンス間隔)とAnnounce Timeout(アナウンスタイムアウト)

「Announce Interval」と「Announce Timeout」のフィールドは、PTPグランドマスターの仕様と一致する必要があります。これは、同期メッセージを通常2秒(2000 ms)ごとに送信します。メッセージの周期を変更するには、メニューで別のオプションを選択します。アナウンス間隔とアナウンスタイムアウトで選択できる範囲は、使用しているPTPグランドマスターにより異なります。

## 内部ソフトウェアのアップデート

- 1 Blackmagic Audio MonitorをUSBまたはイーサネットでコンピューターに接続します。
- 2 Blackmagic Audio Monitor Setupを開きます。
- 3 コンフィギュレーションアイコンをクリックします。アップデートが必要であるかどうかが表示されます。
- 4 アップデートが必要な場合は、「Update」ボタンをクリックしてソフトウェアのインストールを完了させます。



「Update」ボタンをクリックして内蔵ソフトウェアをアップデートします。



プログレスバーにアップデートの進行状況が表示されます。

- 5 アップデートが完了したら「Close」ボタンをクリックします。

# Developer Information

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵
Meter Mode: Loudness (EBU +18 scale)↵
↵
```

The response will be

```
ACK:
AUDIO METER:
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵
↵
```

The response will be

```
ACK:
AUDIO INPUT:
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:
Gain: Speaker Stereo 0
Gain: Headphone Stereo 0
Mute: false
Solo: Off
Audio delay in ms: 0
Audio delay in frames: 0
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵
Gain: Speaker Stereo 125↵
Solo: Right↵
↵
```

The response will be

```
ACK:
AUDIO OUTPUT:
Gain: Speaker Stereo 125
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵
AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# ヘルプ

## ヘルプライン

すぐに情報が欲しいかたは、Blackmagic Designオンラインサポートページで、Blackmagic Audio Monitorの最新サポート情報を確認できます。

### Blackmagic Design オンラインサポートページ

最新のマニュアル、ソフトウェア、サポートノートは、[www.blackmagicdesign.com/jp/support](http://www.blackmagicdesign.com/jp/support)のBlackmagicサポートセンターで確認できます。

### Blackmagic Designフォーラム

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### Blackmagic Designサポートに連絡する

サポートページやフォーラムで必要な情報を得られなかった場合は、サポートページの「メールを送信」ボタンを使用して、サポートのリクエストをメール送信してください。あるいは、サポートページの「お住まいの地域のサポートオフィス」をクリックして、お住まいの地域のBlackmagic Designサポートオフィスに電話でお問い合わせください。

### 現在インストールされているソフトウェアのバージョンを確認

コンピューターにインストールされているBlackmagic Audio Monitor Setupのバージョンを確認するには、「About Blackmagic Audio Monitor Setup」ウィンドウを開きます。

- macOSでは、アプリケーションフォルダーから「Blackmagic Audio Monitor Setup」を開きます。メニューで「About Blackmagic Audio Monitor Setup」を選択し、バージョン番号を確認します。
- Windows 10では、スタートページの「Blackmagic Audio Monitor Setup」タイルから「Blackmagic Audio Monitor Setup」を開きます。ヘルプメニューで「About Blackmagic Audio Monitor Setup」を選択し、バージョン番号を確認してください。

### 最新のソフトウェアアップデートを入手する

コンピューターにインストールされているBlackmagic Audio Monitor Setupのバージョンを確認したら、Blackmagicサポートセンター ([www.blackmagicdesign.com/jp/support](http://www.blackmagicdesign.com/jp/support)) で最新のソフトウェアアップデートをチェックしてください。常に最新のソフトウェアを使用することを推奨しますが、重要なプロジェクトの実行中は、ソフトウェアのアップデートは行わない方がよいでしょう。

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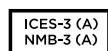
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## European Office

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# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## Bienvenue

Nous vous remercions d'avoir fait l'acquisition du Blackmagic Audio Monitor pour répondre à vos besoins de production.

Nous espérons que vous partagez le même rêve que nous, faire de l'industrie audiovisuelle un lieu créatif où chacun a accès à des équipements vidéo de grande qualité.

Le monitoring audio est essentiel à la production broadcast, à la postproduction ou à la production en direct. Le Blackmagic Audio Monitor offre toutes les fonctionnalités d'un outil de monitoring audio professionnel dans un format compact et montable sur rack. Vous pouvez désormais connecter tous les appareils audio de votre choix pour effectuer un monitoring de qualité. Le Blackmagic Audio Monitor original prend en charge le 6G-SDI pour connecter de la vidéo Ultra HD jusqu'à 30 images par seconde. Le Blackmagic Audio Monitor 12G prend en charge le 12G-SDI pour connecter de la vidéo Ultra HD jusqu'à 60 images par seconde. Il prend également en charge les signaux vidéo 3G-SDI de niveau A et B. En outre, le Blackmagic Audio Monitor 12G G3 supporte jusqu'à 12G-SDI via la vidéo IP SMPTE 2110 à l'aide d'Ethernet 10G.

Ce manuel d'utilisation comprend toutes les informations dont vous avez besoin pour utiliser votre Blackmagic Audio Monitor.

Consultez notre page d'assistance sur [www.blackmagicdesign.com/fr/support](http://www.blackmagicdesign.com/fr/support) pour obtenir la dernière version de ce manuel et les mises à jour du logiciel Blackmagic Audio Monitor Setup. Nous vous recommandons de mettre le logiciel interne à jour régulièrement afin de travailler avec les fonctions les plus récentes. N'oubliez pas d'enregistrer vos coordonnées lorsque vous téléchargerez le logiciel afin d'être informé des dernières mises à jour. Nous souhaitons continuellement améliorer nos produits, n'hésitez donc pas à nous faire part de vos commentaires !

**Grant Petty**

PDG de Blackmagic Design

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# Mise en route

## Blackmagic Audio Monitor

Le Blackmagic Audio Monitor et le Blackmagic Audio Monitor 12G sont des solutions de monitoring audio en temps réel d'une unité de rack. Ils fonctionnent avec de nombreuses sources vidéo et audio pour les travaux de production broadcast en direct et de postproduction.

Le Blackmagic Audio Monitor se connecte à des équipements audio SD/HD/3G/6G-SDI, numériques AES/EBU et analogiques pour garantir des sorties ayant le niveau audio approprié. Le modèle 12G prend en charge le 12G-SDI pour connecter de la vidéo Ultra HD jusqu'à 60 images par seconde. Les indicateurs de niveaux à LED des canaux gauche et droit vous permettent de visualiser à quel niveau votre audio est écrêté. L'écran LCD intégré affiche le signal vidéo SDI ainsi que des informations importantes telles que le type d'entrée, le format vidéo, la fréquence d'images, les canaux audio et le niveau sonore.

Vous pouvez contrôler jusqu'à 16 canaux d'audio SDI intégré ou utiliser les connecteurs XLR pour l'audio analogique symétrique et l'audio numérique AES/EBU. Les connecteurs RCA permettent de le relier à des appareils grand public, tels que les systèmes HiFi et les iPod.

Le Blackmagic Audio Monitor intègre deux haut-parleurs à large bande internes de grande qualité et deux subwoofers qui permettent de reproduire parfaitement les fréquences graves. Vous pouvez également connecter un casque pour effectuer du monitoring dans des environnements bruyants.



Face avant du Blackmagic Audio Monitor 12G



Face arrière du Blackmagic Audio Monitor 12G

Les modèles Blackmagic Audio Monitor 12G G3 peuvent également recevoir des flux 2110 natifs, dont le 12G-SDI compressé.



Face avant du Blackmagic Audio Monitor 12G G3



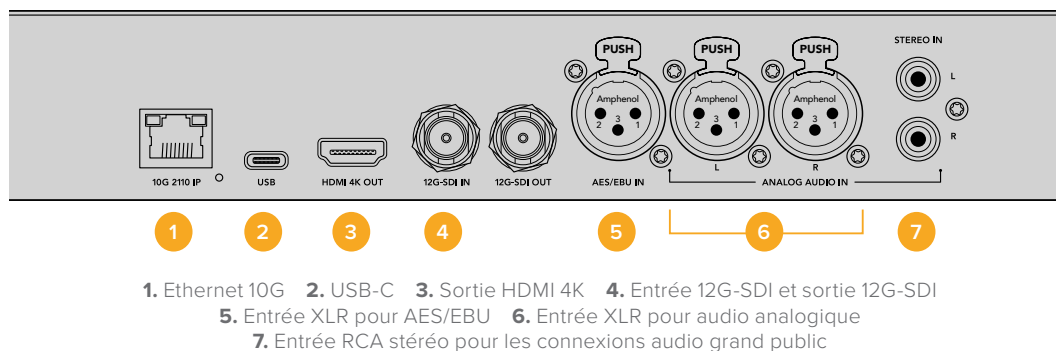
Face arrière du Blackmagic Audio Monitor 12G G3

## Brancher l'audio

Le Blackmagic Audio Monitor prend en charge pratiquement tous les équipements audio. Si vous souhaitez connecter des signaux SDI en SD, HD, 2K ou Ultra HD, branchez l'entrée SDI avec un connecteur BNC standard. Le modèle 12G prend en charge les entrées vidéo 3G-SDI de niveau A et B.

Pour le monitoring de l'audio numérique AES/EBU sur des enregistreurs à disque et des consoles audio numériques ou analogiques, tels que les mixeurs audio et les lecteurs Betacam SP, utilisez

les connecteurs XLR. Les connecteurs RCA standard permettent de relier l'audio analogique à des équipements grand public, tels que les magnétoscopes et les lecteurs DVD. Vous pouvez également brancher un casque grâce au jack TRS 1/4" pour un monitoring plus discret.



## Sélection de la source audio

Après avoir branché votre équipement audio au Blackmagic Audio Monitor, il vous suffit de sélectionner la connexion désirée en appuyant sur le bouton INPUT situé sur le panneau de contrôle. Lorsque votre entrée est sélectionnée et qu'un signal audio est présent, vous remarquerez que les LED des indicateurs de niveaux s'allument. Ils comportent deux rangées de LED de couleur qui s'allument pour confirmer que l'entrée audio fonctionne.

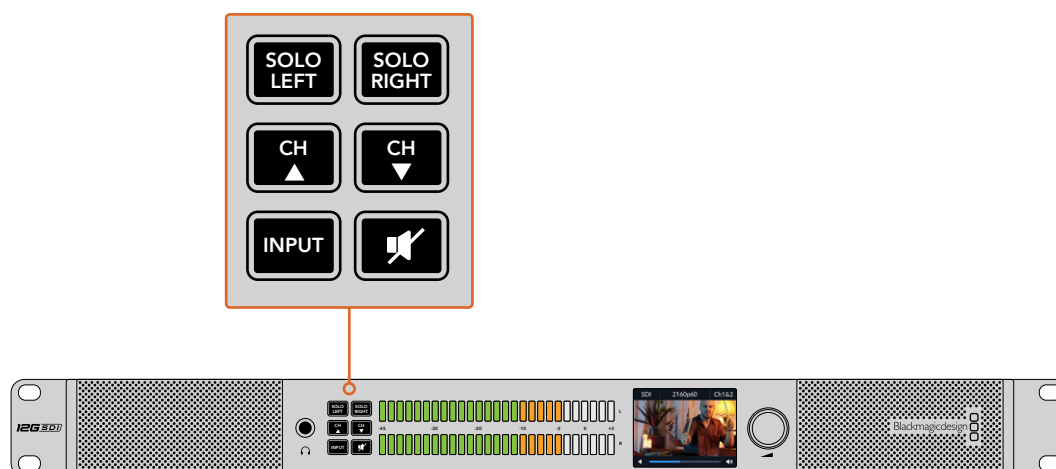
Le bouton INPUT vous permet de faire défiler les connexions audio et de les visualiser sur l'écran LCD avec d'autres informations, notamment le type d'entrée, les canaux audio et le niveau sonore. C'est tout ce que vous devez savoir pour contrôler l'audio avec le Blackmagic Audio Monitor.

## Connexion des sorties vidéo

Si vous souhaitez contrôler la vidéo et l'audio, les sorties vidéo du Blackmagic Audio Monitor vous permettent de contrôler ces deux signaux sur un grand écran. Vous pouvez également simplement le connecter à d'autres appareils vidéo.

Les sorties HDMI et SDI en boucle peuvent être utilisées pour le monitoring de la vidéo et de l'audio intégré.

Le Blackmagic Audio Monitor 12G G3 peut également convertir les entrées ST2110 en HDMI et 12G-SDI, car les deux sorties suivront les entrées SDI ou 2110 en fonction de celle qui est sélectionnée via le bouton INPUT du panneau avant.



# Utilisation du Blackmagic Audio Monitor

Le panneau de contrôle du Blackmagic Audio Monitor offre un accès rapide aux fonctionnalités essentielles et à l'état de l'appareil.

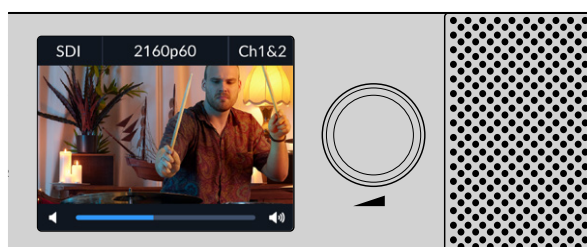
## Écran LCD

L'écran en couleur intégré affiche les informations à l'écran, notamment, l'entrée sélectionnée, le format vidéo si un signal SDI est connecté, les canaux audio sélectionnés et le niveau sonore des haut-parleurs et du casque. De plus, il affiche les signaux vidéo SDI entrants. Si aucune vidéo SDI n'est détectée, une note de musique s'affiche à l'écran.

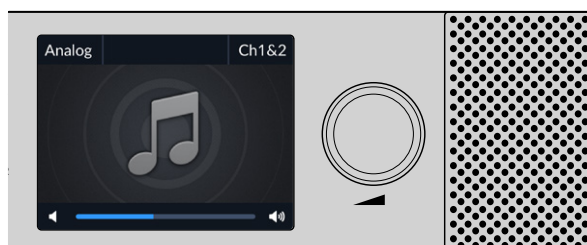
Les informations suivantes sont affichées pour chaque entrée :

### Entrée SDI

SDI, le format vidéo et les canaux audio sélectionnés.



L'écran affiche les informations audio et vidéo, notamment le type de connexion, le format vidéo, les canaux audio sélectionnés et le niveau sonore.



Une note de musique s'affiche sur l'écran LCD, sauf si vous contrôlez un signal SDI ou SMPTE 2110

### Entrée 2110 Ethernet 10G

Prise en charge de la vidéo IP SMPTE-2110 dont l'audio SMPTE-2110-30.

### Entrée symétrique AES/EBU XLR

AES/EBU et les canaux audio sélectionnés.

### Entrées analogiques symétriques XLR

Analogique et les canaux audio sélectionnés.

### Entrées analogiques asymétriques RCA

HiFi et les canaux audio sélectionnés.

## Indicateurs de niveaux audio

Les indicateurs de niveaux du Blackmagic Audio Monitor comportent deux bandes de LED vert, orange et rouge qui indiquent le niveau audio. Si tous les voyants sont allumés, les niveaux audio sont trop élevés et sont écrêtés.

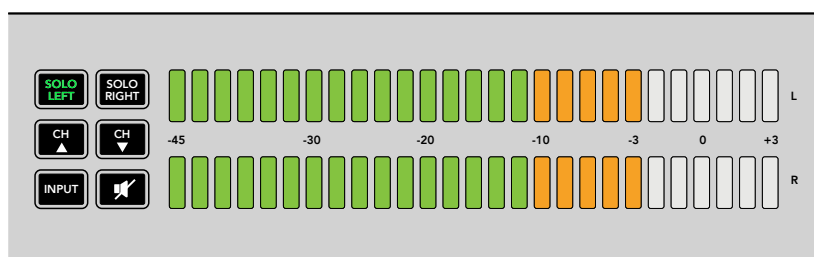
Le comportement des vumètres change en fonction du type d'indicateur sélectionné dans les paramètres de l'utilitaire Audio Monitor Setup. Si vous utilisez le vumètre, réglez les niveaux de sortie de l'appareil audio de telle sorte que l'audio soit écrêté au delà de 0dB. Le curseur peut être réglé sur le panneau de contrôle. Cela maximise le rapport signal/bruit et vous permet d'obtenir un son de qualité optimale. Si votre audio dépasse le curseur placé à 0dB, il y a de fortes chances pour que votre son soit distordu.

Veuillez consulter la section « Utilitaire Audio Monitor Setup » de ce manuel pour obtenir des informations concernant l'installation du logiciel Blackmagic Audio Monitor Setup et la configuration des types d'indicateurs audio.

## Boutons du panneau de contrôle

### Solo Left et Solo Right

Ces boutons vous permettent d'isoler les canaux audio gauche et droit pour écouter indépendamment les canaux.



Sélectionner le bouton **Solo left** désactive le canal audio droit. L'indicateur de niveau audio continuera à afficher les deux niveaux

Pour écouter le canal audio gauche :

- 1 Appuyez sur le bouton **Solo left**. Le bouton s'allume en vert, ce qui indique que l'audio n'est lu que sur le haut-parleur gauche.
- 2 Appuyez à nouveau sur **Solo left** pour revenir au monitoring stéréo de l'audio.

Pour vérifier l'audio du canal droit, répétez ces étapes en appuyant sur **Solo right**.

### Canal vers le haut et canal vers le bas

Ces boutons permettent de faire défiler les canaux audio intégrés sur la connexion SDI. Pour le 3G-SDI, cela comprend jusqu'à 16 canaux, ou 8 paires de canaux. Appuyez sur le bouton flèche vers le haut ou vers le bas pour faire défiler les canaux audio SDI intégrés.

Le Blackmagic Audio Monitor 12G supporte le 12G-SDI, qui comprend jusqu'à 64 canaux audio, ou 32 paires de canaux. Maintenez les boutons flèche vers le haut ou vers le bas appuyés pour faire rapidement défiler les canaux.

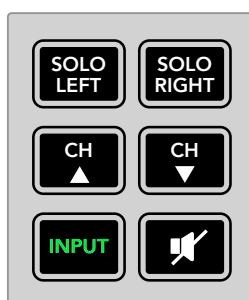


## Input

Appuyez à plusieurs reprises sur le bouton INPUT pour faire défiler les entrées SDI, AES/EBU, SMPTE 2110, analogiques et HiFi, et ainsi choisir l'équipement vidéo et audio que vous souhaitez contrôler.

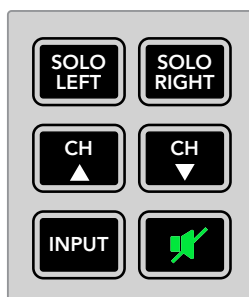
Il est possible d'écouter l'entrée audio sélectionnée via les haut-parleurs intégrés et de faire du monitoring audio sur les canaux 1 et 2 de la sortie HDMI.

**REMARQUE** La sortie HDMI affiche un signal noir lorsque les entrées analogiques, AES/EBU ou HiFi sont sélectionnées. La sortie SDI en boucle achemine toujours la vidéo et l'audio connectés à l'entrée SDI.



## Couper le son

Ce bouton coupe le son des haut-parleurs et du casque. L'audio entrant ne sera pas affecté, seul le son provenant de la sortie haut-parleur et casque sera coupé. Appuyez de nouveau sur ce bouton pour réactiver l'audio sur la sortie haut-parleur et casque. Vous pouvez également restaurer l'audio en augmentant le volume.



## Volume

La molette permet de régler indépendamment le volume des haut-parleurs et du casque. Le niveau sonore est affiché sur l'écran LCD. Lorsqu'un casque est connecté, le son des haut-parleurs du Blackmagic Audio Monitor est coupé et l'audio est acheminé sur le casque. Le niveau sonore peut facilement être réglé en tournant la molette.



Le niveau sonore est affiché sur l'écran LCD.

# Utilitaire Audio Monitor Setup

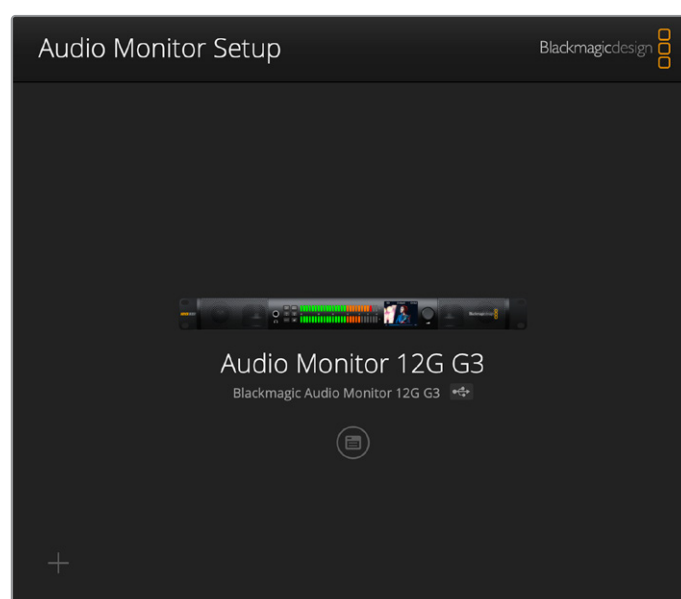
## Utilitaire Blackmagic Audio Monitor Setup

Cet utilitaire vous permet de choisir le type d'indicateur de niveau audio désiré et de mettre à jour le logiciel interne de votre Blackmagic Audio Monitor.

Lorsque le Blackmagic Audio Monitor original est connecté à un ordinateur via USB, vous pouvez modifier les paramètres de configuration et mettre à jour le logiciel interne à l'aide de l'utilitaire. Sur le Blackmagic Audio Monitor 12G G3, vous pouvez également mettre à jour l'appareil et modifier les paramètres via USB ou Ethernet.

Pour installer l'Audio Monitor Setup :

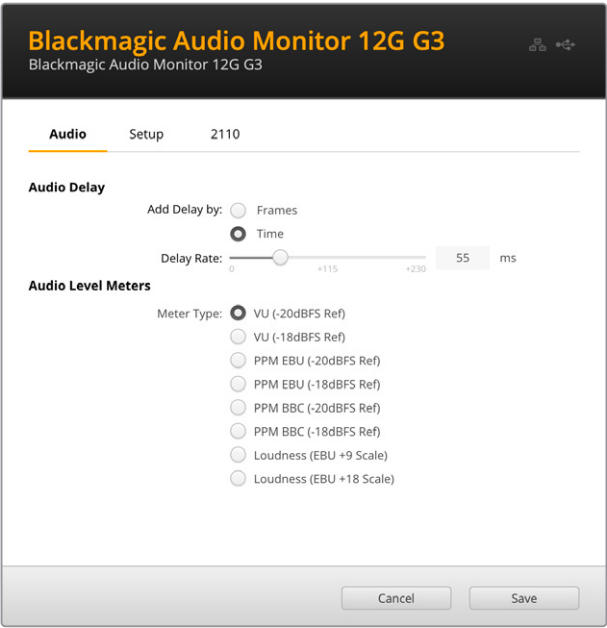
- 1 Depuis un navigateur web, allez sur [www.blackmagicdesign.com/fr/support](http://www.blackmagicdesign.com/fr/support), puis téléchargez les derniers pilotes Blackmagic Audio Monitor.
- 2 Une fois le fichier téléchargé, double-cliquez sur l'icône **Install Audio Monitor** pour exécuter le programme d'installation. Suivez les indications jusqu'à la fin, puis appuyez sur **Install** pour installer le logiciel.
- 3 Une fois le logiciel installé, naviguez vers le dossier **Blackmagic Audio Monitor** dans votre dossier d'applications ou de programmes, puis double-cliquez sur **Audio Monitor Setup**.



Mettez à jour le logiciel interne de votre Blackmagic Audio Monitor et modifiez les paramètres de configuration à l'aide de l'utilitaire Blackmagic Audio Monitor Setup.

# Onglet Audio

Cliquez sur l'onglet Audio pour afficher les paramètres Audio Delay et Audio Level Meters.



## Audio Delay

Ajoutez un décalage audio aux sorties en boucle SDI et HDMI en ajustant le curseur. Vous pouvez ajuster le décalage en images ou en millisecondes.



## Audio Level Meters

Vous pouvez choisir entre plusieurs types d'indicateurs tels que VU-mètre, PPM ou Loudness et des échelles de mesure telles que EBU et BBC. Tandis que le vumètre s'est standardisé, le PPM et le Loudness fournissent des systèmes de mesure différents. Le tableau suivant présente les indicateurs de niveaux audio et les échelles de mesure pris en charge.

| Indicateurs de niveaux audio | Échelles       | Échelles de mesure | Utilisation            |
|------------------------------|----------------|--------------------|------------------------|
| VU                           | –              | -45 à +3           | Imprimé sur l'appareil |
| PPM                          | EBU            | -12 à +12          | Autocollant            |
| PPM                          | BBC            | 1 à 7              | Autocollant            |
| Loudness                     | EBU +9         | -18 à +9           | Autocollant            |
| Loudness                     | EBU +18        | -36 à +18          | Autocollant            |
| Loudness                     | Full Scale +9  | -41 à -14          | Autocollant            |
| Loudness                     | Full Scale +18 | -59 à -5           | Autocollant            |

## VU

Cet indicateur affiche une moyenne des crêtes et des creux de votre signal audio. Le vumètre est en général utilisé pour contrôler les crêtes d'un signal, toutefois, comme il donne une valeur moyenne des niveaux, il peut également être utilisé pour contrôler l'impression de niveau ressentie par l'auditeur.

## PPM

Ce crêtemètre comprend une fonction qui maintient momentanément les crêtes du signal et qui les fait redescendre lentement. Cela permet de visualiser aisément à quel niveau votre audio est écrêté.

## Loudness

Cet indicateur affiche la qualité subjective du niveau sonore de votre signal audio. Les normes de diffusion actuelles incluent cet indicateur afin d'offrir des niveaux d'intensité sonore stables.

Le vumètre et le PPM intègrent un niveau de référence sélectionnable de -18dB ou de -20dB pour effectuer un monitoring audio en fonction des différentes normes de diffusion internationales.

Le comportement des LED du Blackmagic Audio Monitor change en fonction du type d'indicateur de niveau choisi. Des autocollants représentant avec précision les différentes échelles de dB sont fournis avec votre Blackmagic Audio Monitor pour vous permettre d'identifier aisément à quel niveau votre audio est écrêté. Il vous suffit de choisir et de coller l'autocollant de votre choix entre les indicateurs LED de couleur, afin de cacher l'échelle VU.

Vous trouverez deux autocollants pour chaque type d'indicateur de niveau audio et échelle de mesure. Vous pouvez également vous procurer des autocollants auprès du centre de support technique Blackmagic Design de votre région.

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

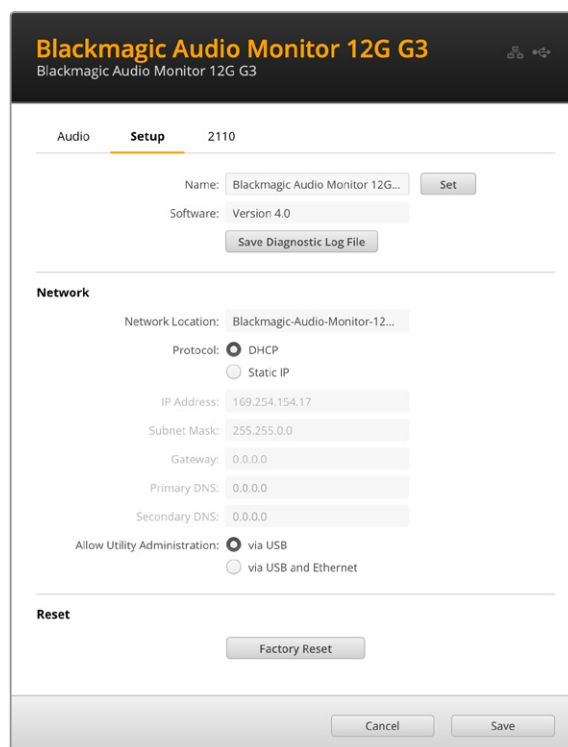
Grâce aux autocollants, vous pouvez identifier avec précision à quel niveau votre audio est écrêté pour tous les types d'indicateurs de niveaux audio.

## Onglet Setup

L'onglet Setup affiche le numéro de version du logiciel et contient les paramètres réseau de votre Blackmagic Audio Monitor. Il est aussi possible de personnaliser le nom de votre appareil. Nommer l'appareil vous aide à le localiser rapidement lorsqu'il est connecté à distance. L'onglet Setup contient également les paramètres réseau de l'Audio Monitor.

Pour nommer le Blackmagic Audio Monitor 12G :

- 1 Cliquez sur l'onglet **Setup**.
- 2 Cliquez dans la zone de texte **Name** et saisissez un nouveau libellé.
- 3 Cliquez sur **Save** en bas à droite de la fenêtre de l'utilitaire.



### Network

Accéder au Blackmagic Audio Monitor 12G en réseau facilite la gestion de plusieurs appareils. Il est possible de configurer les appareils en réseau à l'aide du Blackmagic Audio Monitor Setup. Par défaut, le Blackmagic Audio Monitor 12G est réglé sur DHCP pour détecter automatiquement une adresse réseau, ce qui permet de choisir rapidement votre appareil depuis l'écran d'accueil du logiciel.

### Allow Utility Administration

Vous pouvez accéder au Blackmagic Audio Monitor Setup lorsque votre moniteur audio est connecté via le réseau ou USB. Pour éviter que des utilisateurs y aient accès via le réseau, sélectionnez uniquement USB.

### Reset

Appuyez sur **Factory Reset** pour restaurer votre Audio Monitor sur les paramètres d'usine.

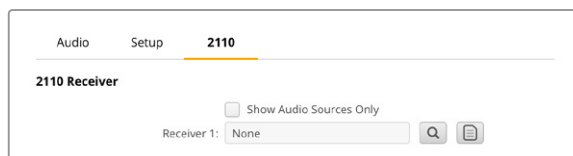
## Onglet 2110

Le Blackmagic Audio Monitor 12G G3 comprend un onglet pour configurer les flux IP SMPTE 2110 ainsi que des paramètres pour le grandmaster PTP.

### 2110 Receiver

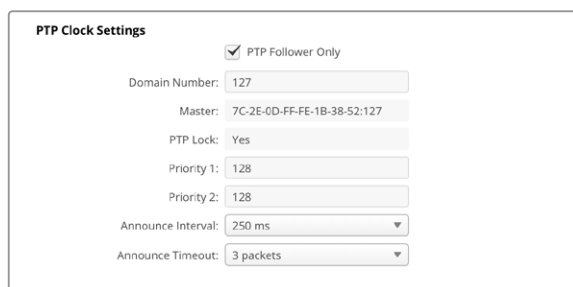
Si vous mappez uniquement des sources audio, cochez la case **Show Audio Sources Only**.

Pour router le flux que vous souhaitez recevoir, cliquez sur la loupe à droite du champ du récepteur. Une fenêtre affichera alors toutes les sources disponibles, ainsi que le nœud IP et le libellé de la source pour les flux. Choisissez un flux et cliquez sur le bouton de sélection. La fenêtre se fermera et le libellé du flux apparaîtra dans le champ du récepteur. Vous devriez désormais voir la source entrante sur l'écran LCD du moniteur audio.



### PTP Clock Settings

Les paramètres PTP vous permettent de configurer les paramètres du PTP grandmaster.



Lors de la connexion du Blackmagic Audio Monitor 12G G3 à un commutateur réseau 10G avec un grandmaster PTP, le moniteur audio doit être configuré en mode suiveur pour éviter un conflit de synchronisation. Si vous avez connecté le moniteur audio à un autre appareil IP 2110, tel qu'un Blackmagic 2110 IP 3x3G Converter, réglez-en un en mode suiveur en cochant la case **PTP Follower Only**.

#### Domain number

Saisissez le numéro de domaine correspondant à celui du PTP grandmaster. Il s'agit généralement du numéro 127, mais il peut être modifié en entrant un autre numéro de domaine dans le champ.

#### Master

Le champ de l'adresse Master affiche l'adresse MAC du PTP grandmaster. Il s'agit soit d'un dispositif grandmaster séparé, soit d'un autre appareil Blackmagic IP 2110.

#### PTP Clock

Le champ de verrouillage PTP reconnaîtra lorsque le moniteur audio est verrouillé à une horloge PTP via Ethernet.

#### Priority

Les paramètres de priorité 1 et 2 vous permettent de définir le PTP grandmaster préféré disponible lorsqu'il y a plus d'un PTP grandmaster sur le réseau. Plus le chiffre est bas, plus la priorité est élevée.

### Announce Interval and Timeout

Les champs **Announce Interval and Timeout** doivent correspondre aux spécifications du PTP grandmaster qui transmet des messages de synchronisation généralement toutes les deux secondes ou toutes les 2000 ms. Pour changer la fréquence du message, utilisez le menu pour sélectionner une option différente. Les plages disponibles de ces paramètres dépendent de votre PTP grandmaster.

## Mise à jour du logiciel interne

- 1 Connectez votre Blackmagic Audio Monitor au port USB de votre ordinateur ou à Ethernet.
- 2 Ouvrez le Blackmagic Audio Monitor Setup.
- 3 Cliquez sur l'icône de configuration. L'utilitaire vous indiquera si une mise à jour est requise.
- 4 Si une mise à jour est requise, cliquez sur le bouton **Update** et attendez que l'installation du logiciel soit terminée.



Cliquez sur le bouton **Update** pour mettre à jour le logiciel interne.



Une barre de progression affiche l'état de la mise à jour.

- 5 Cliquez sur le bouton **Close** lorsque la mise à jour est terminée.

# Developer Information

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵
Meter Mode: Loudness (EBU +18 scale)↵
↵
```

The response will be

```
ACK:
AUDIO METER:
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵
↵
```

The response will be

```
ACK:
AUDIO INPUT:
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:
Gain: Speaker Stereo 0
Gain: Headphone Stereo 0
Mute: false
Solo: Off
Audio delay in ms: 0
Audio delay in frames: 0
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵
Gain: Speaker Stereo 125↵
Solo: Right↵
↵
```

The response will be

```
ACK:
AUDIO OUTPUT:
Gain: Speaker Stereo 125
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵
AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# Assistance

## Obtenir de l'aide

Le moyen le plus rapide d'obtenir de l'aide est de consulter les pages d'assistance en ligne de Blackmagic Design et de consulter les informations les plus récentes concernant le Blackmagic Audio Monitor.

### Pages d'assistance en ligne de Blackmagic Design

Les dernières versions du manuel, du logiciel et des notes d'assistance peuvent être consultées sur la page d'assistance technique de Blackmagic Design : [www.blackmagicdesign.com/fr/support](http://www.blackmagicdesign.com/fr/support).

### Forum Blackmagic Design

Le forum Blackmagic Design est une source d'information utile qui offre des idées innovantes pour vos productions. Cette plate-forme d'aide vous permettra également d'obtenir des réponses rapides à vos questions, car un grand nombre de sujets peuvent avoir déjà été abordés par d'autres utilisateurs. Pour vous rendre sur le forum : <http://forum.blackmagicdesign.com/>

### Contacter le service d'assistance de Blackmagic Design

Si vous ne parvenez pas à trouver l'aide dont vous avez besoin dans les pages d'assistance ou sur notre forum, veuillez utiliser l'option « Envoyez-nous un email », accessible sur la page d'assistance pour envoyer une demande d'aide par email. Vous pouvez également cliquer sur le bouton « Trouver un support technique » situé sur la page d'assistance et contacter ainsi le centre d'assistance technique Blackmagic Design le plus proche de chez vous.

### Vérification du logiciel actuel

Pour vérifier quelle version du logiciel Blackmagic Audio Monitor Setup est installée sur votre ordinateur, ouvrez la fenêtre About Blackmagic Audio Monitor Setup.

- Sur macOS, ouvrez Blackmagic Audio Monitor Setup dans le fichier Application. Sélectionnez À propos de Blackmagic Audio Monitor Setup dans le menu pour afficher la version du logiciel.
- Sur Windows 10, ouvrez le logiciel Blackmagic Audio Monitor Setup dans le menu de Démarrage. Cliquez sur le menu Aide et sélectionnez À propos de Blackmagic Audio Monitor Setup pour connaître le numéro de version.

### Comment obtenir les dernières mises à jour du logiciel

Après avoir vérifié quelle version du logiciel Blackmagic Audio Monitor Setup est installée sur votre ordinateur, consultez sur la page d'assistance technique Blackmagic Design à l'adresse suivante [www.blackmagicdesign.com/fr/support](http://www.blackmagicdesign.com/fr/support) pour vérifier les dernières mises à jour. Même s'il est généralement conseillé d'installer les dernières mises à jour, il est prudent d'éviter d'effectuer ces mises à jour au milieu d'un projet important.

# Avertissements

## Élimination des déchets d'équipements électriques et électroniques au sein de l'Union européenne.



Le symbole imprimé sur ce produit indique qu'il ne doit pas être jeté avec les autres déchets. Cet appareil doit être déposé dans un point de collecte agréé pour être recyclé. La collecte individuelle et le recyclage de votre équipement permettra de préserver les ressources naturelles et garantit un recyclage approprié afin d'éviter la contamination de l'environnement par des substances dangereuses pour la santé. Pour obtenir plus d'informations sur les points de collecte pour recycler votre appareil, veuillez contacter l'organisme responsable du recyclage dans votre région ou le revendeur du produit.



Cet équipement a été testé et déclaré conforme aux limites imposées aux appareils numériques de classe A, en vertu du chapitre 15 des règles de la FCC. Ces limites ont pour objectif d'assurer une protection suffisante contre les interférences nuisibles lorsque l'équipement est utilisé dans un environnement commercial. Cet équipement génère, utilise et peut dégager de l'énergie de radiofréquence et, s'il n'est pas installé et utilisé conformément au manuel d'utilisation, peut provoquer un brouillage préjudiciable aux communications radio. L'utilisation de cet équipement en zone résidentielle est susceptible de provoquer des interférences nuisibles, auquel cas il sera demandé à l'utilisateur de corriger ces interférences à ses frais.

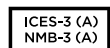
L'utilisation de cet appareil est soumise aux deux conditions suivantes :

- 1 Cet appareil ne doit pas causer d'interférences nuisibles.
- 2 Cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant entraîner un dysfonctionnement.



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

## Déclaration de ISDE Canada



Cet appareil est conforme aux normes canadiennes relatives aux appareils numériques de Classe A.

Toute modification ou utilisation de ce produit en dehors de son utilisation prévue peut annuler la conformité avec ces normes.

Les connexions aux interfaces HDMI doivent être effectuées avec des câbles HDMI blindés d'excellente qualité.

Cet équipement a été testé pour être en conformité avec une utilisation prévue dans un environnement commercial. Si cet équipement est utilisé dans un environnement domestique, il peut provoquer des interférences radio.

# Informations de sécurité

Pour une protection contre les décharges électriques, cet appareil doit être connecté à une prise secteur équipée d'un conducteur de protection. En cas de doute, veuillez contacter un électricien qualifié.

Afin de réduire le risque de décharge électrique, ne pas éclabousser ou renverser de liquide sur cet appareil.

Ce produit peut être utilisé dans un climat tropical lorsque la température ambiante n'excède pas 40°C.

Veillez à ce que l'espace autour du produit soit suffisant afin de ne pas compromettre la ventilation.

Lorsque vous installez l'appareil sur rack, veillez à ce que la ventilation ne soit pas compromise par les autres équipements.

Les pièces de cet appareil ne sont pas réparables par l'opérateur. Toute opération d'entretien doit être effectuée par un centre de service Blackmagic Design.



Cet appareil ne peut être utilisé qu'à une altitude inférieure à 2000 mètres.

## Déclaration de l'État de Californie

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Juli 2024

Installations- und Bedienungsanleitung

Blackmagicdesign

# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## Willkommen

Vielen Dank, dass Sie sich für Ihre Produktionsarbeit für einen Blackmagic Audio Monitor entschieden haben!

Wir verfolgen den Traum von der Entwicklung der Fernsehbranche zu einer echten Kreativbranche, indem wir jedem den Zugriff auf hochwertigste Videogeräte ermöglichen. In diesem Sinne wünschen wir Ihnen kreatives Schaffen.

Das Audiomonitoring spielt in jedem Videoproduktions-Workflow eine entscheidende Rolle, sei es im Rundfunk oder in der Post- oder Liveproduktion. Der Blackmagic Audio Monitor bietet Ihnen sämtliche Features von Profi-Audiomonitoren in einem kompakten rackmontierbaren Design. Für qualitativ anspruchsvolles Monitoring können Sie nahezu jedes Audiogerät an Ihren Blackmagic Audio Monitor anschließen. Der originale Blackmagic Audio Monitor unterstützt 6G-SDI und eignet sich für Ultra-HD-Video mit bis zu 30 Bildern pro Sekunde. Der Blackmagic Audio Monitor 12G unterstützt 12G-SDI und ist für Ultra-HD-Video mit bis zu 60 Bildern pro Sekunde sowie Level A und B 3G-SDI-Videosignalquellen ausgelegt. Überdies unterstützt der Blackmagic Audio Monitor 12G G3 bis zu 12G-SDI per SMPTE 2110 IP Video über 10G Ethernet.

Diese Bedienungsanleitung gibt Ihnen alle Informationen, die Sie für die Inbetriebnahme Ihres Blackmagic Audio Monitors brauchen.

Auf der Support-Seite unserer Website unter [www.blackmagicdesign.com/de](http://www.blackmagicdesign.com/de) finden Sie die aktuellste Auflage dieser Bedienungsanleitung sowie Updates für die Produktsoftware Ihres Blackmagic Audio Monitors. Wenn Sie Ihre Produktsoftware immer auf dem aktuellsten Stand halten, können Sie sichergehen, dass Sie stets Zugriff auf alle neuesten Features haben. Wenn Sie Software herunterladen, empfehlen wir Ihnen, sich zu registrieren, sodass wir Sie über neue Updates informieren können, sobald diese zur Verfügung stehen. Wir arbeiten ständig an neuen Features und Verbesserungen und würden uns freuen, von Ihnen zu hören!

A stylized, handwritten signature in black ink that reads "Grant Petty". The script is fluid and cursive.

**Grant Petty**

CEO, Blackmagic Design

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# Erste Schritte

## Der Blackmagic Audio Monitor

Der Blackmagic Audio Monitor und der Blackmagic Audio Monitor 12G beanspruchen nur eine Rack-Höheneinheit und bieten so eine Kompaktlösung für das Audio-Monitoring in Echtzeit, die mit vielen Video- und Audioquellen in der Live- und Postproduktion sowie im Rundfunk einsetzbar ist.

Der ursprüngliche Blackmagic Audio Monitor lässt sich an analoge und digitale SD-, HD-, 3G-, 6G-SDI- und AES/EBU-Audiogeräte anschließen, um die erforderlichen Ausgabetonpegel zu gewährleisten. Das 12G-Modell unterstützt 12G-SDI und eignet sich für Ultra-HD-Videoquellen bis 60 Frames pro Sekunde. LED-Pegelmeter für den linken und rechten Kanal zeigen die Scheitelwerte Ihres Tons an. Auf dem integrierten LCD sind Ihre SDI-Videoeingabe sowie wichtige Informationen wie Eingangsanschlusstyp, Videoformat, Framerate, Audiokanäle und Lautstärkepegel zu sehen.

So können Sie bis zu 16 Kanäle eingebettetes SDI-Audio überwachen oder die XLR-Buchsen für symmetrisches Analogaudio und AES/EBU-Digitalaudio benutzen. Über die ebenfalls vorhandenen RCA-Verbindungen lassen sich Consumer-Geräte wie Hi-Fi-Anlagen und iPods anschließen.

Der Blackmagic Audio Monitor ist mit zwei hochwertigen integrierten Breitbandlautsprechern und zwei Subwoofern ausgestattet, die für ein breites Frequenzspektrum und damit für eine rundum klare und satte Schallwiedergabe sorgen. Oder schließen Sie einen Kopfhörer an, damit Sie auch in lauten Umgebungen Ihren Sound unter Kontrolle haben!



Die Vorderseite des Blackmagic Audio Monitor 12G



Die Vorderseite des Blackmagic Audio Monitor 12G

Blackmagic Audio Monitor 12G 3G Modelle unterstützen den Empfang von nativen 2110-Streams inklusive komprimiertem 12G-SDI.



Vorderseite des Blackmagic Audio Monitor 12G 3G



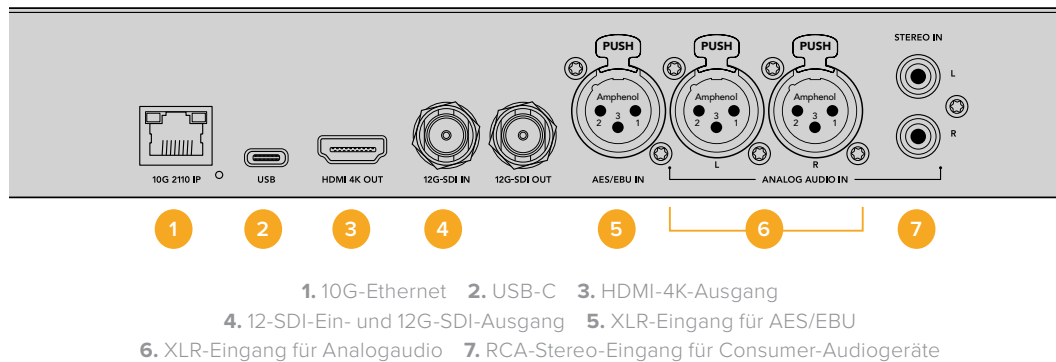
Rückseite des Blackmagic Audio Monitor 12G 3G

## Anschließen von Audiogeräten

Blackmagic Audio Monitore unterstützen so gut wie jede Art von Audioequipment. SDI-Signalquellen in SD, HD, 2K oder sogar Ultra HD können Sie über den SDI-Eingang mithilfe von normalen BNC-Steckern anschließen. Das 12G-Modell unterstützt eingehende 3G-SDI-Videosignale mit Level-A- und Level-B-Mapping.

Für das Monitoring von digitalem AES/EBU-Audio können Sie Geräte wie Festplattenrekorder und digitale Tonmischpulte oder Analoggeräte wie Audiomixer oder Betacam SP Decks über XLR-Verbindungen anschließen. Analogaudio von Consumer-Geräten wie Videorekordern und DVD-Playern

lässt sich hingegen über standardmäßige RCA-Verbinder kontrollieren. Über die 6,35mm-Klinkenbuchse ist auch der Anschluss von Kopfhörern möglich. So hören nur Sie allein Ihr Audio, ohne andere zu stören.



## Auswählen Ihrer Audioquelle

Wenn Sie Ihr Audioequipment an den Blackmagic Audio Monitor angeschlossen haben, müssen Sie nur noch über die INPUT-Taste im Bedienfeld den gewünschten Eingang auswählen. Sobald Ihre Eingabe aktiviert ist und Audio erkannt wird, werden Sie sehen, dass die LEDs des Audiopegelmeters beginnen zu leuchten. Der Audiopegelmeter besteht aus zwei Reihen hell leuchtender farbiger LEDs. Über diese können Sie sich auf einen Blick vergewissern, dass die Audioeingabe funktioniert.

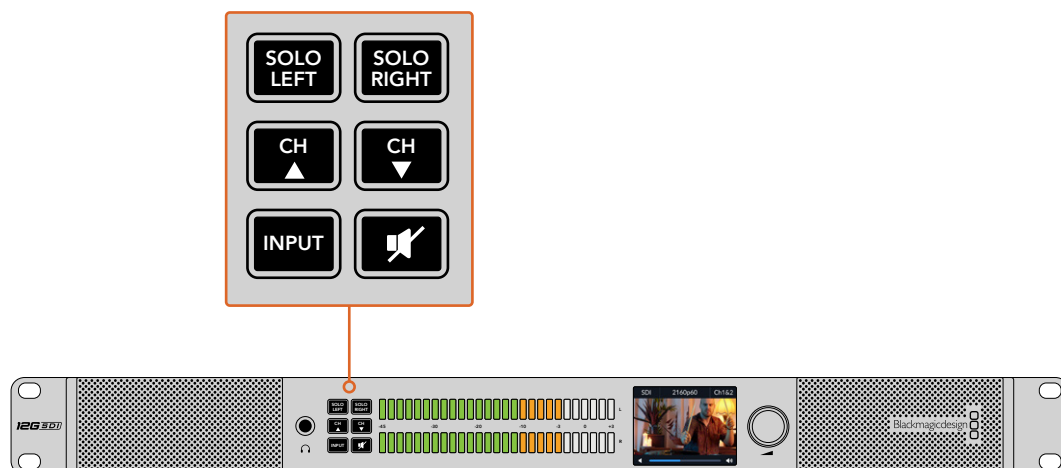
Durch Drücken der INPUT-Taste können Sie die einzelnen Audioverbindungen durchlaufen. Auf dem farbigen LCD werden Ihnen außerdem die dazugehörigen Daten wie Eingangstyp, Audiokanäle und Lautstärkepegel angezeigt. Mehr brauchen Sie nicht zu tun, um Audio mit Ihrem Blackmagic Audio Monitor zu überwachen!

## Anschließen von Videoausgaben

Sollten Sie sowohl Video als auch Audio überprüfen müssen, können Sie sich beides über die Videoausgänge des Blackmagic Audio Monitors auf einem großen Bildschirm anzeigen lassen. Auch zusätzliche Videogeräte sind anschließbar.

Die HDMI- und SDI-Durchschleifausgänge lassen sich zur Überwachung von Video mit eingebettetem Audio einsetzen. Ein einziges SDI-Kabel ermöglicht den Anschluss an SD-, HD-, 2K- und sogar Ultra-HD-Aufzeichnungsgeräte wie z. B. die DeckLink 4K Extreme Capture-Karte. Schließen Sie die Videoquelle mit eingebettetem Audio über SD/HD-SDI an MAZen wie den HyperDeck Studio oder über HDMI an die neuesten Ultra-HD-Bildschirme und Projektoren an.

Der Blackmagic Audio Monitor 12G G3 konvertiert auch ST2110-Eingaben zu HDMI und 12G-SDI. Dabei richten sich beide Ausgänge nach der SDI- bzw. 2110-Eingabe, die mit der INPUT-Taste an der Frontblende vorgegeben wurde.



Mit den Auswahlstasten können Sie festlegen, welche Eingabe Sie überwachen möchten. Sie können die linken und rechten Stereokanäle isolieren, die verfügbaren Audiokanäle nach oben oder unten durchlaufen und Ihre Lautsprecher oder Kopfhörer stumm schalten

# Der Blackmagic Audio Monitor im Einsatz

Über die Frontblende des Blackmagic Audio Monitors haben Sie schnellen Zugriff auf wichtige Funktionen und den Gerätestatus.

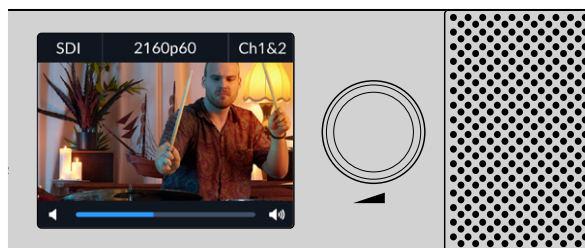
## LCD

Das integrierte farbige LCD zeichnet sich durch ein Text-Overlay aus, das Ihnen entscheidende Statusinformationen anzeigt. Dazu zählen Ihr ausgewählter Eingang, das Videoformat (sofern Video über SDI angeschlossen ist), selektierte Audiokanäle und der Lautstärkepegel Ihrer Lautsprecher oder Kopfhörer. Das LCD zeigt zudem alle eingehenden SDI-Videosignale an. Wird kein SDI-Video erkannt, erscheint ein Notensymbol.

Folgende Informationen werden für jeden ausgewählten Eingang angezeigt:

### SDI-Eingang

SDI, Videoformat, ausgewählte Audiokanäle.



Das farbige LCD zeigt Audio- und Videoinformationen an, einschließlich Anschlusstyp, Videoformat, aktivierte Audiokanäle und Lautstärkepegel



Wenn kein SDI- oder SMPTE-2110-Videosignal zum Monitoring ausgewählt ist, zeigt das LCD ein Notensymbol an

### 10G-Ethernet-2110-Eingang

SMPTE-2110-IP-Video inkl. SMPTE-2110-30-Audiounterstützung

### Symmetrischer AES/EBU XLR-Eingang

AES/EBU, ausgewählte Audiokanäle.

### Symmetrische XLR-Analogueingänge

Analog, ausgewählte Audiokanäle.

### Unsymmetrische RCA-Analogueingänge

Hi-Fi, ausgewählte Audiokanäle.

## Audiopegelmeter

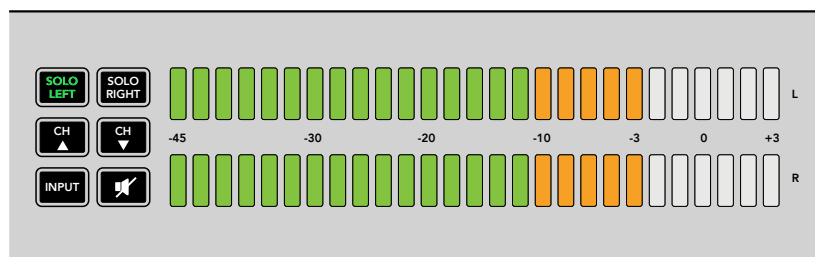
Die Audiopegelmeter des Blackmagic Audio Monitors bestehen aus zwei Reihen grüner, orangefarbener und roter LEDs, die die Stärke der Audiopegel anzeigen. Wenn alle LEDs aufleuchten, sind Ihre Tonpegel zu hoch und werden abgeschnitten.

Das Verhalten der Audiopegelmeter ist abhängig von der Einstellung des Messmodus, die Sie im Blackmagic Audio Monitor Setup Dienstprogramm vorgegeben haben. Sollten Sie sich für die VU-Messung entschieden haben, passen Sie die Ausgabepegel Ihres Audioequipments so an, dass das Meter an der Frontblende bei 0 dB gipfelt. Dies optimiert den Störspannungsabstand und gewährleistet die höchste Tonqualität. Schlagen die Tonpegel über 0 dB aus, besteht ein hohes Risiko der Soundverzerrung.

Näheres zur Installation des Blackmagic Audio Monitor Setup Dienstprogramms und zur Einstellung der Pegelmessmodi finden Sie im Kapitel „Blackmagic Audio Monitor Setup“.

## Bedientasten

Mit diesen Tasten können Sie jeweils den linken und rechten Audiokanal isolieren, damit Sie jeden Kanal separat auf potenzielle Tonprobleme überprüfen können.



Die Auswahl von SOLO LEFT deaktiviert den rechten Audiokanal.  
Der Audiopegelmesser zeigt jedoch weiterhin beide Pegel an

So kontrollieren Sie das Audio des linken Kanals:

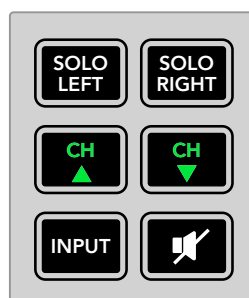
- 1 Drücken Sie die Taste SOLO LEFT. Die Taste leuchtet grün auf und Ihr Audio wird nur über den linken Lautsprecher wiedergegeben.
- 2 Drücken Sie die Taste SOLO LEFT erneut, um auf Audiomonitoring in Stereo zurückzuschalten.

Um den rechten Audiokanal zu überprüfen, wiederholen Sie die oben genannten Schritte durch drücken der Taste SOLO RIGHT.

### CH aufwärts und CH abwärts

Mit den CH-Tasten können Sie in Ihre SDI-Eingabe eingebettete Audiokanäle durchlaufen. Für 3G-SDI stehen bis zu 16 Kanäle bzw. 8 Paare zur Verfügung. Drücken Sie die Tasten für CH aufwärts bzw. CH abwärts, um sich durch die eingebetteten SDI-Audiokanäle zu bewegen.

Der Blackmagic Audio Monitor 12G unterstützt 12G-SDI und damit bis zu 64 Kanäle Audio bzw. 32 Kanalpaare. Um durch die Kanäle zu scrollen, drücken Sie die Auf- oder Abwärts-Pfeiltasten.

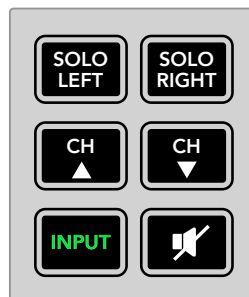


## Eingang

Durch mehrfaches Drücken der INPUT-Taste durchlaufen Sie die SDI-, AES/EBU-, SMPTE-2110-, Analog- und HiFi-Eingänge. So können Sie auswählen, welche Video- und Audiogeräte Sie kontrollieren wollen.

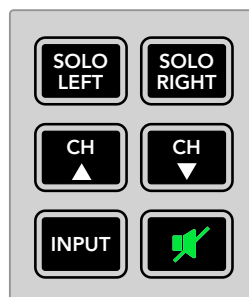
Die ausgewählte Audioeingabe kann man sich über die eingebauten Lautsprecher anhören. Zudem können Sie Ihren Ton auf Kanal 1 und 2 der HDMI-Ausgabe überwachen.

**HINWEIS** Ist ein Analog-, AES/EBU- oder HiFi-Eingang ausgewählt, zeigt die HDMI-Ausgabe schwarzes Video an. Über den SDI-Ausgang mit Durchschleifung wird immer das SDI-Video- und Audioeingangssignal ausgegeben.



## Stummschaltung

Mit der Stummschalttaste lassen sich die Lautsprecher und Kopfhörer des Blackmagic Audio Monitors stumm schalten. Die Stummschaltung des Tons hat keine Auswirkung auf Ihre Audioeingabe, sondern lediglich auf die Lautsprecher- und Kopfhörerausgabe. Durch erneutes Drücken der Stummschalttaste wird das Audio der Lautsprecher und Kopfhörer wiederhergestellt. Auch das Hochfahren der Lautstärke stellt den Ton wieder her.



## Lautstärke

Dieser Regler passt die Lautstärke der Lautsprecher und Kopfhörer unabhängig voneinander an. Der Lautstärkepegel wird auf dem integrierten LCD angezeigt. Werden Kopfhörer angeschlossen, schalten die Lautsprecher des Blackmagic Audio Monitors auf stumm und die Audioausgabe erfolgt über die Kopfhörer. Der Lautstärkepegel lässt sich durch Drehen des Lautstärkereglers im oder gegen den Uhrzeigersinn mühelos lauter oder leiser stellen.



Der Lautstärkepegel wird auf dem Frontblenden-LCD angezeigt

# Audio Monitor Setup

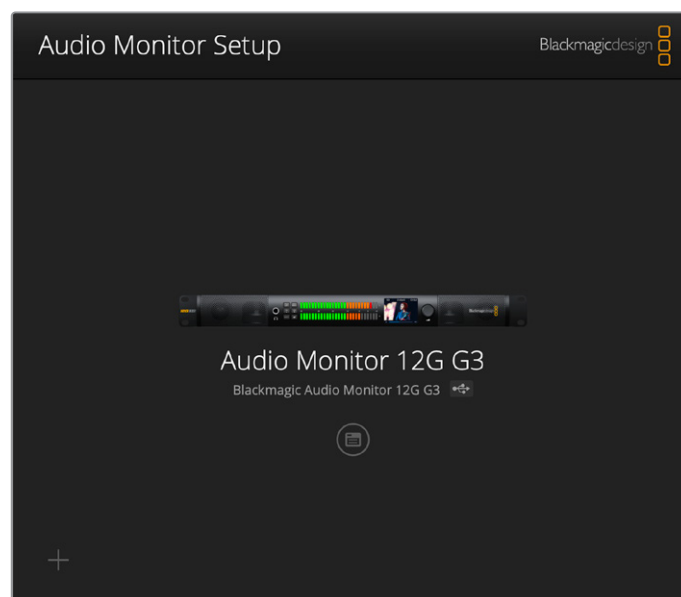
## Blackmagic Audio Monitor Setup

Über das Blackmagic Audio Monitor Setup Dienstprogramm können Sie den gewünschten Messtyp vorgeben und die Produktsoftware Ihres Blackmagic Audio Monitors aktualisieren.

Wenn der originale Blackmagic Audio Monitor über USB an einen Computer angeschlossen ist, können Sie die Konfigurationseinstellungen ändern und die Produktsoftware mit dem Setup-Dienstprogramm aktualisieren. Beim Blackmagic Audio Monitor 12G G3 können Sie das Gerät aktualisieren und Änderungen an den Einstellungen wahlweise über USB oder Ethernet vornehmen.

So installieren Sie Audio Monitor Setup:

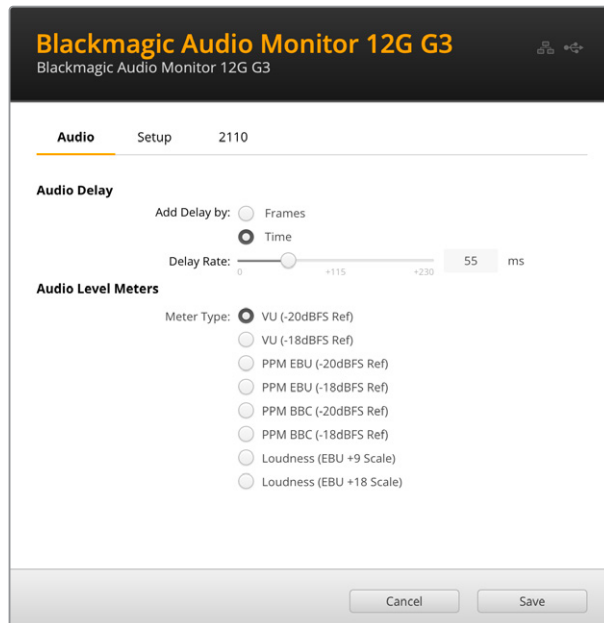
- 1 Navigieren Sie mit einem Webbrowser zu [www.blackmagicdesign.com/support/de](http://www.blackmagicdesign.com/support/de) und laden Sie sich die aktuellsten Blackmagic Audio Monitor Treiber herunter.
- 2 Klicken Sie nach erfolgtem Download der Datei zweimal auf das „Install Audio Monitor“-Symbol, um den Installer zu starten. Folgen Sie den Anweisungen bis zum Schluss und klicken Sie dann auf „Install“, um die Software zu installieren.
- 3 Navigieren Sie nach erfolgter Installation in Ihrem Programmordner zum Ordner „Blackmagic Audio Monitor“ und doppelklicken Sie auf „Audio Monitor Setup“.



Aktualisieren Sie die Produktsoftware Ihres Blackmagic Audio Monitors und passen Sie die Konfigurationseinstellungen mithilfe des Blackmagic Audio Monitor Dienstprogramms an

## „Audio“-Tab

Klicken Sie auf den „Audio“-Tab, um die Einstellungen für Audioverzögerung und Pegelkontrolle aufzurufen.



### Audio Delay

Fügen Sie durch Anpassen des Schiebereglers eine Audioverzögerung zu den HDMI- und SDI-Durchschleifungsverbindungen hinzu. Sie können die Verzögerung in Frames oder Millisekunden angeben.



### Audiopegelmeter

Es stehen die Messarten VU, PPM und Lautheit mit EBU- und BBC-Messskalen zur Auswahl. VU-Meter sind mittlerweile zum Standard geworden. Peakmeter (PPM) und Lautheitsmeter hingegen liefern Skalierungssysteme und -messungen für wahrgenommene Lautheit. Ihr Blackmagic Audio Monitor unterstützt folgende Audiopegelmesser und Messgrößen-Kombinationen:

| Messmodus | Skalatyp      | Messskala   | Anwendung         |
|-----------|---------------|-------------|-------------------|
| VU        | –             | -45 bis +3  | Aufdruck am Gerät |
| PPM       | EBU           | -12 bis +12 | Aufkleber         |
| PPM       | BBC           | 1 bis 7     | Aufkleber         |
| Lautheit  | EBU +9        | -18 bis +9  | Aufkleber         |
| Lautheit  | EBU +18       | -36 bis +18 | Aufkleber         |
| Lautheit  | Vollpegel +9  | -41 bis -14 | Aufkleber         |
| Lautheit  | Vollpegel +18 | -59 bis -5  | Aufkleber         |

## VU

Dieses Meter erstellt einen Durchschnittswert aus kurzen Spitzen- und Tiefstwerten in Ihrem Audiosignal. Er dient vor allem zum Monitoring von Spitzenwerten eines Signals, eignet sich aufgrund seiner Fähigkeit zur Mittelwertbildung jedoch auch zur Kontrolle wahrgenommener Lautheit Ihres Audiosignals.

## PPM

Das Peakmeter verfügt über eine „Peak-Hold“-Funktion, die Signalhöchstwerte anzeigt, vorübergehend festhält und langsam zurückgehen lässt, wodurch Audio-Peaking leicht visuell erkennbar wird.

## Lautheit

Das Lautheitsmeter zeigt die subjektiv wahrgenommene Lautstärke Ihres Audiosignals an. Heutzutage gehört die Lautheitsmessung für durchgängige Lautheitspegel zu den Rundfunkstandards.

Beim VU- und Peakmeter können Sie einen Referenzpegel von -18 dB oder -20 dB wählen, was Ihnen die Tonkontrolle nach unterschiedlichen internationalen Rundfunkstandards gestattet.

Das Verhalten der Referenz-LEDs Ihres Blackmagic Audio Monitors ändert sich dann entsprechend dem ausgewählten Messmodus. Im Lieferumfang Ihres Blackmagic Audio Monitors sind Aufkleber mit präzisen dB-Referenzskalen enthalten. Anhand dieser können Sie sehen, welchen Spitzenwert Ihr Ton erreicht. Entfernen Sie die Folie vom Aufkleber mit der gewünschten Skala und kleben Sie ihn zwischen die farbigen LED-Anzeigen über die vorhandene VU-Skalamarkierung.

Für jeden Audiopegeltyp und jede Messskala werden jeweils zwei Aufkleber mitgeliefert. Bögen mit weiteren Aufklebern sind zudem bei Ihrer lokalen Blackmagic Design Support-Stelle erhältlich.

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

Die mitgelieferten Aufkleber helfen Ihnen dabei, das Peaking Ihres Tons bei jedem Messmodus akkurat zu erkennen

## „Setup“-Tab

Unter „Setup“ finden sich die Versionsnummer der Software und die Netzwerkeinstellungen Ihres Blackmagic Audio Monitors. Sie können Ihrem Gerät aber auch einen eigenen Namen geben. Die Namensgebung beschleunigt das Auffinden Ihres Geräts bspw. bei Fernzugriff. Der „Setup“-Tab enthält außerdem die Netzwerkeinstellungen für den Audio Monitor.

So benennen Sie Ihren Blackmagic Audio Monitor 12G:

- 1 Klicken Sie auf den Tab „Setup“.
- 2 Klicken Sie in das Feld „Name“ und geben Sie einen neuen Namen ein.
- 3 Klicken Sie zum Speichern auf „Save“ unten rechts auf dem Bildschirm.

## Netzwerkeinstellungen

Der Zugriff auf Ihren Blackmagic Audio Monitor 12G über ein Netzwerk ist der einfachste Weg zum Verwalten mehrerer Geräte. Dies geht mit dem Blackmagic Audio Monitor Setup Dienstprogramm. Standardmäßig ist Ihr Blackmagic Audio Monitor 12G auf DHCP konfiguriert, sodass er automatisch eine Netzwerkadresse erhält, die Sie sofort auf dem Startbildschirm des Dienstprogramms auswählen können.

## Allow Utility Administration

Zugriff auf Blackmagic Audio Monitor Setup erhält man über einen ins Netzwerk oder via USB eingebundenen Audio Monitor. Um anderen Benutzern den Zugriff per Netzwerk zu verweigern und nur per USB zu erlauben, wählen Sie „via USB“.

## Factory Reset

Um Ihren Audio Monitor 12G auf die Werkseinstellungen zurückzusetzen, wählen Sie „Factory Reset“.

## „2110“-Tab

Der Blackmagic Audio Monitor 12G G3 enthält einen Tab zur Konfiguration von SMPTE-2110-IP-Streams sowie Einstellungen für den PTP-Grandmaster.

### 2110 Receiver

Wenn Sie nur Audioquellen zuordnen möchten, aktivieren Sie das Kontrollkästchen „Show Audio Sources Only“.

Um den zu empfangenden Stream weiterzuleiten, klicken Sie auf die Lupe rechts neben dem Empfängerfeld „Receiver“. Daraufhin wird ein Fenster geöffnet, in dem alle verfügbaren Quellen mit IP-Node und Quell-Label für die Streams aufgeführt sind. Markieren Sie einen Stream und klicken Sie auf den „Select“-Button. Das Fenster schließt sich und das Stream-Label erscheint im Empfängerfeld „Receiver“. Die eingehende Quelle sollte nun auf dem LCD des Audio Monitors erscheinen.

### PTP Clock Settings

In den PTP-Einstellungen geben Sie die Details für den PTP-Grandmaster vor.

Wenn der Blackmagic Audio Monitor 12G G3 an einen 10G-Netzwerk-Switch mit einem PTP-Grandmaster angeschlossen wird, muss der Audio Monitor in den Follower-Modus versetzt werden, um einen Zeitkonflikt zu vermeiden. Wenn Sie den Audio Monitor mit einem anderen 2110-IP-Gerät verbunden haben, wie z. B. einem Blackmagic 2110 IP 3x3G Converter, setzen Sie im „Follower“-Kontrollkästchen ein Häkchen.

#### Domain Number

Geben Sie die Domain-Nummer ein, die mit der des PTP-Grandmasters übereinstimmt. Dies ist in der Regel 127, kann aber durch Eingabe einer anderen Domain-Nummer geändert werden.

#### Master

Im „Master“-Adressfeld wird die MAC-Adresse des PTP-Grandmasters angezeigt. Hierbei handelt es sich entweder um ein separates Grandmaster-Gerät oder einen weiteren Blackmagic 2110 IP.

#### PTP Lock

Das Feld „PTP Lock“ bestätigt, dass der Audio Monitor über Ethernet mit einer PTP-Uhr verbunden ist.

#### Priority

Mit den Einstellungen „Priority 1“ und „Priority 2“ können Sie den bevorzugten PTP-Grandmaster festlegen, wenn es mehr als einen PTP-Grandmaster im Netzwerk gibt. Dabei gilt, je niedriger die Zahl desto höher die Priorität.

#### Announce Interval und Announce Timeout

Die Angaben in den Feldern „Announce Interval“ und „Announce Timeout“ müssen mit den Spezifikationen für den PTP-Grandmaster übereinstimmen, der in der Regel alle zwei Sekunden oder 2000 ms eine synchronisierte Nachricht überträgt. Um die Häufigkeit der Übertragung von Nachrichten zu ändern, wählen Sie im Menü eine andere Zeit aus. Die verfügbaren Bereiche für die Felder „Announce Interval“ und „Announce Timeout“ basieren auf Ihrem PTP-Grandmaster.

## Aktualisierung der Produktsoftware

- 1 Schließen Sie Ihren Blackmagic Audio Monitor per USB oder Ethernet an Ihren Computer an.
- 2 Öffnen Sie Blackmagic Audio Monitor Setup.
- 3 Klicken Sie auf das Konfigurationssymbol. Das Dienstprogramm zeigt Ihnen an, falls ein Update erforderlich ist.
- 4 Ist ein Update erforderlich, klicken Sie auf den „Update“-Button, um die Installation der Software abzuschließen.



Klicken Sie auf den „Update“-Button um die Aktualisierung der Produktsoftware zu starten



Ein Fortschrittsbalken zeigt Ihnen den Status der Aktualisierung an

- 5 Klicken Sie nach erfolgter Aktualisierung auf „Close“ (Schließen).

# Informationen für Entwickler (Englisch)

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵
Meter Mode: Loudness (EBU +18 scale)↵
↵
```

The response will be

```
ACK:
AUDIO METER:
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵
↵
```

The response will be

```
ACK:
AUDIO INPUT:
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:
Gain: Speaker Stereo 0
Gain: Headphone Stereo 0
Mute: false
Solo: Off
Audio delay in ms: 0
Audio delay in frames: 0
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵
Gain: Speaker Stereo 125↵
Solo: Right↵
↵
```

The response will be

```
ACK:
AUDIO OUTPUT:
Gain: Speaker Stereo 125
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵
AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# Hilfe

## Hilfestellung

Am schnellsten erhalten Sie Hilfe online über die Support-Seiten der Website von Blackmagic Design. Sehen Sie dort nach dem aktuellsten Support-Material für Ihren Blackmagic Audio Monitor.

### Blackmagic Design Online-Support-Seiten

Die aktuellsten Versionen der Bedienungsanleitung, Produktsoftware und Support-Hinweise finden Sie im Blackmagic Support Center unter [www.blackmagicdesign.com/de/support](http://www.blackmagicdesign.com/de/support).

### Blackmagic Design Forum

Das Blackmagic Design Forum auf unserer Website ist eine praktische Ressource, die Sie für mehr Information und kreative Ideen aufsuchen können. Manchmal finden Sie dort schnellere Lösungen, da möglicherweise bereits Antworten auf ähnliche Fragen von anderen erfahrenen Anwendern und Blackmagic Design Mitarbeitern vorliegen, die Ihnen weiterhelfen. Das Forum finden Sie unter <http://forum.blackmagicdesign.com>.

### Kontaktaufnahme mit dem Blackmagic Design Support

Wenn unser Support-Material oder das Forum Ihnen nicht wie gewünscht hilft, gehen Sie bitte auf unsere Support-Seite und schicken Sie uns Ihre Anfrage über „Senden Sie uns eine E-Mail“. Oder klicken Sie auf „Finden Sie Ihr lokales Support-Team“ und rufen Sie Ihre nächstgelegene Blackmagic Design Support Stelle an.

### Überprüfen der aktuell installierten Softwareversion

Um zu überprüfen, welche Version des Blackmagic Audio Monitor Setup aktuell auf Ihrem Computer installiert ist, öffnen Sie das Fenster „About Blackmagic Audio Monitor Setup“.

- Auf macOS: Gehen Sie zum Programme-Ordner und öffnen Sie Blackmagic Audio Monitor Setup. Klicken Sie dann in der Menüleiste auf „About Blackmagic Audio Monitor Setup“, um die Versionsnummer anzuzeigen.
- Auf Windows 10: Öffnen Sie das Blackmagic Audio Monitor Setup über die Kachel „Blackmagic Audio Monitor Setup“ auf Ihrem Startbildschirm. Klicken Sie auf den Menüpunkt „Hilfe“ und wählen Sie „About Blackmagic Audio Monitor Setup“ aus, um die Versionsnummer anzuzeigen.

### So erhalten Sie die aktuellsten Software-Updates

Sehen Sie, sobald Sie die Version von Blackmagic Audio Monitor Setup überprüft haben, im Blackmagic Design Support Center unter [www.blackmagicdesign.com/de/support](http://www.blackmagicdesign.com/de/support) nach den neuesten Aktualisierungen. In der Regel empfiehlt es sich, die neuesten Updates zu laden. Vermeiden Sie jedoch Software-Updates mitten in einem wichtigen Projekt.

# Gesetzliche Vorschriften

## Entsorgung von elektrischen und elektronischen Geräten innerhalb der Europäischen Union



Das auf dem Produkt abgebildete Symbol weist darauf hin, dass dieses Gerät nicht zusammen mit anderen Abfallstoffen entsorgt werden darf. Altgeräte müssen daher zur Wiederverwertung an eine dafür vorgesehene Sammelstelle übergeben werden. Mülltrennung und Wiederverwertung von Altgeräten tragen zum nachhaltigen Umgang mit natürlichen Ressourcen bei. Gleichzeitig wird sichergestellt, dass die Wiederverwertung nicht zulasten der menschlichen Gesundheit und der Umwelt geht. Weitere Informationen zur Entsorgung von Altgeräten sowie zu den Standorten der zuständigen Sammelstellen erhalten Sie von Ihren örtlichen Müllentsorgungsbetrieben sowie vom Händler, bei dem Sie dieses Produkt erworben haben.



Dieses Gerät wurde geprüft und entspricht den Grenzwerten für Digitalgeräte der Klasse A gemäß Abschnitt 15 der FCC-Bestimmungen für Funkstörung. Diese Grenzwerte dienen dem angemessenen Schutz gegen schädliche Störungen bei Betrieb des Geräts in einer gewerblichen Umgebung. Geräte dieser Art erzeugen und verwenden Hochfrequenzen und können diese auch ausstrahlen. Bei Nichteinhaltung der Installations- und Gebrauchsvorschriften können sie zu Störungen beim Rundfunkempfang führen. Der Betrieb solcher Geräte in Wohngebieten führt mit großer Wahrscheinlichkeit zu Funkstörungen. In diesem Fall kann vom Betreiber verlangt werden, persönlich für die Beseitigung solcher Störungen aufzukommen.

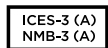
Der Betrieb unterliegt den folgenden zwei Bedingungen:

- 1 Dieses Gerät darf keine schädigenden Störungen hervorrufen.
- 2 Das Gerät muss unanfällig gegenüber beliebigen empfangenen Störungen sein, einschließlich solcher, die einen unerwünschten Betrieb verursachen.



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

## ISED-Zertifizierung für den kanadischen Markt



Dieses Gerät erfüllt die kanadischen Vorschriften für digitale Geräte der Klasse A.

Jedwede an diesem Produkt vorgenommene Änderung oder unsachgemäße Verwendung kann die Konformitätserklärung zum Erlöschen bringen.

Die Verbindung zu HDMI-Schnittstellen muss über hochwertige abgeschirmte HDMI-Kabel hergestellt werden.

Dieses Gerät wurde auf die Einhaltung der Richtlinien für die zweckbestimmte Nutzung im gewerblichen Bereich getestet. Bei Verwendung in häuslichen Umgebungen können Funkstörungen auftreten.

# Sicherheitshinweise

Zum Schutz vor Stromschlag muss das Gerät an ein vorschriftsmäßig geerdetes Stromnetz angeschlossen werden. Kontaktieren Sie im Zweifelsfall einen Elektrofachmann.

Um das Risiko eines Stromschlages zu verringern, setzen Sie das Gerät weder Tropfen noch Spritzern aus.

Das Produkt eignet sich für den Einsatz in tropischen Gebieten mit einer Umgebungstemperatur von bis zu 40 °C.

Achten Sie auf eine ausreichende Luftzufuhr um das Gerät herum, damit die Belüftung nicht eingeschränkt wird.

Achten Sie bei der Installation im Rack darauf, dass die Luftzufuhr nicht durch andere Geräte eingeschränkt wird.

Es befinden sich keine vom Anwender zu wartenden Teile im Inneren des Produkts. Wenden Sie sich für die Wartung an ein Blackmagic Design Service-Center in Ihrer Nähe.



Nur in Höhen bis 2000 m über dem Meeresspiegel einsetzen.

## California Proposition 65

Plastikteile dieses Produkts können Spuren von polybromierten Biphenylen enthalten. Im US-amerikanischen Bundesstaat Kalifornien werden diese Chemikalien mit Krebs, Geburtsfehlern und anderen Schäden der Fortpflanzungsfähigkeit in Verbindung gebracht.

Weitere Informationen finden Sie unter [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## Niederlassung in Europa:

Blackmagic Design B.V, Amsterdam Sloterdijk Teleport Towers Office 2.17, Kingsfordweg 151, Amsterdam, 1043GR.

# Garantie

## 12 Monate eingeschränkte Garantie

Für dieses Produkt gewährt Firma Blackmagic Design eine Garantie auf Material- und Verarbeitungsfehler von 12 Monaten ab Kaufdatum. Sollte sich ein Produkt innerhalb dieser Garantiezeit als fehlerhaft erweisen, wird die Firma Blackmagic Design nach ihrem Ermessen das defekte Produkt entweder ohne Kostenerhebung für Teile und Arbeitszeit reparieren oder Ihnen das defekte Produkt ersetzen.

Zur Inanspruchnahme der Garantieleistungen müssen Sie als Kunde Blackmagic Design über den Defekt innerhalb der Garantiezeit in Kenntnis setzen und die entsprechenden Vorkehrungen für die Leistungserbringung treffen. Es obliegt dem Kunden, für die Verpackung und den bezahlten Versand des defekten Produkts an ein spezielles von Blackmagic Design benanntes Service Center zu sorgen und hierfür aufzukommen. Sämtliche Versandkosten, Versicherungen, Zölle, Steuern und sonstige Abgaben im Zusammenhang mit der Rücksendung von Waren an uns, ungeachtet des Grundes, sind vom Kunden zu tragen.

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Julio 2024

**Manual de instalación y funcionamiento**

Blackmagicdesign

# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## Bienvenido

Gracias por haber adquirido este producto.

Ojalá compartas nuestro sueño de transformar la industria televisiva en un sector verdaderamente creativo, donde todos tengan acceso a la mejor calidad en materia de imagen.

La supervisión del audio es fundamental en cualquier producción audiovisual. Este dispositivo brinda todas las prestaciones profesionales en un diseño modular compacto y se puede conectar prácticamente a cualquier equipo de audio para controlar el sonido con una calidad profesional. La conectividad SDI 6G del modelo original admite señales UHD a una frecuencia de 30 f/s, mientras que la versión 12G permite procesar fuentes SDI 12G a 60 f/s y SDI 3G de nivel A o B. Cabe mencionar que el modelo Blackmagic Audio Monitor 12G G3 ofrece además con señales SDI 12G mediante conexiones IP SMPTE-2110 a través de una red Ethernet 10G.

Este manual de instrucciones brinda toda la información necesaria sobre el producto.

En la página de soporte técnico de nuestro sitio web encontrarás su versión más reciente, así como actualizaciones para el software interno del dispositivo. Recuerda mantenerlo actualizado para tener acceso a nuevas prestaciones. Por último, no olvides registrarte al descargar las actualizaciones para que podamos mantenerte informado sobre nuevos lanzamientos. Trabajamos constantemente para desarrollar herramientas innovadoras y superarnos, de modo que nos encantaría conocer tu opinión.

**Grant Petty**

Director ejecutivo de Blackmagic Design

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# Primeros pasos

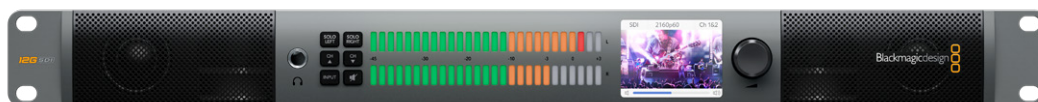
## Introducción

Los dispositivos Blackmagic Audio Monitor y Blackmagic Audio Monitor 12G brindan una solución modular para bastidores que permite supervisar señales de audio en tiempo real. Resultan ideales para monitorizar distintas fuentes audiovisuales en toda clase de entornos, durante transmisiones en directo o en la etapa de posproducción.

Estos equipos disponen de tecnología SDI compatible con distintas definiciones y velocidades de transmisión, así como conexiones para señales de audio analógicas y digitales (AES/EBU), a fin de garantizar un volumen adecuado. El modelo 12G es compatible con señales SDI UHD a una frecuencia máxima de 60 f/s. Los indicadores luminosos para el canal izquierdo y derecho brindan la posibilidad de evitar la saturación del audio, mientras que la pantalla integrada muestra la señal SDI y otros datos importantes, tales como el tipo de conexión, el formato, la frecuencia de imagen, los canales de audio y la intensidad del volumen.

De esta manera, es posible supervisar hasta 16 canales de audio integrados en la señal SDI o utilizar las conexiones XLR para audio balanceado analógico y digital (AES/EBU). Por su parte, los conectores RCA brindan compatibilidad con equipos de consumo masivo, tales como iPods y sistemas de alta fidelidad.

Este dispositivo incluye dos altavoces internos de gran calidad y dos altavoces para sonidos graves que ofrecen una gran variedad de frecuencias y permiten obtener un sonido claro y profundo. También es posible conectar auriculares para supervisar el audio en forma confiable, especialmente en ambientes ruidosos.



Panel frontal del modelo Blackmagic Audio Monitor 12G



Panel trasero del modelo Blackmagic Audio Monitor 12G

Los modelos Blackmagic Audio Monitor 12G G3 también son capaces de recibir señales 2110, incluidos canales SDI 12G con compresión.



Panel frontal del modelo Blackmagic Audio Monitor 12G G3

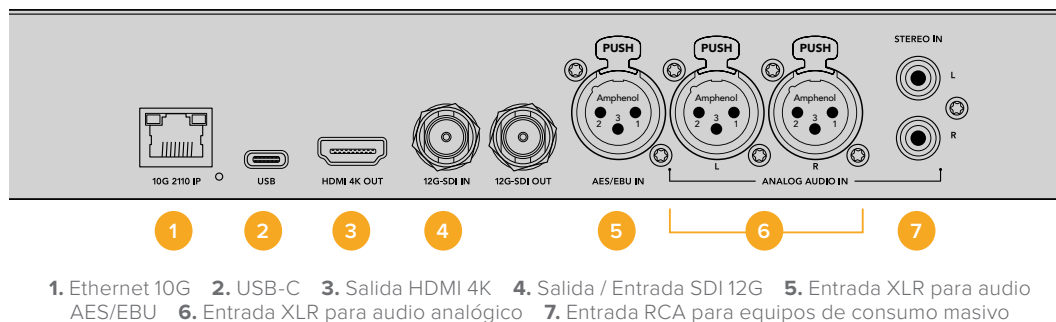


Panel trasero del modelo Blackmagic Audio Monitor 12G G3

## Conexiones de audio

El modelo Blackmagic Audio Monitor es compatible prácticamente con cualquier equipo de audio. Para procesar señales SDI en definición SD, HD, 2K e incluso UHD, es posible conectarlo mediante un cable BNC estándar. La versión 12G también admite señales SDI 3G (nivel A/B).

Asimismo, las entradas XLR brindan la posibilidad de monitorizar señales de audio en formato AES/EBU o analógico provenientes de distintos equipos, tales como grabadores, consolas de audio digitales, mezcladores de audio o unidades Betacam SP. A su vez, es posible conectar videograbadores o reproductores de DVD convencionales mediante las conexiones RCA. Por otro lado, incluye un puerto TRS de 0.25 pulgadas para utilizar auriculares cuando es necesario escuchar el audio sin causar molestias a otras personas.



## Selección de fuentes de audio

Después de conectar un equipo al dispositivo, es posible seleccionar la fuente presionando el botón **INPUT** en el panel de control. Si la señal incluye canales de audio, verá los vúmetros en funcionamiento. Estos indicadores están constituidos por dos filas de ledes que se encienden para confirmar la recepción de la señal.

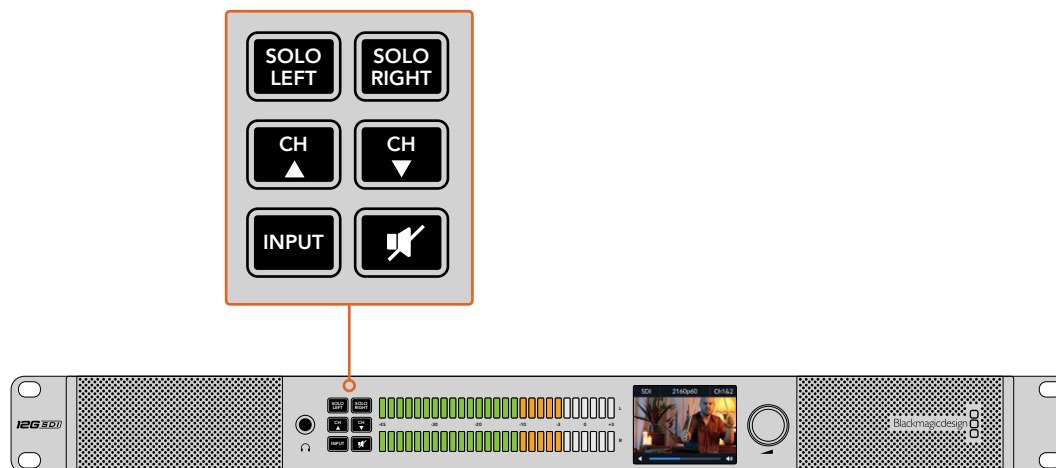
El botón **INPUT** permite alternar entre las distintas señales de audio, indicadas en la pantalla LCD junto con la información sobre el tipo de entrada, los canales de audio y el volumen. Esto es todo lo que se necesita saber para comenzar a utilizar el dispositivo.

## Salidas de video

En caso de que sea necesario realizar un seguimiento de las imágenes además del audio, estas salidas permiten monitorizarlas en pantallas de gran tamaño o conectar otros dispositivos.

Las salidas HDMI y SDI derivadas pueden utilizarse para supervisar señales con audio integrado. Por otro lado, es posible utilizar dispositivos de captura SD, HD, 2K e incluso UHD 4K, tales como la tarjeta DeckLink 4K Extreme, mediante un único cable SDI. Asimismo, la tecnología SDI SD/HD permite procesar canales de audio integrados y conectar grabadores, por ejemplo el modelo HyperDeck Studio, mientras que el puerto HDMI brinda compatibilidad con pantallas y proyectores UHD.

El modelo Blackmagic Audio Monitor 12G G3 también permite obtener señales HDMI y SDI 12G a partir de fuentes ST2110, ya que las salidas se adaptan al formato seleccionado mediante el botón **INPUT** en el panel frontal del dispositivo.



Estos botones permiten seleccionar la señal entrante que se desea monitorizar, aislar los canales estéreo (izquierdo y derecho), ver los canales audio disponibles y silenciar los altavoces o los auriculares.

# Uso del dispositivo

El panel de control permite acceder rápidamente a información y funciones importantes.

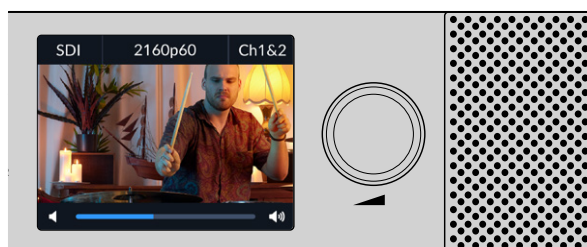
## Pantalla LCD

La pantalla de cristal líquido integrada cuenta con una función de texto superpuesto que muestra datos relevantes, entre ellos la entrada seleccionada, el formato de la imagen cuando hay una conexión SDI activa, los canales de audio seleccionados y el volumen de los altavoces o auriculares. La pantalla también mostrará la señal SDI recibida. En caso de que no se detecte ninguna señal, aparecerá un ícono con una nota musical.

Para cada entrada seleccionada, se muestra la siguiente información:

### Entrada SDI

**SDI**, formato de imagen, canales de audio seleccionados.



La pantalla de cristal líquido muestra información sobre el audio y las imágenes, inclusive el tipo de conexión, el formato, los canales de audio seleccionados y el volumen.



La pantalla muestra una nota musical si no se detecta una señal SDI o SMPTE 2110.

### Entrada 2110 Ethernet 10G

Señales IP SMPTE-2110 con audio incluido (SMPTE-2110-30)

### Entrada XLR para audio AES/EBU balanceado

**AES/EBU**, canales de audio seleccionados.

### Entradas XLR para audio analógico

**Analog**, canales de audio seleccionados.

### Entradas RCA para audio analógico no balanceado

**HiFi**, canales de audio seleccionados.

## Indicadores de volumen

La intensidad de la señal se muestra mediante dos filas de indicadores luminosos de color verde, naranja y rojo. Si se encienden todas las luces, el volumen está demasiado alto y puede ocurrir una distorsión en la señal.

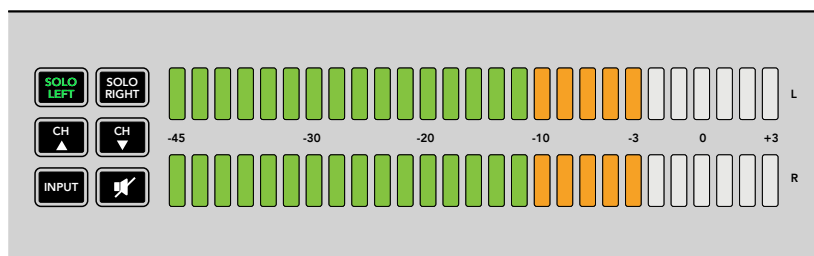
El comportamiento del vúmetro digital varía en función del tipo de medición seleccionado al configurar el dispositivo. Para obtener la mejor calidad de audio, es necesario ajustar el volumen del equipo conectado al dispositivo, de forma que no supere los 0 dB. De este modo se maximiza la intensidad de la señal con relación al ruido, garantizando la nitidez del sonido. Si el audio supera dicho valor, es muy posible que ocurra una distorsión.

Consulte el apartado *Configuración* para obtener más información al respecto.

## Botones del panel de control

### Asilar canal izquierdo o derecho

Los botones **SOLO LEFT** y **SOLO RIGHT** permiten aislar el canal izquierdo o derecho, a fin de detectar posibles problemas en cada uno de ellos en forma independiente.



Al presionar el botón **SOLO LEFT** se desactiva el canal derecho. El medidor de audio continuará indicando ambos niveles.

Para supervisar el audio del canal izquierdo:

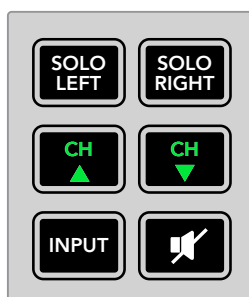
- 1 Presione el botón **SOLO RIGHT**. El botón se encenderá de color verde y el audio se escuchará a través del altavoz izquierdo solamente.
- 2 Presione el botón **SOLO RIGHT** nuevamente para regresar al modo en estéreo.

Para supervisar el canal derecho, repita los mismos pasos presionando el botón **SOLO RIGHT**.

### Selección de canales

Estos botones permiten alternar entre los canales de audio integrados a la conexión SDI. Incluye hasta 16 canales u 8 pares en SDI 3G. Presione los botones para desplazarse hacia arriba o abajo por los canales de audio SDI integrados.

El dispositivo es compatible con tecnología SDI 12G que ofrece hasta 64 canales de audio o 32 pares. Mantenga presionados los botones para desplazarse hacia arriba o abajo por todos los canales.

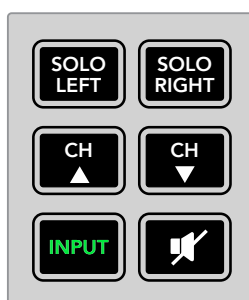


## Entrada

Al presionar repetidamente el botón **INPUT**, es posible seleccionar la entrada SDI, AES/EBU, SMPTE 2110, analógica o de alta fidelidad para supervisar el equipo correspondiente.

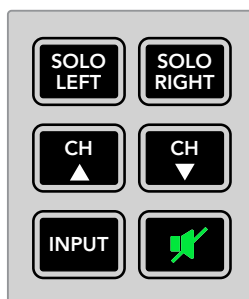
La fuente seleccionada se escuchará por los altavoces, y además es posible monitorizar el audio en los canales 1 y 2 de la señal HDMI transmitida.

**NOTA:** La salida HDMI transmitirá una imagen en negro al seleccionar las entradas AES/EBU, HiFi o para audio analógico. La salida SDI derivada siempre transmite la fuente conectada a la entrada SDI.



## Silenciar

El botón **MUTE** permite silenciar los altavoces del panel de control y los auriculares. Al presionarlo solo se verán afectados los altavoces y auriculares, no así el audio entrante. Oprima este botón nuevamente para restablecer el audio. De forma alternativa, el sonido también puede volver a escucharse subiendo el volumen.



## Volumen

Esta perilla permite ajustar el volumen de los altavoces y auriculares independientemente. El nivel se indica en la pantalla integrada. Cuando los auriculares están conectados, el sonido se transmite a través de ellos y no mediante los altavoces del equipo. El volumen puede subirse o bajarse fácilmente girando la perilla hacia la izquierda o la derecha.



El volumen se indica en la pantalla del panel de control.

# Configuración

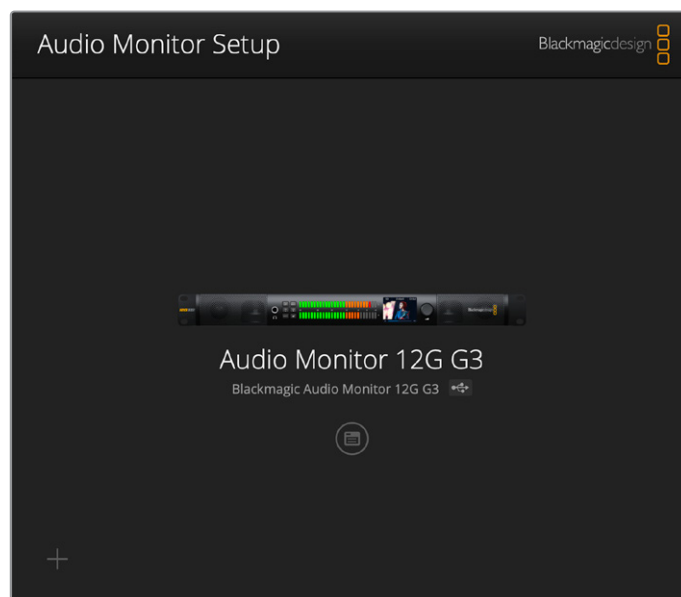
## Blackmagic Audio Monitor Setup

El programa utilitario permite seleccionar el tipo de medición del audio y actualizar el sistema operativo interno del dispositivo.

Al conectar la unidad a un equipo informático mediante un cable USB, se puede modificar su configuración y actualizar el sistema operativo interno a través del programa utilitario. En el caso del modelo Blackmagic Audio Monitor 12G G3, es posible actualizar el dispositivo y cambiar los ajustes mediante el puerto USB o una red Ethernet.

Para instalar el programa utilitario:

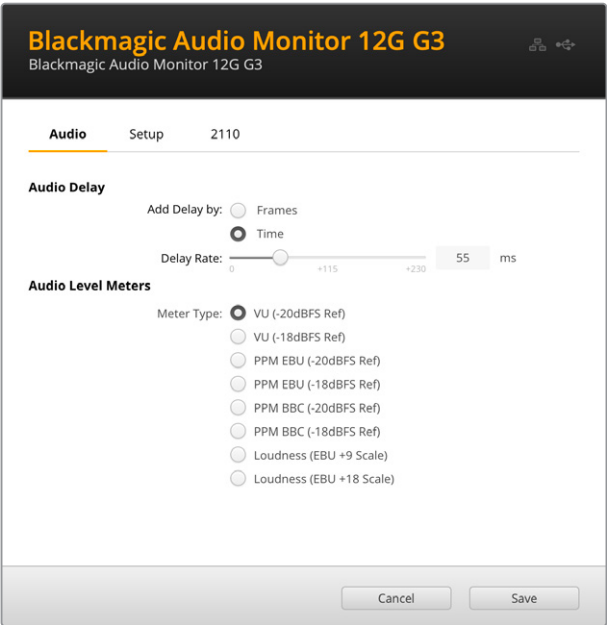
- 1 Descargue la versión más reciente de los controladores desde nuestra página de soporte técnico.
- 2 Al finalizar la descarga, haga doble clic en el ícono **Install Audio Monitor** para dar inicio a la instalación. Siga las instrucciones que aparecen en la pantalla y haga clic **Install**.
- 3 Cuando el proceso haya terminado, busque la carpeta **Blackmagic Audio Monitor** en el directorio de aplicaciones o programas y haga doble clic en **Audio Monitor Setup**.



El programa utilitario Audio Monitor Setup permite actualizar el software interno y cambiar los ajustes de configuración del dispositivo.

# Audio

Esta pestaña permite acceder a los ajustes para el retraso del audio y los distintos niveles de supervisión.



## Retraso del audio

Al mover el control deslizante, es posible añadir un retraso a la señal transmitida mediante la salida SDI derivada o HDMI. Dicho valor puede medirse en fotogramas o segundos.



## Medidores de audio

Es posible seleccionar distintos modos de medición, por ejemplo, vúmetro (VU), picómetro (PPM) o sonoridad con escalas EBU y BBC. El vúmetro es el más habitual, pero el picómetro y los medidores de sonoridad proporcionan sistemas de escalas y medidas para la sonoridad percibida. El dispositivo es compatible con los siguientes tipos de indicadores y escalas de medición:

| Indicador | Escala              | Rango de medición | Presentación              |
|-----------|---------------------|-------------------|---------------------------|
| VU        | –                   | -45 a +3          | Impreso en el dispositivo |
| PPM       | EBU                 | -12 a +12         | Rótulo adhesivo           |
| PPM       | BBC                 | 1 a 7             | Rótulo adhesivo           |
| Loudness  | EBU +9              | -18 a +9          | Rótulo adhesivo           |
| Loudness  | EBU +18             | -36 a +18         | Rótulo adhesivo           |
| Loudness  | Escala completa +9  | -41 a -14         | Rótulo adhesivo           |
| Loudness  | Escala completa +18 | -59 a -5          | Rótulo adhesivo           |

## Vúmetro

Indica el nivel promedio máximo y mínimo de la señal de audio. Generalmente se utiliza para monitorizar los picos, aunque también permite supervisar la sonoridad percibida debido a su capacidad para determinar los valores medios.

## Picómetro

Indica durante varios segundos el nivel máximo de la señal para determinar con exactitud el punto de saturación del audio.

## Sonoridad

Muestra la percepción subjetiva de la audibilidad de la señal. Los estándares profesionales de difusión audiovisual en la actualidad incluyen este tipo de indicador para obtener una intensidad de audio consistente.

Tanto el vúmetro como el picómetro permiten seleccionar el nivel de referencia (-18 dB o -20 dB) para cerciorarse de que la señal de audio se ajuste a los diversos estándares de teledifusión internacionales.

Los ledes del dispositivo se iluminan de manera diferente en función del tipo de medidor seleccionado. Por otro lado, a fin de facilitar la identificación exacta del valor de saturación, se proporcionan rótulos adhesivos con distintas escalas de referencia en decibelios. Pegue el rótulo requerido entre las dos filas de ledes, de manera que cubra la escala correspondiente al vúmetro impresa en el dispositivo.

Se proporcionan dos etiquetas para cada modo y escala de medición. Estas también pueden adquirirse en la oficina de Blackmagic Design más cercana.

|                                |     |     |     |     |     |     |     |     |     |  |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |  |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |  |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |  |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |  |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |  |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |  |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |  |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |  |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |  |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |  |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |  |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |  |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |  |

Los rótulos adhesivos permiten identificar en forma precisa el punto de saturación del audio en las distintas escalas.

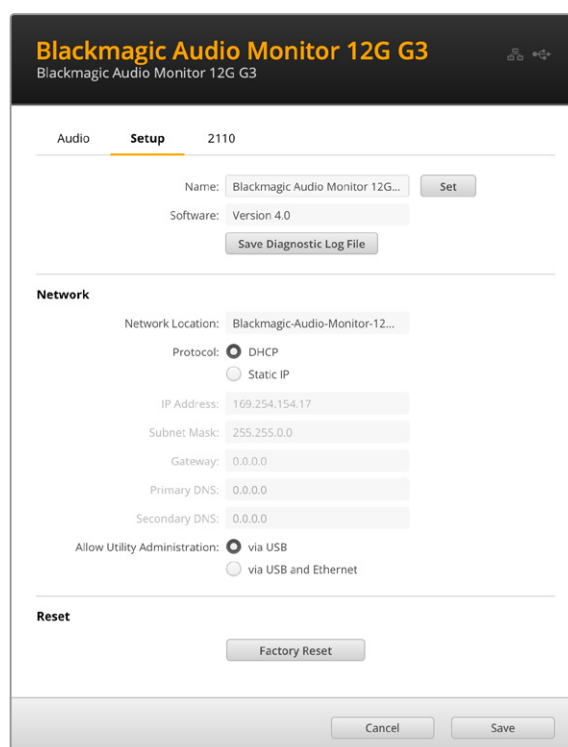
## Configuración

La pestaña **Setup** muestra el número de versión del sistema operativo interno del dispositivo y permite modificar los ajustes de red. Asimismo, es posible identificar la unidad con un nombre específico a fin de encontrarla rápidamente cuando se conecta de manera remota.

Esta pestaña también incluye los ajustes de red del dispositivo.

Para asignarle un nombre al dispositivo:

- 1 Haga clic en la pestaña **Setup**.
- 2 Haga clic en el cuadro de texto **Name** y escriba el nombre deseado.
- 3 Haga clic en el botón **Save** en la parte inferior derecha de la interfaz.



### Ajustes de red

La manera más fácil de gestionar varias unidades es acceder a ellas a través de una red. Esto es posible mediante el programa Blackmagic Audio Monitor Setup.

El dispositivo está configurado de forma predeterminada para utilizar el protocolo DHCP, por lo cual adquiere una dirección de red automáticamente y puede seleccionarse de inmediato en la pantalla de inicio del programa utilitario.

### Acceso al programa utilitario

Es posible acceder al programa utilitario cuando el dispositivo está conectado a un equipo informático mediante una red o el puerto USB. Para evitar que otros usuarios accedan a través de la red, seleccione la opción **USB only**.

### Restablecer

Seleccione la opción **Factory Reset** para restablecer la configuración original del dispositivo.

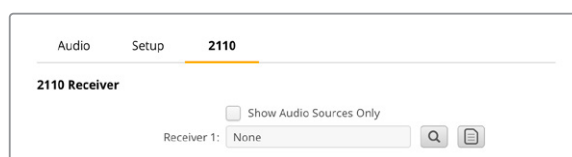
## 2110

El programa utilitario incluye una pestaña para configurar los ajustes de las señales IP SMPTE 2110 del reloj patrón para el protocolo de tiempo preciso (PTP).

### Receptor 2110

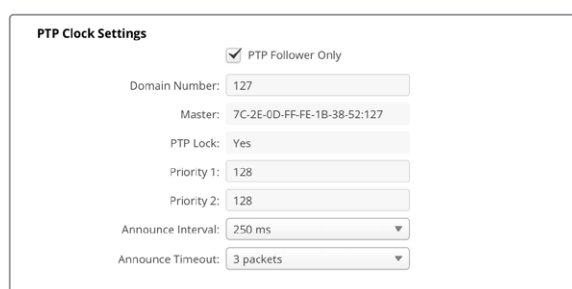
Marque la casilla **2110 Receiver** para ver las fuentes de audio solamente.

Para seleccionar la señal que desea recibir, haga clic en la lupa a la derecha del campo **Receiver**. Se abrirá una ventana que muestra todas las fuentes disponibles con su respectivos nombres y nodos IP. Resalte una señal y haga clic en el botón **Select**. La ventana se cerrará y el nombre de la señal aparecerá en el campo **Receiver**. La fuente entrante se verá en la pantalla del dispositivo.



### Ajustes del reloj PTP

Estos ajustes permiten modificar la configuración del dispositivo maestro.



Al conectar la unidad a un conmutador de red 10G con un reloj patrón PTP, es preciso configurarla en modo de seguimiento, a fin de evitar conflictos en la sincronización.

Si la unidad se ha conectado a otro equipo IP 2110, por ejemplo, un Blackmagic 2110 IP 3x3G Converter, marque la casilla **PTP Follower Only** para uno de ellos.

### Número de dominio

Introduzca el número de dominio de forma tal que coincida con el del dispositivo PTP maestro. Generalmente, dicho número es 127, pero es posible introducir uno distinto en el campo correspondiente.

### Dispositivo maestro

El campo **Master** indica la dirección MAC del dispositivo PTP maestro, ya sea una unidad externa u otro equipo Blackmagic 2110 IP.

### Sincronización PTP

El campo **PTP Lock** indica si el dispositivo está sincronizado con un reloj patrón a través de la red Ethernet.

### Prioridad

Los ajustes **Priority 1** y **Priority 2** permiten elegir el dispositivo PTP maestro preferido si hay varios conectados a la red. Un número menor indica una mayor prioridad.

### Anunciar intervalo y tiempo de espera

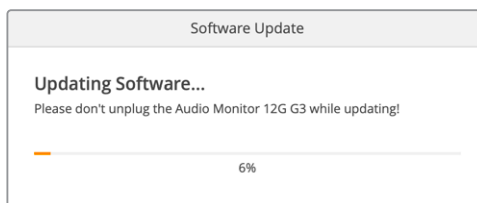
Los campos **Announce Interval** y **Announce Timeout** deben coincidir con las especificaciones del dispositivo PTP maestro que transmite mensajes de sincronización generalmente cada dos segundos o dos mil milisegundos. Para cambiar la frecuencia del mensaje, seleccione otra de las opciones disponibles en el menú. Los intervalos disponibles para estos ajustes dependerán del dispositivo PTP maestro.

## Actualización del software interno

- 1 Conecte el dispositivo a un equipo informático mediante el puerto USB o Ethernet.
- 2 Ejecute el programa Audio Monitor Setup.
- 3 Al hacer clic en el ícono de configuración, el programa indicará si es necesario realizar una actualización.
- 4 En caso afirmativo, haga clic en el botón **Update** para dar inicio al proceso.



Haga clic en el botón **Update** para actualizar el software interno.



Una barra indica el progreso de la actualización.

- 5 Haga clic en el botón **Close** al finalizar la actualización.

# Información para desarrolladores

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵
Meter Mode: Loudness (EBU +18 scale)↵
↵
```

The response will be

```
ACK:
AUDIO METER:
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵
↵
```

The response will be

```
ACK:
AUDIO INPUT:
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:
Gain: Speaker Stereo 0
Gain: Headphone Stereo 0
Mute: false
Solo: Off
Audio delay in ms: 0
Audio delay in frames: 0
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵
Gain: Speaker Stereo 125↵
Solo: Right↵
↵
```

The response will be

```
ACK:
AUDIO OUTPUT:
Gain: Speaker Stereo 125
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵
AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# Ayuda

## Cómo obtener ayuda

La forma más rápida de obtener ayuda es visitando las páginas de soporte técnico en el sitio web de Blackmagic Design, donde es posible acceder al material de apoyo más reciente.

### Página de soporte técnico de Blackmagic Design

Las versiones más recientes del manual, el software del equipo y el material de apoyo se encuentran disponibles en nuestra página de soporte técnico.

### Foro de Blackmagic Design

Este foro permite compartir ideas creativas y constituye un recurso útil para obtener más información sobre nuestros productos. Allí también es posible encontrar rápidamente respuestas de usuarios experimentados o suministradas por el personal de Blackmagic Design. Para acceder al foro, visite la página <http://forum.blackmagicdesign.com>.

### Cómo ponerse en contacto con nuestro equipo de soporte técnico

Si no encuentra la ayuda que necesita, solicite asistencia técnica mediante el botón **Enviar correo electrónico** situado en la parte inferior de la página de soporte en nuestro sitio web. De forma alternativa, haga clic en el botón **Soporte técnico local** para acceder al número telefónico del centro de atención más cercano.

### Cómo comprobar la versión del software instalada

Siga los pasos descritos a continuación para verificar la versión del programa Blackmagic Audio Monitor Setup instalada en su equipo informático.

- En macOS, ejecute el programa desde la carpeta de aplicaciones. Seleccione **About Blackmagic Audio Monitor Setup** en el menú de la aplicación para ver el número de la versión.
- En Windows 10, abra el programa desde la página de inicio. Haga clic en el menú **Ayuda** y seleccione la opción **About Blackmagic Audio Monitor Setup** para ver el número de versión.

### Cómo obtener las actualizaciones más recientes

Después de verificar la versión del programa instalada, visite nuestra página de soporte técnico para comprobar si hay actualizaciones disponibles. Aunque generalmente es recomendable instalar las últimas actualizaciones, evite realizar modificaciones al sistema operativo interno si se encuentra en medio de un proyecto importante.

# Normativas

## Desecho de equipos eléctricos y electrónicos en la Unión Europea:



Este símbolo indica que el dispositivo no debe desecharse junto con otros residuos domésticos. A tales efectos, es preciso llevarlo a un centro de recolección para su posterior reciclaje. Esto ayuda a preservar los recursos naturales y garantiza que dicho procedimiento se realice protegiendo la salud y el medioambiente. Para obtener más información al respecto, comuníquese con el distribuidor o el centro de reciclaje más cercano.



Según las pruebas realizadas, este equipo cumple con los límites indicados para dispositivos digitales Clase A, en conformidad con la sección 15 de las normas establecidas por la Comisión Federal de Comunicaciones. Esto permite proporcionar una protección razonable contra interferencias nocivas al operar el dispositivo en un entorno comercial. Este equipo usa, genera y puede irradiar energía de radiofrecuencia, y si no se instala o utiliza de acuerdo con el manual de instrucciones, podría ocasionar interferencias nocivas para las comunicaciones radiales. El funcionamiento de este equipo en una zona residencial podría ocasionar interferencias nocivas, en cuyo caso el usuario deberá solucionar dicho inconveniente por cuenta propia.

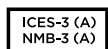
El funcionamiento de este equipo está sujeto a las siguientes condiciones:

- 1 El dispositivo no debe causar interferencias nocivas.
- 2 El dispositivo debe admitir cualquier interferencia recibida, incluidas aquellas que puedan provocar un funcionamiento incorrecto del mismo.



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

## Declaración ISED (Canadá)



Esta cámara cumple con los estándares canadienses para dispositivos digitales Clase A.

Cualquier modificación o uso indebido del mismo podría acarrear un incumplimiento de dichas normas.

Las conexiones a interfaces HDMI deberán realizarse mediante cables blindados.

Este equipo cumple con las normas descritas anteriormente al emplearse en entornos comerciales. Nótese que podría ocasionar interferencia radial al utilizarlo en ambientes domésticos.

# Seguridad

Para evitar el riesgo de descarga eléctrica, este equipo debe enchufarse a una toma de corriente que disponga de un cable a tierra. Ante cualquier duda, póngase en contacto con un electricista capacitado.

A fin de reducir el riesgo de descarga eléctrica, evite exponer el equipo a goteras o salpicaduras.

Este equipo puede utilizarse en climas tropicales, a una temperatura ambiente máxima de 40 °C.

Compruebe que haya suficiente ventilación en torno a la unidad.

Al instalar el equipo en un bastidor, verifique que el dispositivo contiguo no impida la ventilación.

La reparación de los componentes internos del equipo no debe ser llevada a cabo por el usuario. Comuníquese con nuestro centro de atención más cercano para obtener información al respecto.



Evite utilizar el equipo a una altura mayor de 2000 metros.

## **Declaración del Estado de California**

Las partes plásticas de este producto pueden contener trazas de compuestos químicos, tales como polibromobifenilos (PBB), que el Estado de California reconoce como causantes de cáncer, anomalías congénitas o daños reproductivos.

Consulte el sitio [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov) para obtener más información al respecto.

## **European Office**

Blackmagic Design B.V, Amsterdam Sloterdijk Teleport Towers Office 2.17, Kingsfordweg 151, Amsterdam, 1043GR.

# Garantía

## 12 meses de garantía limitada

Blackmagic Design garantiza que el producto adquirido no presentará defectos en los materiales o en su fabricación por un período de 12 meses a partir de la fecha de compra. Si un producto resulta defectuoso durante el período de validez de la garantía, Blackmagic Design podrá optar por reemplazarlo o repararlo sin cargo alguno por concepto de piezas y/o mano de obra.

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# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## 欢迎辞

感谢您购买和使用Blackmagic Audio Monitor!

我们的梦想是希望人人都能拥有最优质的视频设备，从而使广电行业成为真正充满创意的行业。

无论是广电、后期制作或现场制作，音频监测对于任何视频制作工作流程都至关重要。Blackmagic Audio Monitor以紧凑的机架式设计，为您带来专业音频监测器的所有功能。它可以连接几乎所有音频设备并获得高质量技监，获得高品质监听。Blackmagic Audio Monitor原始机型支持6G-SDI，可连接高达每秒30帧的Ultra HD视频。Blackmagic Audio Monitor 12G支持12G-SDI，可连接高达每秒60帧的Ultra HD视频，并且支持A级和B级3G-SDI视频信号输入。此外，Blackmagic Audio Monitor 12G G3支持上至12G-SDI，通过SMPTE 2110 IP视频使用10G以太网。

本操作手册包含使用Blackmagic Audio Monitor所需之全部信息。

请登陆我公司网站[www.blackmagicdesign.com/cn](http://www.blackmagicdesign.com/cn)的支持页面获得Blackmagic Audio Monitor的最新版操作手册及其各项内部软件更新。同时，请注意定时更新内部软件以便获得最新功能。下载软件时，请注册您的相关信息，以便我们发布新软件时能及时通知您。我们不断致力于产品的功能开发和改进，因此我们热忱期待您的意见和建议!

A stylized, handwritten signature in black ink that reads "Grant Petty".

**Grant Petty**

Blackmagic Design首席执行官

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# 入门

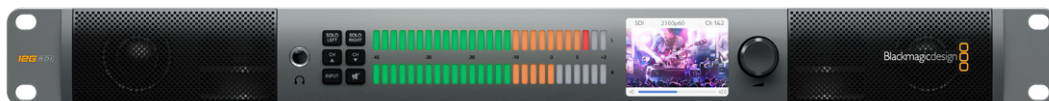
## Blackmagic Audio Monitor简介

Blackmagic Audio Monitor和Blackmagic Audio Monitor 12G有着仅1RU的小巧机身, 它可广泛用于各类视频和音频源的现场制作、后期制作以及广播等工作环境中, 是实时音频监测的完美解决方案。

Blackmagic Audio Monitor可连接SD/HD/3G/6G-SDI、数字AES/EBU以及模拟音频设备, 可确保输出正确的音频电平。12G机型支持12G-SDI, 可连接高达每秒60帧的Ultra HD视频。通过左右声道LED音频表可监看音频峰值位置, 而内置LCD屏幕则可显示SDI视频输入以及输入接口类型、视频格式、帧率、音频通道以及音量等重要信息。

您可以监测多达16路SDI嵌入音频, 或使用XLR接口用于平衡模拟音频以及AES/EBU数字音频。此外, 其RCA接口还可以连接到各类消费级设备, 如HiFi系统和iPod等。

Blackmagic Audio Monitor配备两个高质量内部全频域扬声器和两个低音炮, 音域宽广, 高音清脆, 低音浑厚。在嘈杂的环境中, 您可以使用耳机进行更精准的音频监听!



Blackmagic Audio Monitor 12G的前面板



Blackmagic Audio Monitor 12G的后面板

Blackmagic Audio Monitor 12G 3G型号还支持接收包括压缩12G-SDI等原生2110视频流。



Blackmagic Audio Monitor 12G 3G的后面板

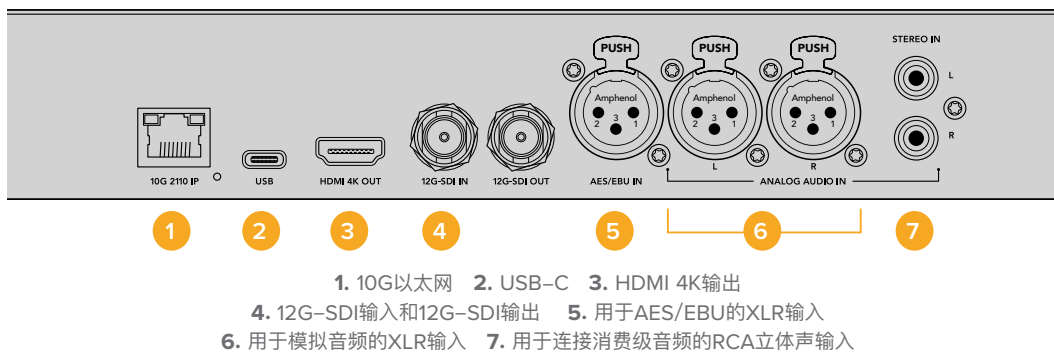


Blackmagic Audio Monitor 12G 3G的后面板

## 连接音频

Blackmagic Audio Monitor几乎支持所有音频设备! 如果想以SD、HD、2K甚至Ultra HD连接到SDI信号, 只需使用标准BNC接头连接SDI输入即可。12G机型支持A级和B级3G-SDI视频信号输入。

如果想从磁盘录机、数字音频控制台或从调音台及Betacam SP录机等模拟设备监听AES/EBU数字音频, 则选择XLR接头连接。来自VCR和DVD播放器等消费级模拟音频设备可使用标准RCA接口连接。您还能使用1/4英寸TRS耳机插口对音频进行个人监听以防干扰他人。



## 选择音频源

将音频设备连接到Blackmagic Audio Monitor之后，只需按控制面板上的“INPUT”（输入）按钮即可选择连接。选定输入信号并成功连接音频后，即可观察到LED音频表开始工作。音频表由两排明亮的彩色LED指示灯组成，可帮助您快速确认音频输入状态。

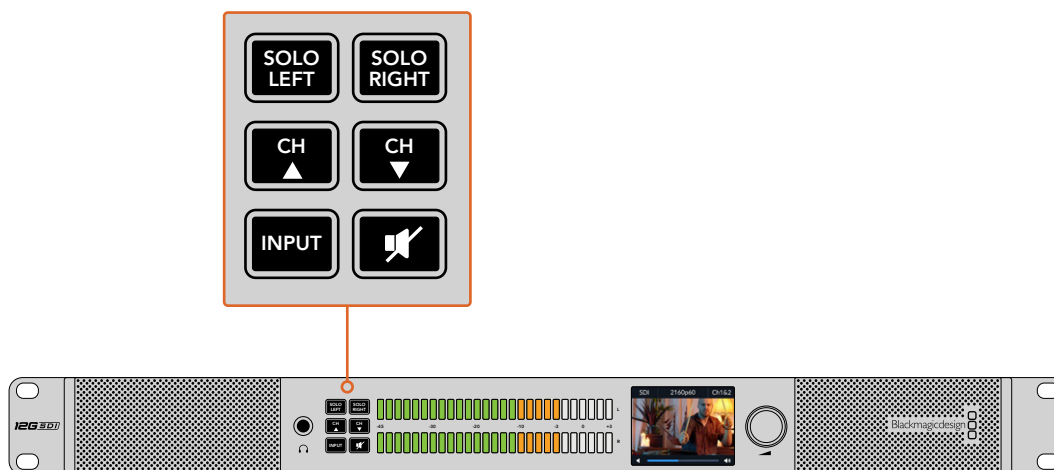
按下“输入”（INPUT）按钮便可逐个选择音频连接，而彩色LCD屏幕则会显示输入类型、音频通道和音量等信息。只要掌握了这些信息，您就可以使用Blackmagic Audio Monitor进行音频技监了！

## 连接视频输出

如果需要同时进行视频和音频监测，Blackmagic Audio Monitor可将视频输出到大屏幕或连接到其他视频设备以便您进行视音频监测。

您可使用HDMI和SDI环通输出来监测视频以及内嵌音频。只需单根SDI线缆便可将连接如DeckLink 4K Extreme等SD、HD、2K甚至Ultra HD采集设备。还可通过SD/HD-SDI接口将内嵌音频的视频连接到HyperDeck Studio等录机，或者通过HDMI接口连接最新Ultra HD显示器及投影仪。

Blackmagic Audio Monitor 12G G3还可以将ST2110输入转换成HDMI和12G-SDI，两路输出可以跟随SDIxc或2110输入，具体可通过前面板输入按钮选择而定。



您可通过不同按钮选定您想监测的输入类型，如分离左右立体声道、音频通道上调和下调以及扬声器或耳机静音功能等。

# 使用Blackmagic Audio Monitor

Blackmagic Audio Monitor的控制面板简单易用, 可快速选定主要功能和状态。

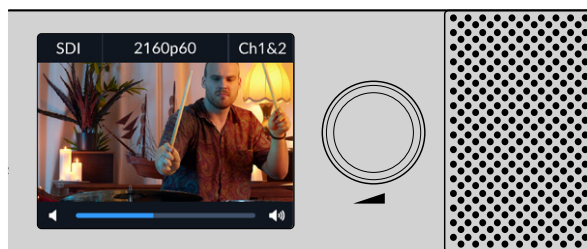
## LCD

设备内置的彩色LCD屏幕有文本重叠功能, 连接SDI接口时可显示您所选定的输入信号及视频格式等重要状态信息, 还能帮助您选择音频通道、扬声器及耳机音量等。这款LCD屏幕还会显示输入的SDI视频信号。如果未检测到SDI视频, 设备会显示一个音乐图标。

每个选定输入所显示的信息如下:

### SDI输入

SDI、视频格式、所选音频通道。



彩色LCD屏幕会显示视频和音频信息, 包括连接方式、视频格式、选定音频通道以及音量等。



在没有监看SDI或SMPTE 2110信号时, 通常LCD屏幕上会始终显示音乐图标。

### 10G以太网2110输入

SMPTE-2110 IP视频包括SMPTE-2110-30音频支持。

### 平衡AES/EBU XLR输入

AES/EBU、所选音频通道。

### 平衡XLR模拟输入

模拟, 所选音频通道。

### 非平衡RCA模拟输入

HiFi, 所选音频通道。

## 音频电平表

Blackmagic Audio Monitor的音频电平表设有两排绿橙红LED指示灯, 不同色彩分别代表不同的音频电平强度。如果所有LED指示灯都亮起, 则表示您的音频电平过高并存在削波现象。

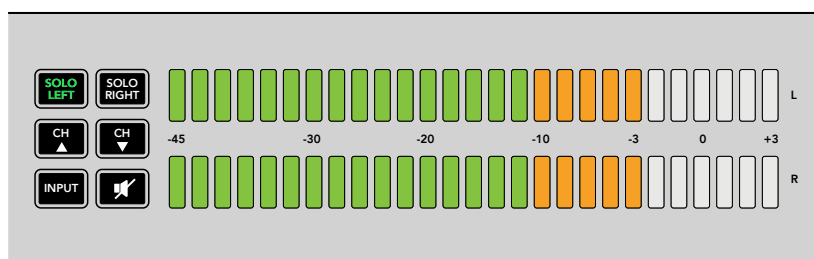
您在Audio Monitor Setup实用程序中选择音频表类型设置不同, 音频电平表给出的反馈也有所不同。如果您使用的是VU表技监, 请调整相应音频设备上的输出电平, 使得音频达到峰值时, 控制面板上的指示灯对准0dB刻度处。此操作可达到最高信噪比, 确保最佳音频质量。如果音频峰值超过0dB刻度, 则很有可能导致声音失真。

请参考“Audio Monitor Setup软件”章节获取安装Blackmagic Audio Monitor Setup实用程序以及设置电平表类型的具体操作细节。

## 控制面板按钮

### 单放左声道和单放右声道

这两个按钮可以分离左右声道, 这样您就可以对每个声道进行单独监听, 以便找到问题。



选择SOLO LEFT (单放左声道) 按钮可停止播放右声道。音频电平表仍可继续显示两个声道的电平。

监听左声道音频:

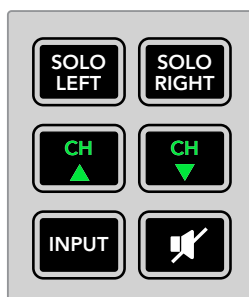
- 1 按下“SOLO LEFT” (单放左声道) 按钮。此时按钮的绿色背光将会亮起, 扬声器开始单独播放左声道音频。
- 2 再次按下“SOLO LEFT” (单放左声道) 按钮回到立体声音频监听。

要监听右声道音频, 按“SOLO RIGHT” (单放右声道) 重复上述步骤即可。

### 上调音频通道和下调音频通道

您可通过这两个按钮对内嵌在SDI接口的音频通道进行逐个查看。对于3G-SDI, 这包含最多16个通道, 即8对。按下通道“上”和“下”按钮, 在SDI内嵌音频通道之间上下移动。

Blackmagic Audio Monitor 12G支持12G-SDI, 包含最多64个音频通道, 即32对通道。按住向上箭头或向下箭头按钮可快速在通道间滚动。

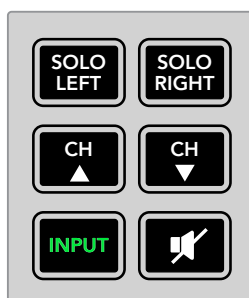


## 输入

重复按“INPUT”（输入）按钮可逐个扫描并查看SDI、AES/EBU、SMPTE 2110、模拟以及HiFi输入，以便您选择想要监测的视音频设备。

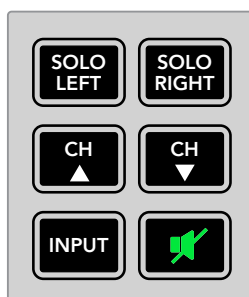
选定的音频输入可通过内置扬声器进行监听，您也可以在HDMI输出的CH 1和2上监测音频。

**备注** 当选择模拟、AES/EBU或HiFi输入时，HDMI输出将显示黑场视频。SDI环通输出总是输出与SDI输入连接的视频和音频。



## 静音

这一按钮可使Blackmagic Audio Monitor控制面板上的扬声器以及耳机静音。静音效果不会影响音频输入，只会影响扬声器和耳机输出。再次按下静音图标按钮便可取消控制面板扬声器和耳机的静音。另外，通过按增加音量按钮也可恢复音频。



## 音量

这一旋钮可单独调节扬声器和耳机音量。音量会显示在内置LCD屏幕上。当连接耳机时，Blackmagic Audio Monitor的扬声器会呈静音状态，此时音频通过耳机输出。通过顺时针和逆时针旋转音量旋钮便可轻松调节音量大小。



音量显示在控制面板的LCD屏幕上。

# Audio Monitor Setup软件

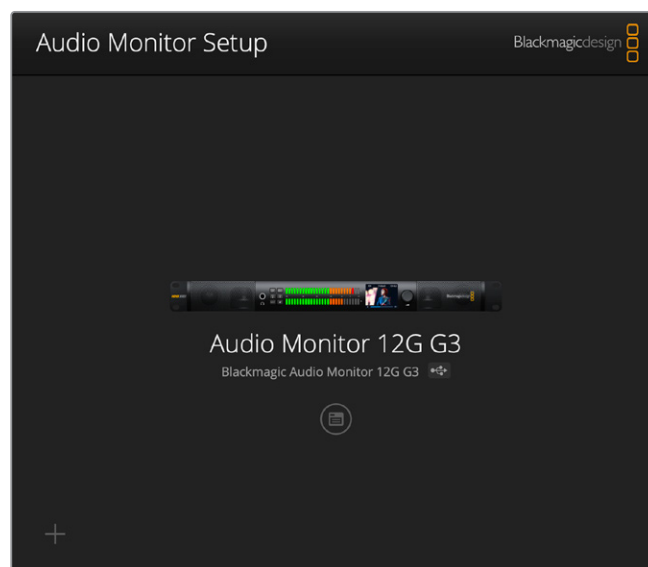
## Blackmagic Audio Monitor Setup软件

Blackmagic Audio Monitor Setup实用程序可用来设置您想要的音频电平表类型, 并可更新Blackmagic Audio Monitor的内部软件。

将Blackmagic Audio Monitor原始机型通过USB与计算机连接后, 您可以使用实用程序修改配置设置及更新内部软件。在Blackmagic Audio Monitor 12G G3上, 您还可以通过以太网更新设备和修改设置, 但您需要连接USB才可以修改网络设置。

安装Audio Monitor Setup步骤如下:

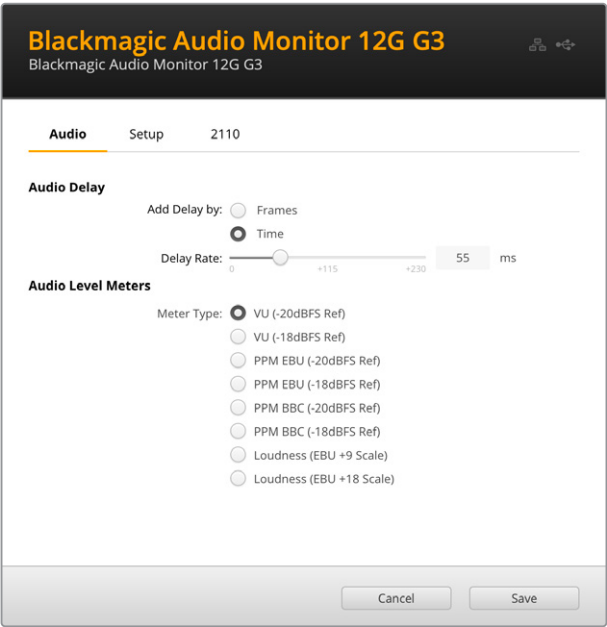
- 1 访问网址[www.blackmagicdesign.com/cn/support](http://www.blackmagicdesign.com/cn/support), 并下载最新版Blackmagic Audio Monitor 驱动软件。
- 2 下载结束后, 双击“Install Audio Monitor”图标运行安装程序。按照提示按下“Install”来安装该软件。
- 3 安装完软件后, 在应用程序或程序文件夹中导航到“Blackmagic Audio Monitor”文件夹, 双击“Audio Monitor Setup”。



使用Blackmagic Audio Monitor Setup实用软件更新Blackmagic Audio Monitor的内部软件, 以及修改配置设置。

## 音频选项卡

点击音频选项卡可显示音频延迟和监听电平设置。



### 音频延迟

调整滑块可为HDMI和SDI环通输出连接添加音频延迟。您可以选择以帧或毫秒调整延迟。



### 音频电平表

您可选择VU表、PPM表或响度计等音频表类型以及EBU和BBC等测量标准。如今，VU表已逐渐标准化，PPM表和响度计则可以提供度量系统，或测量感知到的响度。下表列出了设备所支持的音频电平表及其相应的度量组合。

| 音频表类型 | 测量标准    | 测量范围    | 如何使用 |
|-------|---------|---------|------|
| VU表   | —       | −45到+3  | 印于设备 |
| PPM表  | EBU     | −12到+12 | 贴标   |
| PPM表  | BBC     | 1到7     | 贴标   |
| 响度计   | EBU +9  | −18到+9  | 贴标   |
| 响度计   | EBU +18 | −36到+18 | 贴标   |
| 响度计   | 满刻度 +9  | −41到−14 | 贴标   |
| 响度计   | 满刻度 +18 | −59到−5  | 贴标   |

VU表

该表可反馈音频信号中峰谷的平均值。它最常用于监测信号中的峰值,但是由于它具备平均值功能,因此也可用于监测音频的感知响度。

PPM表

该表具有“峰值保持”功能,可暂时保留信号峰值,并可缓慢下降还原,以便您明确音频于何处达到峰值。

响度计

该表可显示音频信号响度的主观质量。为了确保音频响度一致,现在的播出标准都包括响度技监。

VU表和PPM表都可以选择-18dB或-20dB两种参考电平,因此您可以按照不同的国际播出标准监测音频。

Blackmagic Audio Monitor的LED指示灯会根据所选的音频表类型相应给出不同反馈供您参考。Blackmagic Audio Monitor提供准确的dB参考刻度贴标,可帮助您明确音频于何处达到峰值。只需揭开贴纸并粘贴到位于两排彩色LED指示灯之间的位置,覆盖当前的VU表刻度即可。

每类音频电平表所对应的测量标准各备有两张刻度贴标。您也可向当地Blackmagic Design办事处获取贴标。

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

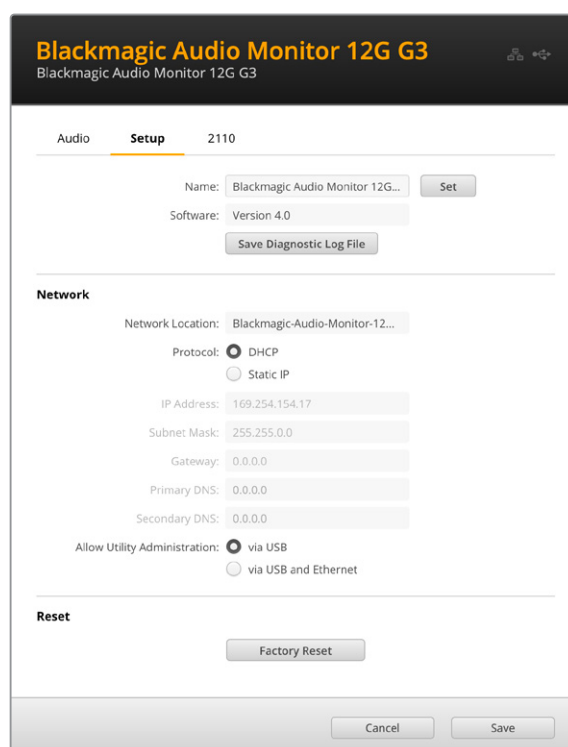
产品内附贴标,以便您使用各类音频表时都能准确监看音频峰值位置。

## 设置选项卡

设置选项卡列出了软件版本号码, 并包含Blackmagic Audio Monitor的网络设置信息。您也可以自定义设备名称。远程连接时, 命名设备可以帮助您快速找到设备。设置选项卡还包括Audio Monitor的网络设置。

如要命名您的Blackmagic Audio Monitor 12G:

- 1 点击“Setup” (设置) 选项卡。
- 2 点击“Name” (名称) 文本框并输入新标签。
- 3 在实用程序屏幕右下方点击“Save” (保存) 。



## 网络设置

通过网络访问Blackmagic Audio Monitor 12G是管理多台设备最简便的方法。您可通过Blackmagic Audio Monitor Setup来实现这一操控。Blackmagic Audio Monitor 12G默认是DHCP, 所以会自动获取网络地址, 方便您从实用程序主菜单中快速选择。

如果您无法在网络上找到Blackmagic Audio Monitor 12G, 或者之前设置使用的静态地址无匹配当前网络, 您可能需要到设备上手动更改其网络设置。

## 允许实用程序管理

当您的设备通过网络或USB连接时, 就可以访问Blackmagic Audio Monitor Setup了。要防止用户通过网络访问, 请选择“USB only” (仅USB) 。

## 重置

选择“Factory Reset” (恢复出厂设置) 后可将Audio Monitor 12G恢复到出厂时的设置。

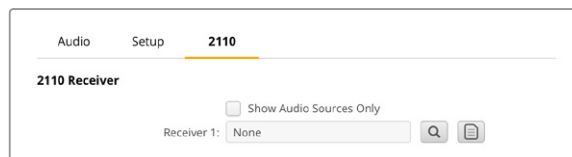
## 2110选项卡

Blackmagic Audio Monitor 12G G3包括一个配置SMPTE 2110 IP视频流的选项卡和PTP Grandmaster设置。

### 2110接收器

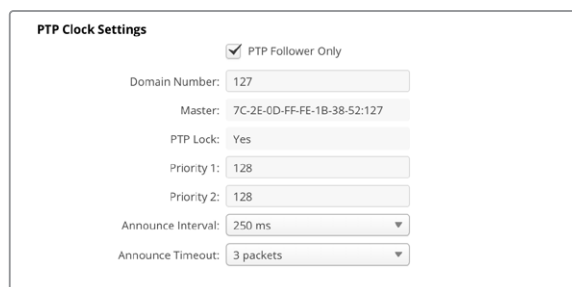
如果仅是映射音频源，请勾选“Show Audio Sources Only”复选框。

要指派想要接收的视频流，请点击接收器栏右侧的放大镜图标。该操作可打开一个窗口，会显示所有可用的视频源列表与IP节点和视频流源标签。高光某个视频流并点击选择按钮。该窗口会关闭，视频流标签会出现在接收器栏。现在您将在Audio Monitor的LCD显示屏上看到所接收的视频源。



### PTP时钟设置

PTP设置可让您为PTP Grandmaster配置设置。



将Blackmagic Audio Monitor 12G G3连接到拥有PTP Grandmaster的10G网络交换机时，需要将其设置为Follower从属模式以防止时间冲突。如果将Audio Monitor连接到Blackmagic 2110 IP 3x3G Converter等另一个2110 IP设备时，请勾选PTP Follower复选框。

#### Domain Number（域编号）

输入与PTP Grandmaster匹配的域编号。通常是127，但可以在该栏中输入其他域编号来更改。

#### Master（主地址）

主地址栏显示了PTP Grandmaster的MAC地址。这可以是单独的Grandmaster设备，或者是另一台Blackmagic 2110 IP设备。

#### PTP Lock（PTP时钟）

当Audio Monitor通过以太网锁定PTP时钟时，PTP时钟栏会予以确认。

#### Priority（优先级）

Priority 1和2设置允许您在网络上有多个PTP Grandmaster时设置可用的首选PTP Grandmaster。数字越低优先级越高。

#### Announce Interval（报文间隔）和Announce Timeout（报文超时）

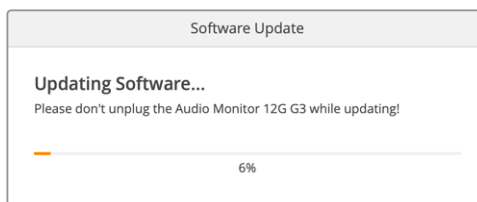
报文间隔和报文超时栏需要与PTP Grandmaster技术规格相符，通常每两秒或2000毫秒传送一次同步消息。要更改消息的频率，可使用菜单选择不同时间。报文间隔和报文超时的可用范围具体根据您的PTP Grandmaster而定。

## 更新内部软件

- 1 通过USB或以太网将Blackmagic Audio Monitor连接到您的计算机。
- 2 打开Blackmagic Audio Monitor Setup软件。
- 3 点击配置图标后, 实用程序会提示您是否需要更新。
- 4 如果需要更新, 请点击“Update”按钮, 并完成软件安装。



点击“Update”按钮开始内部软件更新。



进度条可显示更新状态。

- 5 更新完成后, 点击“Close”按钮关闭。

# Developer Information

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵  
Meter Mode: Loudness (EBU +18 scale)↵  
↵
```

The response will be

```
ACK:  
AUDIO METER:  
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:  
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵  
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵  
↵
```

The response will be

```
ACK:  
AUDIO INPUT:  
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:  
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:  
Gain: Speaker Stereo 0  
Gain: Headphone Stereo 0  
Mute: false  
Solo: Off  
Audio delay in ms: 0  
Audio delay in frames: 0  
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵  
Gain: Speaker Stereo 125↵  
Solo: Right↵  
↵
```

The response will be

```
ACK:  
AUDIO OUTPUT:  
Gain: Speaker Stereo 125  
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵

AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# 帮助

## 获得帮助

获得帮助最快捷的方法是登陆Blackmagic Design在线支持页面, 浏览Blackmagic Audio Monitor的相关最新支持材料。

### Blackmagic Design在线支持页面

请登陆Blackmagic Design支持中心[www.blackmagicdesign.com/cn/support](http://www.blackmagicdesign.com/cn/support)获得最新版操作手册、软件以及技术答疑文章。

### Blackmagic Design论坛

您可以登陆我们的网站访问Blackmagic Design论坛, 获得更多信息和有用的创意资源。访问论坛也是获取帮助的一个捷径, 因为论坛中不乏经验丰富的用户和Blackmagic Design的员工, 他们都能为您答疑解惑。请登陆网址<http://forum.blackmagicdesign.com>进入论坛。

### 联系Blackmagic Design支持中心

如果我们提供的支持信息和论坛均无法解答您的疑问, 请到支持页面下点击“给我们发送电子邮件”按钮即可发送技术支持请求。或者, 您也可以点击支持页面下的“查找您所在地区的支持团队”按钮, 致电您所在地区Blackmagic Design支持中心获得帮助。

### 查看当前安装的软件版本

要检查您计算机上所安装的Blackmagic Audio Monitor Setup软件版本, 请打开“About Blackmagic Audio Monitor Setup”窗口查看。

- 在macOS系统下, 请到“应用程序”文件夹中打开Blackmagic Audio Monitor Setup软件, 并到应用程序菜单中选择“About Blackmagic Audio Monitor Setup”即可查看版本号。
- 在Windows 10系统下, 请从开始页面的Blackmagic Audio Monitor Setup板块打开Blackmagic Audio Monitor Setup。点击“Help” (帮助) 菜单并选择“About Blackmagic Audio Monitor Setup”即可查看版本号。

### 如何获得软件更新

检查完您电脑上安装的Blackmagic Audio Monitor Setup软件版本号之后, 请登录网址[www.blackmagicdesign.com/cn/support](http://www.blackmagicdesign.com/cn/support)访问Blackmagic Design支持中心查看最新版本。请及时将软件升级到最新版本, 但切勿在重要项目制作过程中升级软件。

# 监管告知

## 在欧盟范围内处置电子垃圾和电子设备的注意事项。



根据产品所附的提示标志, 本设备不得与其它废弃材料共同处置。处置废弃设备时, 必须交给指定收集点进行回收。对废弃设备进行单独收集并回收能够节省自然资源, 且回收方式不会损害环境和人体健康。获取更多关于废弃设备回收点的信息, 请联系您所在城市的回收站, 或当时购买设备的经销商。



本设备经过测试, 符合FCC规则的第15部分对A类数字设备的限制。这些限制旨在为运行于商业环境中的设备提供合理保护, 使其免受有害干扰的影响。本设备可生成、使用且辐射射频能量, 如果未按照安装手册来安装和使用本设备, 则可能导致对无线电通信的有害干扰。在住宅区运行本产品可能会产生有害干扰, 在这种情况下将由用户自行承担消除干扰的费用。

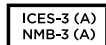
必须满足以下条件后方可操作:

- 1 设备不会造成有害干扰。
- 2 设备必须能够承受任何干扰, 包括可能导致意外操作的干扰。



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

## 加拿大ISED认证声明



本设备符合加拿大A类数码产品的相关标准。

任何对本产品的改装或预期用途之外的使用均可能导致相关标准认证无效。

必须使用有高品质屏蔽的HDMI电缆连接HDMI接口。

本设备经检测符合商业环境使用要求。在家用环境中, 本设备可能会造成无线电干扰。

## 安全信息

为避免触电, 设备必须连接在配有保护地线的电源插座。如有疑问, 请与具有相关资质的电工进行确认。

为了降低触电风险, 请勿将设备放在会滴水或溅水的地方。

本产品适合在环境温度低于40°C的热带地区使用。

确保设备四周留有足够的空间, 不受阻碍。

安装在机架上时, 确保相邻设备不会影响通风。

设备内部没有操作人员可维护的零件。维修服务请联系当地Blackmagic Design服务中心。



请在海拔高度2000米以下的地区使用。

### 加利福尼亚安全声明

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详情请访问网址[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)。

### 欧洲办事处

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# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## 환영합니다.

여러분의 프로덕션 작업을 위해 Blackmagic Audio Monitor를 구입해 주셔서 감사합니다.

모두가 고화질의 비디오 장비를 사용할 수 있도록 하여 TV 산업을 진정한 창조 산업으로 발전시켜 나가려는 저희의 목표를 함께 이뤄갈 수 있기를 희망합니다.

오디오 모니터링은 방송/후반 제작/라이브 제작 같은 비디오 제작 워크플로에서 매우 중요한 작업입니다. Blackmagic Audio Monitor는 전문가용 오디오 모니터에서 제공하는 모든 기능을 소형 랙마운트 디자인에 담은 제품입니다. 사실상 거의 모든 종류의 오디오 장비에 연결하여 고화질 모니터링을 수행할 수 있습니다. 기존 Blackmagic Audio Monitor 모델은 최대 30fps의 UHD 영상을 연결할 수 있는 6G-SDI를 지원합니다. Blackmagic Audio Monitor 12G는 최대 60fps의 UHD 영상을 연결할 수 있는 12G-SDI를 지원할 뿐 아니라 레벨 A와 레벨 B의 3G-SDI 영상 신호 입력도 지원합니다. Blackmagic Audio Monitor 12G G3는 10G 이더넷을 사용하는 SMPTE 2110 IP 비디오를 통해 최대 12G-SDI를 지원합니다.

본 설명서에는 Blackmagic Audio Monitor 사용에 필요한 모든 정보가 담겨있습니다.

자사의 웹사이트 [www.blackmagicdesign.com/kr](http://www.blackmagicdesign.com/kr) 고객지원 페이지에서 최신 버전의 Blackmagic Audio Monitor 설명서와 소프트웨어 업데이트를 확인하실 수 있습니다. 최신 버전의 내부 소프트웨어 업데이트를 통해 항상 새로운 기능을 이용하실 수 있습니다. 소프트웨어를 다운로드할 때 사용자 정보를 등록하시면 새로운 소프트웨어가 출시될 때마다 업데이트 소식을 받아보실 수 있습니다. 저희는 새로운 기능과 제품 향상을 위해서 끊임없이 노력하고 있으며, 항상 고객 여러분의 의견을 기다립니다!

Blackmagic Design의 CEO 그랜트 패티

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# 시작하기

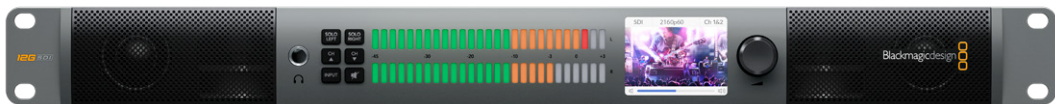
## Blackmagic Audio Monitor 소개

Blackmagic Audio Monitor와 Blackmagic Audio Monitor 12G는 다양한 비디오 및 오디오 소스를 라이브/후반 제작/방송 환경에서 사용 가능한 1RU 크기의 실시간 오디오 모니터링 솔루션입니다.

Blackmagic Audio Monitor를 SD/HD/3G/6G-SDI 및 디지털 AES/EBU, 아날로그 오디오 장비에 연결하여 올바른 오디오 레벨을 출력하는지 확인할 수 있습니다. 12G 모델은 12G-SDI를 지원하여 최대 60fps의 UHD를 연결할 수 있습니다. 좌/우 채널의 LED 레벨 미터를 통해 오디오가 피킹되는 지점을 확인할 수 있으며, 내장 LCD를 통해 SDI 비디오 입력뿐만 아니라 연결 유형, 비디오 포맷, 프레임 속도, 오디오 채널, 볼륨 크기 등의 중요한 정보가 표시됩니다.

최대 16채널의 임베이드 SDI 오디오를 모니터링 하거나 균형 아날로그 및 AES/EBU 디지털 오디오를 위해 XLR 커넥터를 사용할 수 있습니다. RCA 커넥터 또한 탑재되어 있어 HiFi 시스템과 iPod 등의 일반 소비자용 장비를 연결할 수 있습니다.

Blackmagic Audio Monitor는 2개의 풀레인지 스피커와 2개의 서브우퍼를 탑재해 깨끗하고 깊은 음향 재생을 위한 광범위한 주파수를 제공합니다. 또한 소란스러운 환경에서 작업할 경우에는 헤드셋을 연결해 정확한 음향을 모니터링할 수도 있습니다!



Blackmagic Audio Monitor 12G 전면 패널의 모습



Blackmagic Audio Monitor 12G 뒷면 패널의 모습

Blackmagic Audio Monitor 12G G3 모델은 또한 압축 12G-SDI 신호를 포함한 네이티브 2110 스트리밍 수신 지원 기능을 제공합니다.



Blackmagic Audio Monitor 12G G3 전면 패널의 모습

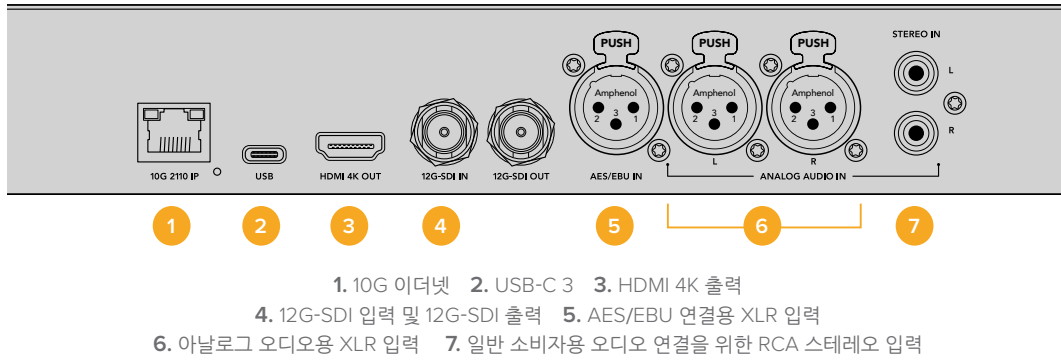


Blackmagic Audio Monitor 12G G3 뒷면 패널의 모습

## 오디오 연결하기

Blackmagic Audio Monitor는 거의 모든 종류의 오디오 장비를 지원합니다! SD/HD/2K/UHD의 SDI 신호를 연결하려면 표준 BNC 커넥터를 사용하여 SDI 입력을 통해 연결할 수 있습니다. 12G 모델은 레벨 A와 레벨 B 3G-SDI 비디오 신호 입력을 지원합니다.

디스크 리코더와 디지털 오디오 콘솔 등의 디지털 AES/EBU 오디오나 오디오 믹서 및 Betacam SP 데크 등의 아날로그 장비 오디오를 모니터링할 경우 XLR 커넥터를 사용해 연결하세요. 표준 RCA 커넥터를 사용해 VCR 및 DVD 플레이어 등 일반 소비자용 장비의 아날로그 오디오를 연결할 수 있습니다. 1/4인치 TRS 헤드폰 잭에 헤드폰을 연결하여 다른 사람들에게 피해를 주지 않고 오디오를 들을 수 있습니다.



## 오디오 소스 선택하기

오디오 장비를 Blackmagic Audio Monitor에 연결한 뒤, 제어 패널에 있는 INPUT 버튼을 눌러 연결을 선택하기만 하면 됩니다. 입력이 선택되어 오디오 사용 준비가 완료되면 오디오 레벨 미터 LED에 불이 들어옵니다. 오디오 미터 레벨은 2줄의 컬러 LED로 구성되어 있으며, 불이 밝게 들어와 오디오 입력이 작동 중인지 쉽게 확인할 수 있습니다.

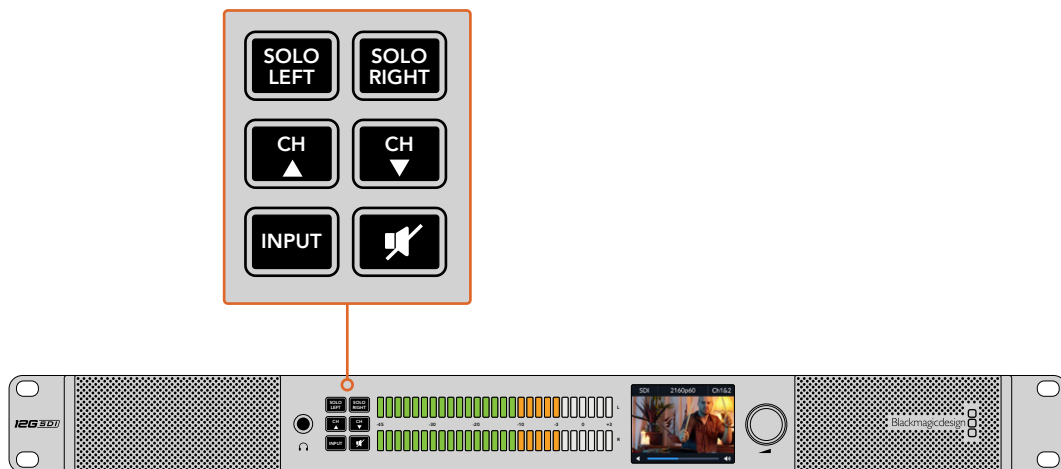
INPUT 버튼을 사용해 오디오 연결을 전환할 수 있으며, 컬러 LCD에서 입력 유형과 오디오 채널, 볼륨 레벨 등의 정보와 함께 연결된 오디오를 확인할 수 있습니다. Blackmagic Audio Monitor를 사용하여 오디오를 모니터링하는 데 필요한 모든 준비가 완료되었습니다.

## 비디오 출력과 연결하기

오디오뿐만 아니라 비디오도 모니터링해야 하는 경우, Blackmagic Audio Monitor의 비디오 출력을 통해 대형 스크린에서 오디오와 함께 영상을 모니터링하거나 다양한 비디오 장비에 연결할 수 있습니다.

HDMI 출력과 6G-SDI 루프 출력을 사용해 비디오와 임베디드 오디오를 모니터링할 수 있습니다. 하나의 SDI 케이블을 통해 SD와 HD, 2K뿐만 아니라 DeckLink 4K Extreme과 같은 UHD 캡처 장비에도 연결할 수 있습니다. SD/HD-SDI를 통해 비디오와 임베디드 오디오를 HyperDeck Studio 등의 녹화 데크에 연결하거나 HDMI를 통해 최신 UHD 디스플레이 및 프로젝트에 연결하세요.

Blackmagic Audio Monitor 12G G3는 또한 ST2110 입력을 HDMI 및 12G-SDI 출력으로 변환할 수 있습니다. 이는 두 출력 모두 전면 패널의 입력 버튼을 통해 선택되는 SDI 또는 2110 입력을 따르기 때문입니다.



이 선택 버튼을 사용해 모니터링 하고자 하는 입력을 선택하고 좌/우 스테레오 채널을 분리할 수 있으며, 사용 가능한 오디오 채널을 위/아래로 이동하거나 스피커 또는 헤드폰을 음소거 할 수 있습니다.

# Blackmagic Audio Monitor 사용하기

Blackmagic Audio Monitor의 제어 패널을 통해 주요 기능 및 상태 정보로 신속하게 이동할 수 있습니다.

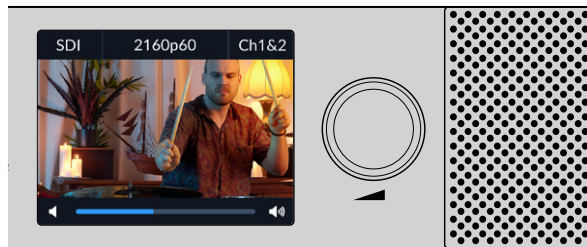
## LCD

내장 컬러 LCD에 텍스트 오버레이 기능이 탑재되어 선택한 입력과 비디오 포맷(SDI를 연결한 경우), 선택한 오디오 채널, 스피커 또는 헤드폰 볼륨 레벨 등의 주요 상태 정보가 나타납니다. LCD는 또한 수신되는 모든 SDI 비디오 신호를 표시합니다. SDI 영상이 감지되지 않을 시에는 화면에 음악 아이콘이 나타납니다.

선택한 입력에 따라 다음과 같은 정보가 나타납니다.

### SDI 입력

SDI, 비디오 포맷, 선택한 오디오 채널



연결 유형과 비디오 포맷, 선택한 오디오 채널과 볼륨 레벨등의 오디오 및 비디오 정보가 컬러 LCD에 표시됩니다.



SDI 또는 SMPTE 2110 신호를 모니터링하는 경우를 제외하고는 LCD에 음악 아이콘이 나타납니다.

### 10G 이더넷 2110 입력

SMPTE-2110 IP 비디오(SMPTE-2110-30 오디오 지원 포함)

### 균형 AES/EBU XLR 입력

AES/EBU, 선택한 오디오 채널

### 균형 XLR 아날로그 입력

아날로그, 선택한 오디오 채널

### 불균형 RCA 아날로그 입력

HiFi, 선택한 오디오 채널

## 오디오 레벨 미터

Blackmagic Audio Monitor의 레벨 미터는 오디오 레벨의 세기를 나타내는 초록/주황/빨강으로 구성된 두 줄짜리 LED 미터입니다. 오디오 레벨이 너무 높아 클리핑될 경우에는 LED 전체에 불이 들어옵니다.

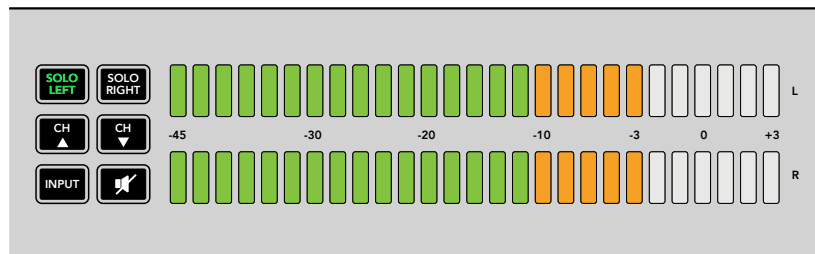
Audio Monitor Setup 유틸리티에서 선택한 오디오 미터 유형에 따라 오디오 레벨 미터의 움직임이 달라집니다. VU 미터링을 사용할 경우, 오디오 장비의 출력 레벨을 조정하여 제어 패널에 있는 오디오 미터의 피크 레벨이 0dB 부근에 머무르도록 합니다. 이는 신호대잡음비를 최대화시켜 오디오 품질이 최적의 상태로 유지됩니다. 오디오 피크 레벨이 0dB을 넘어설 경우, 오디오가 왜곡될 가능성이 높습니다.

Blackmagic Audio Monitor Setup 설치 및 오디오 레벨 미터 유형 설정 방법에 대한 자세한 정보는 [Audio Monitor Setup] 부분을 참고하세요.

## 컨트롤 패널 버튼

### SOLO LEFT 및 SOLO RIGHT 버튼

이 버튼을 사용해 좌/우 채널 오디오를 따로 들을 수 있어 각 채널에서 발생할 수 있는 모든 오디오 관련 문제를 개별적으로 모니터링할 수 있습니다.



SOLO LEFT 버튼을 누르면 우측 오디오 채널이 비활성화됩니다. 오디오 레벨 미터에는 양쪽 채널이 그대로 표시됩니다.

#### 좌측 채널 오디오 모니터링 방법

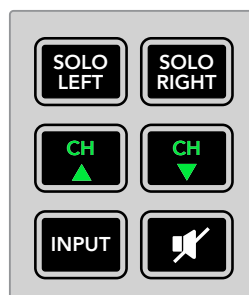
- 1 SOLO LEFT 버튼을 누르세요. 버튼에 녹색 배면광 불빛이 들어오며 좌측 스피커를 통해서만 오디오가 재생됩니다.
- 2 SOLO LEFT 버튼을 다시 한번 누르면 스테레오 오디오 모니터링으로 되돌아갑니다.

우측 채널 오디오를 모니터링하려면, SOLO RIGHT 버튼을 눌러 위 단계를 반복하세요.

### 채널 업 및 채널 다운 버튼

이 버튼(CH▲/CH▼)을 눌러 SDI 연결에 임베드된 오디오를 확인할 수 있습니다. 3G-SDI의 경우, 최대 16개의 채널 또는 8쌍의 채널을 지원합니다. 채널 업/다운(CH▲/CH▼) 버튼을 눌러 임베드 된 SDI 오디오 채널에서 위 아래로 움직일 수 있습니다.

Blackmagic Audio Monitor 12G는 최대 64개의 오디오 채널 또는 32쌍의 채널이 포함된 12G-SDI 입력을 지원합니다. CH▲/CH▼ 버튼을 길게 눌러 채널을 빠르게 스크롤할 수 있습니다.

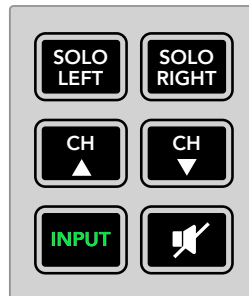


## 입력(Input) 버튼

INPUT 버튼을 반복적으로 눌러 SDI와 AES/EBU, SMPTE 2110, 아날로그, HiFi 입력 간을 이동할 수 있어 모니터링하고자 하는 비디오 및 오디오 장비를 선택할 수 있습니다.

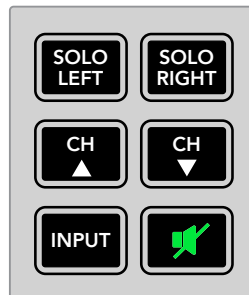
선택한 오디오 입력은 내장 스피커를 통해 확인이 가능하고 HDMI 출력의 CH1과 CH2에서 오디오를 모니터링할 수 있습니다.

**참고** 아날로그나 AES/EBU 또는 HiFi 입력이 선택될 시 HDMI 출력은 블랙 비디오로 나타납니다. SDI 루프 출력은 항상 SDI 입력에 연결된 비디오와 오디오를 출력합니다.



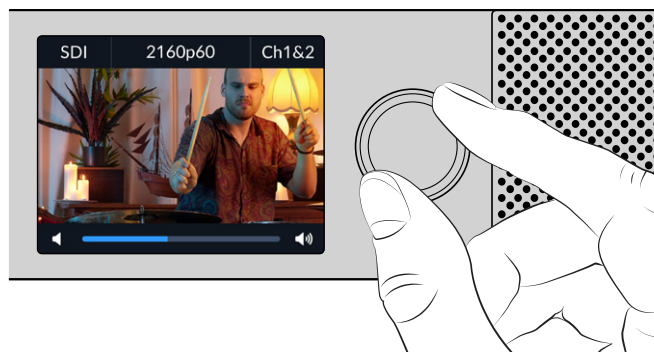
## 음소거 버튼

이 버튼을 누르면 Blackmagic Audio Monitor의 제어 패널 스피커와 헤드폰이 음소거 됩니다. 음소거 기능은 스피커와 헤드폰 출력에만 적용될 뿐 오디오 입력에는 아무런 영향을 끼치지 않습니다. MUTE 버튼을 다시 한 번 누르면 제어 패널 스피커와 헤드폰 오디오가 원래대로 복구됩니다. 오디오 볼륨을 높여도 오디오가 복구됩니다.



## 볼륨

이 노브를 사용해 스피커와 헤드폰을 볼륨을 개별적으로 조절할 수 있습니다. 볼륨 레벨이 내장 LCD에 표시됩니다. 헤드폰을 연결한 경우에는 Blackmagic Audio Monitor의 스피커가 음소거 되며, 헤드폰을 통해서만 오디오가 출력됩니다. 볼륨 노브를 시계 또는 반시계 방향으로 돌려 볼륨을 쉽게 조절할 수 있습니다.



볼륨 레벨은 제어 패널 LCD에 표시됩니다.

# Audio Monitor Setup

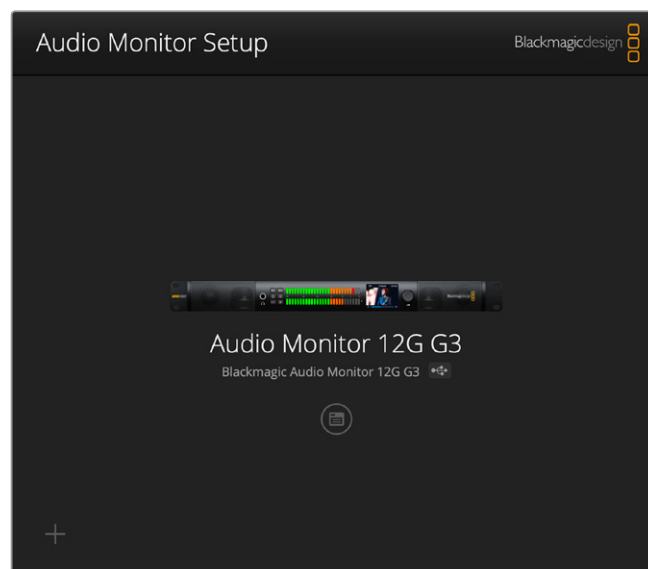
## Blackmagic Audio Monitor Setup

Blackmagic Audio Monitor Setup 유틸리티를 통해 원하는 오디오 레벨 미터 유형을 설정할 수 있을 뿐만 아니라 Blackmagic Audio Monitor의 내부 소프트웨어도 업데이트할 수 있습니다.

기존 Blackmagic Audio Monitor 모델을 컴퓨터 USB에 연결하면 환경 설정을 변경하고 셋업 유틸리티를 통해 내부 소프트웨어를 업데이트할 수 있습니다. Blackmagic Audio Monitor 12G G3의 경우, USB 또는 이더넷을 통해 유닛을 업데이트하고 설정을 변경할 수 있습니다.

Audio Monitor Setup 설치하기

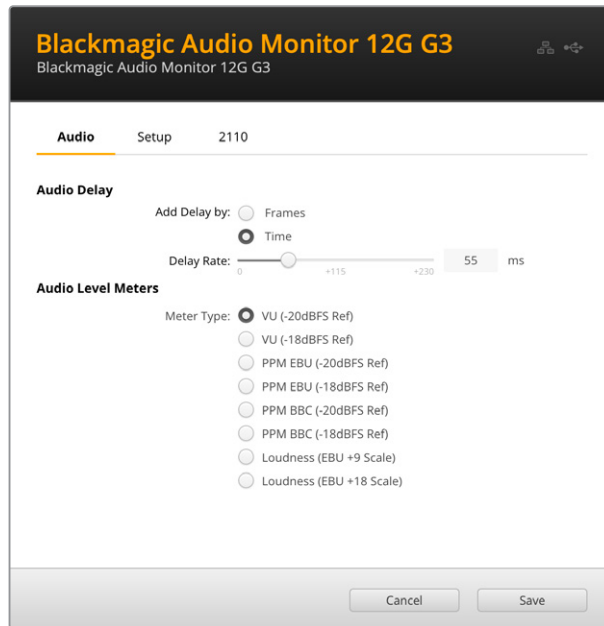
- 1 웹 브라우저([www.blackmagicdesign.com/kr/support](http://www.blackmagicdesign.com/kr/support))를 검색해 최신 Blackmagic Audio Monitor 드라이버를 다운로드하세요.
- 2 파일 다운로드를 마치고 'Install Audio Monitor' 아이콘을 더블 클릭하여 설치 프로그램을 실행하세요. 마지막까지 화면 지시에 따른 후에 'Install' 버튼을 눌러 소프트웨어를 설치하세요.
- 3 소프트웨어를 설치하고 나면 애플리케이션 또는 프로그램 폴더에서 'Blackmagic Audio Monitor' 폴더를 검색한 다음 'Audio Monitor Setup'을 더블 클릭하세요.



Blackmagic Audio Monitor Setup 유틸리티를 사용하면 Blackmagic Audio Monitor의 내부 소프트웨어를 업데이트하고 환경 설정을 변경할 수 있습니다.

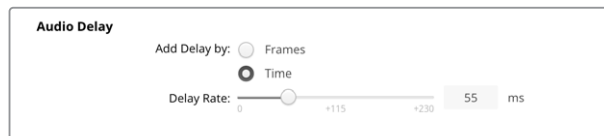
## 오디오 탭 (Audio)

‘Audio’ 탭을 클릭하면 오디오 지연 및 레벨 모니터링 설정이 나타납니다.



### 오디오 지연(Audio Delay)

슬라이더를 조절해 HDMI 및 SDI 루프 출력에 오디오 지연을 추가하세요. 오디오 지연은 프레임 또는 밀리초 단위로 조절할 수 있습니다.



### 오디오 레벨 미터(Audio Level Meters)

EBU 및 BBC 측정 기준 선택이 가능한 PPM 또는 라우드니스와 VU 미터 유형 중 원하는 것을 선택할 수 있습니다. VU 미터가 표준 유형으로 자리 잡은 반면, PPM과 라우드니스 미터는 인지할 수 있는 소리의 크기를 위한 단위 체계 및 측정을 제공합니다. 다음 표를 통해 지원 오디오 레벨 미터와 측정의 조합을 확인할 수 있습니다.

| 미터 유형    | 스케일 유형  | 측정 단위     | 사용 방법  |
|----------|---------|-----------|--------|
| VU       | -       | -45 ~ +3  | 제품에 표기 |
| PPM      | EBU     | -12 ~ +13 | 스티커 라벨 |
| PPM      | BBC     | 1 ~ 7     | 스티커 라벨 |
| Loudness | EBU +9  | -18 ~ +9  | 스티커 라벨 |
| Loudness | EBU +18 | -36 ~ +18 | 스티커 라벨 |
| Loudness | 최대 +9   | -41 ~ -14 | 스티커 라벨 |
| Loudness | 최대 +18  | -59 ~ -5  | 스티커 라벨 |

## VU

이 미터에는 오디오 신호 파형의 최고 및 최저 평균치가 표시됩니다. 대부분은 오디오 신호의 피크를 모니터링하는 데 사용하지만, VU는 평균값을 산출해내기 때문에 실제로 들리는 소리의 크기를 모니터링하는데 사용할 수도 있습니다.

## PPM

이 미터는 일시적으로 신호의 피크를 유지한 후에 천천히 내려가는 피크 홀드 기능이 있어 오디오가 피킹되는 지점을 쉽게 확인할 수 있습니다.

## Loudness

라우드니스 미터는 오디오 신호의 감각적인 크기를 나타냅니다. 오늘날의 방송 표준에는 일정한 라우드니스 레벨을 위한 라우드니스 미터링이 명시되어 있습니다.

VU와 PPM 미터는 -18dB 또는 -20dB로 선택할 수 있는 기준 레벨을 제공하여 각기 다른 국제 방송 표준에 맞는 오디오를 모니터링할 수 있습니다.

Blackmagic Audio Monitor의 LED 레퍼런스 움직임은 선택한 미터 유형에 따라 달라집니다. 정확한 dB 레퍼런스 단위가 표시된 스티커 라벨이 Blackmagic Audio Monitor와 함께 제공되어 오디오가 피킹되는 지점을 쉽게 확인할 수 있습니다. 원하는 단위의 스티커를 VU 단위가 표시된 컬러 LED 미터 사이에 붙이세요.

각 오디오 레벨 미터 유형과 측정 단위를 위한 라벨이 두 개씩 제공됩니다. 라벨 시트는 가까운 Blackmagic Design 지원 사무실에서도 구할 수도 있습니다.

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

미터 유형마다 정확한 오디오 피킹 위치를 확인할 수 있는 스티커 라벨이 함께 제공됩니다.

## 설정(Setup) 탭

이 'Setup' 탭에는 소프트웨어 버전 정보 및 Blackmagic Audio Monitor의 네트워크 설정 관련 정보가 담겨 있습니다. 사용자는 또한 제품에 원하는 라벨명을 설정할 수 있습니다. 사용하는 제품에 이름을 설정하면 원격 연결 시 훨씬 빠르게 위치를 찾아낼 수 있습니다. 'Setup' 탭에는 오디오 모니터를 위한 네트워크 설정 또한 포함되어 있습니다.

Blackmagic Audio Monitor 12G 이름 설정하기

- 1 'Setup' 탭을 클릭하세요.
- 2 'Name' 텍스트 박스를 클릭한 다음 새로운 레벨을 입력하세요.
- 3 유틸리티 화면 우측 하단에 있는 'Save'를 클릭하세요.

The image shows the 'Setup' tab of the Blackmagic Audio Monitor 12G G3. The top bar is black with the product name in orange and white. Below the bar, there are two main sections: 'Audio' and 'Network'. The 'Audio' section includes fields for 'Name' (Blackmagic Audio Monitor 12G...) and 'Software' (Version 4.0), with a 'Set' button next to the name field and a 'Save Diagnostic Log File' button below. The 'Network' section includes fields for 'Network Location' (Blackmagic-Audio-Monitor-12...), 'Protocol' (DHCP selected), 'IP Address' (169.254.154.17), 'Subnet Mask' (255.255.0.0), 'Gateway' (0.0.0.0), 'Primary DNS' (0.0.0.0), and 'Secondary DNS' (0.0.0.0). There is also a section for 'Allow Utility Administration' with options 'via USB' (selected) and 'via USB and Ethernet'. At the bottom, there is a 'Reset' section with a 'Factory Reset' button. The bottom of the screen has 'Cancel' and 'Save' buttons.

## 네트워크 설정(Network Settings)

네트워크를 통해 Blackmagic Audio Monitor 12G에 접속하면 여러 대의 제품을 쉽게 관리할 수 있습니다. Blackmagic Audio Monitor Setup에서 기기에 접속할 수 있습니다. Blackmagic Audio Monitor 12G는 DHCP로 설정되어 있어 자동으로 네트워크 주소를 할당받기 때문에 셋업 유틸리티 홈 스크린에서 바로 선택할 수 있습니다.

네트워크에서 Blackmagic Audio Monitor 12G를 찾기 어렵거나 이전에 설정한 Static 주소가 현재 네트워크와 호환되지 않을 경우 네트워크 설정을 직접 변경해야 할 수도 있습니다. USB를 통해서 연결할 수도 있습니다.

## 유틸리티 관리 허용하기(Allow Utility Administration)

Blackmagic Audio Monitor Setup은 카메라가 네트워크나 USB를 통해 연결된 경우에 접속 가능합니다. 사용자들이 네트워크를 통해 접속하지 못하도록 설정하려면 'via USB' 설정을 선택하세요.

## 초기화(Reset)

Audio Monitor 12G를 공장 초기화 상태로 되돌리려면 'Factory Reset'을 선택하세요.

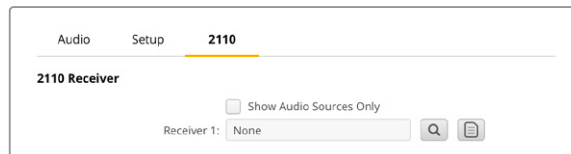
## 2110 탭

Blackmagic Audio Monitor 12G G3에는 SMPTE 2110 IP 스트림과 PTP 그랜드 마스터 설정을 위한 탭이 포함되어 있습니다.

### 2110 수신기(2110 Receiver)

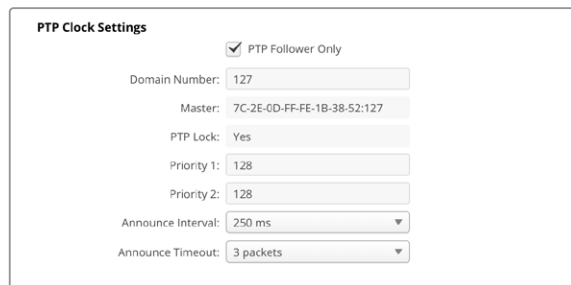
오디오 소스만 매핑할 경우, 'Show Audio Sources Only' 확인란을 체크하세요.

수신하고자 하는 스트림을 라우팅하려면, 'Receiver' 필드 오른쪽에 있는 돋보기 아이콘을 클릭하세요. 그러면 사용 가능한 모든 소스 목록과 스트림을 위한 IP 노드 및 소스 라벨이 포함된 창이 열립니다. 스트림을 하이라이트한 다음 선택 버튼을 클릭하세요. 그러면 이 창이 닫히고 스트림 라벨이 'Receiver' 필드에 나타납니다. 이제 수신되는 소스를 Audio Monitor의 LCD 디스플레이에서 볼 수 있습니다.



### PTP 클럭 설정(PTP Clock Settings)

PTP 설정을 통해 PTP 그랜드 마스터의 세부 사항을 설정할 수 있습니다.



Blackmagic Audio Monitor 12G G3를 PTP 그랜드 마스터가 탑재된 10G 네트워크 스위치에 연결할 경우, 오디오 모니터를 팔로어 모드로 설정해야 시간이 충돌되는 일이 발생하지 않습니다. 오디오 모니터를 Blackmagic 2110 IP 3x3G Converter와 같은 다른 2110 IP 유닛에 연결할 경우, 확인란을 클릭해 둘 중 하나를 팔로어 모드로 설정하세요.

### 도메인 번호(Domain Number)

PTP 그랜드 마스터와 일치하는 도메인 번호를 입력하세요. 일반적으로 이 번호는 '127'이지만, 필드에 다른 도메인 번호를 입력해 변경할 수 있습니다.

### 마스터(Master)

마스터 주소 필드에는 PTP 그랜드 마스터의 MAC 주소가 표시됩니다. 이는 별도의 그랜드 마스터 장치이거나 Blackmagic 2110 IP 유닛입니다.

### PTP 잠금(PTP Lock)

'PTP Lock' 필드를 통해 오디오 모니터가 이더넷을 통해 PTP 클럭에 잠겨 있는지 여부를 확인할 수 있습니다.

### 우선순위(Priority)

네트워크에 한 개 이상의 PTP 그랜드 마스터가 있는 경우, 'Priority 1' 및 'Priority 2' 설정을 통해 사용하고자 하는 PTP 그랜드 마스터의 우선순위를 설정할 수 있습니다. 숫자가 낮을수록 우선순위가 더 높습니다.

### 알람 간격 및 시간(Announce interval & Announce Timeout)

알림 간격(Announce interval) 및 알람 시간(Announce Timeout) 필드는 일반적으로 2초 또는 2,000ms마다 동기화 메시지를 전송하는 PTP 그랜드 마스터의 사양과 일치해야 합니다. 메시지 빈도를 변경하려면 메뉴에서 다른 시간을 선택하세요. 알림 간격 및 알람 시간에 사용할 수 있는 범위는 PTP 그랜드 마스터에 따라 다릅니다.

## 내부 소프트웨어 업데이트하기

- 1 USB 또는 이더넷을 통해 Blackmagic Audio Monitor를 컴퓨터에 연결합니다.
- 2 Blackmagic Audio Monitor Setup을 실행합니다.
- 3 환경 설정 아이콘을 클릭하면 유틸리티에서 업데이트 여부를 알려줍니다.
- 4 업데이트가 필요한 경우 [Update] 버튼을 누르면 소프트웨어 설치가 완료됩니다.



내부 소프트웨어 업데이트를 적용하려면 [Update] 버튼을 클릭하세요.



업데이트 진행 과정을 보여주는 진행 표시줄이 나타납니다.

- 5 업데이트가 완료되면 Close 버튼을 클릭하세요.

# Developer Information

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵
Meter Mode: Loudness (EBU +18 scale)↵
↵
```

The response will be

```
ACK:
AUDIO METER:
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵
↵
```

The response will be

```
ACK:
AUDIO INPUT:
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:
Gain: Speaker Stereo 0
Gain: Headphone Stereo 0
Mute: false
Solo: Off
Audio delay in ms: 0
Audio delay in frames: 0
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵
Gain: Speaker Stereo 125↵
Solo: Right↵
↵
```

The response will be

```
ACK:
AUDIO OUTPUT:
Gain: Speaker Stereo 125
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵
AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# 지원

## 지원 받기

가장 빠르게 지원받을 수 있는 방법은 Blackmagic Design 온라인 고객지원 페이지에 접속하여 Blackmagic Audio Monitor 관련 최신 지원 정보를 확인하는 것입니다.

### Blackmagic Design 온라인 고객 지원 페이지

최신 사용 설명서와 소프트웨어, 지원 노트는 Blackmagic 고객 지원 센터 ([www.blackmagicdesign.com/kr/support](http://www.blackmagicdesign.com/kr/support))에서 확인하실 수 있습니다.

### Blackmagic Design 포럼

저희 웹사이트에 있는 Blackmagic Design 포럼은 유용한 정보를 제공하는 곳으로, 방문을 통해 자세한 정보와 창의적인 아이디어를 얻을 수 있습니다. 또한, 숙련된 사용자들이나 Blackmagic Design 직원들이 기존에 올려놓은 해결책을 통해 원하는 해답을 얻을 수도 있으므로 여러 가지 도움을 빠르게 받아 한 단계 성장할 수 있는 방법이기도 합니다. 포럼은 <http://forum.blackmagicdesign.com/>를 통해 방문할 수 있습니다.

### Blackmagic Design 고객 지원에 문의하기

고객 지원 페이지나 포럼에서 원하는 정보를 얻지 못한 경우에는 [이메일 보내기] 버튼을 클릭하여 지원 요청 이메일을 보내주세요. 다른 방법으로는, 고객 지원 페이지의 [지역별 고객 지원팀 찾기] 버튼을 클릭하여 가장 가까운 Blackmagic Design 고객 지원 사무실에 문의하실 수 있습니다.

### 현재 설치된 소프트웨어 버전 확인하기

컴퓨터에 설치된 Blackmagic Audio Monitor Setup 버전을 확인하려면 [About Blackmagic Audio Monitor Setup] 창을 여세요.

- macOS를 사용 시, 애플리케이션 폴더에서 'Blackmagic Audio Monitor Setup' 소프트웨어를 엽니다. 그 다음, 메뉴에서 'About Blackmagic Audio Monitor Setup'을 선택하여 버전을 확인하세요.
- Windows 10에서는 시작 페이지에 있는 'Blackmagic Audio Monitor Setup' 타일에서 'Blackmagic Audio Monitor Setup'을 실행하세요. 'Help' 메뉴를 클릭한 후, 'About Blackmagic Audio Monitor Setup'를 선택하고 버전을 확인하세요.

### 최신 버전 소프트웨어 업데이트하기

컴퓨터에 설치된 Blackmagic Audio Monitor Setup 버전을 확인한 뒤, Blackmagic Design 고객 지원 센터([www.blackmagicdesign.com/kr/support](http://www.blackmagicdesign.com/kr/support))에 방문하여 최신 업데이트 여부를 확인하세요. 최신 버전으로 업데이트하는 것을 권장하지만, 중요한 프로젝트를 실행하는 도중에는 소프트웨어 업데이트를 하지 않는 것이 좋습니다.

## 규제 사항

### 유럽 연합 국가 내의 전기전자제품 폐기물 처리기준



제품에 부착된 기호는 해당 제품을 다른 폐기물과는 별도로 처리되어야 함을 나타냅니다. 제품을 폐기하려면 반드시 재활용 지정 수거 장소에 폐기해야 합니다. 폐기물 제품을 분리수거 및 재활용으로 처리하는 것은 자연 자원을 보전하고 인간의 건강과 환경을 보호할 수 있도록 폐기물을 재활용할 수 있는 방법입니다. 재활용을 위한 제품 폐기물 장소에 관한 자세한 정보는 해당 지역 시청의 재활용 센터 혹은 해당 제품을 구입한 상점으로 문의하십시오.



본 제품은 테스트 결과 FCC 규정 제15항에 따라 A급 디지털 기기 제한 사항을 준수하는 것으로 확인되었습니다. 해당 제한 사항은 본 제품을 상업적 환경에서 사용할 시 발생할 수 있는 유해 혼선으로부터 적절한 보호를 제공하기 위함입니다. 이 제품은 무선 주파수를 생성 및 사용, 방출할 수 있습니다. 따라서 설명서의 안내에 따라 제품을 설치 및 사용하지 않을 시, 무선 통신을 방해하는 전파 혼선을 일으킬 수 있습니다. 해당 제품을 주거 지역에서 사용할 경우 유해 전파 혼선이 발생할 가능성이 있으며, 이 경우 사용자는 자체 비용으로 전파 혼선 문제를 해결해야 합니다.

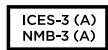
제품 작동은 다음 두 가지 조건을 전제로 합니다.

- 1 본 기기는 유해 혼선을 일으키지 않습니다.
- 2 본 기기는 원치 않는 작동을 일으킬 수 있는 혼신을 포함하여 모든 혼신을 수용합니다.



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

### ISED 캐나다 성명



본 기기는 캐나다 표준 A급 디지털 장치 규정을 준수합니다.

정해진 사용 목적 이외의 다른 목적의 사용 또는 제품 변경은 표준 규정 위반으로 간주할 수 있습니다.

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전파간섭의 우려가 있습니다.

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감전사고 위험을 줄이기 위해서 본 제품을 물이 튀거나 젖는 곳에 두지 마십시오.

본 제품은 주위 온도가 최대 40°C인 열대 지역에서 사용하기 적합합니다.

공기가 잘 통할 수 있도록 제품을 통풍이 잘되는 곳에 둡니다.

장비랙에 제품을 설치할 시, 주변 장비가 제품 통풍에 방해가 되지 않도록 주의하세요.

제품 내부에는 사용자가 수리 가능한 부품이 없습니다. 제품 수리는 해당 지역 Blackmagic Design 서비스 센터에 문의하세요.



최대 작동 고도는 해수면 기준 2000m입니다.

### 캘리포니아주 성명

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더욱 자세한 정보는 [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)을 확인하세요.

### European Office

Blackmagic Design B.V, Amsterdam Sloterdijk Teleport Towers Office 2.17, Kingsfordweg 151, Amsterdam, 1043GR.

# 보증

## 12 개월 한정 보증

Blackmagic Design은 본 제품의 부품 및 제조에 어떠한 결함도 없음을 제품 구매일로부터 12개월 동안 보증합니다. 보증 기간 내에 결함이 발견될 경우, Blackmagic Design은 당사의 결정에 따라 무상 수리 또는 새로운 제품으로 교환해드립니다.

구매 고객은 반드시 보증 기간이 만료되기 전에 결함 사실을 Blackmagic Design에 통지해야 적절한 보증 서비스를 제공받을 수 있습니다. 구매 고객은 지정된 Blackmagic Design 서비스 센터로 결함 제품을 포장 및 운송할 책임이 있으며, 운송 비용은 선불로 지급되어야 합니다. 구매 고객은 또한 이유를 불문하고 제품 반송에 대한 운송료, 보험, 관세, 세금, 기타 비용을 부담해야 합니다.

이 보증은 부적절한 사용 및 관리, 취급으로 인한 파손, 고장, 결함에는 적용되지 않습니다. Blackmagic Design은 다음과 같은 경우에 보증 서비스를 제공할 의무가 없습니다. a) Blackmagic Design 판매 대리인이 아닌 개인에 의해 발생한 제품 손상. b) 부적절한 사용 및 호환하지 않는 장비와의 연결로 인한 제품 손상. c) Blackmagic Design사의 부품 및 공급품이 아닌 것을 사용하여 발생한 손상 및 고장. d) 제품을 개조하거나 다른 제품과 통합하여 제품 작동 시간 증가 및 기능 저하가 발생한 경우. BLACKMAGIC DESIGN에서 제공하는 제품 보증은 다른 모든 명시적 또는 묵시적 보증을 대신합니다. BLACKMAGIC DESIGN사와 관련 판매 회사는 상품성 및 특정 목적의 적합성과 관련된 모든 묵시적 보증을 부인합니다. 구매 고객에게 제공되는 BLACKMAGIC DESIGN의 결함 제품 수리 및 교환 관련 책임은 BLACKMAGIC DESIGN 또는 판매 회사에서 관련 위험의 가능성에 대한 사전 통보의 여부와 관계없이 모든 간접적, 특별, 우발적, 결과적 손해에 대한 유일한 배상 수단입니다. BLACKMAGIC DESIGN은 고객이 사용한 불법 장비에 대해서는 어떤 법적 책임도 지지 않습니다. BLACKMAGIC은 본 제품의 사용으로 인해 발생하는 손해에 대해서는 어떤 법적 책임도 지지 않습니다. 제품 사용으로 인해 발생할 수 있는 위험에 대한 책임은 본인에게 있습니다.

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Июль 2024 г.

**Руководство по установке и эксплуатации**

Blackmagicdesign

# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## Добро пожаловать!

Благодарим вас за покупку Blackmagic Audio Monitor.

Мы стремимся к тому, чтобы телевидение стало областью настоящего творчества, в которой любой профессионал имеет доступ к оборудованию самого высокого качества.

Blackmagic Audio Monitor — компактное решение для профессионального контроля звука в телевидении, постпроизводстве и в прямом эфире. Оно отличается высокой совместимостью и позволяет подключаться практически к любому аудиооборудованию. Оригинальная версия Blackmagic Audio Monitor с интерфейсом 6G-SDI предназначена для Ultra HD-контента с частотой до 30 к/с. Устройство Blackmagic Audio Monitor 12G с поддержкой 12G-SDI дает возможность работать с Ultra HD-материалом (до 60 к/с) и принимать сигналы 3G-SDI (level A и level B), а модель Blackmagic Audio Monitor 12G G3 дополнительно обеспечивает ввод потоков до 12G-SDI как IP-видео SMPTE 2110 по кабелю 10G Ethernet.

Это руководство содержит всю информацию, необходимую для работы с Blackmagic Audio Monitor.

Последнюю версию руководства и программного обеспечения для Blackmagic Audio Monitor можно найти в разделе поддержки на веб-сайте [www.blackmagicdesign.com/ru](http://www.blackmagicdesign.com/ru).

Использование актуальной версии внутреннего ПО гарантирует доступ ко всем имеющимся функциям. Чтобы узнавать о выходе обновлений, зарегистрируйтесь при загрузке программного обеспечения. Мы постоянно работаем над совершенствованием наших продуктов, поэтому ваши отзывы помогут нам сделать их еще лучше!

A stylized, handwritten signature in black ink that reads "Grant Petty".

**Грант Петти**

Генеральный директор Blackmagic Design

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# Подготовка к работе

## Обзор Blackmagic Audio Monitor

Blackmagic Audio Monitor и Blackmagic Audio Monitor 12G занимают одно место в стойке и обеспечивают точный контроль звуковой дорожки при работе в прямом эфире, во время телетрансляции и на этапе постпроизводства.

Blackmagic Audio Monitor позволяет подключаться к оборудованию с широким спектром разъемов: от SD/HD/3G/6G-SDI до цифрового AES/EBU- и аналогового интерфейсов. Модель Blackmagic Audio Monitor 12G с поддержкой 12G-SDI предназначена для Ultra HD-видео с частотой до 60 кадров/с. Светодиодные индикаторы левого и правого каналов показывают пиковые значения, а на встроенный ЖК-дисплей выводятся SDI-сигнал и дополнительная информация, в том числе тип соединения, формат видео, кадровая частота, номера каналов и уровень громкости.

Устройство обеспечивает мониторинг до 16 каналов звука, встроенного в SDI-сигнал, а также балансного аналогового и цифрового AES/EBU-аудио (через разъемы XLR). Для подключения к системам Hi-Fi и плеерам iPod дополнительно предусмотрен интерфейс RCA.

Blackmagic Audio Monitor имеет два встроенных динамика и два сабвуфера, которые обеспечивают качественное воспроизведение звука в широком диапазоне частот. При работе в шумной студии для мониторинга можно подключить наушники.



Blackmagic Audio Monitor 12G (передняя панель)



Blackmagic Audio Monitor 12G (задняя панель)

Модели Blackmagic Audio Monitor 12G G3 также поддерживают прием оригинальных потоков 2110, включая сигналы 12G-SDI со сжатием.



Blackmagic Audio Monitor 12G G3 (передняя панель)



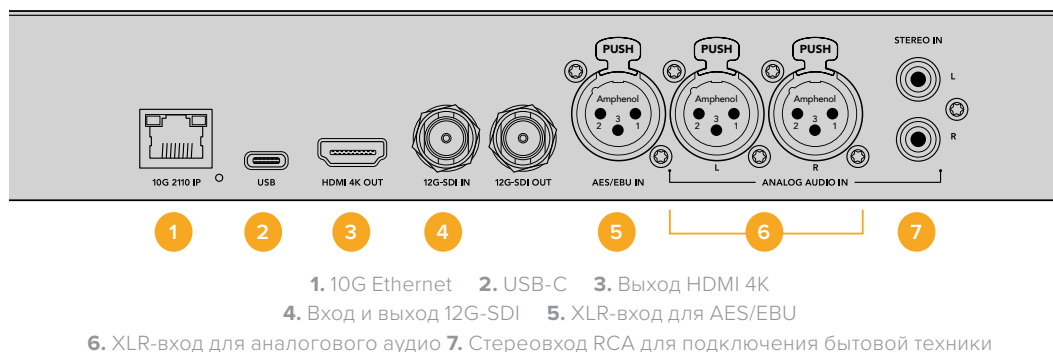
Blackmagic Audio Monitor 12G G3 (задняя панель)

## Подключение источников аудио

Blackmagic Audio Monitor поддерживает работу практически с любым звуковым оборудованием. Для контроля аудиодорожки в SD-, HD-, 2K- или Ultra HD-видео источник подключают через стандартный BNC-разъем. Модель с интерфейсом 12G-SDI обеспечивает прием сигнала 3G-SDI (Level A и Level B).

Для цифрового AES/EBU-звука, поступающего с дисковых рекордеров и музыкальных приставок, а также для аналогового оборудования (аудиомикшеры и Betacam SP) необходимо использовать XLR-разъемы. Аналоговую бытовую технику (видеомагнитофоны и DVD-плееры)

можно подключить через интерфейс RCA. Чтобы устранить влияние посторонних шумов, рекомендуется применять наушники, для которых предусмотрен разъем 1/4 дюйма.



## Выбор источника звука

После подключения Blackmagic Audio Monitor к оборудованию необходимо задать используемый вход. Для этого нажмите кнопку INPUT на передней панели. Когда на выбранный вход поступает аудиосигнал, загораются светодиодные индикаторы уровня звука. Они представляют собой двухрядную цветную шкалу, разбитую на сектора.

Кнопка INPUT предназначена для выбора типа соединения, который выводится на ЖК-дисплей вместе с дополнительной информацией, такой как используемый интерфейс, номера каналов и уровень громкости. Теперь Blackmagic Audio Monitor можно использовать для мониторинга аудиодорожки.

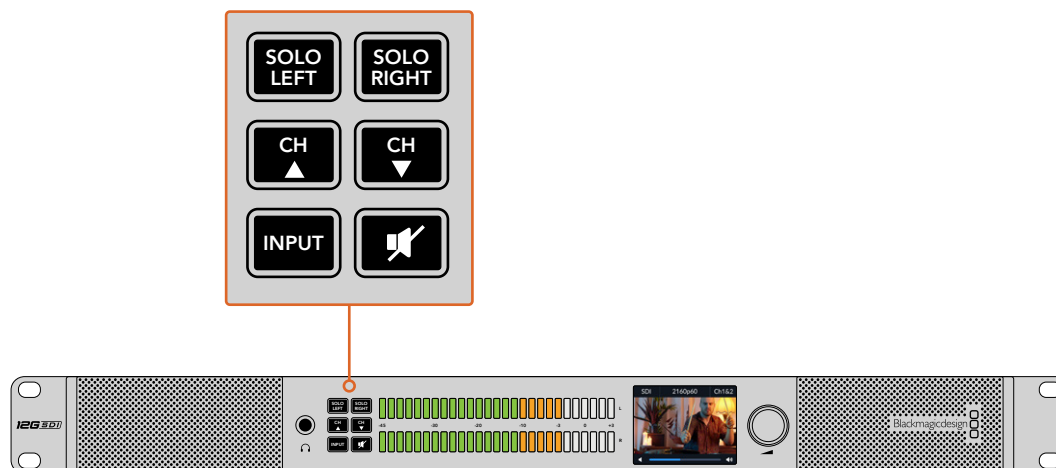
## Подключение к видеовыходам

Если вместе с аудиодорожкой необходимо выводить видео, к Blackmagic Audio Monitor можно подключить большой дисплей или дополнительное оборудование.

Для мониторинга видео и встроенного в него звука можно использовать выход HDMI и сквозной интерфейс SDI.

Устройство обеспечивает вывод сигнала в SD, HD, 2K и Ultra HD по одному SDI-кабелю на такие платы захвата, как DeckLink 4K Extreme. Также допускается передача SD/HD-SDI-видео со встроенным аудио на записывающую деку, например HyperDeck Studio, а через HDMI — на современный Ultra HD-дисплей или проектор.

Модель Blackmagic Audio Monitor 12G G3 также позволяет преобразовывать получаемые потоки ST2110 в форматы HDMI и 12G-SDI, поскольку сигналы на данных выходах будут привязаны к разъему 12G-SDI IN или 10G 2110 IP в зависимости от того, какой из них выбран для работы с помощью кнопки входа на передней панели.



Кнопки на панели управления позволяют выбирать источник сигнала, изолировать левый или правый канал, переходить к нужной аудиопаре и отключать звук в динамиках или наушниках

# Работа с Blackmagic Audio Monitor

Панель управления устройства обеспечивает доступ к основным функциям и индикаторам состояния.

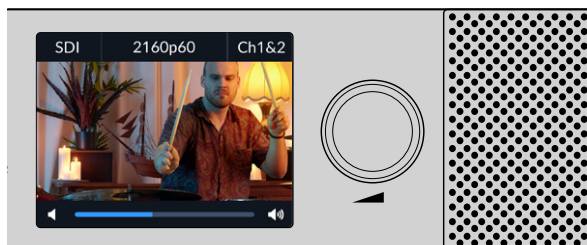
## ЖК-дисплей

На встроенный цветной ЖК-дисплей поступает информация о состоянии системы, в том числе выбранный вход, формат (при SDI-подключении), номера аудиоканалов и громкость звука для динамиков или наушников. На дисплей также выводится любое видео, поступающее на SDI-интерфейс. При отсутствии сигнала отображается нотный знак.

При выборе каждого из входов на дисплей выводится несколько параметров.

### Вход SDI

Тип соединения (SDI), формат видео, выбранные аудиоканалы.



На цветной ЖК-дисплей выводятся тип соединения, формат видео, номера выбранных каналов и громкость звука



Если для мониторинга не используется сигнал SDI или SMPTE 2110, на ЖК-дисплее отображается нотный знак

### Вход 10G Ethernet 2110

Обработка IP-видео SMPTE 2110, включая поддержку аудио в формате SMPTE 2110-30

### Балансный XLR-вход для AES/EBU-звука

Тип соединения (AES/EBU), выбранные аудиоканалы.

### Балансные XLR-входы для аналогового звука

Тип соединения (Analog), выбранные аудиоканалы.

### Небалансные RCA-входы для аналогового звука

Hi-Fi, выбранные аудиоканалы.

## Индикаторы уровня звука

Два ряда светодиодных индикаторов зеленого, оранжевого и красного цвета показывают громкость звука. Если они все горят, его уровень превышает допустимые параметры, то есть имеет место перегрузка.

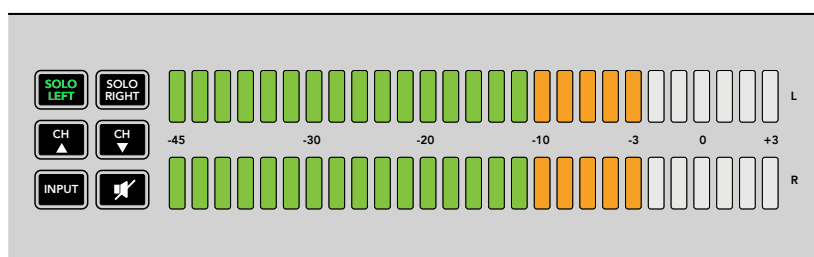
Характер индикации будет меняться в зависимости от типа измерения, выбранного с помощью утилиты Blackmagic Audio Monitor Setup. При использовании опции VU пиковые значения не должны превышать 0 дБ на панели управления. Это максимально увеличивает соотношение «сигнал – шум» и обеспечивает самое высокое качество аудиодорожки. Если пиковые значения превышают уровень 0 дБ, возникает риск искажения звука.

Подробнее о работе с утилитой Blackmagic Audio Monitor Setup и типах шкалы см. раздел “Audio Monitor Setup”.

## Кнопки панели управления

### Solo Left и Solo Right

Эти кнопки позволяют изолировать левый или правый канал для отдельного прослушивания.



Нажатие на кнопку SOLO LEFT приведет к отключению правого аудиоканала. Индикатор уровня звука продолжит отображать оба сигнала.

Мониторинг левого аудиоканала

- 1 Нажмите кнопку SOLO LEFT. Она загорится зеленым цветом, и звук будет поступать только на левый динамик.
- 2 Чтобы вернуться к стереорежиму, нажмите SOLO LEFT еще раз.

Для отслеживания звука правого канала повторите шаги, используя вместо этого кнопку SOLO RIGHT.

### Переход между каналами

Эти кнопки позволяют использовать ту или иную пару каналов звука, встроенного в SDI-сигнал. При работе с 3G-SDI в общей сложности доступно 16 каналов, т. е. восемь пар. Нужную из них выбирают с помощью кнопок со стрелками вверх и вниз.

Blackmagic Audio Monitor 12G позволяет работать с 12G-SDI, поддерживая 64 звуковых канала, т. е. 32 пары. Для перехода между парами нажмите и удерживайте кнопку со стрелкой вверх или вниз.

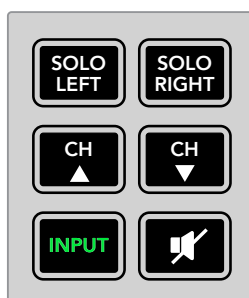


## Input

При каждом нажатии кнопки INPUT можно перейти к одной из следующих опций: SDI, AES/EBU, SMPTE 2110, Analog и Hi-Fi. Выберите ту из них, которая соответствует используемому входу.

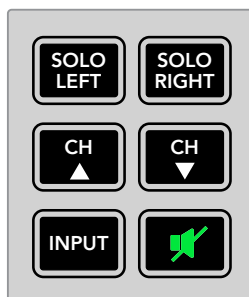
Звук с выбранного аудиовхода можно выводить в наушники, а также проверять как каналы 1 и 2 на HDMI-выходе.

**ПРИМЕЧАНИЕ.** Если выбраны входы для аналогового звука, AES/EBU или Hi-Fi, на HDMI-выход поступает черное изображение. Через сквозной SDI-тракт всегда выводится сигнал с SDI-входа.



## Отключение звука

Кнопка с перечеркнутым динамиком позволяет отключить звук в динамиках и наушниках. В этом случае сигнал по-прежнему поступает на вход устройства, но не воспроизводится. Чтобы возобновить вывод звука на динамики и в наушники, нажмите кнопку еще раз. Для этого можно также увеличить громкость с помощью поворотной ручки.



## Громкость звука

Для изменения громкости звука в динамиках и наушниках служит поворотная ручка. Уровень отображается на встроенном ЖК-дисплее. При использовании гарнитуры динамики отключаются автоматически, после чего звуковой сигнал поступает в наушники. Громкость регулируют поворотом ручки по часовой стрелке или против часовой стрелки.



Уровень громкости отображается на ЖК-дисплее

# Audio Monitor Setup

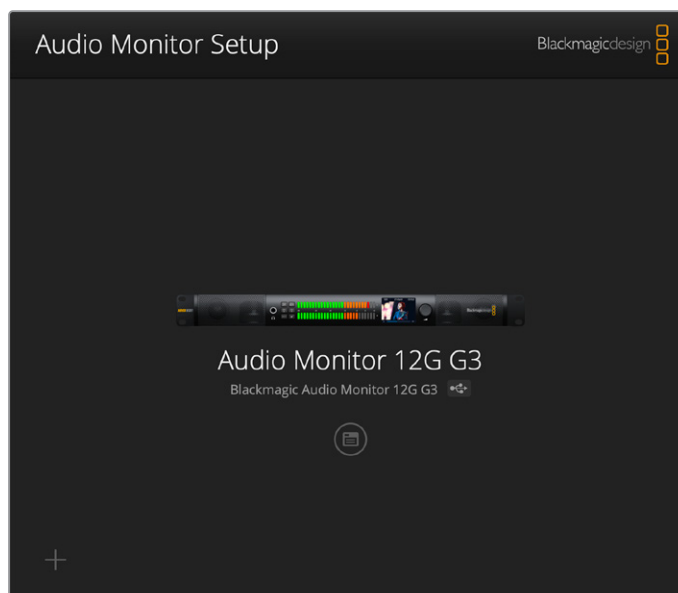
## Blackmagic Audio Monitor Setup

Утилита Blackmagic Audio Monitor Setup служит для выбора шкалы индикации, а также для установки последней версии внутреннего ПО на устройстве.

Если модель Blackmagic Audio Monitor подключена к ПК через разъем USB, утилита позволяет изменить ее параметры и обновить прошивку. На Blackmagic Audio Monitor 12G G3 эти действия также можно выполнить через порт USB или Ethernet.

Порядок установки утилиты Blackmagic Audio Monitor Setup

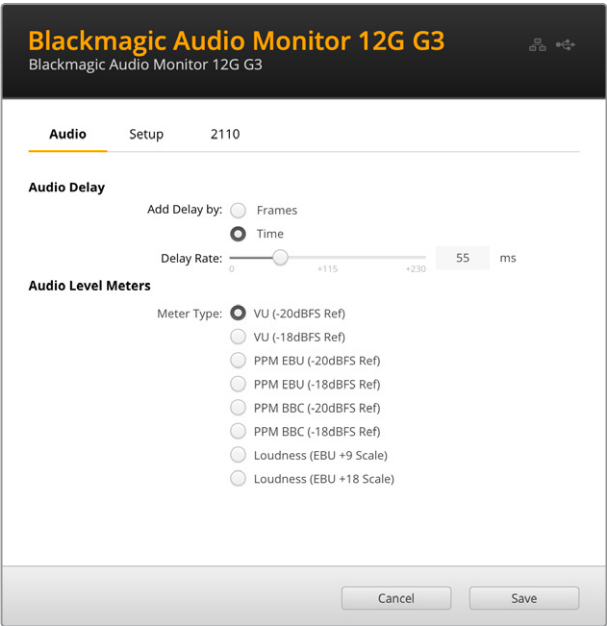
1. Перейдите по ссылке [www.blackmagicdesign.com/ru/support](http://www.blackmagicdesign.com/ru/support) и скачайте последнюю версию драйверов Blackmagic Audio Monitor.
2. После завершения загрузки файла дважды щелкните на соответствующем значке, чтобы запустить установщик. Затем следуйте инструкциям на экране.
3. После установки ПО перейдите к папке Blackmagic Audio Monitor в списке приложений или программ и дважды нажмите на значок утилиты Audio Monitor Setup.



Утилита Blackmagic Audio Monitor Setup позволяет обновлять внутреннее ПО устройства и менять настройки

# Вкладка Audio

Нажмите на вкладку аудио, чтобы открыть настройки задержки звука и мониторинга уровня дорожки.



## Задержка звука

С помощью соответствующего слайдера можно добавить задержку (в кадрах или миллисекундах) для звука, поступающего на разъем HDMI и сквозной SDI-выход.



## Индикаторы уровня звука

Можно использовать следующие виды шкалы: VU, PPM или Loudness с опциями EBU и BBC. Первая из них является стандартизированным инструментом, а PPM и индикаторы громкости измеряют воспринимаемую силу звука. Таблица ниже содержит перечень доступных типов индикации с указанием диапазона шкалы.

| Тип индикации | Тип шкалы      | Диапазон измерения | Способ применения        |
|---------------|----------------|--------------------|--------------------------|
| VU            | —              | от -45 до +3       | Маркировка на устройстве |
| PPM           | EBU            | от -12 до +12      | Дополнительная наклейка  |
| PPM           | BBC            | от 1 до 7          | Дополнительная наклейка  |
| Loudness      | EBU +9         | от -18 до +9       | Дополнительная наклейка  |
| Loudness      | EBU +18        | от -36 до +18      | Дополнительная наклейка  |
| Loudness      | Full Scale +9  | от -41 до -14      | Дополнительная наклейка  |
| Loudness      | Full Scale +18 | от -59 до -5       | Дополнительная наклейка  |

## VU

Этот индикатор усредняет крайние значения аудиосигнала. В основном используется для мониторинга пиков, но поскольку он показывает средний уровень, его можно применять для измерения воспринимаемой громкости.

## PPM

Этот индикатор наглядно фиксирует пиковые значения, чтобы их было легко отследить.

## Loudness

Этот индикатор измеряет субъективную громкость звука. Современные стандарты вещания используют этот показатель для поддержания громкости на постоянном уровне.

Индикаторы VU и PPM позволяют выбирать опорное значение -18 дБ или -20 дБ, чтобы вести мониторинг на основе разных международных стандартов.

Характер индикации на Blackmagic Audio Monitor меняется в зависимости от типа измерения. В комплект поставки входят наклейки со шкалами, которые позволяют точно определить пиковые значения звука. Для использования нужной из них снимите защитный слой и поместите наклейку поверх маркировки VU, нанесенной на корпус устройства.

Для каждого типа измерений используется по две наклейки, которые можно также приобрести через местное представительство Blackmagic Design.

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

Для точного измерения пиковых значений  
в комплект поставки входят наклейки со шкалами

## Вкладка Setup

На вкладке настройки указаны номер версии программного обеспечения и сетевые параметры устройства Blackmagic Audio Monitor. Для облегчения идентификации устройства ему также можно присвоить пользовательское имя.

Присвоение имени модели Blackmagic Audio Monitor 12G

- 1 Выберите вкладку Setup.
- 2 Перейдите к текстовому полю Name и введите имя.
- 3 Нажмите Save в правом нижнем углу экрана.

The screenshot shows the 'Blackmagic Audio Monitor 12G G3' setup interface. At the top, there's a title bar with the device name and a version number '2110'. Below this, there are three tabs: 'Audio', 'Setup' (which is selected), and '2110'. The 'Setup' tab contains several sections. The first section has a 'Name' field with the text 'Blackmagic Audio Monitor 12G...' and a 'Set' button. Below it is a 'Software' field with 'Version 4.0' and a 'Save Diagnostic Log File' button. The second section is titled 'Network' and contains a 'Network Location' field with 'Blackmagic-Audio-Monitor-12...', a 'Protocol' section with radio buttons for 'DHCP' (selected) and 'Static IP', and several input fields for 'IP Address' (169.254.154.17), 'Subnet Mask' (255.255.0.0), 'Gateway' (0.0.0.0), 'Primary DNS' (0.0.0.0), and 'Secondary DNS' (0.0.0.0). Below these is an 'Allow Utility Administration' section with radio buttons for 'via USB' (selected) and 'via USB and Ethernet'. The third section is titled 'Reset' and contains a 'Factory Reset' button. At the bottom of the screen, there are 'Cancel' and 'Save' buttons.

## Сетевые параметры

Наиболее простой способ управления конфигурацией оборудования — доступ к Blackmagic Audio Monitor 12G через локальную сеть. Для этого можно применить утилиту Blackmagic Audio Monitor Setup. По умолчанию при использовании протокола DHCP соответствующий адрес присваивается автоматически, так что для работы с устройством достаточно выбрать его на начальной странице.

## Допуск к управлению утилитой

Утилита Blackmagic Audio Monitor Setup доступна в тот момент, когда устройство подключено через компьютерную сеть или USB. Чтобы запретить работу с ним по сети, выберите опцию с разрешением только для USB.

## Сброс

Чтобы восстановить первоначальные параметры, выберите «Сброс к заводским настройкам».

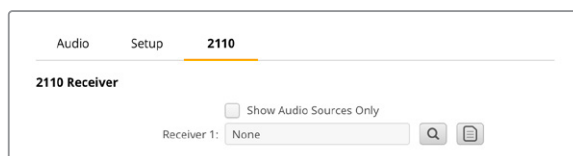
## Вкладка 2110

На вкладке 2110 содержатся настройки конфигурации IP-потоков SMPTE 2110, а также параметры ведущего устройства PTP.

### Приемник потоков 2110

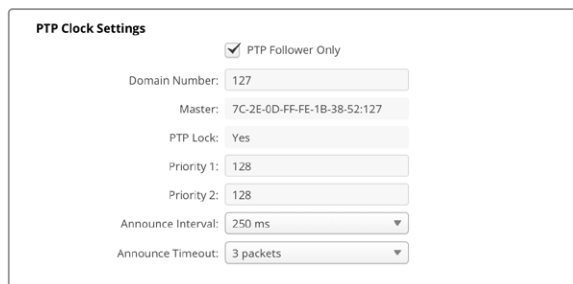
Если необходимо выполнить назначение только источников звука, установите соответствующий флажок.

Чтобы выполнить маршрутизацию желаемого потока, нажмите на лупу справа от поля приемника. На экране появится окно со списком всех доступных в сети сигналов, в котором будут указаны сведения об IP-узле и ярлык источника. Выделите нужный из них и щелкните Select. Окно закроется, и в поле приемника возникнет соответствующая метка. Источник входящего сигнала отобразится на ЖК-дисплее устройства.



### Параметры генератора PTP

В данном разделе можно изменить настройки ведущего устройства PTP.



При подключении решения Blackmagic Audio Monitor 12G G3 к сетевому коммутатору 10G с генератором PTP его необходимо перевести в режим подчиненного устройства, чтобы предотвратить конфликт синхронизации. Если модель соединили напрямую с другим IP-оборудованием 2110, например конвертером Blackmagic 2110 IP 3x3G, выберите одну единицу в качестве подчиненной, установив соответствующий флажок.

#### Номер домена

Введите номер домена, соответствующий значению ведущего устройства PTP. Как правило, он составляет 127, но его можно изменить, указав в поле другое число.

#### Главный адрес

В данном поле отображается MAC-адрес ведущего устройства PTP (отдельного решения или модели Blackmagic 2110 IP).

#### Синхронизация с PTP

В данном поле указано, что устройство синхронизировано с генератором PTP через Ethernet-соединение.

#### Приоритет

Настройки приоритета 1 и 2 позволяют задать предпочтительное ведущее устройство PTP, когда в сети их несколько. Чем меньше число, тем выше приоритет.

#### Настройка интервала и ожидания

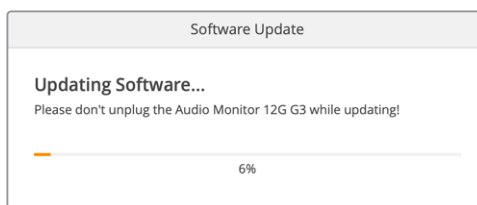
Поля настройки интервала и ожидания должны соответствовать спецификациям ведущего устройства PTP, которое обычно передает сообщения синхронизации каждые две секунды или 2000 мс. Чтобы изменить частоту отправки данных, воспользуйтесь меню и задайте другое время. Доступные диапазоны зависят от параметров генератора PTP.

## Обновление внутреннего программного обеспечения

- 1 Подключите Blackmagic Audio Monitor к компьютеру через порт USB или Ethernet.
- 2 Запустите утилиту Blackmagic Audio Monitor Setup.
- 3 Нажмите на значок настройки. Если требуется обновление, появится соответствующее сообщение.
- 4 Чтобы установить актуальную версию ПО, нажмите кнопку Update.



Для обновления ПО нажмите кнопку Update



Индикатор выполнения задачи  
показывает состояние обновления

- 5 По окончании обновления нажмите кнопку Close.

# Developer Information

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵
Meter Mode: Loudness (EBU +18 scale)↵
↵
```

The response will be

```
ACK:
AUDIO METER:
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵
↵
```

The response will be

```
ACK:
AUDIO INPUT:
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:
Gain: Speaker Stereo 0
Gain: Headphone Stereo 0
Mute: false
Solo: Off
Audio delay in ms: 0
Audio delay in frames: 0
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵
Gain: Speaker Stereo 125↵
Solo: Right↵
↵
```

The response will be

```
ACK:
AUDIO OUTPUT:
Gain: Speaker Stereo 125
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵
AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# Помощь

## Как получить помощь

Самый быстрый способ получить помощь — обратиться к страницам поддержки на сайте Blackmagic Design и проверить наличие последних справочных материалов по Blackmagic Audio Monitor.

### Страница поддержки на сайте Blackmagic Design

Последние версии руководства по эксплуатации, программного обеспечения и дополнительную информацию можно найти в разделе поддержки Blackmagic Design на странице [www.blackmagicdesign.com/ru/support](http://www.blackmagicdesign.com/ru/support).

### Форум сообщества Blackmagic Design

Посетите форум сообщества Blackmagic Design на нашем веб-сайте, чтобы получить дополнительную информацию и узнать об интересных творческих идеях. Там также можно найти ответы опытных пользователей и сотрудников Blackmagic Design на часто задаваемые вопросы. Адрес форума <http://forum.blackmagicdesign.com>.

### Обращение в Службу поддержки Blackmagic Design

Если с помощью доступных справочных материалов и форума решить проблему не удалось, воспользуйтесь формой «Отправить нам сообщение» на странице поддержки. Можно также позвонить в ближайшее представительство Blackmagic Design, телефон которого вы найдете на нашем веб-сайте.

### Проверка используемой версии программного обеспечения

Чтобы узнать версию Blackmagic Audio Monitor Setup, установленную на вашем компьютере, откройте окно About Blackmagic Audio Monitor Setup.

- На компьютере с операционной системой macOS откройте Blackmagic Audio Monitor Setup в папке «Приложения». В меню выберите About Blackmagic Audio Monitor Setup, чтобы узнать номер версии.
- При работе в операционной системе Windows 10 на экране «Пуск» выберите Blackmagic Audio Monitor Setup. В меню «Помощь» выберите About Blackmagic Audio Monitor Setup, чтобы узнать номер версии.

### Загрузка последних версий программного обеспечения

Узнав установленную версию утилиты Blackmagic Audio Monitor Setup, перейдите в центр поддержки Blackmagic на странице [www.blackmagicdesign.com/ru/support](http://www.blackmagicdesign.com/ru/support), чтобы проверить наличие обновлений. Рекомендуется всегда использовать последнюю версию программного обеспечения, однако обновление лучше всего выполнять после завершения текущего проекта.

# Соблюдение нормативных требований

## Утилизация электрооборудования и электронной аппаратуры в Европейском Союзе



Изделие содержит маркировку, в соответствии с которой его запрещается утилизировать вместе с бытовыми отходами. непригодное для эксплуатации оборудование необходимо передать в пункт вторичной переработки. Раздельный сбор отходов и их повторное использование позволяют беречь природные ресурсы, охранять окружающую среду и защищать здоровье человека. Чтобы получить подробную информацию о порядке утилизации, обратитесь в местные муниципальные органы или к дилеру, у которого вы приобрели это изделие.



Данное оборудование протестировано по требованиям для цифровых устройств класса A (раздел 15 спецификаций FCC) и признано соответствующим всем предъявляемым критериям. Соблюдение упомянутых нормативов обеспечивает достаточную защиту от вредного излучения при работе оборудования в нежилых помещениях. Так как это изделие генерирует и излучает радиоволны, при неправильной установке оно может становиться источником радиопомех. Если оборудование эксплуатируется в жилых помещениях, высока вероятность возникновения помех, влияние которых в этом случае пользователь должен устранить самостоятельно.

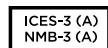
До эксплуатации допускаются устройства, соответствующие двум главным требованиям.

- 1 Оборудование не должно быть источником вредных помех.
- 2 Оборудование должно быть устойчивым к помехам, включая помехи, которые могут вызвать сбой в работе.



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

## Соответствие требованиям ISED (Канада)



Данное оборудование соответствует канадским стандартам для цифровых устройств класса A.

Любая модификация или использование изделия не по назначению могут повлечь за собой аннулирование заявления о соответствии этим стандартам.

Подключение к HDMI-интерфейсу должно выполняться с помощью качественного экранированного кабеля.

Данное оборудование протестировано по требованиям, предъявляемым к устройствам при работе в нежилых помещениях. При использовании в бытовых условиях оно может становиться источником помех для радиосигнала.

# Правила безопасности

Во избежание удара электрическим током розетка для подключения устройства к сети должна иметь заземляющий контакт. При необходимости обратитесь за помощью к квалифицированному электрику.

Чтобы минимизировать опасность поражения электрическим током, изделие необходимо защищать от попадания брызг и капель воды.

Допускается эксплуатация в условиях тропического климата с температурой окружающей среды до 40°C.

Для работы устройства необходимо обеспечить достаточную вентиляцию.

При установке в стойку убедитесь в том, что не нарушен приток воздуха.

Внутри корпуса не содержатся детали, подлежащие обслуживанию. Для выполнения ремонтных работ обратитесь в местный сервисный центр Blackmagic Design.



Допускается эксплуатация в местах не выше 2000 метров над уровнем моря.

## Уведомление для жителей штата Калифорния

При работе с этим оборудованием существует возможность контакта с содержащимися в пластмассе микропримесями многобромистого бифенила, который в штате Калифорния признан канцерогеном и увеличивает риск врожденных дефектов и пороков репродуктивной системы.

Подробную информацию см. на сайте [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## European Office

Blackmagic Design B.V, Amsterdam Sloterdijk Teleport Towers Office 2.17, Kingsfordweg 151, Amsterdam, 1043GR.

# Гарантия

## Ограниченная гарантия сроком 12 месяцев

Компания Blackmagic Design гарантирует отсутствие в данном изделии дефектов материала и производственного брака в течение 12 месяцев с даты продажи. Если во время гарантийного срока будут выявлены дефекты, Blackmagic Design по своему усмотрению выполнит ремонт неисправного изделия без оплаты стоимости запчастей и трудозатрат или заменит такое изделие новым.

Чтобы воспользоваться настоящей гарантией, потребитель обязан уведомить компанию Blackmagic Design о дефекте до окончания гарантийного срока и обеспечить условия для предоставления необходимых услуг. Потребитель несет ответственность за упаковку и доставку неисправного изделия в соответствующий сервисный центр Blackmagic Design с оплатой почтовых расходов. Потребитель обязан оплатить все расходы по доставке и страхованию, пошлины, налоги и иные сборы в связи с возвратом изделия вне зависимости от причины возврата.

Настоящая гарантия не распространяется на дефекты, отказы и повреждения, возникшие из-за ненадлежащего использования, неправильного ухода или обслуживания. Компания Blackmagic Design не обязана предоставлять услуги по настоящей гарантии: а) для устранения повреждений, возникших в результате действий по установке, ремонту или обслуживанию изделия лицами, которые не являются персоналом Blackmagic Design; б) для устранения повреждений, возникших в результате ненадлежащего использования или подключения к несовместимому оборудованию; в) для устранения повреждений или дефектов, вызванных использованием запчастей или материалов других производителей; г) если изделие было модифицировано или интегрировано с другим оборудованием, когда такая модификация или интеграция увеличивает время или повышает сложность обслуживания изделия. НАСТОЯЩАЯ ГАРАНТИЯ ПРЕДОСТАВЛЯЕТСЯ КОМПАНИЕЙ BLACKMAGIC DESIGN ВМЕСТО ЛЮБЫХ ДРУГИХ ПРЯМО ВЫРАЖЕННЫХ ИЛИ ПОДРАЗУМЕВАЕМЫХ ГАРАНТИЙ. КОМПАНИЯ BLACKMAGIC DESIGN И ЕЕ ДИЛЕРЫ ОТКАЗЫВАЮТСЯ ОТ ЛЮБЫХ ПОДРАЗУМЕВАЕМЫХ ГАРАНТИЙ КОММЕРЧЕСКОЙ ЦЕННОСТИ ИЛИ ПРИГОДНОСТИ ДЛЯ КАКОЙ-ЛИБО ОПРЕДЕЛЕННОЙ ЦЕЛИ. ОТВЕТСТВЕННОСТЬ BLACKMAGIC DESIGN ПО РЕМОНТУ ИЛИ ЗАМЕНЕ НЕИСПРАВНЫХ ИЗДЕЛИЙ ЯВЛЯЕТСЯ ПОЛНЫМ И ИСКЛЮЧИТЕЛЬНЫМ СРЕДСТВОМ ВОЗМЕЩЕНИЯ, ПРЕДОСТАВЛЯЕМЫМ ПОТРЕБИТЕЛЮ В СВЯЗИ С КОСВЕННЫМИ, ФАКТИЧЕСКИМИ, СОПУТСТВУЮЩИМИ ИЛИ ПОСЛЕДУЮЩИМИ УБЫТКАМИ, ВНЕ ЗАВИСИМОСТИ ОТ ТОГО, БЫЛА ИЛИ НЕТ КОМПАНИЯ BLACKMAGIC DESIGN (ЛИБО ЕЕ ДИЛЕР) ПРЕДВАРИТЕЛЬНО ИЗВЕЩЕНА О ВОЗМОЖНОСТИ ТАКИХ УБЫТКОВ. BLACKMAGIC DESIGN НЕ НЕСЕТ ОТВЕТСТВЕННОСТИ ЗА ПРОТИВОПРАВНОЕ ИСПОЛЬЗОВАНИЕ ОБОРУДОВАНИЯ СО СТОРОНЫ ПОТРЕБИТЕЛЯ. BLACKMAGIC DESIGN НЕ НЕСЕТ ОТВЕТСТВЕННОСТИ ЗА УБЫТКИ, ВОЗНИКАЮЩИЕ В СЛЕДСТВИЕ ИСПОЛЬЗОВАНИЯ ЭТОГО ИЗДЕЛИЯ. РИСКИ, СВЯЗАННЫЕ С ЕГО ЭКСПЛУАТАЦИЕЙ, ВОЗЛАГАЮТСЯ НА ПОТРЕБИТЕЛЯ.

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# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## Gentile utente

Benvenuto e benvenuta

Grazie per aver acquistato Blackmagic Audio Monitor.

Il nostro obiettivo è dare a ciascuno l'opportunità di accedere a dispositivi video di massima qualità, così stimolando la creatività dell'industria televisiva.

Il monitoraggio audio è un aspetto essenziale dei flussi di produzione video, che si tratti di broadcast, di post produzione o di dirette. Blackmagic Audio Monitor offre tutte le funzionalità di un monitoraggio audio professionale in un compatto design per rack. Grazie all'ampia connettività, è compatibile con qualsiasi tipo di fonte audio e garantisce prestazioni eccellenti. Il Blackmagic Audio Monitor originale supporta il 6G-SDI per connettere video Ultra HD fino a 30 fotogrammi al secondo. Blackmagic Audio Monitor 12G supporta il 12G-SDI per connessioni video Ultra HD fino a 60 fotogrammi al secondo, oltre agli ingressi di segnale video 3G-SDI di livello A e B. Blackmagic Audio Monitor 12G G3, inoltre, supporta fino al 12G-SDI tramite connessioni video IP SMPTE 2110 grazie al 10G Ethernet.

Il manuale di istruzioni contiene tutte le informazioni per installare e utilizzare Blackmagic Audio Monitor.

La versione più recente di questo manuale e gli aggiornamenti del software Blackmagic Audio Monitor sono disponibili sul nostro sito alla pagina [www.blackmagicdesign.com/it](http://www.blackmagicdesign.com/it). È importante aggiornare il software regolarmente per disporre delle ultime funzioni. Una volta scaricato il software, registra i tuoi dati personali per ricevere le notifiche sugli aggiornamenti futuri. Blackmagic è in costante stato di innovazione. Ti invitiamo a lasciare i tuoi preziosi suggerimenti per consentirci di migliorare prestazioni e funzionalità.

A stylized, handwritten signature in black ink that reads "Grant Petty".

**Grant Petty**

AD di Blackmagic Design

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# Operazioni preliminari

## Blackmagic Audio Monitor

Dal design di una unità di rack, Blackmagic Audio Monitor e Blackmagic Audio Monitor 12G sono soluzioni di monitoraggio in tempo reale di un'ampia varietà di segnali AV durante le produzioni in diretta, le trasmissioni broadcast, e la post produzione.

Le connessioni di Blackmagic Audio Monitor ammettono SD/HD/3G/6G-SDI, audio digitale AES/EBU e analogico per garantire i corretti livelli audio in uscita. Il modello 12G supporta il 12G-SDI per connettere video Ultra HD fino a 60 fps. Gli indicatori di livello a LED denotano il picco del segnale, e il display LCD integrato mostra le immagini dell'ingresso video SDI, e altre informazioni tra cui il tipo di connessione in entrata, il formato, il frame rate, i canali audio e il volume.

Consente di monitorare fino a 16 canali SDI con audio integrato, oppure sfruttare i connettori XLR per i segnali di audio analogico bilanciato o digitale AES/EBU. Ospita anche connettori RCA per collegare strumentazione di largo consumo tra cui i sistemi HiFi e gli iPod.

Blackmagic Audio Monitor include due altoparlanti a banda larga di alta qualità e due subwoofer dall'ampio intervallo di frequenze che riproducono un suono pulito e profondo. Inoltre integra un ingresso per cuffie per fare monitoraggio audio di precisione negli ambienti rumorosi.



Il pannello frontale di Blackmagic Audio Monitor 12G.



Il retro di Blackmagic Audio Monitor 12G.

I modelli Blackmagic Audio Monitor 12G G3 supportano anche i flussi nativi 2110 in entrata, incluso il video non compresso 12G-SDI.



Il pannello frontale di Blackmagic Audio Monitor 12G G3



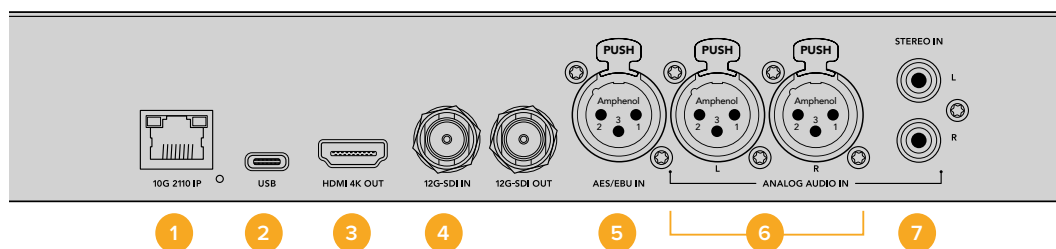
Il retro di Blackmagic Audio Monitor 12G G3

## Collegare la fonte audio

Blackmagic Audio Monitor è compatibile con qualsiasi tipo di dispositivo audio. Per connettere i segnali SDI in SD, HD, 2K o Ultra HD basta inserire un connettore BNC standard nell'ingresso SDI. Il modello 12G ammette il video in entrata 3G-SDI di livello A e B.

Collega connettori XLR se desideri monitorare i segnali audio digitali AES/EBU di fonti come registratori e console digitali, oppure dei dispositivi analogici come mixer e deck Betacam SP.

Puoi monitorare l'audio analogico dei dispositivi di largo consumo, per esempio videoregistratori e lettori DVD, collegando connettori RCA standard. Se preferisci ascoltare l'audio tramite cuffie, inserisci il connettore jack 1/4" nell'apposito ingresso sul pannello frontale.



1. 10G Ethernet 2. USB-C 3. Uscita HDMI 4K  
4. Ingresso e uscita 12G-SDI 5. Ingresso XLR per AES/EBU  
6. Ingresso XLR per audio analogico 7. Ingresso stereo RCA per connessioni audio standard

## Selezionare la fonte audio

Dopo aver collegato la fonte audio a Blackmagic Audio Monitor, premi il pulsante INPUT sul pannello frontale per selezionare il tipo di connessione. Una volta selezionato l'ingresso e rilevato l'audio, gli indicatori di livello a LED si illuminano, confermando il corretto funzionamento dell'ingresso audio. Gli indicatori sono disposti su due file orizzontali, e retroilluminati da LED a colori.

Usa il pulsante INPUT per navigare tra le connessioni audio sul comodo display LCD, dove sono disponibili anche le informazioni relative al tipo di connessione, ai canali audio e al volume. Ora Blackmagic Audio Monitor è pronto per l'uso.

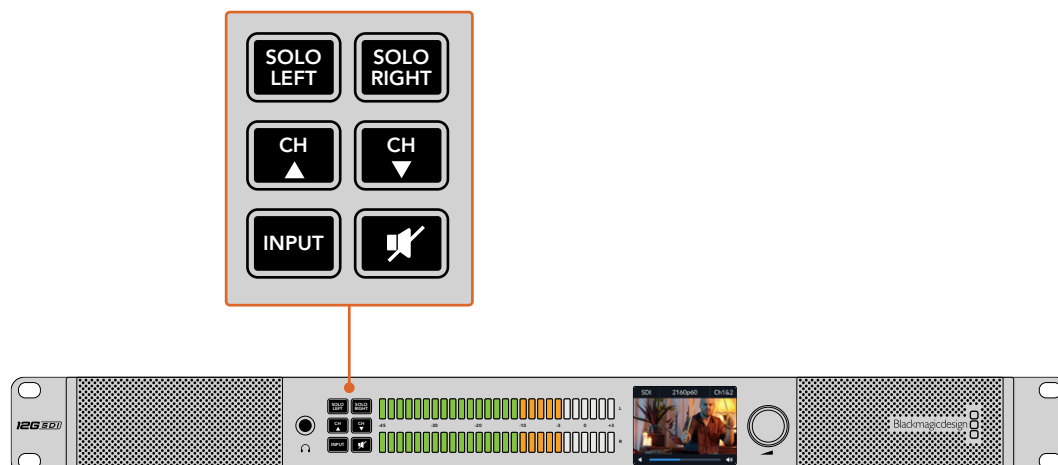
## Connettere le uscite video

Sfrutta le uscite video di Blackmagic Audio Monitor per monitorare i segnali video e audio su uno schermo di grandi dimensioni, oppure connettere altra apparecchiatura video.

Le uscite HDMI e SDI di loop consentono il monitoraggio del segnale video con audio integrato.

Tramite un singolo cavo SDI puoi connettere dispositivi di acquisizione SD, HD, 2K e Ultra HD, per esempio DeckLink 4K Extreme. Trasporta il segnale video con audio integrato ai registratori come HyperDeck Studio tramite SD/HD-SDI, oppure ai display più recenti e ai proiettori Ultra HD tramite HDMI.

Blackmagic Audio Monitor 12G G3 può anche convertire gli ingressi ST2110 in HDMI e 12G-SDI, visto che entrambe le uscite seguono gli ingressi SDI o 2110 a seconda di quello selezionato con il pulsante sul pannello frontale.



I pulsanti consentono di selezionare l'ingresso che desideri monitorare, isolare i canali di destra o sinistra, spostarti in alto o in basso tra i canali audio e silenziare l'audio degli altoparlanti o delle cuffie.

# Utilizzare Blackmagic Audio Monitor

Blackmagic Audio Monitor è dotato di un pannello di controllo che dà accesso rapido alle funzioni principali e alle informazioni di stato.

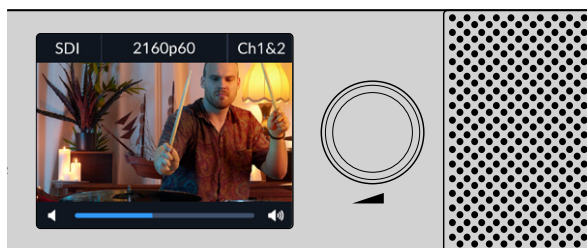
## Display LCD

Il display LCD integrato a colori mostra importanti informazioni sullo stato operativo del dispositivo, per esempio l'ingresso selezionato, il formato video per i segnali SDI, i canali audio selezionati e il livello del volume degli altoparlanti o delle cuffie. Il display LCD segnala anche la presenza di eventuali segnali video SDI. In assenza di segnali video, appare una nota musicale.

A seconda dell'ingresso selezionato il display mostra le seguenti informazioni:

### Ingresso SDI

SDI, formato video, canali audio selezionati.



Il display LCD a colori mostra il tipo di connessione, il formato video, i canali audio selezionati e il livello del volume



L'icona di una nota musicale appare sul display LCD a meno che non si stia monitorando un segnale SDI o SMPTE 2110

### Ingresso 10G Ethernet 2110

Video IP SMPTE-2110 con supporto per audio SMPTE-2110-30.

### Ingresso XLR con audio AES/EBU bilanciato

AES/EBU, canali audio selezionati.

### Ingressi XLR con audio analogico bilanciato

Analogico, canali audio selezionati.

### Ingressi RCA con audio analogico non bilanciato

HiFi, canali audio selezionati.

## Indicatori di livello

Gli indicatori di livello a LED di Blackmagic Audio Monitor sono disposti su due file orizzontali. I segmenti si illuminano di verde, arancione e rosso per indicare la forza del segnale; se il segnale audio supera la soglia di clipping, tutti i segmenti si illuminano.

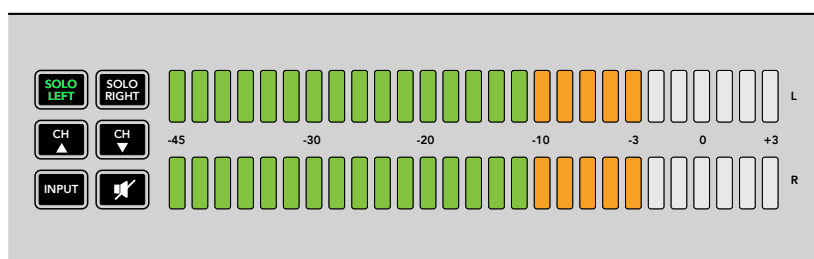
La risposta degli indicatori di livello cambia a seconda del tipo di monitoraggio selezionato sull'utilità Audio Monitor Setup. Se hai selezionato l'opzione VU, regola i livelli dell'uscita del dispositivo connesso di modo che non superino la soglia di 0dB indicata sul pannello frontale. Questo accorgimento ottimizza il rapporto segnale/rumore e garantisce la migliore qualità audio. Se i livelli audio superano la soglia di 0dB, tenderà a verificarsi il fenomeno della distorsione sonora.

Consulta la sezione "Utilità Audio Monitor Setup" per installare l'utilità e impostare il tipo di indicatori.

## Pulsanti di controllo

### Pulsanti SOLO LEFT e SOLO RIGHT

Questi pulsanti consentono di isolare il canale audio di destra e di sinistra per individuare con facilità eventuali problemi di ogni canale singolarmente.



Premi il pulsante SOLO LEFT per disattivare l'audio del canale di destra. Gli indicatori di livello continuano a indicare entrambi i livelli.

Per monitorare il canale audio di sinistra:

- 1 Premi SOLO LEFT. Il pulsante si illumina di verde e il suono viene riprodotto solo dall'altoparlante sinistro.
- 2 Premi di nuovo SOLO LEFT per tornare al monitoraggio stereo.

Per monitorare il canale audio di destra segui lo stesso procedimento premendo il pulsante SOLO RIGHT.

### Pulsanti canale CH

I due pulsanti CH con freccia in giù e in su consentono di navigare tra i canali audio integrati nella connessione SDI. Per il 3G-SDI, sono presenti fino a 16 canali audio, o 8 coppie di canali. Premi i pulsanti CH per spostarti tra i canali audio integrati nel segnale SDI.

Blackmagic Audio Monitor 12G supporta il 12G-SDI, che integra fino a 64 canali audio, o 32 coppie di canali. Tieni premuto il pulsante CH desiderato per scorrere velocemente le opzioni verso l'alto o verso il basso.

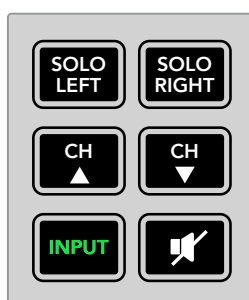


## Input

Premi ripetutamente il pulsante INPUT per navigare tra gli ingressi SDI, AES/EBU, SMPTE 2110, analogico e HiFi e selezionare la fonte video e audio che desideri monitorare.

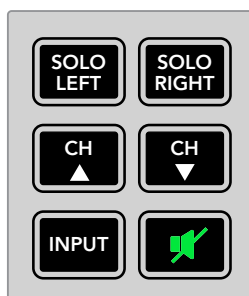
L'audio selezionato si può ascoltare mediante gli altoparlanti integrati, e monitorare tramite l'uscita HDMI sui canali 1 e 2.

**NOTA** L'uscita HDMI mostra una schermata nera quando sono selezionati gli ingressi analogico, AES/EBU, o HiFi. L'uscita di loop SDI invia sempre l'audio e il video connessi all'ingresso SDI.



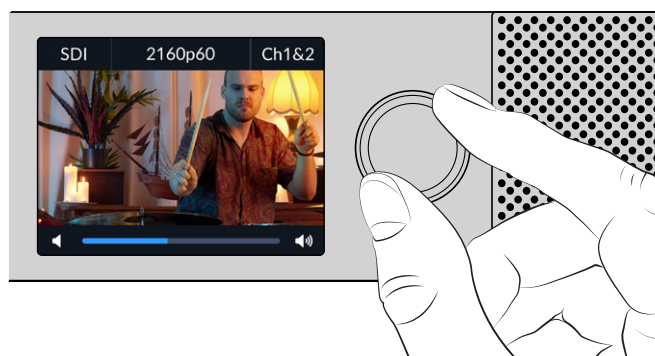
## Mute

Premi il pulsante con l'icona dell'altoparlante per silenziare l'audio degli altoparlanti del pannello frontale di Blackmagic Audio Monitor e delle cuffie collegate. L'opzione Mute non intacca l'ingresso audio. Per riattivare l'audio degli altoparlanti o delle cuffie premi di nuovo il pulsante Mute oppure aumenta il volume.



## Manopola volume

Ruota la manopola per regolare il volume degli altoparlanti o delle cuffie singolarmente. Il livello del volume appare sul display LCD. Quando sono connesse le cuffie, gli altoparlanti di Blackmagic Audio Monitor si disattivano e l'audio viene riprodotto solo nelle cuffie. Il volume è facilmente regolabile ruotando opportunamente la manopola.



Il display LCD sul pannello di controllo mostra il livello del volume.

# Utilità Audio Monitor Setup

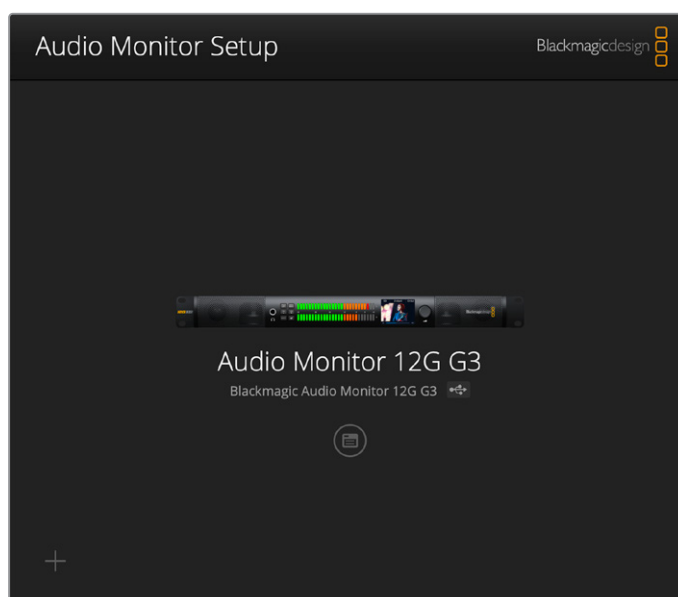
## Blackmagic Audio Monitor Setup

L'utilità Blackmagic Audio Monitor Setup consente di impostare il tipo di indicatori di livello desiderati, e di aggiornare il software interno di Blackmagic Audio Monitor.

Quando il modello originale di Blackmagic Audio Monitor è connesso al computer tramite USB, puoi cambiarne la configurazione e aggiornare il software interno con l'utilità. Con Blackmagic Audio Monitor 12G G3 è possibile aggiornare l'unità e cambiare la configurazione tramite USB o ethernet.

Per installare Audio Monitor Setup:

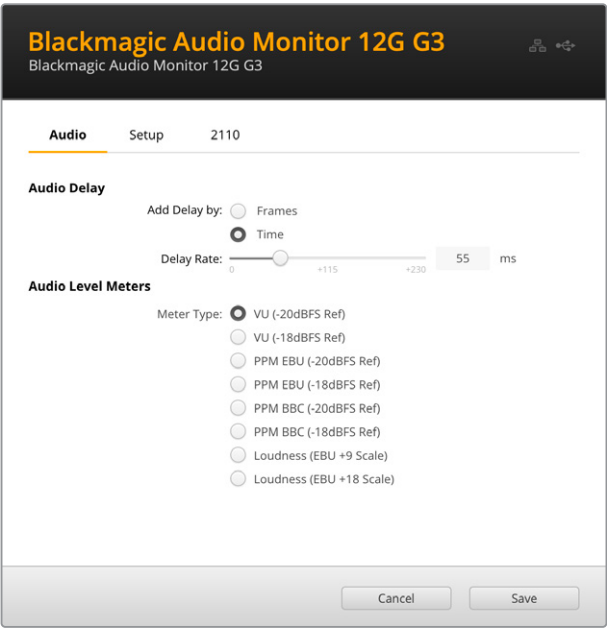
- 1 Vai su [www.blackmagicdesign.com/it/support](http://www.blackmagicdesign.com/it/support) nel browser e scarica gli ultimi driver di Audio Monitor.
- 2 Una volta completato il download, fai doppio clic sull'icona **Install Audio Monitor** per aprire l'installer. Segui tutte le indicazioni e clicca su **Install** per installare il software.
- 3 Una volta installato il software, vai nella cartella **Blackmagic Audio Monitor** in **Applicazioni** o **Programmi** e fai doppio clic su **Audio Monitor Setup**.



Aggiorna il software interno di Blackmagic Audio Monitor e cambia le impostazioni con l'utilità Blackmagic Audio Monitor Setup.

## La tab Audio

In questo menù si trovano le impostazioni per il ritardo audio e il monitoraggio dei livelli.



### Audio Delay

Aggiungi un ritardo alle connessioni HDMI e SDI di loop muovendo lo slider. Regola il ritardo in fotogrammi o millisecondi.



### Indicatori di livello audio

Le opzioni disponibili sono VU, PPM e Loudness, con scale EBU e BBC. Gli indicatori VU sono conformi agli standard, mentre PPM e Loudness offrono un sistema di misurazione della percezione dell'intensità. La tabella seguente elenca i tipi di indicatori di livello supportati e le scale di misurazione ad essi corrispondenti.

| Tipo di indicatore | Tipo di scala   | Scala     | Riferimento per l'uso |
|--------------------|-----------------|-----------|-----------------------|
| VU                 | —               | -45 a +3  | Stampato sul pannello |
| PPM                | EBU             | -12 a +12 | Adesivo               |
| PPM                | BBC             | 1 a 7     | Adesivo               |
| Loudness           | EBU +9          | -18 a +9  | Adesivo               |
| Loudness           | EBU +18         | -36 a +18 | Adesivo               |
| Loudness           | Piena scala +9  | -41 a -14 | Adesivo               |
| Loudness           | Piena scala +18 | -59 a -5  | Adesivo               |

## VU

Questo tipo di indicatore misura la media tra i brevi picchi e le valli del segnale audio. Serve principalmente per monitorare i picchi del segnale, ma grazie alla sua capacità di mediare è utile anche per monitorare il loudness percepito dell'audio.

## PPM

Avvalendosi della funzione "peak hold", questo indicatore ritiene momentaneamente i picchi del segnale e un tempo di caduta lento, segnalando chiaramente il livello in cui l'audio raggiunge il suo picco.

## Loudness

Questo indicatore segnala la qualità soggettiva del loudness del segnale audio. Gli odierni standard del broadcast prevedono la misurazione del loudness per ottenere livelli di loudness costanti.

Gli indicatori VU e PPM permettono di selezionare un livello di riferimento di -18dB o -20dB, a seconda degli standard del broadcast dei diversi Paesi.

I LED di Blackmagic Audio Monitor si illuminano in modo diverso a seconda del tipo di indicatore di livello selezionato. Per identificare il picco del segnale audio con facilità, il prodotto include anche strisce adesive che riportano accurate scale dB di riferimento. Stacca l'adesivo con la scala desiderata e applicalo tra le due file di indicatori a LED, sopra gli indici VU esistenti sul pannello frontale.

Sono inclusi due adesivi per ogni tipo di indicatore di livello e scala. Gli adesivi sono anche disponibili presso i centri di assistenza Blackmagic Design.

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

Le strisce adesive incluse consentono di individuare con facilità il picco del segnale audio in base al tipo di indicatore di livello selezionato.

## La tab Setup

In questo menù trovi la versione del software e le impostazioni di rete di Audio Monitor. Puoi assegnare un nome all'unità per renderla facilmente riconoscibile quando ci si connette in modalità remota.

Per assegnare un nome a Blackmagic Audio Monitor 12G:

- 1 Clicca sulla tab {Setup}.
- 2 In {Name} digita la nuova etichetta.
- 3 Salva cliccando su {Save} in basso a destra.

**Blackmagic Audio Monitor 12G G3**  
Blackmagic Audio Monitor 12G G3

Audio **Setup** 2110

Name: Blackmagic Audio Monitor 12G... **Set**

Software: Version 4.0 **Save Diagnostic Log File**

**Network**

Network Location: Blackmagic-Audio-Monitor-12...

Protocol: ☒ DHCP ☐ Static IP

IP Address: 169.254.154.17

Subnet Mask: 255.255.0.0

Gateway: 0.0.0.0

Primary DNS: 0.0.0.0

Secondary DNS: 0.0.0.0

Allow Utility Administration: ☒ via USB ☐ via USB and Ethernet

**Reset**

**Factory Reset**

**Cancel Save**

## Impostazioni di rete

Accedere a Blackmagic Audio Monitor 12G in rete è il metodo più immediato quando si controllano più unità. Basta utilizzare Blackmagic Audio Monitor Setup. Blackmagic Audio Monitor 12G è impostato su DHCP per acquisire automaticamente un indirizzo di rete, ed è facile selezionarlo dalla home dell'utilità.

Se Blackmagic Audio Monitor 12G non viene rilevato, o se lo hai precedentemente impostato su un indirizzo statico incompatibile con la rete in uso, potrebbe essere necessario cambiare le impostazioni di rete a livello locale. Per farlo connetti il dispositivo tramite USB.

## Accesso all'utilità

Blackmagic Audio Monitor Setup è accessibile quando il dispositivo è connesso tramite rete o USB. Alla voce {Allow Utility Administration} spunta la casella {via USB} per bloccare l'accesso ad altri utenti in rete.

## Reset

Clicca {Factory Reset} per riportare il tuo Audio Monitor 12G alle impostazioni di fabbrica.

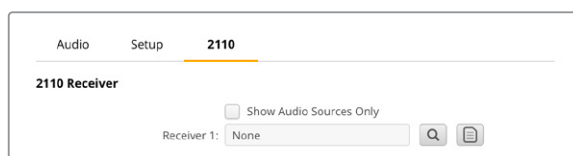
## La tab 2110

Blackmagic Audio Monitor 12G G3 include una tab per configurare i flussi IP SMPTE 2110 e le impostazioni del PTP grandmaster.

### 2110 Receiver

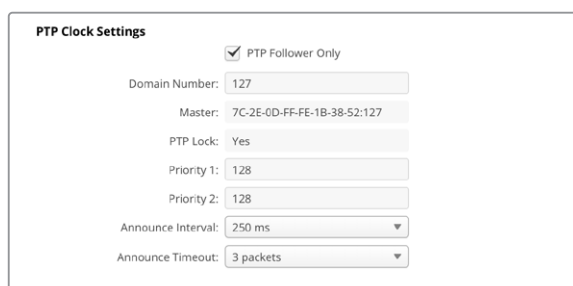
Per mappare solo fonti audio, spunta la casella {Show Audio Sources Only}.

Clicca sulla lente di ingrandimento a destra del campo {Receiver} per selezionare il flusso in entrata. Si aprirà una finestra con la lista di tutte le fonti disponibili, con i dettagli del nodo IP e dell'etichetta della fonte. Evidenzia un flusso e clicca il pulsante {Select}. La finestra si chiude e apparirà l'etichetta della fonte nel campo {Receiver}. Dovresti vedere la fonte in entrata sul display dell'LCD di Audio Monitor.



### PTP Clock

In questa sezione puoi configurare le impostazioni per il PTP grandmaster.



Per connettere Audio Monitor 12G G3 a uno switch di rete 10G con un grandmaster PTP è necessario impostare il dispositivo in modalità follower per evitare conflitti temporali. Se hai collegato Audio Monitor a un'altra unità IP 2110, per esempio Blackmagic 2110 IP 3x3G Converter, spunta la casella {PTP Follower Only} per uno di loro.

### Domain Number

Inserisci lo stesso numero di dominio del PTP grandmaster. Solitamente è 127, ma si può sempre cambiare in questo campo.

### Master

Mostra l'indirizzo MAC del PTP grandmaster, che può essere un dispositivo grandmaster separato o un altro dispositivo Blackmagic IP 2110.

### PTP Lock

Questo campo conferma che Audio Monitor è agganciato a un clock PTP tramite ethernet.

### Priority

In presenza di più di un PTP grandmaster, questi due campi consentono di dare la preferenza a uno o all'altro. 1 è la prima priorità, 2 la seconda.

### Announce Interval / Timeout

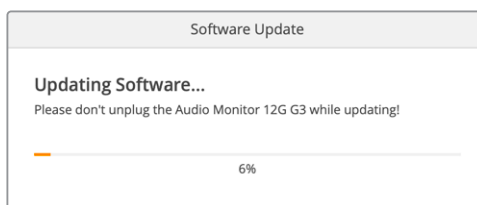
Questi campi devono corrispondere alle specifiche del PTP grandmaster, che tipicamente trasmette messaggi di sincronizzazione ogni 2 secondi o 2000 ms. Per cambiare la frequenza del messaggio scegli tra le opzioni di questo menù. Il range di scelta per l'intervallo e il timeout dipende dal tuo PTP grandmaster.

## Aggiornare il software interno

- 1 Connetti Blackmagic Audio Monitor al tuo computer tramite USB o ethernet.
- 2 Lancia l'utilità Blackmagic Audio Monitor Setup.
- 3 Clicca sull'icona di configurazione. L'utilità suggerisce di aggiornare il software se rileva una versione precedente.
- 4 Clicca su "Update" per avviare l'installazione dell'aggiornamento.



Clicca su "Update" per aggiornare il software interno.



La barra di avanzamento mostra lo stato dell'aggiornamento in corso.

- 5 Clicca su "Close" ad aggiornamento completato.

# Developer Information

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵
Meter Mode: Loudness (EBU +18 scale)↵
↵
```

The response will be

```
ACK:
AUDIO METER:
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵
↵
```

The response will be

```
ACK:
AUDIO INPUT:
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:
Gain: Speaker Stereo 0
Gain: Headphone Stereo 0
Mute: false
Solo: Off
Audio delay in ms: 0
Audio delay in frames: 0
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵
Gain: Speaker Stereo 125↵
Solo: Right↵
↵
```

The response will be

```
ACK:
AUDIO OUTPUT:
Gain: Speaker Stereo 125
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵
AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# Assistenza

## Assistenza clienti

Per ottenere supporto tecnico e non solo, visita la pagina Supporto del sito Blackmagic Design.

### Pagina di supporto online di Blackmagic Design

Per il materiale più recente, inclusi software e note di supporto, visita il sito Blackmagic Design alla pagina [www.blackmagicdesign.com/it/support](http://www.blackmagicdesign.com/it/support)

### Il Forum Blackmagic Design

La pagina Forum del nostro sito Blackmagic Design è un'ottima risorsa per ottenere informazioni utili e condividere idee creative. Qui troverai le risposte alle domande più frequenti, oltre ai consigli degli utenti esistenti e dello staff Blackmagic Design. Visita la pagina Forum su <https://forum.blackmagicdesign.com>

### Contatta Blackmagic Design

Se il materiale sulla nostra pagina Forum non risponde alle tue domande, clicca su “Invia una email” nella pagina Supporto, oppure clicca su “Trova un team di supporto” per contattare direttamente il team di Blackmagic Design più vicino a te.

### Verificare la versione del software

Per scoprire la versione del software Blackmagic Audio Monitor installata sul tuo computer, apri la tab “About Blackmagic Audio Monitor Setup”.

- Su macOS, apri Blackmagic Audio Monitor Setup dalla cartella Applicazioni e seleziona “About Blackmagic Audio Monitor Setup” dal menù.
- Su Windows 10, clicca l'icona Blackmagic Audio Monitor Setup nella pagina Start. Dal menù “Help” clicca su “About Blackmagic Audio Monitor Setup”.

### Dove trovare gli aggiornamenti più recenti del software

Gli ultimi aggiornamenti software sono disponibili sul sito Blackmagic Design alla pagina Supporto [www.blackmagicdesign.com/it/support](http://www.blackmagicdesign.com/it/support). Ti consigliamo di non aggiornare il software se sei nel mezzo di un progetto importante.

# Normative

## Smaltimento di apparecchiature elettriche ed elettroniche nell'Unione Europea



Questo simbolo indica che il dispositivo non deve essere scartato insieme agli altri rifiuti, ma consegnato a uno degli appositi centri di raccolta e riciclaggio. La raccolta e lo smaltimento differenziato corretto di questo tipo di apparecchiatura evita lo spreco di risorse e contribuisce alla sostenibilità ambientale e umana. Per tutte le informazioni sui centri di raccolta e riciclaggio, contatta gli uffici del tuo comune di residenza o il punto vendita presso cui hai acquistato il prodotto.



Questo dispositivo è stato testato e dichiarato conforme ai limiti relativi ai dispositivi digitali di Classe A, come indicato nella Parte 15 del regolamento FCC. Tali limiti sono stati stabiliti con lo scopo di fornire protezione ragionevole da interferenze dannose in ambienti commerciali. Questo dispositivo genera, usa e può irradiare energia a radiofrequenza e, se non è installato o usato in conformità alle istruzioni, può causare interferenze dannose che compromettono le comunicazioni radio. Operare questo dispositivo in ambienti residenziali può causare interferenze dannose, nella cui evenienza l'utente dovrà porvi rimedio a proprie spese.

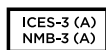
Il funzionamento è soggetto alle due condizioni seguenti:

- 1 Questo dispositivo non deve causare interferenze dannose.
- 2 Questo dispositivo deve accettare eventuali interferenze ricevute, incluse le interferenze che possono causare un funzionamento indesiderato.



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

## Dichiarazione ISED (Canada)



Questo dispositivo è conforme agli standard canadesi sui dispositivi digitali di Classe A.

Qualsiasi modifica o utilizzo del dispositivo al di fuori di quello previsto potrebbero invalidare la conformità a tali standard.

Consigliamo di connettere le interfacce HDMI usando cavi schermati HDMI di alta qualità.

Questo dispositivo è stato testato per l'uso in ambienti commerciali. Se utilizzato in ambienti domestici, può causare interferenze radio.

# Sicurezza

Per evitare scosse elettriche, connettere il dispositivo a una presa di corrente con messa a terra. Per qualsiasi dubbio, contattare un elettricista qualificato.

Per ridurre il rischio di scosse elettriche, evitare di esporre il dispositivo a gocce o spruzzi.

Questo dispositivo è adatto all'uso nei luoghi tropicali con una temperatura ambiente non superiore ai 40°C.

Lasciare uno spazio adeguato intorno al dispositivo per consentire sufficiente ventilazione.

Se installato su rack, assicurarsi che i dispositivi adiacenti non ostacolino la ventilazione.

Le parti all'interno del dispositivo non sono riparabili dall'utente. Contattare un centro assistenza Blackmagic Design per le operazioni di manutenzione.



Usare il dispositivo a un'altitudine non superiore a 2000 m sopra il livello del mare.

## Dichiarazione dello Stato della California

Questo dispositivo può esporre l'utente a sostanze chimiche, per esempio tracce di bifenili polibromurati nelle parti in plastica, che nello Stato della California sono considerati causa di cancro e di difetti alla nascita o di altri difetti riproduttivi.

Per maggiori informazioni, visitare la pagina [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## European Office

Blackmagic Design B.V, Amsterdam Sloterdijk Teleport Towers Office 2.17, Kingsfordweg 151, Amsterdam, 1043GR.

# Garanzia

## Garanzia limitata di un anno

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Julho 2024

**Manual de Instalação e Operação**

Blackmagicdesign

# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## Bem-vindo

Obrigado por adquirir um Blackmagic Audio Monitor para a sua produção.

Esperamos que você compartilhe do nosso sonho de transformar a indústria televisiva em uma indústria verdadeiramente criativa, permitindo que todos tenham acesso a equipamentos de vídeo da mais alta qualidade.

O monitoramento de áudio é fundamental em qualquer fluxo de trabalho de produção de vídeo, seja em teledifusão, pós-produção ou produção ao vivo. O Blackmagic Audio Monitor oferece todos os recursos dos monitores de áudio profissionais em um design compacto para montagem em rack. Você pode conectá-lo a praticamente todos os tipos de equipamentos de áudio para monitoramento de alta qualidade. O Blackmagic Audio Monitor original suporta SDI 6G para conectar vídeo Ultra HD a até 30 quadros por segundo. O Blackmagic Audio Monitor 12G suporta SDI 12G para conectar vídeo Ultra HD a até 60 quadros por segundo, bem como entradas de vídeo SDI 3G nível A e B. Além disso, o Blackmagic Audio Monitor 12G G3 suporta até SDI 12G via vídeo IP SMPTE 2110 utilizando Ethernet 10G.

Este manual de instrução contém todas as informações necessárias para você começar a usar o seu Blackmagic Audio Monitor.

Por favor, consulte a página de suporte no nosso site em [www.blackmagicdesign.com/br](http://www.blackmagicdesign.com/br) para a versão mais recente deste manual e para atualizações do software interno do seu Blackmagic Audio Monitor. Para garantir o recebimento de todos os recursos mais recentes, mantenha o seu software atualizado. Ao baixar o software, registre seus dados para que possamos mantê-lo informado sobre os novos lançamentos. Estamos sempre trabalhando com novos recursos e aprimoramentos, então gostaríamos muito de ouvir a sua opinião!

**Grant Petty**

Diretor Executivo da Blackmagic Design

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# Instruções Preliminares

## Blackmagic Audio Monitor

O Blackmagic Audio Monitor e o Blackmagic Audio Monitor 12G oferecem soluções de monitoramento de áudio em tempo real montáveis em rack que podem ser usadas com uma variedade de fontes de áudio e vídeo em ambientes ao vivo, pós-produções e transmissões.

O Blackmagic Audio Monitor conecta-se a equipamentos de áudio analógico e digital AES/EBU e SD/HD/3G/6G-SDI para garantir que as saídas tenham os níveis de áudio corretos. O modelo 12G é compatível com 12G-SDI, portanto é possível conectar vídeos Ultra HD de até 60 quadros por segundo. Os medidores de nível em LED dos canais da direita e esquerda permitem que você acompanhe o pico do seu áudio e o LCD exibe a sua entrada de vídeo SDI, além de informações importantes, como tipo de conexão de entrada, formato de vídeo, taxa de quadro, canais de áudio e nível de volume.

É possível monitorar até 16 canais de áudio SDI embutido ou usar conectores XLR para áudio analógico balanceado e digital AES/EBU. Também há conectores RCA para que você possa conectar equipamentos de uso doméstico, como sistemas HiFi e iPods.

O seu Blackmagic Audio Monitor inclui dois alto-falantes internos de alcance completo e alta qualidade e dois subwoofers que fornecem frequências em ampla variedade para a reprodução de som profundo e claro. Alternativamente, você pode conectar um fone de ouvido para um monitoramento sonoro seguro, que é excelente para ambientes ruidosos.



Painel frontal do Blackmagic Audio Monitor 12G.



Painel traseiro do Blackmagic Audio Monitor 12G.

Os modelos Blackmagic Audio Monitor 12G 3G também suportam o recebimento de fluxos 2110 nativos, incluindo SDI 12G compactado.



Painel frontal do Blackmagic Audio Monitor 12G G3.



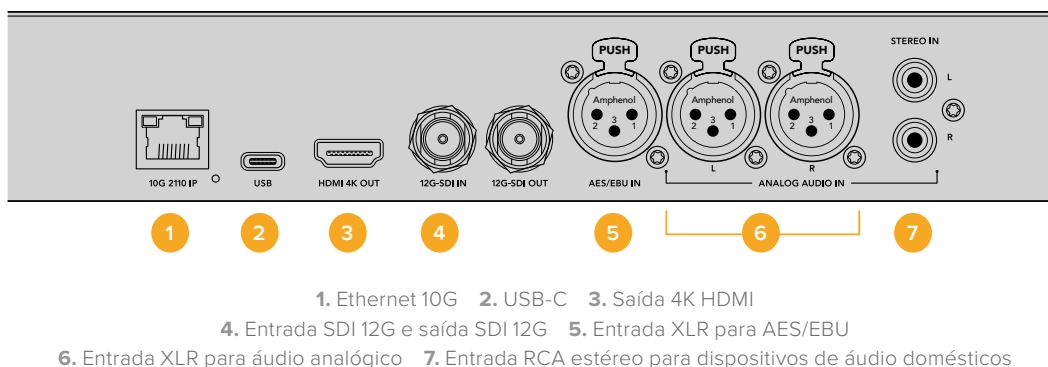
Painel traseiro do Blackmagic Audio Monitor 12G G3.

## Conectar Áudio

O Blackmagic Audio Monitor é compatível com praticamente todos os tipos de equipamentos de áudio. Caso queira conectar sinais SDI em SD, HD, 2K ou até Ultra HD, você pode usar a entrada SDI com um conector BNC padrão. O modelo 12G é compatível com entradas de sinal de vídeo 3G-SDI nível A e B.

Você deve usar conectores XLR caso deseje monitorar áudio digital AES/EBU a partir de equipamentos incluindo gravadores de disco e consoles de áudio digital ou de equipamentos como mesas de som e decks Betacam SP. Áudios analógicos de equipamentos de uso doméstico, como aparelhos de DVD e

VCRs, podem ser conectados usando conectores RCA padrão. Outra opção é conectar fones de ouvido através do conector tipo jack para fone de ouvido TRS de 1/4", quando precisar ouvir seu áudio sem perturbar a equipe.



## Selecionar Sua Fonte de Áudio

Após conectar seu equipamento de áudio ao Blackmagic Audio Monitor, basta selecionar sua conexão pressionando o botão “Input” no painel de controle. Com sua entrada selecionada e o áudio presente, você notará que a iluminação em LED dos medidores de nível de áudio fica acesa. O medidor de nível de áudio consiste em 2 fileiras de LEDs coloridas e ficam acesas para que você confirme com facilidade se sua entrada de áudio está funcionando.

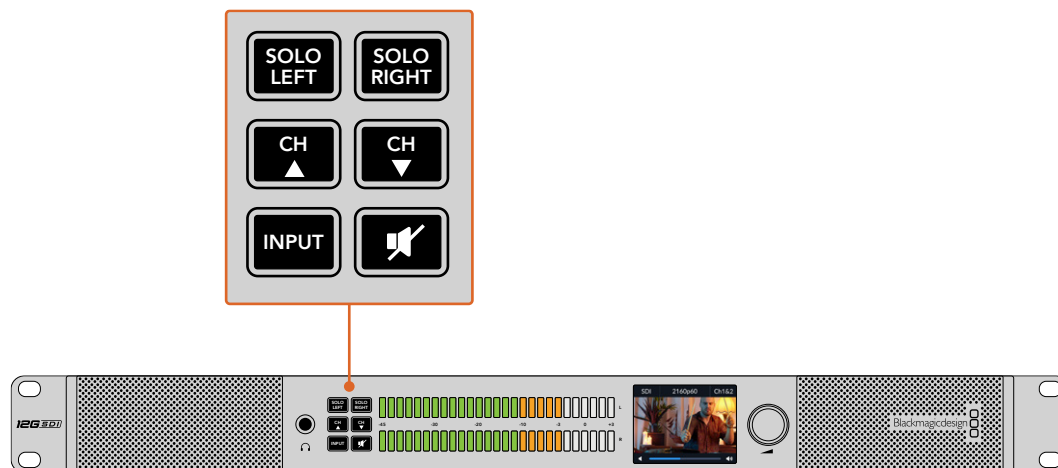
O botão “Input” permite que você navegue pelas conexões de áudio e você pode vê-las no LCD com informações incluindo tipo de entrada, canais de áudio e nível de volume. Isto é tudo que você precisa fazer para monitorar áudio com o Blackmagic Audio Monitor.

## Conectar Saídas de Vídeo

Caso você precise de monitoramento de vídeo, assim como de áudio, as saídas de vídeo do Blackmagic Audio Monitor permitem que você monitore vídeo com áudio em uma tela grande, ou conecte outros equipamentos de vídeo.

A saída HDMI e a saída loop SDI podem ser usadas para monitorar vídeo e áudio embutido. Você pode conectar SD, HD, 2K e até dispositivos de captação Ultra HD, como DeckLink 4K Extreme com um único cabo SDI. Conecte vídeo com áudio embutido a decks de gravação, como HyperDeck Studio, via SD/HD-SDI ou monitores Ultra HD mais modernos e projetores HDMI.

O Blackmagic Audio Monitor 12G G3 também pode converter entradas ST2110 para HDMI e SDI 12G, e ambas as saídas seguirão as entradas SDI ou 2110, dependendo de qual for selecionada através do botão de entrada no painel frontal.



Os botões de seleção permitem escolher a entrada que deseja monitorar, isolar canais estéreo da direita e esquerda, navegar para cima e para baixo pelos canais de áudio disponíveis e silenciar os alto-falantes ou fones de ouvido.

# Usar Blackmagic Audio Monitor

O painel de controle do Blackmagic Audio Monitor fornece acesso rápido às funções e indicadores de status mais importantes.

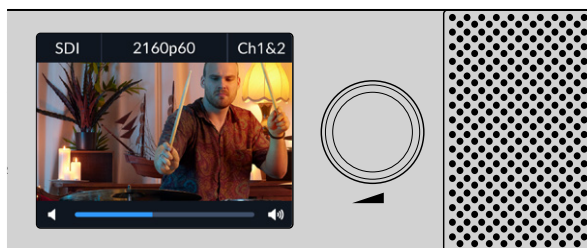
## LCD

O LCD colorido integrado possui sobreposições de texto que exibem informações de status importantes, como a entrada selecionada, o formato de vídeo caso SDI esteja conectado, os canais de áudio selecionados e o volume dos alto-falantes ou fones de ouvido. O LCD também exibirá quaisquer sinais de entrada de vídeo SDI. Caso nenhum vídeo SDI seja detectado, um ícone de música será exibido.

As seguintes informações serão exibidas para cada entrada selecionada:

### Entrada SDI

SDI, formato de vídeo e canais de áudio selecionados.



O LCD colorido exibe informações de áudio de vídeo, incluindo tipo de conexão, formato de vídeo, canais de áudio selecionados e nível de volume.



Um ícone de música é exibido no LCD, a menos que esteja monitorando um sinal SDI ou SMPTE 2110.

### Entrada 2110 Ethernet 10G

Vídeo IP SMPTE 2110 incluindo suporte a áudio SMPTE-2110-30.

### Entrada XLR de áudio AES/EBU balanceado

AES/EBU, canais de áudio selecionados.

### Entradas XLR de áudio analógico balanceado

Analógico, canais de áudio selecionados.

### Entradas RCA de áudio analógico não balanceado

HiFi, canais de áudio selecionados.

## Medidores de Nível de Áudio

Os medidores de nível do Blackmagic Audio Monitor possuem duas fileiras de LEDs verdes, laranjas e vermelhos, que indicam a potência dos seus níveis de áudio. Se todos os LEDs estiverem acesos, significa que os níveis de áudio estão altos demais e sendo saturados.

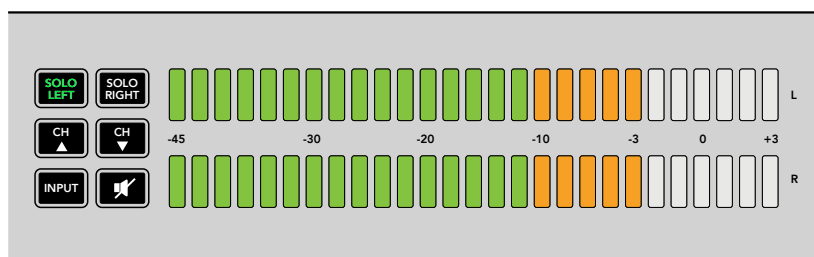
O comportamento dos medidores de nível de áudio mudará de acordo com a configuração do tipo de medidor que você selecionou no utilitário Audio Monitor Setup. Caso esteja usando medição VU, ajuste os níveis de saída no seu equipamento de áudio de modo que o pico do medidor ocorra no indicador 0dB do painel de controle. Isto maximiza a proporção sinal/ruído e garante que o seu áudio possua a melhor qualidade possível. Caso seu áudio atinja o pico além do indicador 0dB, o risco de ocorrer distorção é alto.

Por favor consulte a seção 'Audio Monitor Setup' para informações sobre a instalação do Blackmagic Audio Monitor Setup e configuração dos tipos de medidores de nível.

## Botões do Painel de Controle

### Botões Solo Left e Solo Right

Estes botões permitem isolar o canal de áudio esquerdo e direito para que você possa identificar eventuais problemas no áudio de cada canal independentemente.



Selecionar "Solo Left" desativa o canal de áudio direito. O medidor de nível de áudio continuará exibindo ambos os níveis.

Como monitorar o canal de áudio esquerdo:

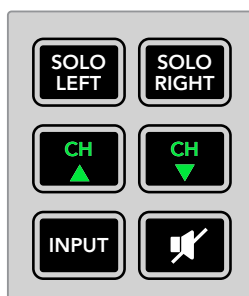
- 1 Pressione o botão "Solo Left". O botão ficará iluminado em verde e o áudio será reproduzido apenas pelo alto-falante esquerdo.
- 2 Pressione "Solo Left" novamente para retornar ao monitoramento de áudio estéreo.

Para monitorar o áudio do canal direito, repita os passos pressionando "Solo Right".

### Channel Up e Channel Down

Estes botões permitem navegar pelos canais de áudio embutido na sua conexão SDI. Para 3G-SDI, isto inclui até 16 canais, ou 8 pares. Pressione os botões para cima ou para baixo para navegar pelos canais SDI de áudio embutido.

O Blackmagic Audio Monitor 12G suporta 12G-SDI, que inclui até 64 canais de áudio, ou 32 pares de canais. Pressione e segure os botões de seta para cima e para baixo para navegar rapidamente pelos canais.

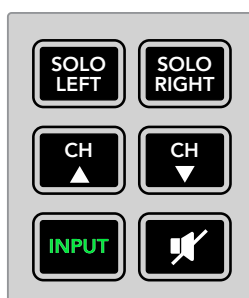


## Botão Input

Pressionar repetidamente o botão “Input” alterna entre as entradas SDI, AES/EBU, SMPTE 2110, analógica e HiFi para que você possa selecionar qual equipamento de vídeo e áudio deseja monitorar.

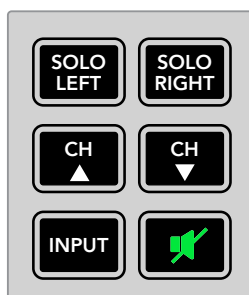
A entrada de áudio selecionada pode ser ouvida pelos alto-falantes integrados. Você também pode monitorar o áudio dos canais 1 e 2 da saída HDMI.

**OBSERVAÇÃO** A saída HDMI exibirá vídeo preto quando as entradas Analógica, AES/EBU ou HiFi estiverem selecionadas. A saída loop SDI sempre faz a saída dos vídeos e áudios conectados à entrada SDI.



## Botão Silenciar

Este botão silencia os alto-falantes e os fones de ouvido do Blackmagic Audio Monitor. O silenciamento do áudio não afetará a entrada de áudio, somente a saída de alto-falantes e fones de ouvido. Ao pressionar o botão “Silenciar” novamente, o áudio dos alto-falantes e dos fones de ouvido será restaurado. Alternativamente, o aumento do volume também irá restaurar o áudio.



## Volume

O controle giratório ajusta o volume dos alto-falantes e dos fones de ouvido independentemente. O nível do volume é exibido no LCD integrado. Quando os fones de ouvido estão conectados, os alto-falantes do Blackmagic Audio Monitor são silenciados e o áudio é emitido pelos fones de ouvido. O volume pode ser ajustado para cima ou para baixo girando o controle no sentido horário ou no sentido anti-horário.



O nível do volume é exibido no painel de controle LCD.

# Configurar Monitor de Áudio

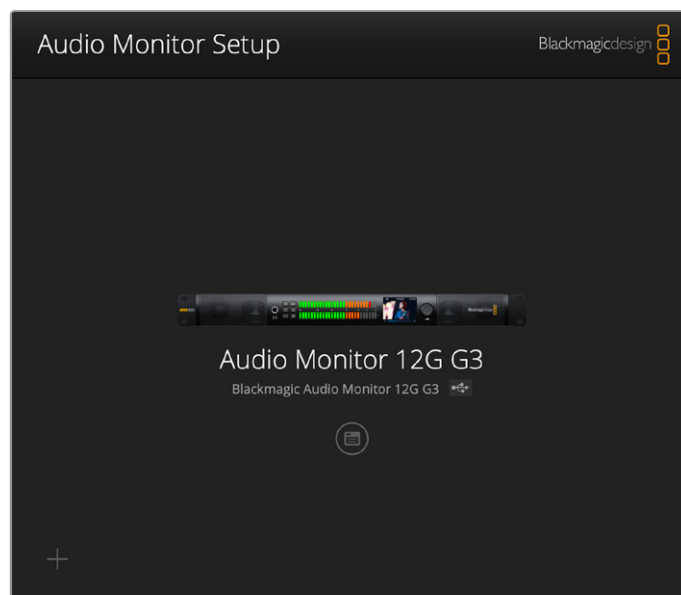
## Blackmagic Audio Monitor Setup

O utilitário Blackmagic Audio Monitor Setup é usado para definir o tipo de medidor de nível de áudio desejado e atualizar o software interno do seu Blackmagic Audio Monitor.

Quando o Blackmagic Audio Monitor original estiver conectado a um computador via USB, você pode alterar as configurações e atualizar o software interno usando o utilitário de configuração. No Blackmagic Audio Monitor 12G G3, você também pode atualizar a unidade e alterar configurações via USB ou Ethernet.

Para instalar o Audio Monitor Setup:

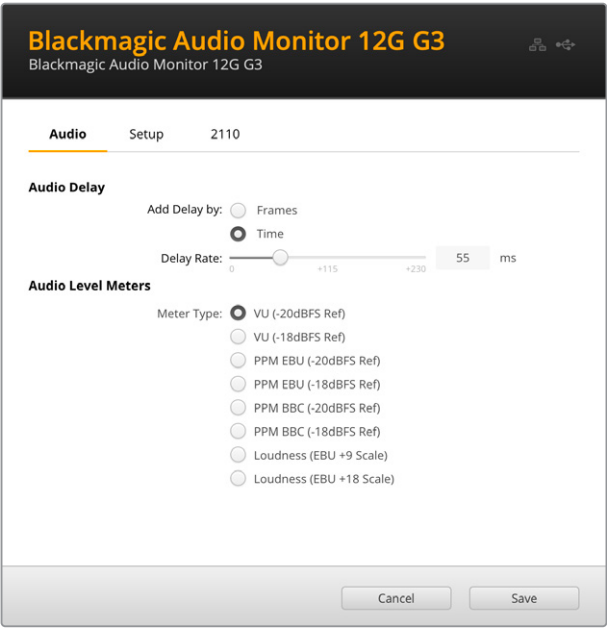
- 1 Acesse [www.blackmagicdesign.com/br/support](http://www.blackmagicdesign.com/br/support) em um navegador e baixe os drivers mais recentes do Blackmagic Audio Monitor.
- 2 Quando o arquivo terminar de baixar, clique duas vezes no ícone “Install Audio Monitor” para executar o instalador. Siga as instruções até o fim e pressione “Install” para instalar o software.
- 3 Após a instalação do software, navegue até a pasta “Blackmagic Audio Monitor” na pasta de aplicativos ou programas e clique duas vezes em “Audio Monitor Setup”.



Atualize o software interno do seu Blackmagic Audio Monitor e ajuste as configurações usando o utilitário Blackmagic Audio Monitor Setup.

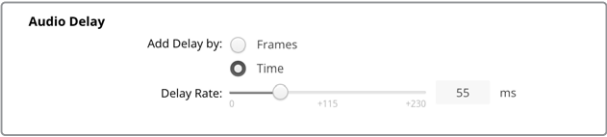
# Aba Audio

Clique na aba de áudio para abrir as configurações de atraso e nível de monitoramento de áudio.



## Audio Delay

Adicione um atraso de áudio às conexões de saída HDMI e loop SDI ajustando o controle deslizante. Você pode ajustar o atraso em quadros ou tempo em milissegundos.



## Aba Meter

Você pode selecionar entre tipos de medidores VU, PPM ou de loudness com escalas de medição EBU e BBC. Embora o medidor VU tenha se tornado o padrão, os medidores de PPM e loudness fornecem sistemas de medidas e escalas de audibilidade percebida. A tabela a seguir mostra os medidores de nível de áudio suportados e as combinações de escalas de medição.

| Tipo de Medidor | Tipo de Escala | Escala de Medida | Como Usar               |
|-----------------|----------------|------------------|-------------------------|
| VU              | —              | -45 a +3         | Impresso no dispositivo |
| PPM             | EBU            | -12 a +12        | Adesivo                 |
| PPM             | BBC            | 1 a 7            | Adesivo                 |
| Loudness        | EBU +9         | -18 a +9         | Adesivo                 |
| Loudness        | EBU +18        | -36 a +18        | Adesivo                 |
| Loudness        | Full Scale +9  | -41 a -14        | Adesivo                 |
| Loudness        | Full Scale +18 | -59 a -5         | Adesivo                 |

## VU

Este medidor indica a média de altos e baixos no seu sinal de áudio. Geralmente, é utilizado para monitorar os picos, no entanto, devido a sua capacidade de determinar os valores médios, também pode ser utilizado para monitorar a percepção da sonoridade.

## PPM

Este medidor com o recurso “retenção de pico” exibe e preserva os picos do sinal temporariamente, com uma queda lenta para que você possa identificar onde seu áudio está atingindo o nível máximo com facilidade.

## Loudness

Este medidor exibe a qualidade subjetiva da sonoridade do seu sinal de áudio. Os padrões broadcast atuais incluem medição de loudness a fim de obter níveis consistentes.

Os medidores VU e PPM incluem um nível de referência selecionável de -18 dB ou -20 dB, para que você possa monitorar o áudio de acordo com diferentes padrões de transmissão internacionais.

Os LEDs do Blackmagic Audio Monitor se iluminam de maneira diferente dependendo do tipo de medidor selecionado. Rótulos adesivos com escalas de referência precisas em dB são fornecidas com seu Blackmagic Audio Monitor para ajudar a identificar onde o seu áudio está atingindo níveis máximos com facilidade. Para aplicar os rótulos, coloque o adesivo desejado entre os medidores coloridos, cobrindo as marcações da escala VU presentes.

Dois rótulos são fornecidos para cada tipo de medidor de nível de áudio e escala de medição. Folhas de adesivos também estão disponíveis na assistência técnica Blackmagic Design da sua região.

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

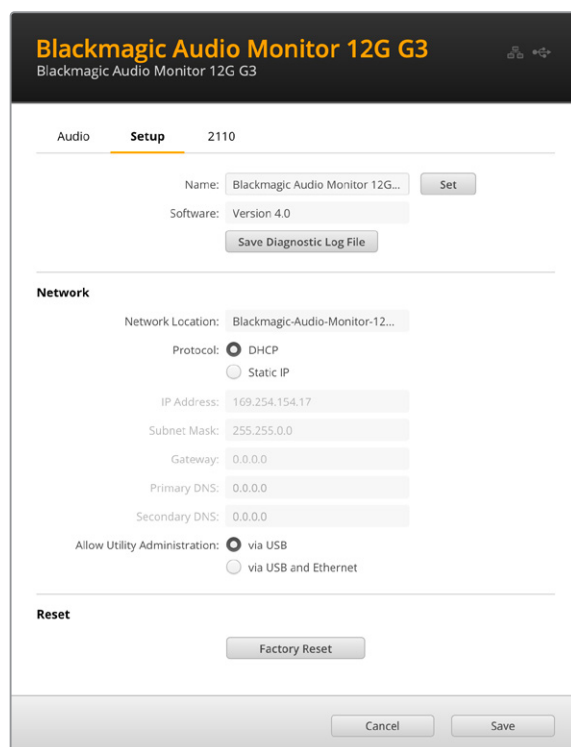
Os adesivos permitem identificar exatamente o ponto em que o áudio está atingindo o pico nos diferentes medidores.

## Aba Setup

A aba de configuração mostra o número da versão do software e contém as configurações de rede do seu Blackmagic Audio Monitor. Você também pode rotular sua unidade com um nome personalizado. Nomear a unidade ajuda a localizá-la rapidamente quando esta estiver conectada remotamente. A aba de configuração também contém as configurações de rede do monitor de áudio.

Para nomear seu Blackmagic Audio Monitor 12G:

- 1 Clique na aba “Setup”.
- 2 Clique na caixa de texto “Name” e digite um novo rótulo.
- 3 Clique em “Save” no canto inferior direito da tela do utilitário.



## Configurações de Rede

Acessar o Blackmagic Audio Monitor 12G pela rede é a maneira mais fácil de gerenciar várias unidades. Você pode fazer isso usando o Blackmagic Audio Monitor Setup. Por padrão, seu Blackmagic Audio Monitor 12G está configurado para DHCP, então ele adquirirá automaticamente um endereço de rede, facilitando a seleção imediata na tela inicial do utilitário de configuração.

Caso esteja com dificuldade de encontrar um Blackmagic Audio Monitor 12G na sua rede - ou o tenha configurado anteriormente para usar um endereço estático incompatível com a sua rede atual - talvez seja necessário alterar as configurações de rede a nível local. Isso pode ser feito via USB.

## Allow Utility Administration

O Blackmagic Audio Monitor Setup pode ser acessado quando seu monitor de áudio estiver conectado via rede ou USB. Para impedir que outros usuários obtenham acesso através da rede, selecione “via USB”.

## Reset

Selecione “Factory Reset” para restaurar seu Audio Monitor 12G às configurações de fábrica.

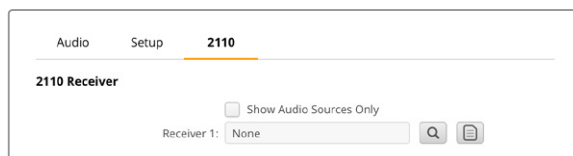
## Aba 2110

O Blackmagic Audio Monitor 12G G3 inclui uma aba para configurar fluxos IP SMPTE 2110 e as configurações para o grandmaster PTP.

### 2110 Receiver

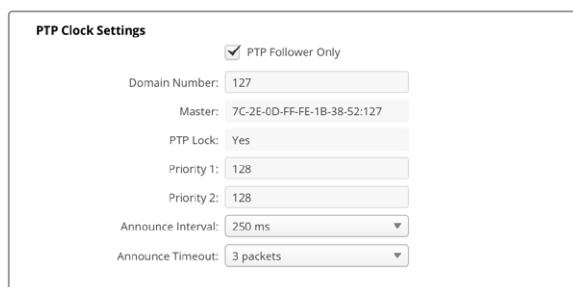
Se você estiver mapeando apenas fontes de áudio, marque a caixa de seleção para mostrar apenas fontes de áudio.

Para rotear o fluxo que você deseja receber, clique na lupa à direita do campo do receptor para abrir uma janela mostrando todas as fontes disponíveis listadas com o nó IP e o rótulo da fonte para os fluxos. Destaque um fluxo e clique no botão “Select”. A janela fechará e o rótulo do fluxo aparecerá no campo do receptor. Agora você verá a fonte de entrada no LCD do monitor de áudio.



### PTP Clock Settings

As configurações do PTP permitem ajustar as definições do grandmaster PTP.



Ao conectar o Blackmagic Audio Monitor 12G G3 a um switch de rede 10G com um grandmaster PTP, o monitor de áudio precisa ser configurado no modo “seguidor” para evitar um conflito de temporização. Se você conectou o monitor de áudio a outra unidade IP 2110, como um Blackmagic 2110 IP 3x3G Converter, configure uma delas para ser a seguidora marcando a caixa de seleção.

#### Domain Number

Digite o número do domínio para corresponder ao do grandmaster PTP. Geralmente é 127, mas pode ser alterado digitando um número de domínio diferente no campo.

#### Master

O campo de endereço do máster exibe o endereço MAC do grandmaster PTP, que pode ser um dispositivo grandmaster separado ou uma outra unidade IP 2110 da Blackmagic.

#### PTP Lock

O campo “PTP Lock” indicará quando o monitor de áudio estiver sincronizado com um relógio PTP via Ethernet.

#### Priority

As configurações de prioridade 1 e 2 permitem definir o grandmaster PTP preferido quando houver mais de um grandmaster PTP na rede. Quanto menor o número, maior a prioridade.

#### Announce Interval and Timeout

Os campos “Announce Interval” e “Announce Timeout” precisam corresponder às especificações do grandmaster PTP, que transmite mensagens de sincronização geralmente a cada dois segundos ou 2000 ms. Para alterar a frequência da mensagem, use o menu para selecionar um tempo diferente. As faixas disponíveis para intervalo de anúncio e limite de tempo de anúncio dependerão do seu grandmaster PTP.

## Atualizar Software Interno

- 1 Conecte o Blackmagic Audio Monitor ao seu computador via USB ou Ethernet.
- 2 Abra o Blackmagic Audio Monitor Setup.
- 3 Clique no ícone de configuração e o utilitário informará caso uma atualização seja necessária.
- 4 Caso exista uma atualização disponível, clique no botão “Update” e permita que a instalação do software seja concluída.



Clique no botão “Update” para aplicar a atualização do software interno.



Uma barra de progresso indicará o status da atualização.

- 5 Clique no botão “Close” quando a atualização estiver concluída.

# Developer Information

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

### Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

### Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵
Meter Mode: Loudness (EBU +18 scale)↵
↵
```

The response will be

```
ACK:
AUDIO METER:
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵
↵
```

The response will be

```
ACK:
AUDIO INPUT:
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:
Gain: Speaker Stereo 0
Gain: Headphone Stereo 0
Mute: false
Solo: Off
Audio delay in ms: 0
Audio delay in frames: 0
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵
Gain: Speaker Stereo 125↵
Solo: Right↵
↵
```

The response will be

```
ACK:
AUDIO OUTPUT:
Gain: Speaker Stereo 125
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵
AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# Ajuda

## Obter Ajuda

A maneira mais rápida de obter ajuda é visitando as páginas de suporte online da Blackmagic Design e consultando os materiais de suporte mais recentes disponíveis para o seu Blackmagic Audio Monitor.

### Páginas de Suporte Online da Blackmagic Design

O manual, o software e as notas de suporte mais recentes podem ser encontrados na Central de Suporte Técnico da Blackmagic Design [www.blackmagicdesign.com/br/support](http://www.blackmagicdesign.com/br/support).

### Fórum Blackmagic Design

O fórum da Blackmagic Design no nosso site é um recurso útil que você pode acessar para mais informações e ideias criativas. Também pode ser uma maneira mais rápida de obter ajuda, pois já podem existir respostas de outros usuários experientes e da equipe da Blackmagic Design, o que o ajudará a seguir em frente. Você pode visitar o fórum em <https://forum.blackmagicdesign.com>

### Contatar o Suporte Blackmagic Design

Caso não encontre a ajuda que precisa no nosso material de suporte ou no fórum, por favor, use o botão “Enviar email” na página de suporte para nos encaminhar uma solicitação de suporte. Ou, clique no botão “Encontre sua equipe de suporte local” na página de suporte e ligue para a assistência técnica da Blackmagic Design mais próxima.

### Verificar a Versão de Software Atualmente Instalada

Para verificar a versão do software Blackmagic Audio Monitor Setup instalada no seu computador, abra a janela “About Blackmagic Audio Monitor Setup”.

- No macOS, abra o Blackmagic Audio Monitor Setup na pasta “Aplicativos”. Selecione “About Blackmagic Audio Monitor” no menu do aplicativo para revelar o número da versão.
- No Windows 10, abra o Blackmagic Audio Monitor Setup do ladrilho Blackmagic Audio Monitor Setup na sua página Iniciar. Clique no menu de ajuda e selecione “Sobre Blackmagic Audio Monitor Setup” para revelar o número da versão.

### Como Obter as Atualizações de Software Mais Recentes

Depois que verificar a versão do software Blackmagic Audio Monitor Setup instalada no seu computador, por favor, visite a Central de Suporte Técnico da Blackmagic Design em [www.blackmagicdesign.com/br/support](http://www.blackmagicdesign.com/br/support) para conferir as últimas atualizações. Embora seja uma boa ideia instalar as últimas atualizações, é recomendável evitar atualizar qualquer software caso esteja no meio de um projeto importante.

# Informações Regulatórias

## Descarte de Resíduos de Equipamentos Elétricos e Eletrônicos na União Europeia



O símbolo no produto indica que este equipamento não pode ser eliminado com outros materiais residuais. Para eliminar seus resíduos de equipamento, eles devem ser entregues a um ponto de coleta designado para reciclagem. A coleta separada e a reciclagem dos seus resíduos de equipamento no momento da eliminação ajudarão a preservar os recursos naturais e a garantir que sejam reciclados de uma maneira que proteja a saúde humana e o meio ambiente. Para mais informações sobre onde você pode entregar os resíduos do seu equipamento para reciclagem, por favor entre em contato com a agência de reciclagem local da sua cidade ou o revendedor do produto adquirido.



Este equipamento foi testado e respeita os limites para um dispositivo digital Classe A, conforme a Parte 15 das normas da FCC. Esses limites foram criados para fornecer proteção razoável contra interferências nocivas quando o equipamento é operado em um ambiente comercial. Este equipamento gera, usa e pode irradiar energia de radiofrequência e, se não for instalado ou usado de acordo com as instruções, poderá causar interferências nocivas nas comunicações via rádio. A operação deste produto em uma área residencial pode causar interferência nociva, nesse caso o usuário será solicitado a corrigir a interferência às suas próprias custas.

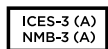
A operação está sujeita às duas condições a seguir:

- 1 Este dispositivo não poderá causar interferência nociva.
- 2 Este dispositivo deve aceitar qualquer interferência recebida, incluindo interferência que possa causar uma operação indesejada.



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

## Norma Canadense ISED



Este dispositivo cumpre com as exigências canadenses para aparelhos digitais de classe A.

Quaisquer modificações ou utilização deste produto fora dos limites previstos poderão anular a conformidade com estas normas.

A conexão com interfaces HDMI deve ser feita com cabos HDMI protegidos.

Este equipamento foi testado para fins de cumprimento com a sua utilização pretendida em um ambiente comercial. Se o equipamento for usado em um ambiente doméstico, poderá causar interferência radioelétrica.

# Informações de Segurança

Para proteção contra choque elétrico, o equipamento deve estar conectado à uma tomada com conexão de aterramento de proteção. Em caso de dúvida, consulte um eletricista qualificado.

Para reduzir o risco de choque elétrico, não exponha este equipamento a pingos ou respingos.

O produto é adequado para uso em locais tropicais com temperatura ambiente de até 40°C.

Certifique-se de que ventilação adequada seja fornecida ao redor do produto e não esteja restringida.

Ao montar o produto em rack, certifique-se de que a ventilação não esteja restringida por equipamentos adjacentes.

Não há componentes internos reparáveis pelo operador. Solicite o serviço de manutenção à assistência técnica local da Blackmagic Design.



Utilize apenas em altitudes inferiores a 2000 m acima do nível do mar.

## **Declaração do Estado da Califórnia**

Este produto pode expô-lo a produtos químicos, tais como vestígios de bifenilos polibromados dentro de peças de plástico, considerados pelo estado da Califórnia como causadores de câncer e defeitos congênitos ou outros danos reprodutivos.

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# Blackmagic Audio Monitor 12G



Blackmagic Audio Monitor 12G  
Blackmagic Audio Monitor 12G G3



## Hoş Geldiniz

Blackmagic Audio Monitor'u satın aldığınız için teşekkür ederiz.

Herkesin en yüksek kalitedeki video ekipmanına erişim sağlamasını mümkün kılarak, televizyon endüstrisinin tam anlamıyla yaratıcı bir endüstri olmasına ilişkin hayalimizi paylaştığınızı umuyoruz.

İster yayın ister post prodüksiyon ister canlı yapım olsun, ses denetleme her türlü video prodüksiyon iş akışı için çok önemlidir. Blackmagic Audio Monitor, profesyonel ses monitörlerinin tüm özelliklerini kompakt, raf montajlı bir tasarımda sunar. Yüksek kalite ses denetleme için neredeyse her tür ses ekipmanına bağlayabilirsiniz. Piyasaya ilk sürdüğümüz Blackmagic Audio Monitor, saniyede 30 kareye kadar Ultra HD video sinyali bağlanması için 6G-SDI'yi destekler. Blackmagic Audio Monitor 12G, saniyede 60 kareye kadar Ultra HD video sinyalinin yanı sıra A ve B seviye 3G-SDI video sinyali girişlerini bağlamak için 12G-SDI'yi destekler. Bunlara ilaveten Blackmagic Audio Monitor 12G G3, 10G Ethernet kullanarak SMPTE 2110 IP video aracılığıyla 12G-SDI'ya kadar destekler.

Bu kurulum ve kullanım kılavuzu Blackmagic Audio Monitor'u kullanmaya başlamanız için ihtiyacınız olan tüm bilgileri içerir.

Lütfen internet sitemizdeki destek bilgilerini içeren sayfamıza [www.blackmagicdesign.com/tr](http://www.blackmagicdesign.com/tr) adresinden girerek, bu kullanım kılavuzunun en güncel versiyonuna ve Blackmagic Audio Monitor'un dahili yazılımı için güncellemelere erişim sağlayın. Dahili yazılımınızı güncel tutarak en son özelliklerden yararlandığınızdan emin olabilirsiniz. Yeni yazılımlar piyasaya sürüldüğünde size duyurabilmemiz için, bilgisayarınıza yazılım indirirken bilgilerinizi sitemize kaydetmenizi rica ediyoruz. Sürekli yeni özellikler ve geliştirmeler için çaba içinde olduğumuzdan, yorumlarınızı almaktan mutluluk duyarız.

**Grant Petty**

CEO Blackmagic Design

# İçindekiler

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# Başlarken

## Blackmagic Audio Monitor ile tanışın

Blackmagic Audio Monitor ve Blackmagic Audio Monitor 12G canlı, post prodüksiyon ve yayın ortamlarında, çeşitli video ve ses kaynaklarıyla kullanılabilen bir rack boyutunda gerçek zamanlı ses denetleme çözümleridir.

Blackmagic Audio Monitor, çıkışlarda doğru ses seviyelerinin sağlanması için, SD/HD/3G/6G-SDI, dijital AES/EBU ve analog ses ekipmanlarına bağlanır. 12G modeli 12G-SDI'yi desteklediğinden, saniyede 60 kareye kadar olan Ultra HD video kaynaklarına bağlayabilirsiniz. Sol ve sağ kanal LED seviye göstergeleri, sesin nerede pik yaptığını gösterir ve dahili LCD ekran da SDI video girişinizi göstermekle birlikte; giriş bağlantı türü, video formatı, kare hızı, ses kanalları ve ses seviyesi gibi önemli bilgileri gösterir.

16 adede kadar gömülü SDI ses içeren kanalı denetleyebilir ya da dengeli analog ve AES/EBU dijital ses için XLR konektörlerini kullanabilirsiniz. Ayrıca, HiFi sistemleri veya iPod gibi tüketici ekipmanlarını takabilmeniz için, RCA konektörleri de mevcuttur.

Blackmagic Audio Monitor'unuz, iki adet dahili, yüksek kaliteli geniş frekans aralıklı hoparlör ve oldukça net ve derin ses üretimi için, geniş çeşitte frekans aralıkları sunan iki subwoofer içerir. Gürültülü ortamlarda ideal olan, güvenli ses denetleme için bir kulaklık da takabilirsiniz.



Blackmagic Audio Monitor 12G'nin ön paneli



Blackmagic Audio Monitor 12G'nin arka paneli

Blackmagic Audio Monitor 12G G3 modelleri, sıkıştırılmış 12G-SDI dahil olmak üzere yerel 2110 sinyali akışlarının alışı da destekler.



Blackmagic Audio Monitor 12G G3'nin ön paneli



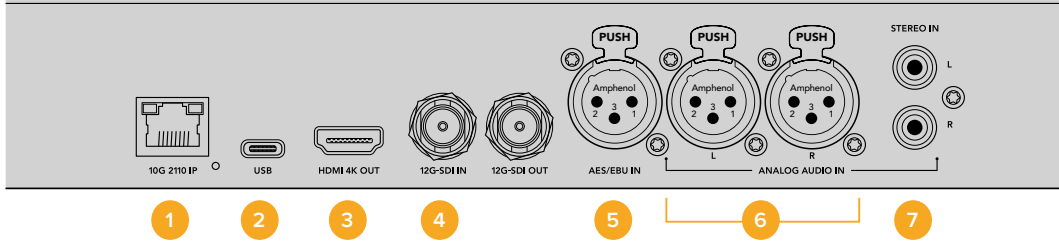
Blackmagic Audio Monitor 12G G3'nin arka paneli

## Ses Kaynaklarının Bağlanması

Blackmagic Audio Monitor neredeyse her türlü ses donanımını destekler. SDI sinyallerini; SD, HD, 2K ve hatta Ultra HD olarak bağlamak istiyorsanız, standart bir BNC konektör kullanarak SDI girişi ile takabilirsiniz. 12G modeli level A ve B 3G-SDI video sinyal girişlerini destekler.

Disk kaydediciler ve dijital ses konsolları da dahil olmak üzere, dijital AES/EBU ses ekipmanlarından veya ses mikserleri ya da Betacam SP deck'leri gibi analog ekipmanlardan, dijital sesi denetlemek istediğinizde XLR konektörlerini kullanabilirsiniz. VCR ve DVD oynatıcıları gibi tüketici ekipmanlarından gelen analog ses kaynakları, standart RCA konektörleri ile bağlanabilirler.

Aynı zamanda, başkalarını rahatsız etmeden ses kaynağınızı dinleyebilmemiz için kulaklıklarınızı 1/4" TRS kulaklık jak aracılığıyla bağlayabilirsiniz.



1. 10G Ethernet 2. USB-C 3. HDMI 4K Çıkışı  
4. 12G-SDI girişi ve 12G-SDI çıkışı 5. AES/EBU ses için XLR GİRİŞİ  
6. Analog ses için XLR GİRİŞİ 7. Tüketici tarzı ses bağlantıları için stereo RCA girişi

## Ses Kaynağının Seçilmesi

Ses ekipmanınızı Blackmagic Audio Monitor'a taktıktan sonra yapmanız gereken tek şey, kontrol panelindeki INPUT (GİRİŞ) düğmesine basarak bağlantıyı seçmek olacaktır. Giriş seçildiğinde ve ses mevcut olduğunda, ses seviye göstergesi LED'lerinin yandığını göreceksiniz. Ses seviye göstergesi 2 sıra halinde renkli LED'lerden oluşmaktadır ve ses girişinizin çalışıp çalışmadığını kolayca anlayabilmemiz için parlak bir şekilde aydınlatılmıştır.

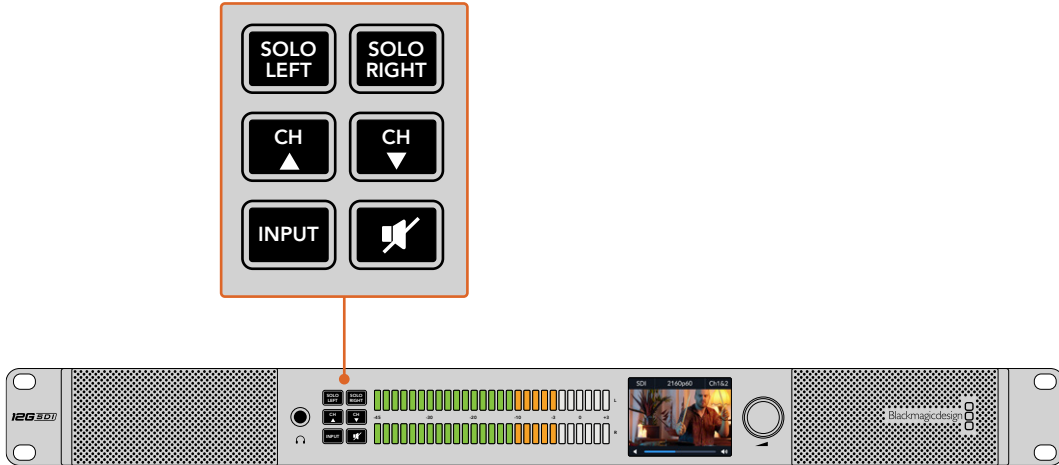
INPUT düğmesi, ses bağlantılarınız arasında gezinmenize imkan verir ve bunları renkli LCD üzerinde; giriş türü, ses kanalları ve ses seviyesi gibi bilgilerle birlikte görebilirsiniz. Sesi, Blackmagic Audio Monitor ile denetlemek için yapmanız gerekenler bu kadar.

## Video Çıkışlarının Bağlanması

Ses denetlemenin yanı sıra videonun da denetlenmesine ihtiyacınız olduğunda, Blackmagic Audio Monitor'un video çıkışları, video ile sesin bir büyük ekranda denetlenmesine veya daha çok sayıda video ekipmanın bağlanmasına imkan verir.

HDMI çıkışı ile SDI loop çıkışı, videonun ve gömülü sesin denetlenmesi için kullanılabilir. SD, HD ve 2K'ya bağlanabilir ve hatta DeckLink 4K Extreme gibi Ultra HD görüntü yakalama kartlarına tek bir SDI kablo ile bağlanabilirsiniz. Gömülü ses içeren video kaynaklarını, SD/HD-SDI üzerinden HyperDeck Studio gibi kaydedici deck'lere ya da HDMI aracılığıyla en son Ultra HD ekranlara veya projektörlere bağlayabilirsiniz.

Blackmagic Audio Monitor 12G G3 ayrıca, ST2110 sinyallerini HDMI ve 12G-SDI'ya dönüştürebilir, çünkü her iki sinyal de ön panelde seçili giriş butonuna bağlı olarak SDI veya 2110 sinyallerini takip eder.



Seçenek düğmeleri, denetlemek istediğiniz girişleri seçmenize, sol ve sağ stereo kanallarını izole etmenize, mevcut ses kanalları arasında yukarı veya aşağı gezinmenize ve hoparlörler ile kulaklıkların sesini kapatmanıza imkan tanır.

# Blackmagic Audio Monitor'un Kullanılması

Blackmagic Audio Monitor'un kontrol paneli önemli işlevlere ve durum bilgilerine hızlı erişim sağlar.

## LCD

Renkli, dahili LCD ekran; seçilmiş olan girişler, SDI'nın bağlı olduğu durumlarda video formatı, seçilmiş olan kanallar ve hoparlörleriniz veya kulaklıklarınız için ses seviyesi gibi önemli bilgileri görüntüleyen bir yazı katmanı içerir. LCD ekran ayrıca, gelen tüm SDI video sinyallerini de görüntüler. Bir SDI video sinyali tespit edilmediğinde, bir müzik ikonu belirecektir.

Seçilmiş olan her bir giriş için aşağıdaki bilgiler görüntülenir:

### SDI Girişi

SDI, video formatı, seçilmiş olan ses kanalları.



Renkli LCD ekran; bağlantı türü, video formatı, seçilmiş olan ses kanalları ve ses seviyesi gibi ses ve video ile ilgili bilgileri görüntüler.



Bir SDI veya SMPTE 2110 sinyali denetlenmediği zaman, LCD'de bir nota işareti görüntülenir

### 10G Ethernet 2110 Girişi

SMPTE-2110-30 ses desteği dahil olmak üzere SMPTE-2110 IP video.

### Dengeli AES/EBU XLR girişi

AES/EBU, seçilmiş olan ses kanalları.

### Dengeli XLR analog girişler

Analog, seçilmiş ses kanalları

### Dengesiz RCA analog girişler

HiFi, seçilmiş ses kanalları

## Ses Seviyesi Göstergeleri

Blackmagic Audio Monitor'un seviye göstergeleri, ses seviyelerinizin gücünü gösteren yeşil, turuncu ve kırmızı renklerde olan iki sıra LED'den oluşur. LED'lerin tümünün yanık olduğu bir durumda bu, ses seviyelerinizin çok yüksek olduğuna ve kırıldığına dair bir işarettir.

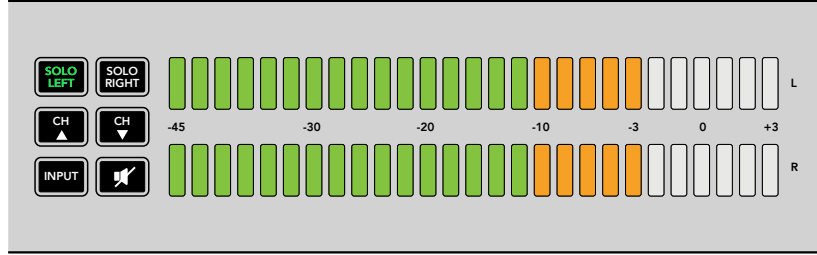
Ses seviye göstergelerinin davranışı, Audio Monitor Setup yardımcı yazılımında belirlediğiniz gösterge türü ayarına göre farklılıklar gösterecektir. VU ölçüm türünü kullandığınızda, ses ekipmanınızdaki çıkış seviyelerini, seviyenin kontrol panelindeki 0dB göstergesinde pik yapacak şekilde ayarlayın. Bu, sinyal gürültü oranını (signal to noise ratio) en iyi seviyeye getirmenizi ve ses kalitesinin en yüksek kalitede olmasını sağlar. Ses kalitesinin 0dB göstergesinin üzerinde pik yapması halinde, ses bozulması için ciddi bir risk vardır.

Blackmagic Audio Monitor Setup'ın yüklenmesi ve seviye gösterge türlerinin ayarlanması hakkında bilgi için, 'Audio Monitor Kurulumu' bölümüne bakınız.

## Kontrol Paneli Butonları

### Solo Left ve Solo Right Butonları

Bu butonlar, sol ve ses kanalları tek başına duymanızı sağlar. Böylece, kanalların herhangi birindeki olası ses sorunlarını bağımsız olarak kontrol edebilirsiniz.



"Solo Left" etiketli buton seçildiğinde, sağ ses kanalı devre dışı kalır. Ses seviyesi göstergesi, her iki kanal için seviyeyi göstermeye devam eder

Sol ses kanalının denetlenmesi için:

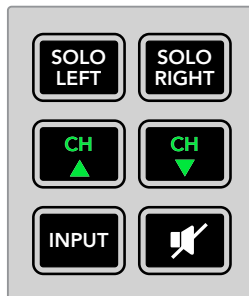
- 1 "Solo Left" butonuna basın. Buton yeşil renkte yanar ve yalnızca sol hoparlörden ses duyulur.
- 2 Sesi stereo duymaya geri dönmek için "solo left" etiketli butona tekrar basın.

Sağ kanaldaki sesi dinlemek için bunun yerine "solo right" etiketli butona basarak bu adımları tekrarlayın.

### Üstteki Kanal (Channel Up) ve Altteki Kanal (Channel Down)

Bu düğmeler, SDI bağlantınızdaki gömülü ses kanalları arasında gezinmenizi mümkün kılar. 3G-SDI için, bu; 16 adede kadar kanalı veya 8 adede kadar çift kanalı kapsar. Gömülü SDI ses kanalları arasında yukarı veya aşağı hareket etmek için, 'üstteki' (up) kanal veya 'alttaki' (down) kanal düğmelerine basın.

Blackmagic Audio Monitor 12G, 64 adede kadar ses kanalını veya 32 adede kadar çift kanalı kapsayan, 12G-SDI'yi destekler. Bunlar arasında hızlı bir şekilde gezinmek için, yukarı veya aşağı ok düğmelerini basılı tutun.

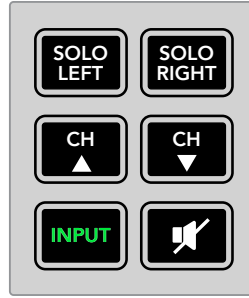


## Giriş

INPUT etiketli giriş butonuna tekrar tekrar basmak; SDI, AES/EBU, SMPTE 2110, analog ve HiFi arasında girişleri değiştirir, böylelikle dinlemek istediğiniz video ve ses ekipmanını seçebilirsiniz.

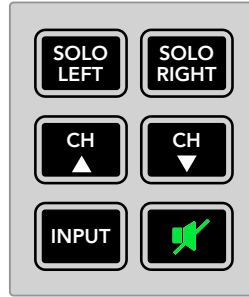
Seçili ses girişini dahili hoparlörler ile dinleyebilmenin yanı sıra, HDMI çıkışının 1. ve 2. kanallarındaki sesi denetleyebilirsiniz.

**NOT** HDMI çıkışı; analog, AES/EBU veya HiFi girişleri seçili olduğunda siyah video görüntüler. SDI Loop çıkışı, daima SDI girişine bağlı olan videonun ve sesin çıkışını sağlar.



## MUTE (Sessize Al) Butonu

Bu buton, Blackmagic Audio Monitor'un kontrol paneli hoparlörlerini ve kulaklıkları sessize alır. Sesin kapatılması ses girişinizi etkilemez ve yalnızca hoparlörler ile kulaklık çıkışlarını etkiler. MUTE butonuna tekrar basıldığında, kontrol panelinin hoparlörlerine veya kulaklıklara ses tekrardan gelir. Ses seviyesinin artırılması da sesin açılmasını sağlar.



## Ses Seviyesi

Bu düğme, hoparlör ve kulaklık ses seviyelerinin bağımsız olarak ayarlanmasına yarar. Ses seviyesi dahili LCD ekranda görüntülenir. Kulaklıklar bağlı olduğunda, Blackmagic Audio Monitor'un hoparlörlerinin sesi kapanır ve ses çıkışı, kulaklık aracılığıyla sağlanır. Ses seviyesi, döndürmeli ses düğmesinin saat yönüne ya da saat yönünün aksine çevrilmesiyle kolaylıkla yükseltilebilir ve düşürülebilir.



Ses seviyesi kontrol panelinin LCD ekranında görüntülenir.

# Audio Monitor Kurulumu

## Blackmagic Audio Monitor Setup Yardımcı Yazılımı

Blackmagic Audio Monitor Setup yardımcı yazılımı, istediğiniz ses seviyesi göstergesi türünü ayarlamak ve Blackmagic Audio Monitor cihazınızdaki dahili yazılımı güncellemek için kullanılır.

Blackmagic Audio Monitor ilk modeli USB aracılığıyla bir bilgisayara bağlandığında, kurulum yardımcı yazılımını kullanarak yapılandırma ayarlarını değiştirebilir ve dahili yazılımı güncelleyebilirsiniz. Blackmagic Audio Monitor 12G G3 modelde, USB veya Ethernet üzerinden de cihaz yazılımını güncelleyebilir ve ayarları değiştirebilirsiniz.

Audio Monitor Setup yazılımını yüklemek için:

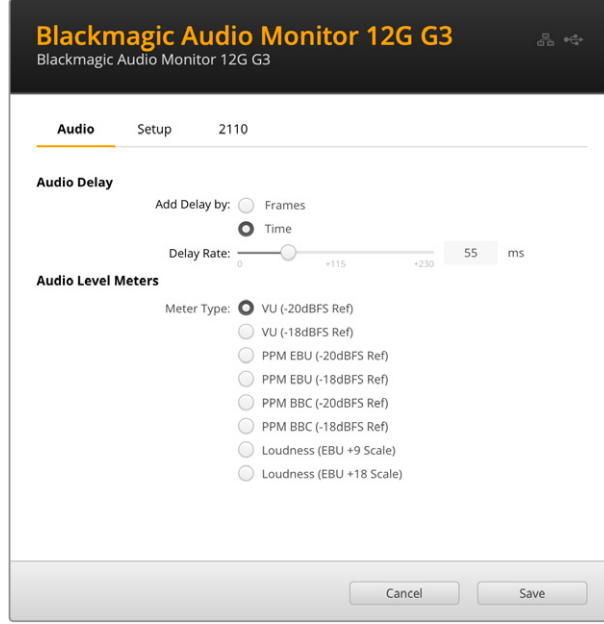
- 1 Bir internet tarayıcısı kullanarak [www.blackmagicdesign.com/tr/support](http://www.blackmagicdesign.com/tr/support) adresine gidin ve en yeni Blackmagic Audio Monitor sürücülerini indirin.
- 2 Dosyanın indirilmesi bittiğinde, program yükleyiciyi çalıştırmak için "Install Audio Monitor" simgesini çift tıklayın. Komutları sonuna kadar takip edin ve yazılımı yüklemek için "yükle" butonuna basın.
- 3 Yazılım yüklendikten sonra, uygulamalar veya programlar klasöründeki "Blackmagic Audio Monitor" klasörüne gidin ve "Audio Monitor Setup" ibaresini çift tıklayın.



Blackmagic Audio Monitor'unuzun dahili yazılımını güncellemek ve yapılandırma ayarlarını değiştirmek için, Blackmagic Audio Monitor Setup yardımcı yazılımını kullanın.

## Audio Sekmesi

Ses gecikmesi ve seviye gösterge ayarlarını görüntülemek için “Audio” yani ses sekmesini tıklayın.



### Ses Gecikmesi (Audio Delay)

Bu sürgüyü ayarlayarak HDMI ve SDI düz geçiş çıkışı bağlantılarına bir ses gecikmesi ekleyin. Gecikmeyi kare veya zaman olarak milisaniye cinsinden ayarlayabilirsiniz.



### Ses Seviyesi Göstergeleri (Audio Level Meters)

EBU ve BBC ölçülerine sahip VU, PPM veya ses yüksekliği gösterge türlerinden birini seçebilirsiniz. VU göstergesi, her ne kadar standart olsa da PPM ve ses yüksekliği göstergeleri algılanan ses yüksekliği için ölçeklendirme sistemleri ve ölçüler sunar. Aşağıdaki tabloda desteklenen ses seviyesi göstergeleri ve ölçüm derecesi kombinasyonları gösterilmektedir.

| Gösterge Türü | Ölçek Türü    | Ölçüm Ölçeği   | Kullanımı                   |
|---------------|---------------|----------------|-----------------------------|
| VU            | –             | -45'ten +3'e   | Birimin üzerinde basılıdır. |
| PPM           | EBU           | -12'den +12'ye | Yapıştırılmalı etiket       |
| PPM           | BBC           | 1'den 7'ye     | Yapıştırılmalı etiket       |
| Ses Seviyesi  | EBU +9        | -18'den +9'a   | Yapıştırılmalı etiket       |
| Ses Seviyesi  | EBU +18       | -36'dan +18'e  | Yapıştırılmalı etiket       |
| Ses Seviyesi  | Tam Ölçek +9  | -41'den -14'e  | Yapıştırılmalı etiket       |
| Ses Seviyesi  | Tam Ölçek +18 | -59'dan -5'e   | Yapıştırılmalı etiket       |

## VU

Bu gösterge, ses sinyalinizdeki kısa iniş ve çıkışların ortalamasını alır. Genellikle sinyaldeki piklerin denetlenmesinde kullanılır fakat, ortalama alma özelliği sayesinde, sesin algınan yüksekliğinin denetlenmesinde de kullanılabilir.

## PPM

Bu gösterge, anlık olarak ses sinyallerinin en yüksek noktasını tutan ve yavaşça inmesini sağlayan, bir 'pik tutma' özelliğini görüntüler. Böylelikle, sesin nerede en yüksek noktaya ulaştığını kolaylıkla görebilirsiniz.

## Ses Seviyesi

Bu gösterge, ses sinyalinizdeki ses seviyesinin subjektif kalitesini görüntüler. Günümüz yayın standartları uyumlu ses seviyeleri için ses seviye ölçümleri de içerir.

VU ve PPM göstergeleri -18dB veya -20dB olarak seçilebilir bir referans seviyesi özelliğine sahiptir ve böylece farklı uluslararası yayın standartlarına uyacak şekilde sesi denetleyebilirsiniz.

Blackmagic Audio Monitor'un LED referans davranışı, seçilen her bir gösterge türü ile değişir. Sesin nerede en yüksek noktaya ulaştığını kolaylıkla belirleyebilmenize yardımcı olması amacıyla, tam doğru dB referans ölççeklerinin olduğu yapıştırmalı etiketler, Blackmagic Audio Monitor ile birlikte sağlanmıştır. Bu yapıştırmalı etiketleri yapıştırmak için, etiketi kağıdından ayırın ve istenilen ölçeği, renkli LED göstergeleri ile mevcut VU ölçek işaretleri arasına yapıştırın.

Her ses seviyesi gösterge türü ve ölçüm referansı için iki etiket sağlanmıştır. Etiket sayfaları, yerel Blackmagic Design destek ofisinizden de temin edilebilir.

|                                |     |     |     |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| EBU PPM                        |     |     |     |     |     |     |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| -12                            | -8  | -4  | 0   | +4  | +8  | +12 |     |     |     |
| BBC PPM                        |     |     |     |     |     |     |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| 1                              | 2   | 3   | 4   | 5   | 6   | 7   |     |     |     |
| Loudness Units EBU +9dB        |     |     |     |     |     |     |     |     |     |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| -18                            | -15 | -12 | -9  | -6  | -3  | 0   | +3  | +6  | +9  |
| Loudness Units Fullscale +9dB  |     |     |     |     |     |     |     |     |     |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| -41                            | -38 | -35 | -32 | -29 | -26 | -23 | -20 | -17 | -14 |
| Loudness Units EBU +18dB       |     |     |     |     |     |     |     |     |     |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| -36                            | -30 | -24 | -18 | -12 | -6  | 0   | +6  | +12 | +18 |
| Loudness Units Fullscale +18dB |     |     |     |     |     |     |     |     |     |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |
| -59                            | -53 | -47 | -41 | -35 | -29 | -23 | -17 | -11 | -5  |

Yapıştırmalı etiketler, her bir gösterge türü için sesin nerede pik yaptığını doğru olarak belirleyebilmeniz için size sağlanmıştır.

## Kurulum Sekmesi

“Setup” yani kurulum sekmesi, yazılımın sürüm numarasını listeler ve Blackmagic Audio Monitor için ağ ayarlarını içerir. Cihazınızı özel bir isimle de etiketleyebilirsiniz. Cihazınıza bir isim vermek, uzaktan bağlandığınızda hızlı bir şekilde onu bulmanıza yardımcı olur. Kurulum sekmesi ayrıca, ses monitörü için ağ ayarlarına da sahiptir.

Blackmagic Audio Monitor 12G'nize bir isim vermek için:

- 1 “Setup” yani kurulum sekmesini tıklayın.
- 2 “Name” etiketli isim için metin kutusunu tıklayın ve yeni bir isim girin.
- 3 Yardımcı program ekranının sağ alt köşesindeki “save” butonunu tıklayarak kaydedin.

The image shows the 'Setup' window of the Blackmagic Audio Monitor 12G G3. The window has a dark header with the product name and version. Below the header, there are tabs for 'Audio' and 'Setup', with 'Setup' being the active tab. The 'Setup' tab is divided into two sections: 'Name' and 'Network'. In the 'Name' section, there is a text field for 'Name' containing 'Blackmagic Audio Monitor 12G...', a 'Set' button, and a 'Software' field showing 'Version 4.0'. Below this is a 'Save Diagnostic Log File' button. The 'Network' section has a 'Network Location' field with 'Blackmagic-Audio-Monitor-12...', a 'Protocol' section with 'DHCP' selected (radio button) and 'Static IP' (radio button), and fields for 'IP Address' (169.254.154.17), 'Subnet Mask' (255.255.0.0), 'Gateway' (0.0.0.0), 'Primary DNS' (0.0.0.0), and 'Secondary DNS' (0.0.0.0). There is also an 'Allow Utility Administration' section with 'via USB' selected (radio button) and 'via USB and Ethernet' (radio button). At the bottom of the 'Network' section is a 'Factory Reset' button. The window has 'Cancel' and 'Save' buttons at the bottom right.

### Ağ Ayarları (Network)

Blackmagic Audio Monitor 12G cihazınıza bir ağ üzerinden erişmek, birden fazla cihaz yönetimi için en kolay yoldur. Bunu, Blackmagic Audio Monitor Setup yardımcı yazılımını kullanarak yapabilirsiniz. Fabrika ayarı olarak, Blackmagic Audio Monitor 12G cihazınız DHCP'ye yapılandırılmıştır, yani otomatik olarak bir ağ adresi alır ve kurulum yardımcı programı ana ekranından hemen seçilmesini kolaylaştırır.

Bir Blackmagic Audio Monitor 12G'yi ağ üzerinde bulmakta sorun yaşıyorsanız ya da daha önce mevcut ağınız ile uyumlu olmayan bir statik adresi kullanmaya ayarladıysanız; ağ ayarlarını yerel olarak değiştirmeniz gerekebilir. Bunu USB ile yapabilirsiniz.

### Allow Utility Administration (Yardımcı Yazılım Yönetimine İzin Ver)

Ses monitörünüz ağ üzerinden veya USB üzerinden bağlandığında, Blackmagic Audio Monitor Setup yardımcı yazılımına erişilebilir. Ağ üzerinden kullanıcı erişimini engellemek için “via USB” ibareli USB üzerinden seçeneğini tıklayın.

### Reset (Fabrika Ayarlarına Sıfırla)

Audio Monitor 12G cihazınızı, fabrika ayarlarına sıfırlamak için “factory reset” ibaresini seçin.

## 2110 Sekmesi

Blackmagic Audio Monitor 12G G3, PTP grandmaster ayarlarının yanı sıra SMPTE 2110 IP sinyal akışlarını yapılandırmak için bir sekmeye sahiptir.

### 2110 Receiver (Alıcı)

Yalnızca ses kaynaklarını yönlendiriyorsanız, sadece ses kaynaklarını görüntülemek için onay kutusunu işaretleyin.

Almak istediğiniz sinyal akışını yönlendirmek için alıcı alanının sağındaki büyüteci tıklayın. Bu, sinyal akışları için IP düğümü ve kaynak etiketi ile listelenmiş olarak tüm mevcut kaynakları gösteren bir pencere açar. Bir sinyal akışını vurgulayın ve “select” etiketli seçim butonunu tıklayın. Pencere kapanır ve sinyal akış etiketi, alıcı alanında görünür. Şimdi, gelen kaynağı ses monitörünün LCD ekranında görmemiz gerekir.

### PTP Saat Ayarları

PTP ayarları, PTP grandmaster için ayarları yapılandırmanızı sağlar.

Blackmagic Audio Monitor 12G G3'ü PTP grandmaster'i olan bir 10G ağ dağıtıcıya bağlarken, zamanlama çakışmasını önlemek için ses monitörünün sadece takipçi moduna ayarlanması gerekir. Ses monitörünü Blackmagic 2110 IP 3x3G Converter gibi başka bir 2110 IP cihazına bağladıysanız onay kutusunu işaretleyerek bunlardan birini takipçi olarak ayarlayın

### Alan Numarası

PTP grandmaster ile eşleşen bir alan (domain) numarası girin. Bu, genellikle 127'dir ama bu alana farklı bir alan numarası girilerek değiştirilebilir.

### Master (Ana Adres)

“Master” olarak etiketli ana adres alanı, PTP grandmaster'in Mac adresini gösterir. Bu ya ayrı bir grandmaster cihazı ya da Blackmagic 2110 IP cihazıdır.

### PTP Lock (PTP Kilidi)

PTP Lock alanı, ses monitörünün Ethernet üzerinden bir PTP saatine kilitlendiğini bildirir.

### Priority (Öncelik)

Priority 1 ve 2 ayarları, ağda birden fazla PTP grandmaster varken, tercih edilen PTP grandmaster'i belirlemenize olanak tanır. Rakam küçüldükçe öncelik artar.

### Anons Aralığı ve Zaman Aşımı

“Announce interval” ve “timeout” alanlarının, genellikle her iki saniye ya da 2000 ms'de bir senkronizasyon mesajları gönderen PTP grandmaster'in özelliklerine uyması gerekir. Mesajın sıklığını değiştirmek için menüyü kullanarak farklı bir zaman seçin. Anons aralığı ve anons zaman aşımı için geçerli aralıklar, PTP grandmaster'e bağlıdır.

## Dahili Yazılımın Güncellenmesi

- 1 Blackmagic Audio Monitor cihazınızı bir USB ya da Ethernet aracılığıyla bilgisayarınıza bağlayın.
- 2 Blackmagic Audio Monitor Setup'ı açın.
- 3 Configuration (yapılandırma) ikonunu tıkladığınızda yardımcı yazılım, bir güncellemeye gereksinim olup olmadığını gösterir.
- 4 Bir güncelleme gerekli olduğunda, 'update' düğmesini tıklayın ve yazılım yükleme işleminin tamamlanmasını bekleyin.



Dahili yazılım güncellemesini uygulamak için, Update (Güncelle) düğmesini tıklayın.



Bir ilerleme çubuğu güncelleme sürecinizin durumunu görüntüler.

- 5 Güncelleme işlemi tamamlandıktan sonra 'close' (kapat) düğmesini tıklayın.

# Yazılım Geliştiriciler için Bilgiler

## Blackmagic Audio Monitor 12G Ethernet Protocol v1.4

The Blackmagic Audio Monitor 12G Ethernet Protocol is a text based protocol that gives you the freedom to build your own custom control solutions for your Blackmagic Audio Monitor 12G. For example, you can create your own software application or web interface to control your Blackmagic Audio Monitor 12G via Ethernet from your computer.

The first step is to connect your Blackmagic Audio Monitor 12G to your computer via Ethernet. You can do this by connecting to the same network your computer is connected to, or you can connect Blackmagic Audio Monitor 12G directly to your computer.

**NOTE** If Blackmagic Audio Monitor 12G is connected directly to your computer, set your computer to a manual static IP address. Set the first three blocks of numbers in the IP address to match your Blackmagic Audio Monitor 12G and set the subnet mask to 255.255.255.0. You can leave the gateway or router setting blank as it will not be used in a direct connection between your computer and Blackmagic Audio Monitor 12G.

If your network settings are set correctly, you can now open the Terminal application on Mac, or enable Telnet command line utilities on Windows and enter Blackmagic Audio Monitor 12G Ethernet Protocol commands. These commands can be programmed into your application and triggered by related items on a custom user interface of your own design.

On a Mac:

- 1 Open the Terminal application which is located with the applications > utilities folder.
- 2 Type in “nc” and a space followed by the IP address of your Audio Monitor 12G another space and “9996” which is the Audio Monitor Ethernet Protocol port number. For example type: nc 192.168.1.154 9996. The Protocol preamble will appear.

The Blackmagic Audio Monitor 12G sends information in blocks which each have an identifying header in all-caps, followed by a full-colon. A block spans multiple lines and is terminated by a blank line.

Each line in the protocol is terminated by a new line character.

Upon connection, the Blackmagic Audio Monitor 12G sends a complete dump of the state of the device. After the initial status dump, status updates are sent every time the Blackmagic Audio Monitor 12G status changes.

To be resilient to future protocol changes, clients should ignore blocks they do not recognize, up to the trailing blank line. Within existing blocks, clients should ignore lines they do not recognize.

### Legend

↵ line feed or carriage return  
... and so on

Version 1.0 of the Blackmagic Audio Monitor 12G Ethernet Protocol was released with Blackmagic Audio Monitor 12G 3.0 software.

## Protocol Preamble

The first block sent by the Blackmagic Audio Monitor 12G is always the protocol preamble:

```
PROTOCOL PREAMBLE:
Version: 1.4
```

The version field indicates the protocol version. When the protocol is changed in a compatible way, the minor version number will be updated. If incompatible changes are made, the major version number will be updated.

## Device Information

The next block contains general information about the connected Blackmagic Audio Monitor 12G device. If a device is connected, the Blackmagic Audio Monitor 12G will report the attributes of the Blackmagic Audio Monitor 12G:

```
AUDIOMONITOR DEVICE:↵
Model: Blackmagic Audio Monitor 12G
Label: Blackmagic Audio Monitor 12G
Unique ID: <label>
```

Only the label can be modified.

```
AUDIOMONITOR DEVICE:↵
Label: My new name↵
↵
```

The response will be

```
ACK:
AUDIOMONITOR DEVICE:
Label: My new name
```

The next block will show the network settings which can only be changed via the Blackmagic Audio Monitor Setup utility when connected over USB. This is for information only.

```
NETWORK:
Dynamic IP: 1
Static address: 0.0.0.0
Static subnet: 0.0.0.0
Static gateway: 0.0.0.0
Current address: 0.0.0.0
Current subnet: 0.0.0.0
Current gateway: 0.0.0.0
```

The next block is the meter type.

```
AUDIO METER:
Meter Mode: VU (-20dBFS Ref)
```

This can be changed to VU (-20dBFS Ref), VU (-18dBFS Ref), PPM EBU (-20dBFS Ref), PPM EBU (-18dBFS Ref), PPM BBC (-20dBFS Ref), PPM BBC (-18dBFS Ref), Loudness (EBU +9 scale) or Loudness (EBU +18 scale)

```
AUDIO METER:↵  
Meter Mode: Loudness (EBU +18 scale)↵  
↵
```

The response will be

```
ACK:  
AUDIO METER:  
Meter Mode: Loudness (EBU +18 scale)
```

The next block is the input type.

```
AUDIO INPUT:  
Routing: Speaker Stereo SDI Stereo 1-2
```

This can be changed to SDI Stereo 3-4, SDI Stereo 5-6, SDI Stereo 7-8, SDI Stereo 9-10, SDI Stereo 11-12, SDI Stereo 13-14, SDI Stereo 15-16, XLR AES/EBU Stereo 1-2, XLR Analog Stereo or RCA Stereo

```
AUDIO INPUT:↵  
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2↵  
↵
```

The response will be

```
ACK:  
AUDIO INPUT:  
Routing: Speaker Stereo XLR AES/EBU Stereo 1-2
```

The next block is the ST2110 state. This indicates the SDI output level.

```
ST2110:  
SDI Output Level: Auto
```

The next block is the audio output state. This indicates the current headphone and speaker volume settings as well as the state of the mute and solo buttons.

```
AUDIO OUTPUT:  
Gain: Speaker Stereo 0  
Gain: Headphone Stereo 0  
Mute: false  
Solo: Off  
Audio delay in ms: 0  
Audio delay in frames: 0  
Audio delay unit selected: Milliseconds
```

The volume gain settings can be set between 0 and 255. Mute can be true or false and Solo can be Off, Left or Right

```
AUDIO OUTPUT:↵  
Gain: Speaker Stereo 125↵  
Solo: Right↵  
↵
```

The response will be

```
ACK:  
AUDIO OUTPUT:  
Gain: Speaker Stereo 125  
Solo: Right
```

## Checking the Connection

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special no-operation command to check that the Blackmagic Audio Monitor 12G is still responding:

```
PING:↵
↵
```

If the Blackmagic Audio Monitor 12G is responding, it will respond with an ACK message as for any other recognized command.

## Checking valid Protocol Commands

While the connection to the Blackmagic Audio Monitor 12G is established, a client may send a special HELP command to obtain a list of supported Telnet commands:

```
HELP:↵
↵

AUDIOMONITOR DEVICE:
Model: <label> [read only]
Label: <label>
Unique ID: <label> [read only]

NETWORK:
Dynamic IP: <boolean> [read only]
Current address: <IP_address> [read only]
Current subnet: <IP_address> [read only]
Current gateway: <IP_address> [read only]

AUDIO METER:
Meter Mode: <enum> -> <enum> = <"VU (-20dBFS Ref)" | "VU (-18dBFS Ref)"
| "PPM EBU (-20dBFS Ref)" | "PPM EBU (-18dBFS Ref)" | "PPM BBC (-20dBFS
Ref)" | "PPM BBC (-18dBFS Ref)" | "Loudness (EBU +9 scale)" | "Loudness
(EBU +18 scale)">;

AUDIO INPUT:
Routing: <enum1> <enum2> -> <enum1> = <"Speaker Stereo">; <enum2> =
<"SDI Stereo 1-2" | "SDI Stereo 3-4" | "SDI Stereo 5-6" | "SDI Stereo
7-8" | "SDI Stereo 9-10" | "SDI Stereo 11-12" | "SDI Stereo 13-14" | "SDI
Stereo 15-16" | "SDI Stereo 17-18" | "SDI Stereo 19-20" | "SDI Stereo 21-
22" | "SDI Stereo 23-24" | "SDI Stereo 25-26" | "SDI Stereo 27-28" | "SDI
Stereo 29-30" | "SDI Stereo 31-32" | "SDI Stereo 33-34" | "SDI Stereo 35-
36" | "SDI Stereo 37-38" | "SDI Stereo 39-40" | "SDI Stereo 41-42" | "SDI
Stereo 43-44" | "SDI Stereo 45-46" | "SDI Stereo 47-48" | "SDI Stereo
49-50" | "SDI Stereo 51-52" | "SDI Stereo 53-54" | "SDI Stereo 55-56"
| "SDI Stereo 57-58" | "SDI Stereo 59-60" | "SDI Stereo 61-62" | "SDI
Stereo 63-64" | "XLR AES/EBU Stereo 1-2" | "XLR Analog Stereo" | "RCA
Stereo" | "ST2110 Stereo 1-2" | "ST2110 Stereo 3-4" | "ST2110 Stereo 5-6"
| "ST2110 Stereo 7-8" | "ST2110 Stereo 9-10" | "ST2110 Stereo 11-12" |
"ST2110 Stereo 13-14" | "ST2110 Stereo 15-16" | "ST2110 Stereo 17-18" |
"ST2110 Stereo 19-20" | "ST2110 Stereo 21-22" | "ST2110 Stereo 23-24" |
"ST2110 Stereo 25-26" | "ST2110 Stereo 27-28" | "ST2110 Stereo 29-30" |
"ST2110 Stereo 31-32" | "ST2110 Stereo 33-34" | "ST2110 Stereo 35-36" |
"ST2110 Stereo 37-38" | "ST2110 Stereo 39-40" | "ST2110 Stereo 41-42" |
"ST2110 Stereo 43-44" | "ST2110 Stereo 45-46" | "ST2110 Stereo 47-48" |
"ST2110 Stereo 49-50" | "ST2110 Stereo 51-52" | "ST2110 Stereo 53-54" |
"ST2110 Stereo 55-56" | "ST2110 Stereo 57-58" | "ST2110 Stereo 59-60" |
"ST2110 Stereo 61-62" | "ST2110 Stereo 63-64">;

AUDIO OUTPUT:
Gain: <enum> <integer> -> <enum> = <"Speaker Stereo" | "Headphone
Stereo">; <integer> = <0..255>;

Mute: <boolean> -> <boolean> = <true | false>;

Solo: <enum> -> <enum> = <"Off" | "Left" | "Right">;
```

# Yardım

## Yardım İçin

Yardım almanın en hızlı yolu Blackmagic Design online destek sayfalarına girip Blackmagic Audio Monitor'unuz için mevcut olan en son destek malzemesini incelemenizdir.

### Blackmagic Design Online Destek Sayfaları

En son kılavuz, yazılım ve destek notlarına [www.blackmagicdesign.com/tr/support](http://www.blackmagicdesign.com/tr/support) adresindeki Blackmagic Design destek merkezinden ulaşılabilir.

### Blackmagic Design Forum

Web sitemizdeki Blackmagic Design forum, daha fazla bilgi ve yaratıcı fikirler için ziyaret edebileceğiniz faydalı bir kaynaktır. Burası yardım alabilmeniz için daha hızlı bir yol olabilir çünkü, başka deneyimli kullanıcılar ya da Blackmagic Design çalışanları tarafından sorularınıza yanıtlar bulabilir ve bu sayede çalışmalarınıza devam edebilirsiniz. Foruma <https://forum.blackmagicdesign.com> adresinden ulaşabilirsiniz.

### Blackmagic Design Destek Hizmetiyle İrtibat

Aradığınız yardımı, destek kaynaklarında ya da forumda bulamadığınızda, lütfen destek sayfamıza girerek "Bize e-posta gönderin" butonunu tıklayarak e-posta yoluyla destek talebinde bulunun. Bunun yerine, destek sayfasındaki "Yerel destek ekibini arayın" butonunu tıklayıp size en yakın olan Blackmagic Design destek ofisini arayabilirsiniz.

### Mevcut Yazılım Sürümünün Kontrol Edilmesi

Bilgisayarınızda Blackmagic Audio Monitor Setup yazılımının hangi sürümünün yüklü olduğunu kontrol etmek için, About Blackmagic Audio Monitor Setup penceresini açın.

- MacOS sistemlerinde, 'Uygulamalar' klasöründen Blackmagic Audio Monitor Setup yazılımını açın. Sürüm numarasını görüntülemek için, uygulama menüsünden 'About Blackmagic Audio Monitor Setup' ibaresini seçin.
- Windows 10 sistemlerinde, 'Başlangıç' sayfasındaki Blackmagic Audio Monitor Setup başlığından, Blackmagic Audio Monitor Setup yazılımını açın. Sürüm numarasını görüntülemek için 'Yardım' menüsünü tıklayın ve 'About Blackmagic Audio Monitor Setup' ibaresini seçin.

### En Son Yazılım Güncellemelerine Erişim

Bilgisayarınızda yüklü bulunan Blackmagic Audio Monitor Kurulum yazılımının sürümünü kontrol ettikten sonra, lütfen Blackmagic Design destek merkezine [www.blackmagicdesign.com/tr/support](http://www.blackmagicdesign.com/tr/support) adresinden girerek en son güncellemeleri gözden geçirin. En son güncellemeleri çalıştırmak faydalı olsa da önemli bir projenin ortasında iken, yazılımı güncellemekten kaçınmakta yarar vardır.

# Mevzuata İlişkin Bildirimler

## Avrupa Birliği Dahilinde Elektrikli ve Elektronik Ekipman Atıklarının Bertaraf Edilmesi.



Ürün üzerindeki sembol, bu ekipmanın başka atık malzemelerle bertaraf edilmemesi şartını belirler. Atık ekipmanlarınızı bertaraf edebilmeniz için, geri dönüşümünü sağlamak üzere, belirlenmiş toplama noktasına teslim edilmeleri gerekmektedir. Bertaraf anında atık cihazlarınızın ayrı olarak toplanması ve geri dönüşümü, doğal kaynakların korunmasına yardımcı olacaktır ve insan sağlığını ve çevreyi koruyucu bir şekilde geri dönüşümünü sağlayacaktır. Atık ekipmanlarınızı geri dönüşüm için nereye teslim edebileceğiniz konusunda daha fazla bilgi için, lütfen yerel belediyenizin geri dönüşüm şubesini ya da ürünü satın aldığınız satış bayisini arayınız.



Bu cihaz, test edilmiş ve Federal İletişim Komisyonu (FCC) koşullarının 15. bölümü doğrultusunda A Sınıfı dijital cihazların sınırlarıyla uyumlu olduğu tespit edilmiştir. İlgili sınırlar, bu cihaz ticari bir ortamda çalıştırıldığında, zararlı müdahalelere karşı makul koruma sağlaması amacıyla tasarlanmıştır. Bu ekipman, radyo frekans enerjisi üretir, kullanır ve saçabilir ve talimatlar doğrultusunda kurulmadığı ve kullanılmadığı takdirde, radyo iletişimlerine zararlı müdahaleye yol açabilir. Bu ürünün bir yerleşim bölgesinde çalıştırılması zararlı müdahaleye yol açabilir. Bu durumda, müdahalenin düzeltilmesi için ilgili maliyeti kullanıcı karşılamak zorundadır.

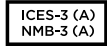
Bu cihazın çalıştırılması aşağıdaki iki şarta bağlıdır:

- 1 Bu cihaz, zararlı müdahaleye sebebiyet vermemelidir.
- 2 Bu cihaz, arzu edilmeyen bir çalışma şekline yol açacak müdahaleler de dahil olmak üzere, maruz kaldığı her türlü müdahaleyi, kabul etmelidir.



MSIP-REM-BMD-AudioMonitor  
R-R-BMD-201812001  
R-R-BMD-20240212004

## ISED Kanada Beyannamesi



Bu cihaz, A Sınıfı dijital cihazlar için Kanada standartlarıyla uyumludur.

Bu cihaza yapılacak herhangi bir değişiklik veya kullanım amacı dışında kullanılması, bu standartlara uyumluluğunu hükümsüz kılabilir.

HDMI arayüzlerine bağlantı, yüksek kaliteli korumalı HDMI kablolarıyla yapılmalıdır.

Bu cihaz, ticari ortamda kullanım amacına uygunluk için test edilmiştir. Bu cihaz bir ev ortamında kullanıldığı durumlarda, radyo parazitine neden olabilir.

## Güvenlik Bilgileri

Elektrik çarpmalarına karşı korunmak için, bu cihaz koruyucu topraklama bağlantısı olan bir şebeke prizine takılmalıdır. Şüpheli durumlarda yetkili bir elektrikçi ile irtibata geçiniz.

Elektrik çarpması riskini azaltmak için, bu cihaz damlayan veya sıçrayan suya maruz bırakılmamalıdır.

Bu ürün çevresel ısı 40° C'ye kadar olan tropikal ortamlarda kullanılmaya uygundur.

Cihazın çevresinde yeterli havalandırma olduğundan ve hava akımının kısıtlanmadığından emin olun.

Rafa monte ederken, bitişik cihazlardan dolayı hava akımının kısıtlanmadığından emin olun.

Ürünün içinde, kullanıcı tarafından tamir edebilecek hiçbir parça bulunmamaktadır. Gerekli tamiratları yerel Blackmagic Design servis merkezine yönlendirin.



Deniz seviyesinden yüksekliğin 2000m'yi aşmadığı yerlerde kullanın.

### Kaliforniya Eyaleti Beyannamesi

Bu ürün; plastik parçaları dahilinde, eser miktarda polibromine bifeniller gibi kimyasal maddelere sizi maruz bırakabilir. Kaliforniya eyaletinde, bu maddelerin kansere, doğum kusurlarına veya başka üreme bozukluklarına sebebiyet verdiği bilinmektedir.

Daha fazla bilgi için [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov) adresini ziyaret ediniz.

### Avrupa Ofisi

Blackmagic Design B.V, Amsterdam Sloterdijk Teleport Towers Office 2.17, Kingsfordweg 151, Amsterdam, 1043GR.

# GARANTİ

## 12 Ay Sınırlı Garanti

Blackmagic Design şirketi bu ürünün satın alındığı tarihten itibaren malzeme ve işçilik bakımından 12 ay boyunca arızasız olacağına garanti sunmaktadır. Üründe bu garanti süresi içinde bir arıza ve kusur söz konusu olursa Blackmagic Design, kendi seçimi doğrultusunda, ya arızalı ürünü parça ve işçilik bedeli talep etmeksizin tamir edecektir ya da arızalı ürünü, yenisiyle değiştirecektir.

Bu garanti kapsamında hizmetten yararlanmak için, siz müşterilerin, Blackmagic Design'i garanti süresi sona ermeden arızaya ilişkin bilgilendirmeniz ve söz konusu hizmetin sağlanması için uygun düzenlemeleri yapmanız gereklidir. Blackmagic Design tarafından özel belirlenmiş ve yetkilendirilmiş bir hizmet merkezine, arızalı ürünün ambalajlanarak sevkiyatı, Müşterilerimizin sorumluluğudur ve sevkiyat ücretleri peşin ödenmiş olmalıdır. Herhangi bir sebepten dolayı bize iade edilen ürünlerin; tüm nakliye, sigorta, yasal bedel, vergi ve diğer tüm masrafların ödenmesi müşterinin sorumluluğu altındadır.

Bu garanti; yanlış kullanım ya da yanlış veya kusurlu bakımdan kaynaklanan herhangi bir arızayı, bozukluğu ya da hasarı kapsamaz. Blackmagic Design burada açıklanan durumlarda, bu garanti kapsamında hizmet sağlamak zorunda değildir: a) Blackmagic Design temsilcileri haricindeki başka personelin ürünü kurma, tamir etme ya da bakımını yapma girişimlerinden kaynaklanan hasarın tamir edilmesi, b) uygun olmayan kullanım veya uyumlu olmayan ekipmanlara bağlanılmasından kaynaklanan hasarın tamir edilmesi, c) Blackmagic Design parçaları ya da malzemesi olmayan ürünlerin kullanımından kaynaklanan hasarın ya da arızanın tamir edilmesi ya da d) Modifiye veya başka ürünlerle entegre edilmiş bir ürünün; söz konusu modifikasyon ya da entegrasyonun gereken tamiratın süresini uzattığı ya da ürün bakımını zorlaştırdığı durumlarda, tamir edilmesi. BU GARANTİ, BLACKMAGIC DESIGN TARAFINDAN VERİLMİŞTİR VE AÇIK YA DA ZİMNİ, HERHANGİ BİR GARANTİNİN YERİNİ TUTAR. BLACKMAGIC DESIGN VE SATICILARI, TİCARİ GARANTİ YA DA ÖZEL BİR AMACA UYGUNLUK GARANTİSİNİ KABUL ETMEZ. BLACKMAGIC DESIGN'İN HATALI ÜRÜNLERİ TAMİR ETME YA DA DEĞİŞTİRME SORUMLULUĞU, BLACKMAGIC DESIGN YA DA SATICILARININ SÖZ KONUSU HATA HAKKINDA ÖNCEDEN BİLGİSİ OLMASINI GÖZETMEKSİZİN, ÜRÜNDE DOLAYLI, ÖZEL, DOĞRUDAN YA DA SONUÇ NİTELİĞİNDE ORTAYA ÇIKAN HERHANGİ BİR HASAR İÇİN MÜŞTERİYE SUNACAĞI TAM VE MÜNHASİR ÇÖZÜMDÜR. BLACKMAGIC DESIGN, EKİPMANIN MÜŞTERİLER TARAFINDAN YASAL OLMAYAN HERHANGİ BİR KULLANIMINDAN SORUMLU DEĞİLDİR. BLACKMAGIC DESIGN, BU ÜRÜNÜN KULLANIMINDAN KAYNAKLANAN HERHANGİ BİR HASARDAN SORUMLU DEĞİLDİR. BU ÜRÜNÜN ÇALIŞTIRILMASINDAN DOĞAN RISK, KULLANICININ KENDİSİNE AİTTİR.

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