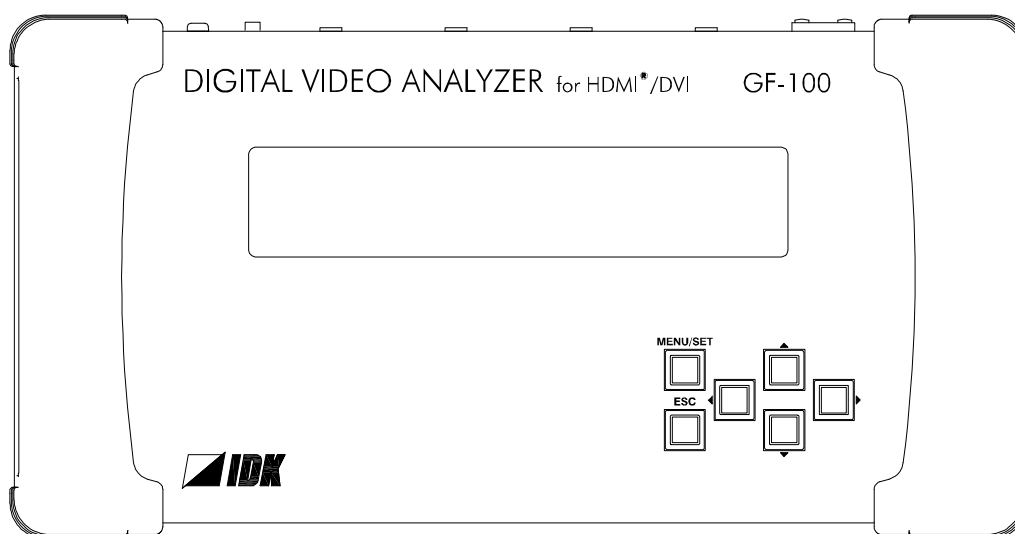


Digital Video Analyzer

GF-100

User Guide

<Ver.1.6.0>



- Thank you for choosing our product.
- To ensure the best performance of this product, please read this user guide fully and carefully before using it and keep this manual together with the product for future reference as needed.

Trademarks

- The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.
- All other company and product names mentioned in this manual are either registered trademarks or trademarks of their respective owners. In this manual, the “®” or “™” marks may not be specified.

Before reading this manual

- All rights reserved.
- Some information contained in this User guide such as exact product appearance, diagrams, menu operations, and so on may differ depending on the product version.
- This User guide is subject to change without notice. You can download the latest version from IDK's website at: <http://www.idkav.com>

FCC STATEMENT

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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

CE MARKING

This equipment complies with the essential requirements of the relevant European health, safety and environmental protection legislation.

WEEE MARKING











Waste Electrical and Electronic Equipment (WEEE), Directive 2002/96/EC
(This directive is only valid in the EU.)

This equipment complies with the WEEE Directive (2002/96/EC) marking requirement.
The left marking indicates that you must not discard this electrical/electronic equipment in domestic household waste.

Safety Instructions


Read and understand all safety and operating instructions before using this product. Follow all instructions and heed all warnings/cautions.

Enforcement Symbol	Description
 Warning	Indicates the presence of a hazard that may result in death or serious personal injury if the warning is ignored or the product is handled incorrectly.
 Caution	Indicates the presence of a hazard that may cause minor personal injury or property damage if the caution is ignored or the product is handled incorrectly.



Symbol	Description	Example
 Caution	This symbol is intended to alert the user. (Warning and caution)	 Electrical Hazard
 Prohibited	This symbol is intended to prohibit the user from specified actions.	 Do not disassemble
 Instruction	This symbol is intended to instruct the user.	 Unplug

Warning





■ For lifting heavy products:

 Instruction	<ul style="list-style-type: none"> ● Lifting must be done by two or more personnel. <p>To avoid injury: When lifting the product, bend your knees, keep your back straight and get close to it with two or more persons.</p>
---	--

■ For installing and connecting products:

 Prohibited	<ul style="list-style-type: none"> ● Do not place the product upon a surface that may give way or that may become unstable. <p>Install the product in a secure and stable place to prevent it from falling and possibly causing injury.</p> <ul style="list-style-type: none"> ● Secure the product if installing in locations prone to vibration or movement. <p>Otherwise, it may move unexpectedly or it may fall and lead to injury.</p>
 Instruction	<ul style="list-style-type: none"> ● Installation work must be performed by professionals. <p>The product is intended to be installed by skilled technicians. For installation, please contact a system integrator or IDK. Improper installation may lead to the risk of fire, electric shock, injury, or property damage.</p> <ul style="list-style-type: none"> ● Insert the power plug into an outlet that is unobstructed. <p>Unobstructed access to the plug enables unplugging the product in case of any extraordinary failure, abnormal situation or for easy disconnection during extended periods of non-use.</p> <ul style="list-style-type: none"> ● Insert the power plug into an appropriate outlet completely. <p>If the plug is partially inserted, arcing may cause the connection to overheat, increasing the risk of electrical shock or fire. Do not use a damaged plug or connect to a damaged outlet.</p> <ul style="list-style-type: none"> ● Unplug the product from the AC power source during installation or service. <p>When connecting peripheral devices to this product, unplug all involved devices from outlets. Ground potential differences may cause fire or other difficulties.</p>

■ For operating products:

 Prohibited	<ul style="list-style-type: none"> ● Keep out any foreign objects. <p>To avoid fire or electric shock, do not permit foreign objects, such as metal and paper, to enter the product from vent holes or other apertures.</p> <ul style="list-style-type: none"> ● For power cable/ plug: <ul style="list-style-type: none"> • Do not scratch, heat, or modify, including splicing or lengthening them. • Do not pull, place heavy objects on them, or pinch them. • Do not bend, twist, tie or clamp them together forcefully. <p>Misuse of the power cable and plug may cause fire or electric shock. If power cables/plugs become damaged, contact your IDK representative.</p>
 Do not disassemble	<ul style="list-style-type: none"> ● Do not repair, modify or disassemble. <p>Since the product includes circuitry that uses potentially lethal, high voltage levels, disassembly by unauthorized personnel may lead to the risk of fire or electric shock. For internal inspection or repair, contact your IDK representative.</p>
 Do not touch	<ul style="list-style-type: none"> ● Do not touch the product and connected cables during electrical storms. <p>Contact may cause electric shock</p>
 Instruction	<ul style="list-style-type: none"> ● Clean the power plug regularly. <p>If the plug is covered in dust, it may increase the risk of fire.</p>

Warning

■ **If the following problem occurs:**






- **Unplug immediately if the product smokes, makes unusual noise, or produces a burning odor.**
If you continue to use the product under these conditions, it may cause electric shock or fire.
- **Unplug immediately if the product is damaged by falling or having been dropped.**
If you continue to use the product under these conditions, it may increase the risk of electrical shock or fire. For maintenance and repair, contact your IDK representative.
- **Unplug immediately if water or other objects are directed inside.**
If you continue to use the product under these conditions, it may increase the risk of electrical shock or fire. For maintenance and repair, contact your IDK representative.



Caution

■ For installing and connecting products:

 <p>Prohibited</p>	<ul style="list-style-type: none"> ● Do not place the product in a location where it will be subjected to high temperatures. If the product is subjected to direct sunlight or high temperatures while under operation, it may affect the product's performance and reliability and may increase the risk of fire. ● Do not store or operate the product in dusty, oil smoke filled, or humid place. If the product is placed near humidifiers or in a dusty area, it may increase the risk of fire or electric shock. ● Do not block the vent holes. If ventilation slots are blocked, it may cause the product to overheat, affecting performance and reliability and may increase the risk of fire. ● Do not place or stack heavy items on the product. Failure to observe this precaution may result in damage to the product and other property and may lead to the risk of personal injury. ● Do not exceed ratings of outlet and wiring devices. Exceeding the rating of an outlet may increase the risk of fire and electric shock.
 <p>No wet hands</p>	<ul style="list-style-type: none"> ● Do not handle power plug with wet hands. Failure to observe this precaution may increase the risk of electrical shock.
 <p>Instruction</p>	<ul style="list-style-type: none"> ● Use and store the product within the specified temperature/humidity range. If the product is used outside the specified range for temperature and humidity continuously, it may increase the risk of fire or electric shock. ● Do not place the product at elevations of 1.24 mi. (2,000 m) or higher above sea level. Failure to do so may shorten the life of the internal parts and result in malfunctions. ● When mounting the product into the rack, provide sufficient cooling space. Mount the product in a rack meeting EIA standards, and maintain spaces above and below for air circulation. For your safety as required, attach an L-shaped bracket in addition to the panel mount bracket kit to improve mechanical stability. ● Never insert screws without the rubber feet into the threaded holes on the bottom of the product. Never insert screws without the rubber feet into the threaded holes on the bottom of the product. Doing so may lead to damage when the screws contact electrical circuitry or components inside the product. Reinstall the originally supplied rubber feet using only the originally supplied screws.

■ For operating products:




 <p>Prohibited</p>	<ul style="list-style-type: none"> ● Use only the supplied power cable and AC adapter. ● Do not use the supplied power cable and AC adapter with other products. If non-compliant adapter or power cables are used, it may increase the risk of fire or electrical shock.
 <p>Unplug</p>	<ul style="list-style-type: none"> ● If the product won't be used for an extended period of time, unplug it. Failure to observe this precaution may increase the risk of fire. ● Unplug the product before cleaning. To prevent electric shock.
 <p>Instruction</p>	<ul style="list-style-type: none"> ● If cooling fan stops, power off the product and contact us. Failure to do so may rise internal temperature and increase the risk of malfunction, fire, or electric shock. ● Clean the vent holes regularly. If the vent holes of the cooling fan is covered in dust, internal temperature rises and it may increase the risk of malfunction, fire, or electric shock.

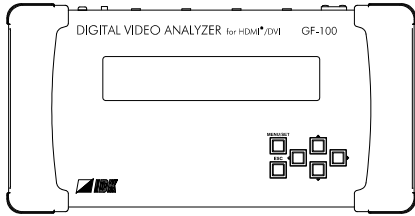
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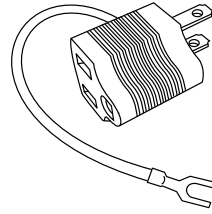
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1 Included items

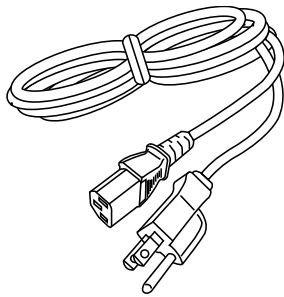
Make sure all items below are included in the package.
If any items are missing or damaged, please contact IDK.



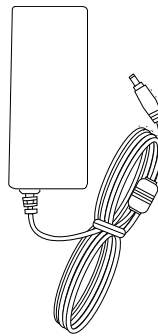
One (1) GF-100



One (1) 2P-3P conversion plug



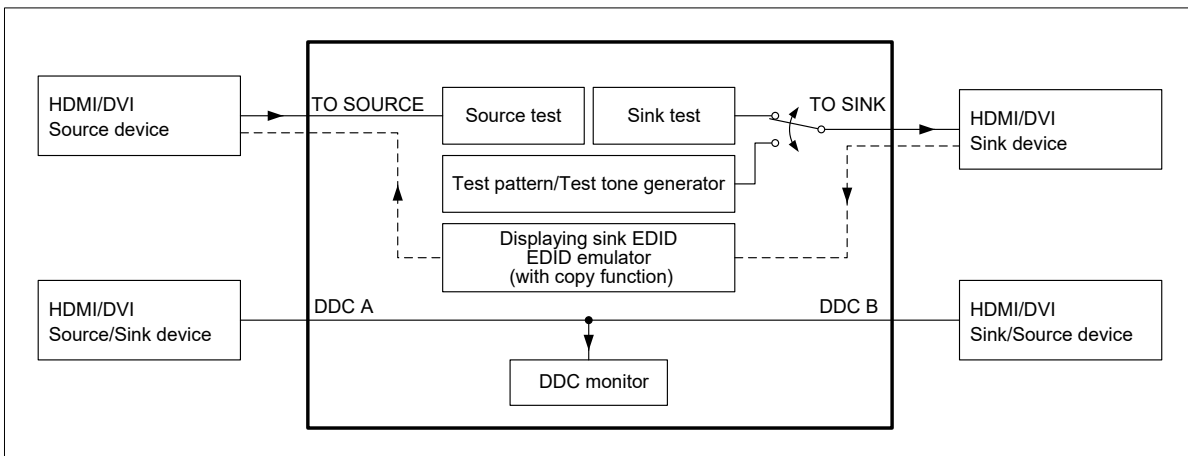
One (1) power code, 5.9 ft. (1.8 m)



One (1) AC adapter, 4 ft. (1.2 m)

[Fig. 1.1] Included items

2 About the GF-100

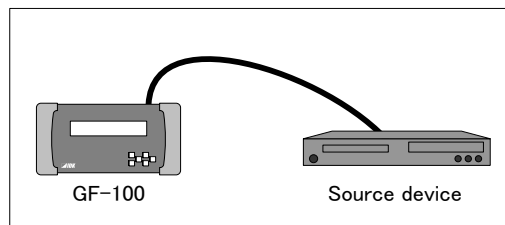


[Fig. 2.1] Diagram

The IDK's GF-100 is a portable digital video checker for HDMI/DVI devices, providing source/sink tests, cable/transmission line tests, and monitoring DDC function between source and sink devices.

■ Source test (P.20)

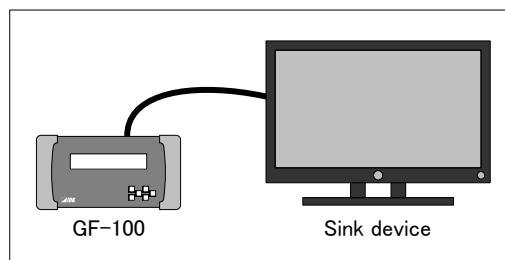
- Displays the following statuses on the LCD display or browser: resolution, frequency, presence or absence of audio, status of DDC voltage, and the like.
- Outputs status changes to a browser or ICT/IP port "2200".
- Has an EDID emulator (P.30).



[Fig. 2.2] Source test

■ Sink test (P.35)

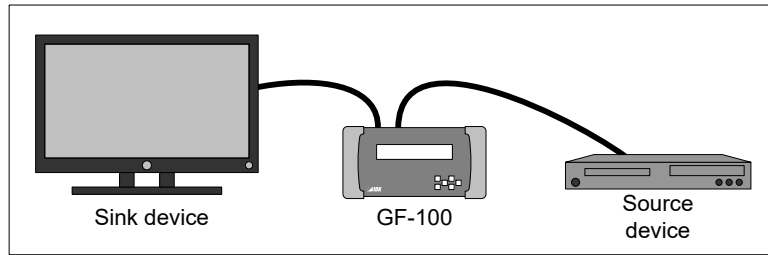
- Displays the following items on the LCD display or browser: supported resolution, audio supported/not supported, HDCP compliant/not compliant, EDID, and other information.
- Outputs test patterns (video)/test tone (audio). (P.41)
- Saves up to five EDIDs of the sink device in the GF-100.
- Downloads the saved EDIDs onto the PC via the browser; they can be read with analysis software.



[Fig. 2.3] Sink test

■ **DDC monitor (P.48)**

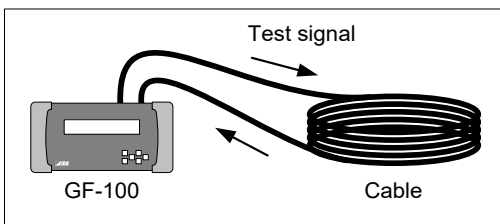
- Outputs the DDC communication data of the source and sink devices to browser or the TCP/IP port “1100”.



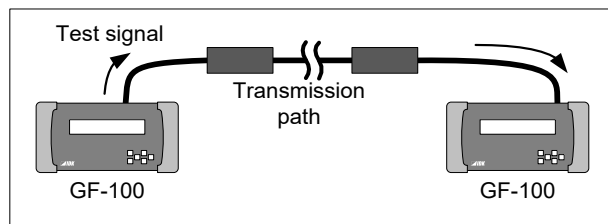
[Fig. 2.4] DDC monitor

■ **Cable/transmission path test (P.51)**

- Outputs the test signals and measures the quality (bit color) of the cable/transmission path.
- The test signals consist of random data and data that is under tougher condition (the hardware of the cable and its transmission).
- The resolution and color depth of the test signals can be selected.
- With two GF-100 devices, the transmission path test between two distant sites can be performed.



[Fig. 2.5] Cable test



[Fig. 2.6] Transmission path test

■ **Additional function**

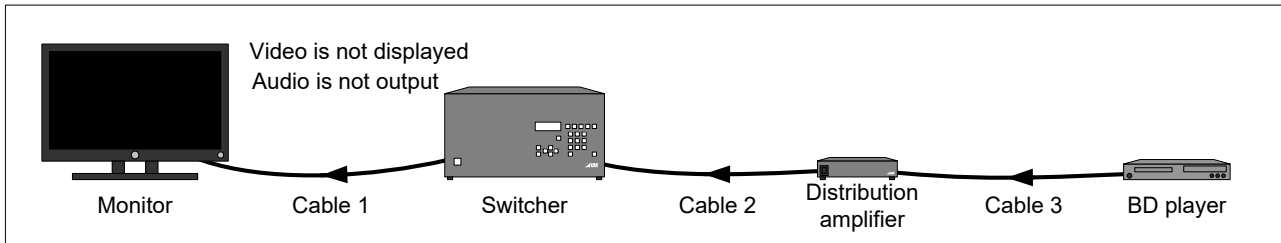
- Resume function (P.61)

Note: The GF-100 is a simplified analyzer for field supports of AV systems. Please note that it does not provide calibrations.

3 Example of use

3.1 Application example

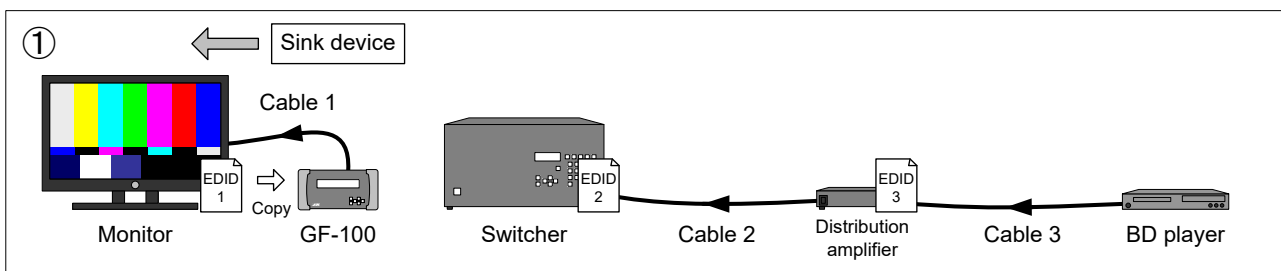
The illustration below is one example of implementing the GF-100.



[Fig. 3.1] Example of system configuration

3.2 Sink test

Remove cable 1 from the switcher and connect the GF-100 in order to perform the sink test (P.35) for the sink device and cable 1.



[Fig. 3.2] Sink test

■ Checking sink status (P.35)

Check if the GF-100 can detect the sink device correctly (P.36).

<If the GF-100 cannot detect the sink device>

The sink device or cable 1 has a problem. Check the power supply, connection and input switching (if there are some) of the sink device.

Perform the cable test (P.51) for cable 1 if necessary.

<If the GF-100 can detect the sink device>

Check the following specification of the sink device,,: supported resolution, color space, color depth (Deep Color) and whether audio and HDCP are supported.

■ Checking operation using test patterns/tones (P.41)

Change the following settings of test patterns/tones to check the sink device operation.

(Default values are set for all settings.)

- Resolution
- The presence or absence of audio
- The presence or absence of HDCP
- Color space
- Color depth (Deep Color)

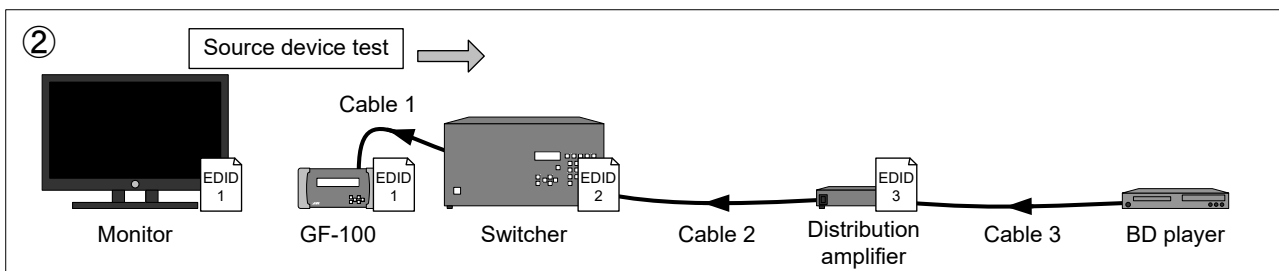
<If a test pattern is not displayed>
 The sink device or cable 1 has a problem. Check the power supply, connection and input switching (if there are some) of the sink device.
 Perform the cable test (P.51) for cable 1 if necessary.

<If a test tone is not output to the sink device that supports audio>
 Check the following items: volume of sink device, mute setting, the presence or absence of headphones connection, and audio input setting.

<If there is no problem or test pattern is not displayed in a specific setting>
 Perform the source test (② Fig. 3.3).
 Immediately after the sink device and GF-100 are connected, the EDID of the sink device will be copied into the GF-100 automatically. The copied EDID is used by the switcher during the source test.

3.3 Source test

Test for switcher, distribution amplifier, BD player, cable 1 to 3 (P.20). Connect the switcher and GF-100 as shown below.



[Fig. 3.3] Source test

■ Checking source status (P.20)

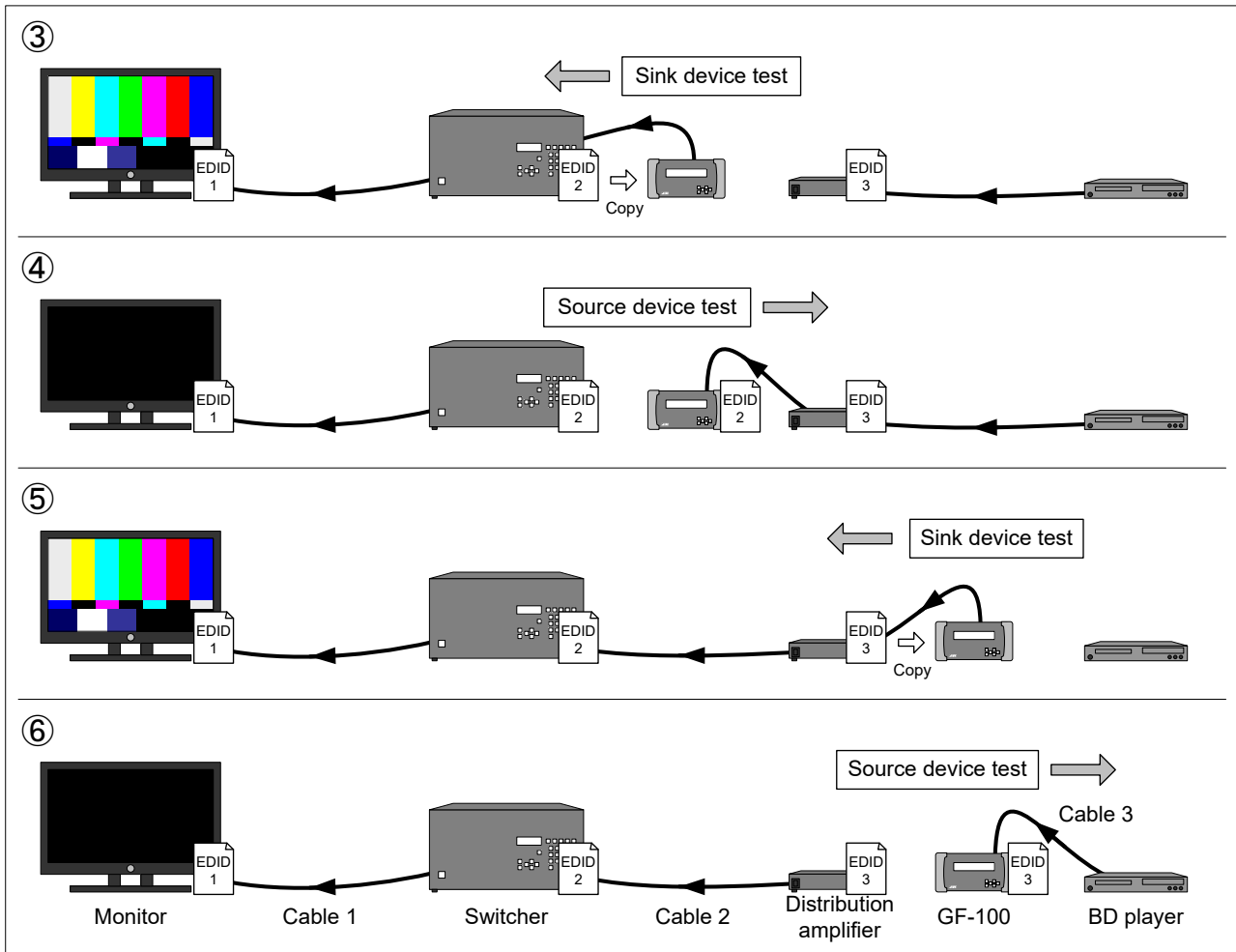
Check if source signals can be detected correctly (P.22).

<If signals cannot be detected>
 Check the power supply of the switcher, connection and channel switching setting. If the source signals still cannot be detected, perform the sink test of the switcher (③ Fig.3.4).

<If signals can be detected>
 Check the following items: the resolution of the source signals, the presence or absence of audio and HDCP, color space, color depth (Deep Color), and other items.
 If source signals that are not supported by the sink device are sent, change the BD player settings and EDID of the distribution amplifier, and other actions in order to resolve the problem.
 If no problem is found, perform the sink test of the switcher (③ Fig.3.4).

3.4 Repeating source and sink tests

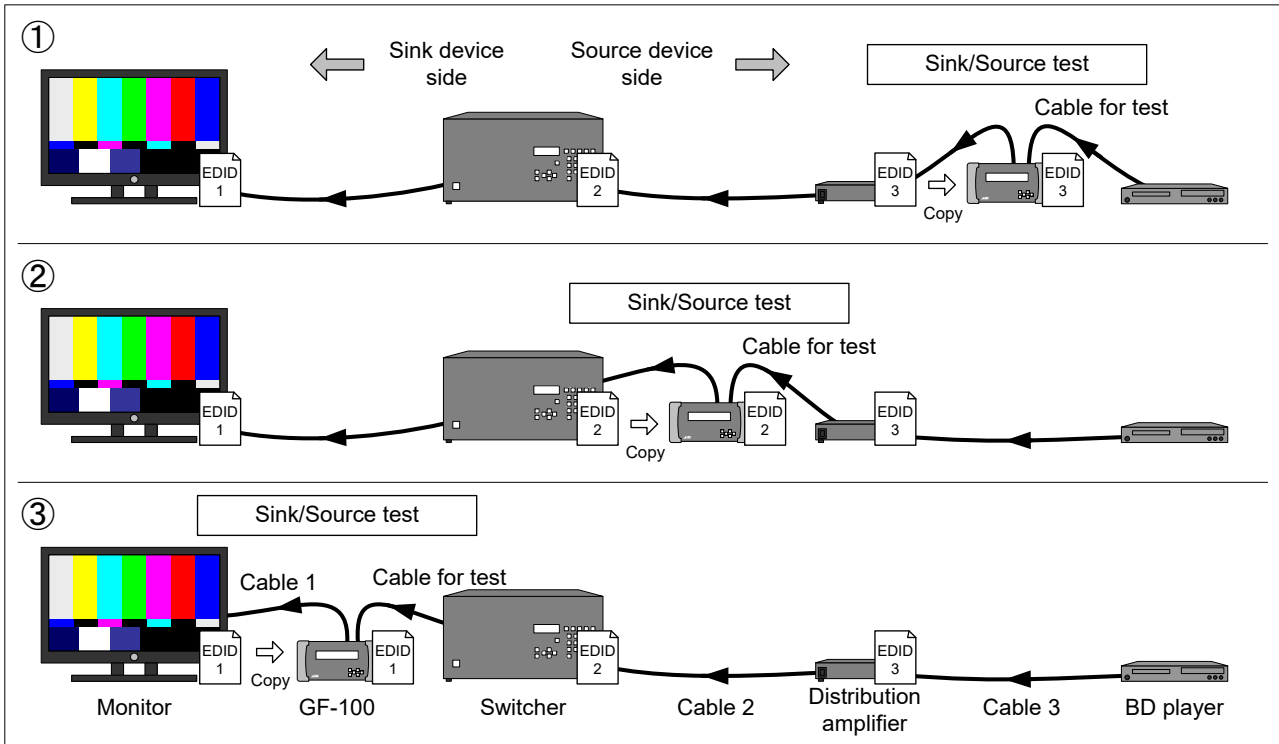
Repeat the source and sink tests between devices until the cause of the problem is identified.



[Fig. 3.4] Repeating source test and sink test

3.5 Test from source device

Prepare a cable for the test to copy the EDID of the sink device.



[Fig. 3.5] Test from source device side

■ Checking operation using test patterns/tones (P.41)

The following items are set automatically by default depending on the performance of the sink device: resolution of the test patterns/tones, the presence or absence of audio, the presence or absence of HDCP, color space, and color depth (Deep Color).

<If a test pattern is not displayed>
 Check the power supply, connection and input switching (if there are some inputs) of sink device.
 Perform the cable test (P.51) if necessary.
 If the test pattern is still not displayed, perform ② above ([Fig. 3.5]).

<If a test pattern is displayed>
 Check the following items: resolution of the test pattern, the presence or absence of audio and HDCP, color space, and color depth (Deep Color) and then perform the source test.

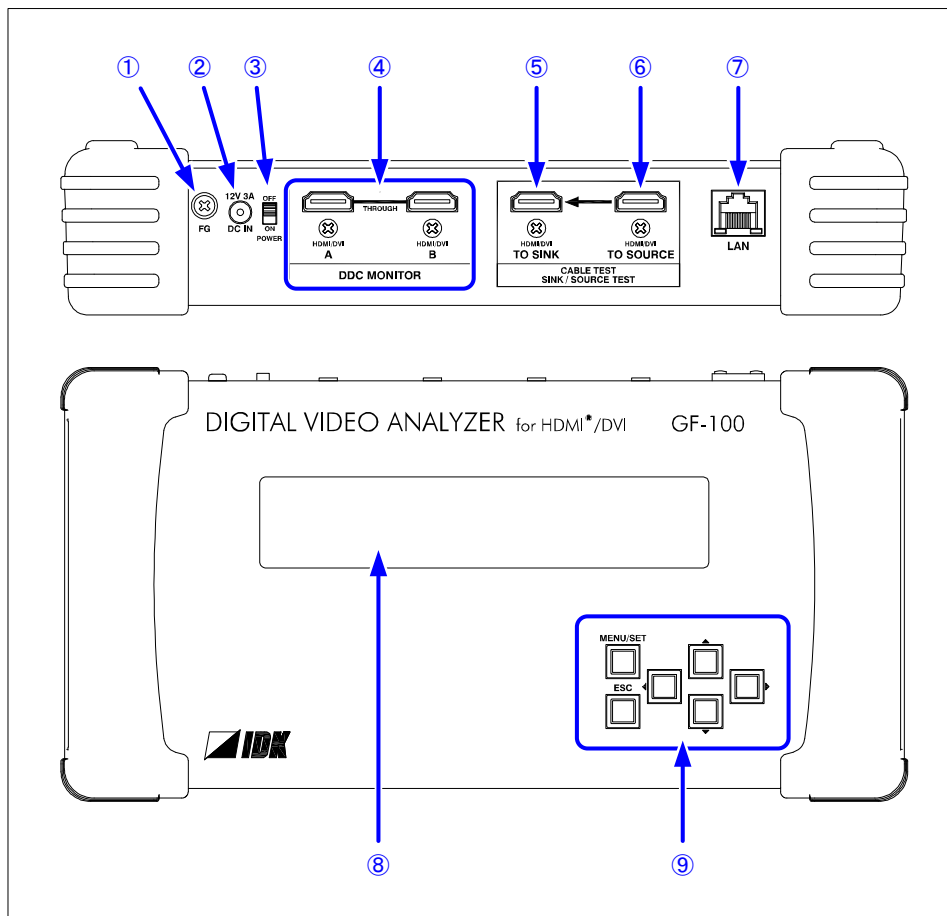
■ Checking source status (P.20)

Check if source signals are detected correctly. (P.22)

<If signals cannot be detected>
 Check the power supply of the source device and connection.

<If signals can be detected>
 Check the following items: the resolution of the source signals, the presence or absence of audio and HDCP, color space, color depth (Deep Color), and other items.
 If source signals that are not supported by the sink device are sent, change the BD player settings and EDID of the distribution amplifier.

4 Top and rear panel

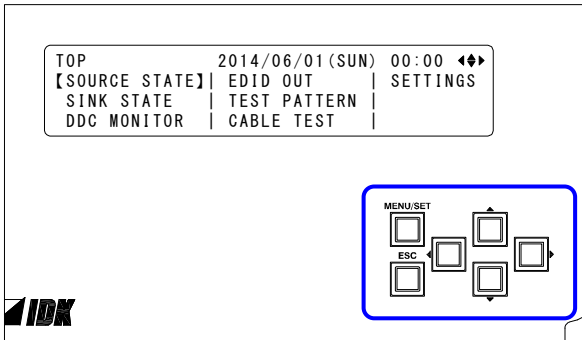


[Fig. 4.1] Drawing

#	Part name	Description
①	Frame ground	For indoor ground terminal. An M4 screw is used.
②	Power supply connector	For provided AC adapter.
③	Main power switch	Turns on/off the GF-100.
④	DDC monitor connector	For DDC monitor.
⑤	Sink test connector	For sink test and cable/transmission path test.
⑥	Source test connector	For source test and cable/transmission path test.
⑦	LAN port	For browser.
⑧	LCD display	Displays menus, setting, and statuses.
⑨	Menu operation keys	For menu operation.

5 Basic operation

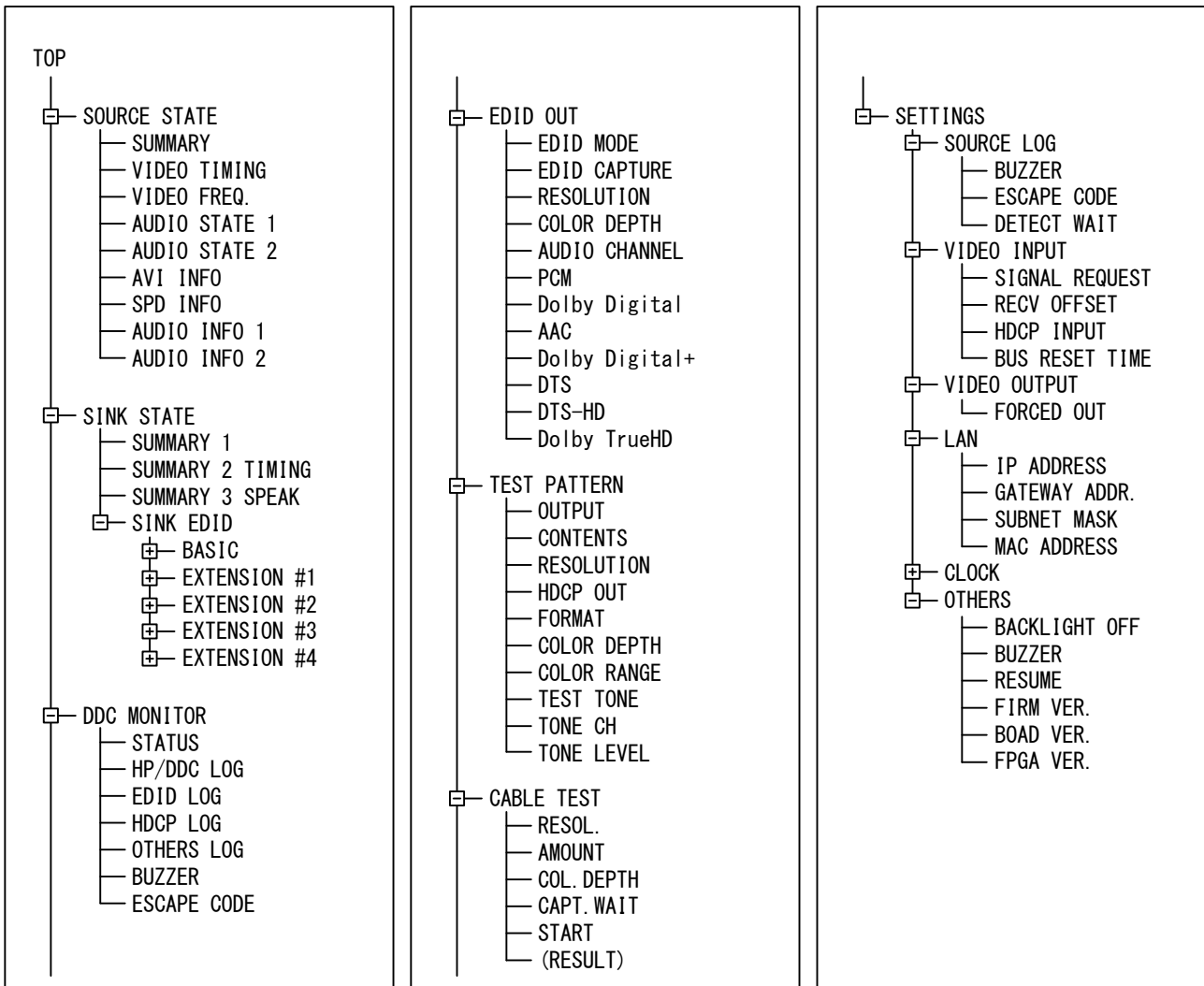
5.1 Menu operation



[Fig. 5.1] Menu operation keys

[Table 5.1] Function of menu operation key

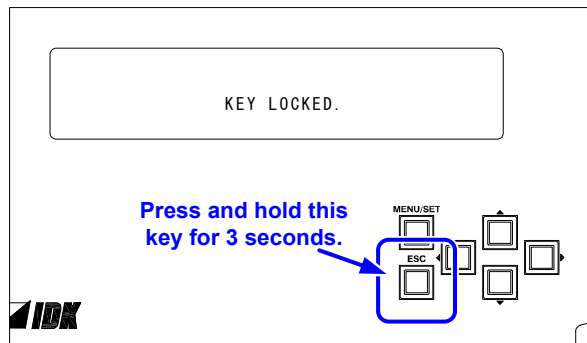
Key	Function
MENU/SET	Enters the menu and applies setting.
ESC	Exits from the menu.
◀▶	Moves cursor/page and changes set value.



[Fig. 5.2] Menu list

5.2 Setting/canceling key lock

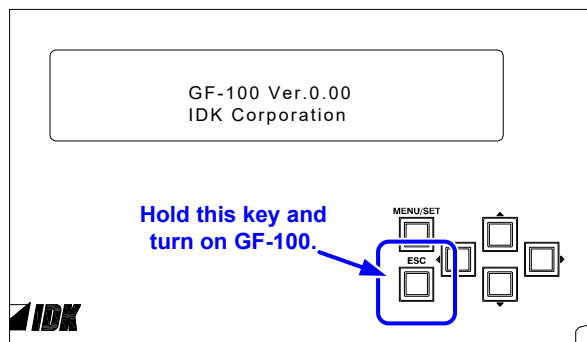
Press and hold the “ESC” key for 3 seconds (approx.) to enable/disable the key lock.



[Fig. 5.3] Key lock

5.3 Initialization

Turn on the GF-100 while holding the “ESC” key, and all settings will be initialized (to factory default) except for the setting of “**10.3.1 Setting current time of the GF-100**”. Hold the key until you hear a beep sound.

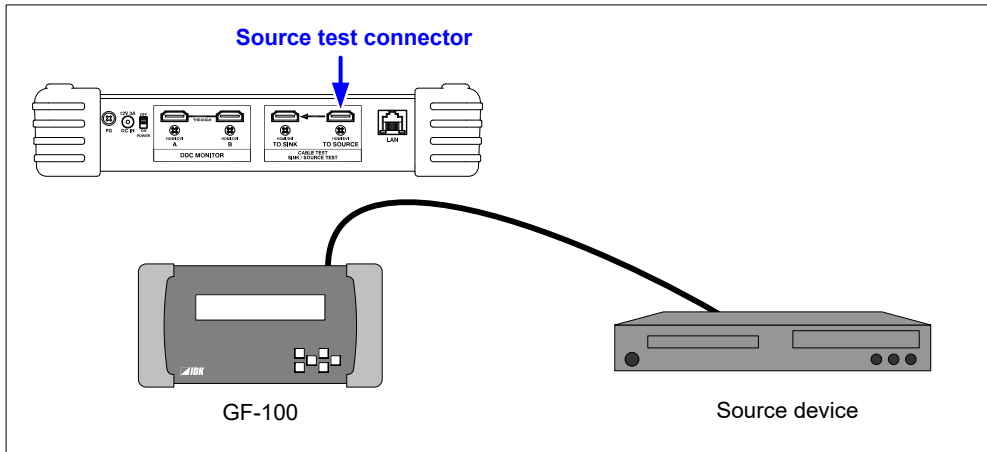


[Fig. 5.4] Initialization

6 Source test

6.1 Displaying source status

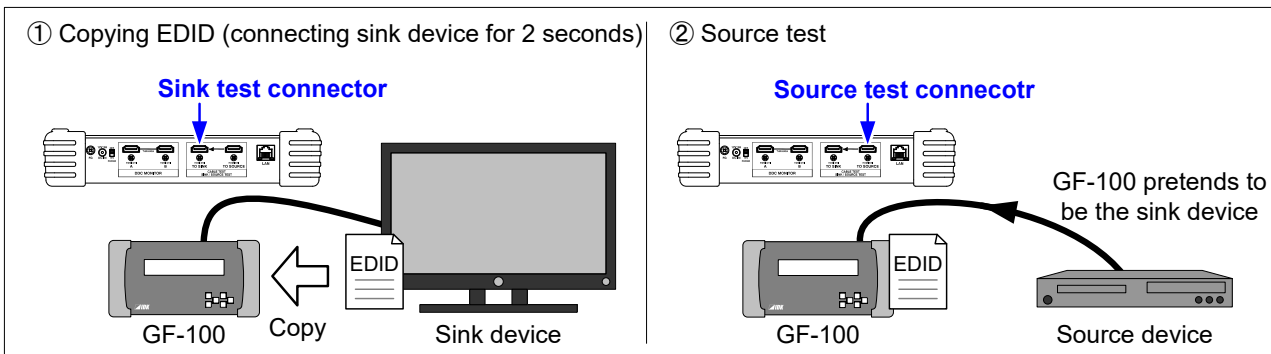
Status of the device that is connected to the source test connector can be displayed.



[Fig. 6.1] Connection for source test

We recommend that you copy EDID of the sink device in advance and set it to the source test connector in order to acquire the same status as the actual operation.

If the EDID output mode (P.31) is set to “AUTO” (Default), connect the sink device to the sink test connector for 2 seconds at least in order to copy the EDID correctly.



[Fig. 6.2] Copying EDID

Menu

TOP → SOURCE STATE → Table 6.1 below

The summary information of the source signals is shown on the SUMMARY page.
Very detailed information is shown on pages other than the SUMMARY page.

<Reference>

HDMI1.4: High-Definition Multimedia Interface Specification Version 1.4

CEA-861: CEA Standard A DTV Profile for Uncompressed High Speed Digital Interfaces

Note: The GF-100 is a simplified analyzer for field supports of AV systems. Please note that it does not provide calibrations.

[Table 6.1] Source status menu

Menu page	Displaying information
SUMMARY (Source signals)	Resolution, frame rate, aspect ratio, HDMI/DVI, color space, color depth, DDC voltage, audio format (if with audio), presence or absence of HDCP, and VIC (Video Information Code)
VIDEO TIMING (Video signals timing)	Total number of dots/lines, active area, back porch, front porch, synchronous signals polarity, scanning method
VIDEO FREQ. (Video frequency)	Frame rate, horizontal synchronous signals, dot clock
AUDIO STATE 1 (Audio signals)	Sampling frequency information, audio format, and other information
AUDIO STATE 2 (Audio signals)	Other additional information
AVI INFO (AVI InfoFrame)	Color space, color range, aspect ratio, and other information
SPD INFO (SPD InfoFrame)	Manufacturer information
AUDIO INFO 1 (AUDIO InfoFrame)	Speaker configuration
AUDIO INFO 2 (AUDIO InfoFrame)	Audio format, the number of channels, and other information

WEB page

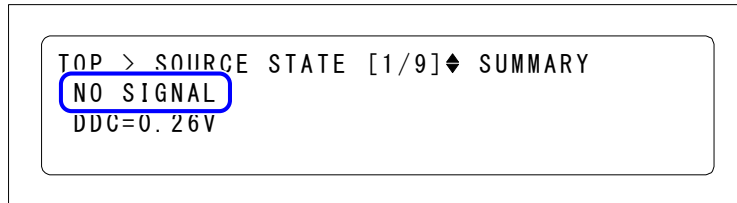
http://The GF-100's IP address/source_state.html

“The GF-100's IP address” refers to the assigned IP address given to the GF-100. The default IP address is 192.168.001.199, and it can be changed using the settings in section “**10.4.1 IP address**”.

6.2 Displaying source status (example)

6.2.1 Detecting source signals

If the GF-100 does not detect source signals, "NO SIGNAL" is displayed.



[Fig. 6.3] Signals are not detected

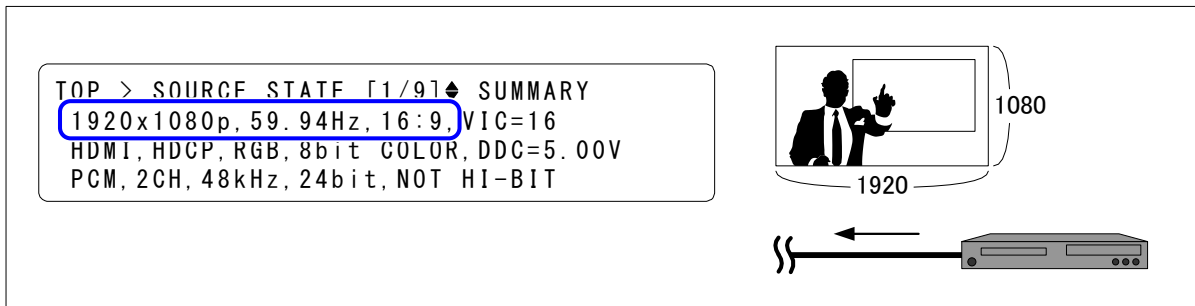
<Recommended actions>

- Check the connection, power supply of the source device, and external output settings (laptop)
- Perform the cable test (P.51)
- Replace the cable.

6.2.2 Video timing (Resolution/scanning method/frame rate/aspect ratio)

Displaying resolution, scanning method, frame rate, and aspect ratio of the source signals.

For the scanning method: "p" means progressive while "i" means interlace.



[Fig. 6.4] Video timing

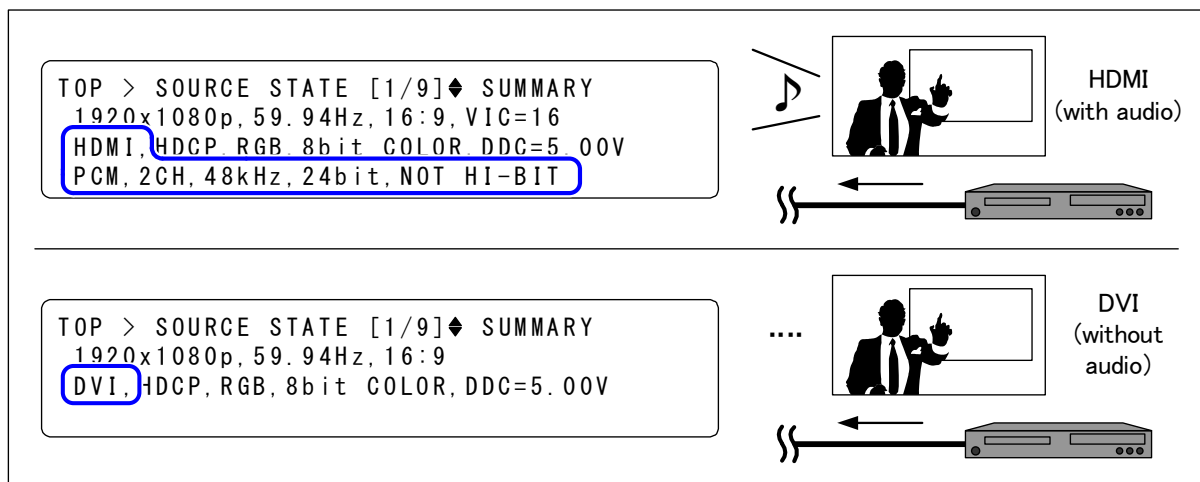
<Recommended actions for when the image cannot be displayed on the sink device>

- Sink device: Check the power supply, input switching (if there are some inputs), supported resolution (P.40), and operation using test patterns (P.41).
- Source device: Change the output resolution.

6.2.3 HDMI/DVI/with or without audio

Source signals: HDMI → “HDMI” and audio format (if with audio) are displayed.

Source signals: DVI → “DVI” is displayed.



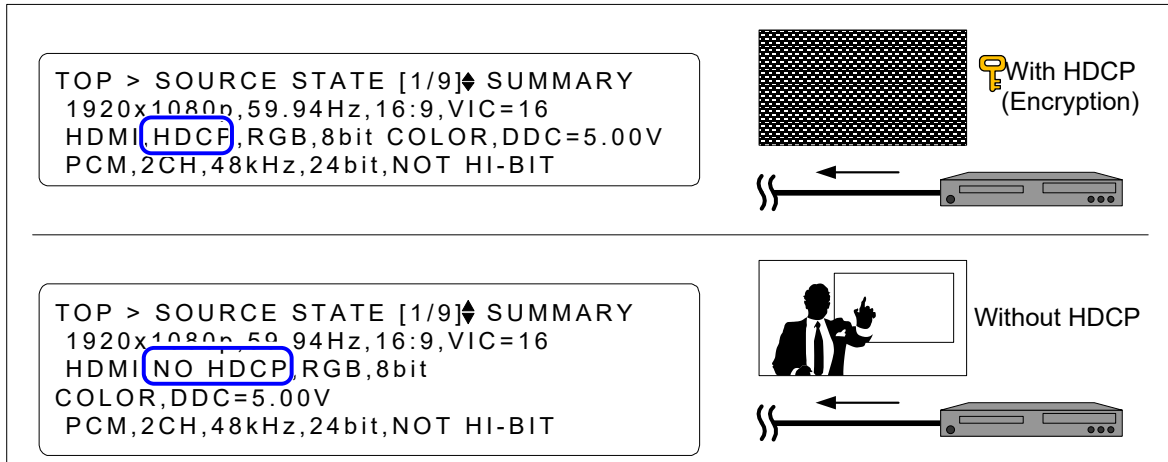
[Fig. 6.5] HDMI/DVI

<Recommended actions>

- When the image cannot be displayed on the sink device;
Check the power supply, input switching (if there are some inputs), and operation using test patterns (P.41) of the sink device.
- When the audio is not output from the sink device (HDMI supported);
Check the volume, mute, presence or absence of headphone, audio input setting (analog/digital), audio source (such as silent scene and pause), and operation using test tones (P.41).

6.2.4 With/without HDCP (copyright protection)

If the source signals include HDCP, "HDCP" is displayed while "NO HDCP" is displayed for signals that do not have HDCP.



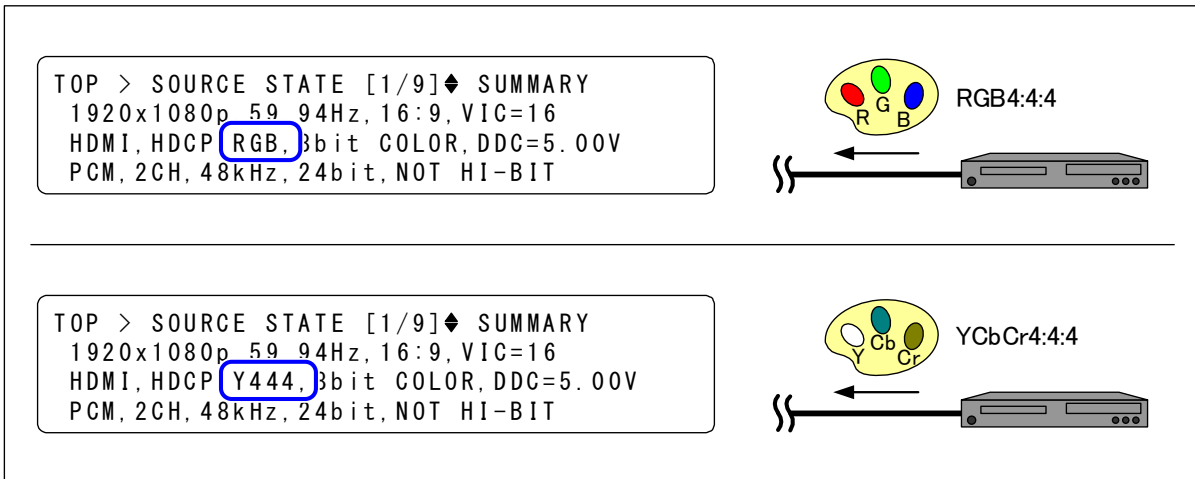
[Fig. 6.6] HDCP

<Recommended actions for when the image cannot be displayed on the sink device>

Check the power supply, input switching (if there are some inputs), HDCP supported/not supported, and operation using test patterns (P.41) of the sink device.

6.2.5 Color space

RGB4:4:4: "RGB", YCbCr4:2:2: "Y422", YCbCr4:4:4: "Y444"



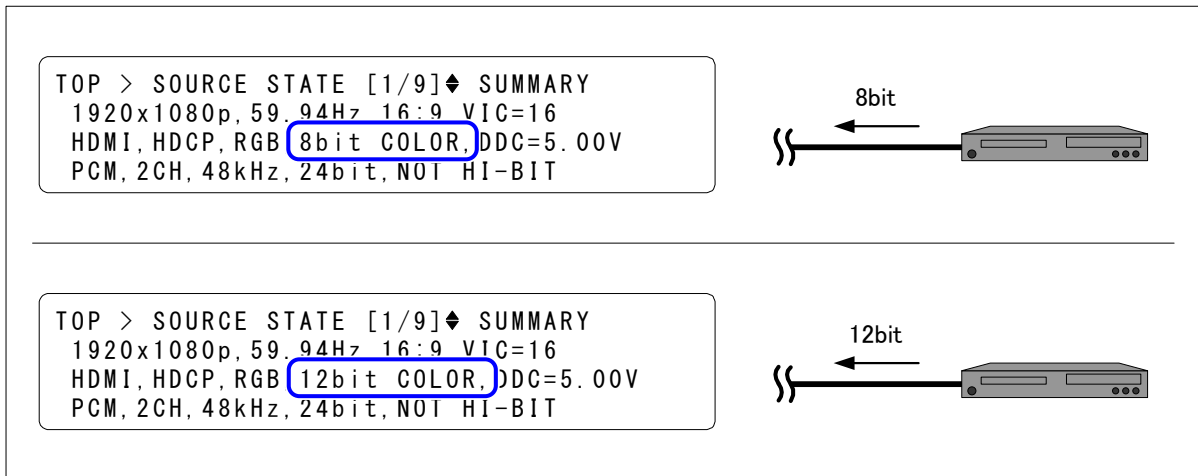
[Fig. 6.7] Displaying color space

<Recommended actions for when the image is not display with correct colors>

- Sink device: Check the supported color space (P.38) and operation using test patterns (P.41).
- Source device: Change output color space.

6.2.6 Color depth (Deep Color)

12 bit (36 bit/pixel): "12bit" 10 bit (30 bit/pixel): "10bit" 8 bit (24 bit/pixel): "8bit"



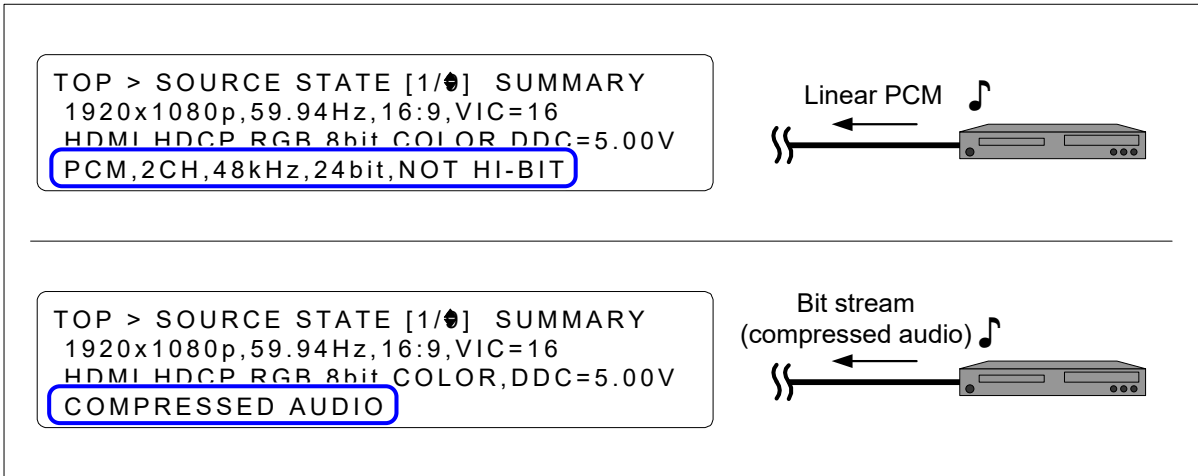
[Fig. 6.8] Displaying color depth

<Recommended actions for when the image cannot be displayed on the sink device>

- Sink device: Check the power supply, input switching (if there are some inputs), supported color depth (P37), and operation using test patterns (P40).
- Source device: Change the output color depth.

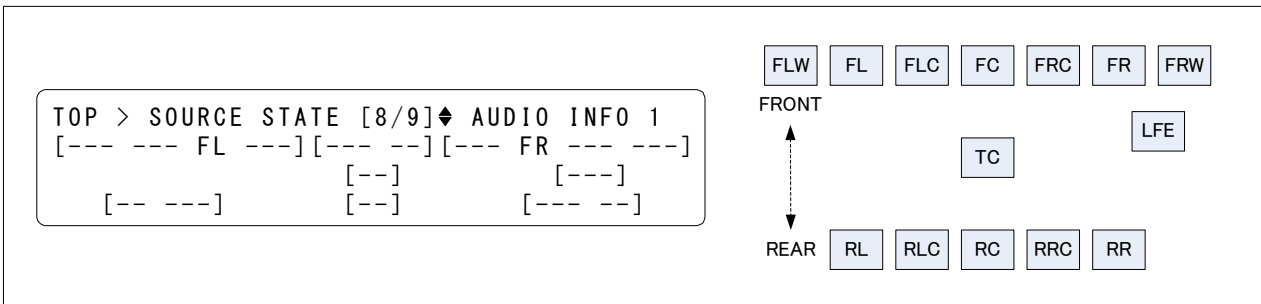
6.2.7 Audio format

Linear PCM: "PCM" Bit stream (compressed audio): "COMPRESS AUDIO"



[Fig. 6.9] Audio format

6.2.8 Speaker configuration



[Fig. 6.10] Speaker configuration

[Table 6.2] Speaker configuration

Name	Position	Name	Position	Name	Position
FL	Front Left	RC	Rear Center	FRW	Front Right Wide
FC	Front Center	RR	Rear Right	FLH	Front Left High
FR	Front Right	RLC	Rear Left Center	FCH	Front Center High
FLC	Front Left Center	RRC	Rear Right Center	FRH	Front Right High
FRC	Front Right Center	LFE	Low Frequency Effect	TC	Top Center
RL	Rear Left	FLW	Front Left Wide		

6.3 History of source status

Changes in status (resolution, frame rate, HDMI/DVI, with/without HDCP, color space, color depth, and DDC voltage) can be output to the browser or TCP/IP port “2200”.

Terminal software

- The source status is output to TCP/IP port “2200”.
- When a status change is detected, BELI code is output. If escape sequence is enabled, the changed status is displayed in green. Even if the value is not changed from the last record, the status changed during DETECT WAIT is displayed in purple.

```

File Edit Settings Controls Window Help
2014/06/17,22:17:32 1024x 768p, 60.00Hz,HDMI,HDCP:OFF,Y422,12bits,DDC-H(5.00V)
2014/06/17,22:17:44 1024x 768p, 59.94Hz,HDMI,HDCP:OFF,Y422,12bits,DDC-H(5.00V)
2014/06/17,22:17:54 1024x 768p, 59.94Hz,HDMI,HDCP:ON,Y422,12bits,DDC-H(4.99V)
2014/06/17,22:18:04 1024x 768p, 59.94Hz,HDMI,HDCP:ON,Y422,8bits,DDC-H(5.00V)
2014/06/17,22:18:24 1024x 768p, 59.94Hz,DVI,HDCP:ON,RGB,8bits,DDC-H(4.99V)
2014/06/17,22:18:37 1024x 768p, 59.94Hz,DVI,HDCP:ON,RGB,8bits,DDC-H(5.00V)
2014/06/17,22:18:44 1280x1024p, 60.02Hz,DVI,HDCP:ON,RGB,8bits,DDC-H(5.00V)
2014/06/17,22:19:00 1280x1024p, 60.02Hz,HDMI,HDCP:ON,Y444,12bits,DDC-H(5.00V)
2014/06/17,22:19:14 1920x1200p, 59.95Hz,HDMI,HDCP:ON,Y444,12bits,DDC-H(5.00V)
2014/06/17,22:20:18 1920x1080p, 60.00Hz,HDMI,HDCP:ON,Y444,12bits,DDC-H(5.00V)
2014/06/17,22:20:29 1920x1080p, 60.00Hz,HDMI,HDCP:OFF,Y444,12bits,DDC-H(5.00V)
2014/06/17,22:20:43 1920x1080p, 60.00Hz,DVI,HDCP:OFF,RGB,8bits,DDC-H(5.00V)
2014/06/17,22:20:56 1920x1080p, 59.94Hz,DVI,HDCP:OFF,RGB,8bits,DDC-H(5.00V)
2014/06/17,22:21:05 1920x1080p, 59.94Hz,DVI,HDCP:ON,RGB,8bits,DDC-H(5.00V)
2014/06/17,22:21:12 1920x1080p, 59.94Hz,HDMI,HDCP:ON,RGB,12bits,DDC-H(5.00V)
2014/06/17,22:21:24 -----x-----,-----,-----,-----,-----,DDC-L(0.29V)
2014/06/17,22:21:32 1920x1080p, 59.94Hz,HDMI,HDCP:ON,RGB,12bits,DDC-H(5.00V)
2014/06/17,22:21:40 1920x1080p, 59.94Hz,HDMI,HDCP:OFF,RGB,12bits,DDC-H(5.00V)
2014/06/17,22:21:48 1920x1080p, 59.94Hz,HDMI,HDCP:OFF,Y422,12bits,DDC-H(5.00V)

```

[Fig. 6.11] Source status (Terminal software)

WEB page

http://The GF-100's IP address/source_log_r.html

- The changed statuses are displayed in green.
- Even if the value is not changed from the last record, the status changed during DETECT WAIT is displayed in purple.
- The history data is kept even after turning off the GF-100.
- When the save area of communication history (53,248 byte) is full, from the oldest data will be deleted.

IDK SOURCE LOG

PASS DDC(RAW DATA) SOURCE STATUS SOURCE LOG SINK STATUS EDID BANK PRESET (2014/06/17 22:27:54)

(AUTO RELOAD : [ON] OFF CLEAR Used 456/53248 Bytes Wait = 2000ms)

<Log> DOWNLOAD

DATE	TIME	RESOLUTION	FRAME RATE	HDMI/DVI	HDCP	COLOR SPACE	COLOR DEPTH	DDC POWER
2014/06/17	22:21:48	1920 x 1080p	59.94Hz	HDMI	OFF	Y422	12 bits	H(5.00V)
2014/06/17	22:21:40	1920 x 1080p	59.94Hz	HDMI	OFF	RGB	12 bits	H(5.00V)
2014/06/17	22:21:32	1920 x 1080p	59.94Hz	HDMI	ON	RGB	12 bits	H(5.00V)
2014/06/17	22:21:24	---- x ----	-	-	-	-	-	L(0.29V)
2014/06/17	22:21:12	1920 x 1080p	59.94Hz	HDMI	ON	RGB	12 bits	H(5.00V)
2014/06/17	22:21:05	1920 x 1080p	59.94Hz	DVI	ON	RGB	8 bits	H(5.00V)
2014/06/17	22:20:56	1920 x 1080p	59.94Hz	DVI	OFF	RGB	8 bits	H(5.00V)
2014/06/17	22:20:43	1920 x 1080p	60.00Hz	DVI	OFF	RGB	8 bits	H(5.00V)
2014/06/17	22:20:29	1920 x 1080p	60.00Hz	HDMI	OFF	Y444	12 bits	H(5.00V)
2014/06/17	22:20:18	1920 x 1080p	60.00Hz	HDMI	ON	Y444	12 bits	H(5.00V)
2014/06/17	22:19:14	1920 x 1200p	59.95Hz	HDMI	ON	Y444	12 bits	H(5.00V)
2014/06/17	22:19:00	1280 x 1024p	60.02Hz	HDMI	ON	Y444	12 bits	H(5.00V)
2014/06/17	22:18:44	1280 x 1024p	60.02Hz	DVI	ON	RGB	8 bits	H(5.00V)
2014/06/17	22:18:37	1024 x 768p	59.94Hz	DVI	ON	RGB	8 bits	H(5.00V)
2014/06/17	22:18:24	1024 x 768p	59.94Hz	DVI	ON	RGB	8 bits	H(4.99V)
2014/06/17	22:18:04	1024 x 768p	59.94Hz	HDMI	ON	Y422	8 bits	H(5.00V)
2014/06/17	22:17:54	1024 x 768p	59.94Hz	HDMI	ON	Y422	12 bits	H(4.99V)
2014/06/17	22:17:44	1024 x 768p	59.94Hz	HDMI	OFF	Y422	12 bits	H(5.00V)
2014/06/17	22:17:34	1024 x 768p	60.00Hz	HDMI	OFF	Y422	12 bits	H(5.00V)

[Fig. 6.12] WEB page of source status history

6.3.1 Beep for source status change

Menu

TOP → SETTINGS → SOURCE LOG → BUZZER

Set value

OFF: The beep does not sound [Default]

ON: The beep sounds when the source status changes.

Note: If “10.5.2 Beep sound” is set to “OFF”, it does not sound.

6.3.2 Escape sequence of source status

Letter color code and BELI code are added to the terminal software.

Menu

TOP → SETTINGS → SOURCE LOG → ESCAPE CODE

Set value

DISABLE

ENABLE [Default]: The changed status will be shown in green. Even if the value is not changed from the last record, the status changed during DETECT WAIT is displayed in purple. Warning tone is output from the software every time the source status changes.

6.3.3 Wait time for detecting source status

The GF-100 waits to detect status of the source device until the status is stabilized.

If you want to detect momentary changes, set the value set this menu to “NO WAIT” or a small value.

If you do not want to detect unnecessary information, set this menu to a larger value.

Menu

TOP → SETTINGS → SOURCE LOG → DETECT WAIT

Set value

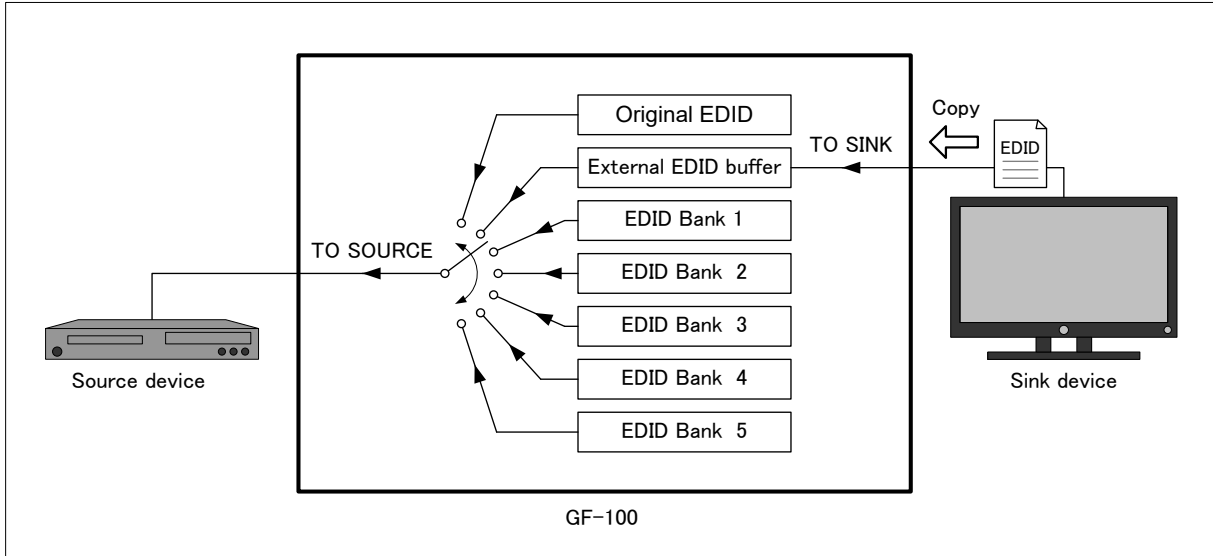
NO WAIT

100ms to 10000ms [Default: 800ms]

6.4 EDID emulator

6.4.1 Outline

You can set EDID that is output to the connector for source test from the data below.



[Fig. 6.13] EDID output diagram

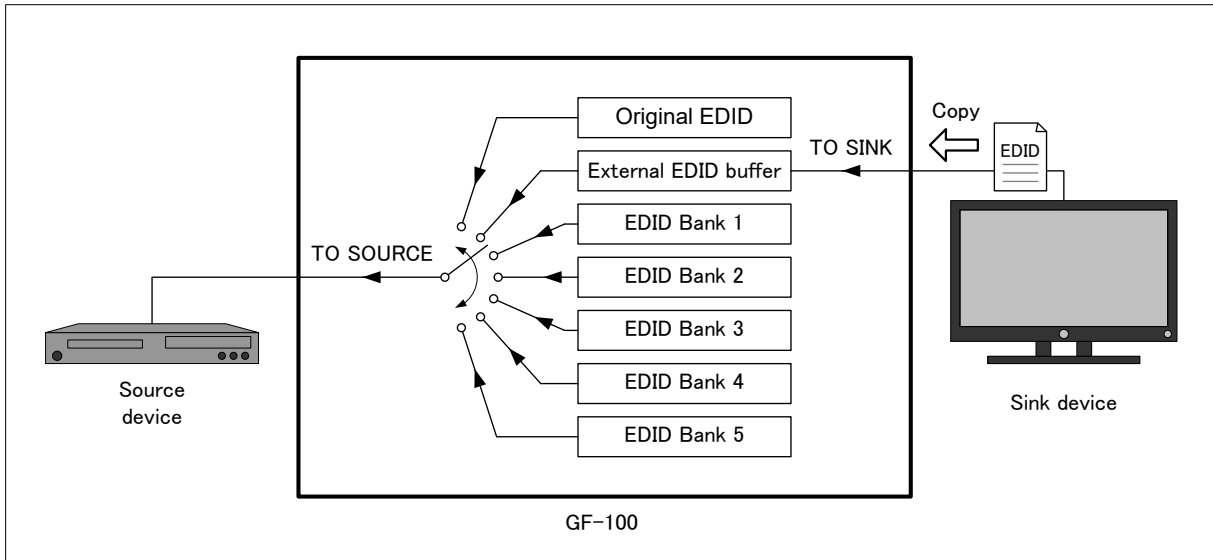
[Table 6.3] EDID output data

EDID output data	Function
Original EDID of GF-100	The original EDID of the GF-100 The maximum resolution (P.32), color depth (P.32), the number of audio channels (P.33), and audio format (P.34) can be changed.
External EDID buffer	EDID that is copied from the sink device automatically When a sink device is connected, the GF-100 copies EDID of the sink device. The copied EDID is kept until another sink device is connected. Connect the sink device for 2 seconds or longer until the copy is completed.
EDID Banks 1 to 5	External EDID settings are saved in the GF-100. Up to five EDIDs that are copied to the external EDID buffer can be saved.

Note: Only EDID BLOCK 0 and BLOCK1 are supported.

6.4.2 EDID output mode

You can select the EDID that is output to the source test connector.



[Fig. 6.14] EDID output diagram

Menu

TOP → EDID OUT → EDID MODE

Set value

[Table 6.4] EDID output data

Set value	Function
AUTO [Default]	Outputs the external EDID buffer (EDID copied from the sink device). Outputs the original EDID of the GF-100 if any sink device has not been connected after initialization (P.19).
ORIGINAL	Outputs the original EDID of the GF-100.
BANK 1 to 5	Outputs EDID banks 1 to 5.

6.4.3 Saving EDID

Saving EDID that is copied in the external EDID buffer into the EDID banks.

EDID banks can be output from the source test connector by setting the EDID mode to BANK 1 to 5.

Menu

TOP → EDID OUT → EDID CAPTURE

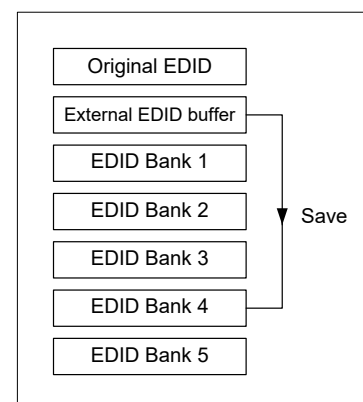
The EDID can be saved by selecting the destination bank (BANK 1 to 5) and then press the “SET” key.

The saved EDID can be downloaded from a browser to a PC and can be read using analysis software.

WEB page

http://The GF-100's IP address/external_edid_dump.html

You can check the details of the external EDID buffer and EDID bank.



[Fig. 6.15] EDID bank

6.4.4 Resolution of original GF-100 EDID

Menu

TOP → EDID OUT → RESOLUTION

Set value [Default: 1080p]

[Table 6.5] EDID output data

		Supported resolution																		
		VGA 640 x 480	SVGA 800 x 600	XGA 1024 x 768	720p 1280 x 720	WXGA-1 1280 x 768	WXGA-2 1280 x 800	Quad-VGA 1280 x 960	SXGA 1280 x 1024	WXGA-3 1360 x 768	WXGA-4 1366 x 768	SXGA+ 1400 x 1050	WXGA+ 1440 x 900	WXGA++ 1600 x 900	UXGA 1600 x 1200	WSXGA+ 1680 x 1050	1080i 1920 x 1080	1080p 1920 x 1080	WUXGA 1920 x 1200	QWXGA 2048 x 1152
Set value	SVGA	●	●◎																	
	XGA	●	●	●◎																
	720p	●	●	●	◎															
	WXGA-1	●	●	●	○	◎														
	WXGA-2	●	●	●	○	◎	◎													
	Quad-VGA	●	●	●	○	◎		◎												
	SXGA	●	●	●	○	◎	○	○	◎											
	WXGA-3	●	●	●	○	◎	○	○	◎	◎										
	WXGA-4	●	●	●	○		○	○	◎		◎									
	SXGA+	●	●	●	○		○	○	◎			◎								
	WXGA+	●	●	●	○		○	○	◎		◎	◎		◎						
	WXGA++	●	●	●	○		○	○	◎		◎	◎		◎	◎					
	UXGA	●	●	●	○		○	○	◎		◎	◎		◎		◎				
	WSXGA+	●	●	●	○		○	○	◎		◎	◎		◎	◎	◎	◎			
	1080i	●	●	●					◎		◎	◎		◎	◎	◎	◎	◎		
	1080p	●	●	●					◎		◎	◎		◎	◎	◎	◎	◎	◎	
	WUXGA	●	●	●			○	○	◎		◎	◎		◎	◎	◎	◎		◎	◎
QWXGA	●	●	●					◎		◎	◎		◎	◎	◎	◎		◎	◎	

●:Established Timing / ○:Standard Timing Identification / ◎:Detailed Timing Description
 VESA Enhanced EDID Standard Release A, Rev1

6.4.5 Color depth of original GF-100 EDID

Menu

TOP → EDID OUT → COLOR DEPTH

Set value

24 bit [Default]

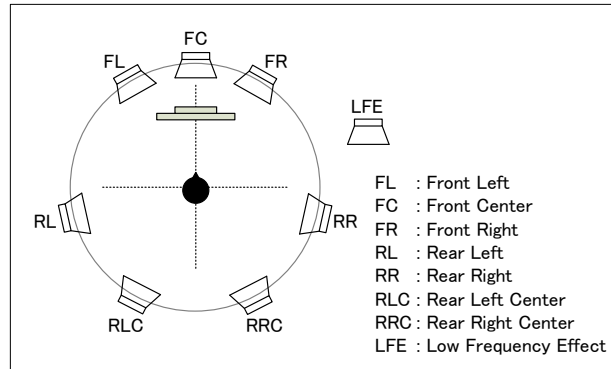
24/30 bit

24/30/36 bit

6.4.6 Number of audio channels of original GF-100 EDID

Menu

TOP → EDID OUT → AUDIO CHANNEL



[Fig. 6.16] Speaker configuration

Set value

[Table 6.6] EDID output data

Set value	RLC	RL	FL	FC	FR	RR	RRC	LFE
2 CH			●		●			
2.1 CH			●		●			●
3.1 CH			●	●	●			●
5 CH		●	●	●	●	●		
5.1 CH		●	●	●	●	●		●
7 CH	●	●	●	●	●	●	●	
7.1 CH [Default]	●	●	●	●	●	●	●	●

●: Supported

6.4.7 Audio format of original GF-100 EDID

Menu

TOP → EDID OUT → Table 6.4.7 below

[Table 6.7] Audio format settings

Menu	Audio format	Setting range	Default
PCM	Linear PCM	MAX 32.0 kHz to MAX 192.0 kHz	MAX 48.0 kHz
Dolby Digital	AC-3 Dolby Digital Audio	OFF, MAX 32.0 kHz to MAX 48.0 kHz	MAX 48.0 kHz
AAC	AAC Audio	OFF, MAX 32.0 kHz to MAX 96.0 kHz	MAX 48.0 kHz
Dolby Digital+	Dolby Digital Plus Audio	OFF, MAX 32.0 kHz to MAX 48.0 kHz	MAX 48.0 kHz
DTS	DTS Audio	OFF, MAX 32.0 kHz to MAX 96.0 kHz	MAX 48.0 kHz
DTS-HD	DTS-HD Audio	OFF, MAX 32.0 kHz to MAX 192.0 kHz	MAX 192.0 kHz
Dolby TrueHD	Dolby TrueHD Audio	OFF, MAX 32.0 kHz to MAX 192.0 kHz	MAX 96.0 kHz

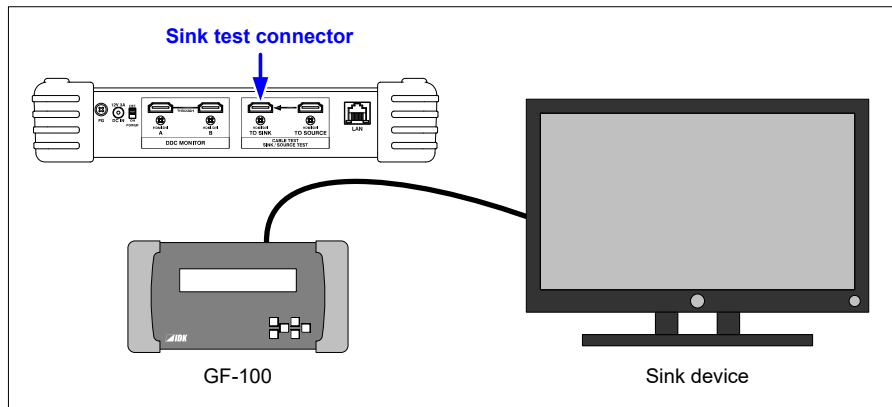
Set value

OFF, MAX 32.0 kHz, MAX 44.1 kHz, MAX 48.0 kHz,
 MAX 88.2 kHz, MAX 96.0 kHz, MAX 176.4 kHz, MAX 192.0 kHz

7 Sink test

7.1 Sink status

Displaying status of the device that is connected to the sink test connector



[Fig. 7.1] Sink test connection

Menu

TOP → SINK STATE → Table 7.1

The specification of the sink device is shown on the SUMMARY pages 1 to 3.

Very detailed information is shown on pages other than the SUMMARY page.

<Reference>

E-EDID: VESA Enhanced Extended Display Identification Data Standard Release A, Revision 2

CEA-861: CEA Standard A DTV Profile for Uncompressed High Speed Digital Interfaces

[Table 7.1] Sink status menu

Menu page	Information to be displayed
SUMMARY 1 (Specification of sink device)	Manufacturer, product ID, display size, aspect ratio, HDMI supported/not supported, Audio supported/not supported, HDCP supported/not supported, supported color space and color depth
SUMMARY 2 TIMING (Specification of sink device)	Supported resolution (PREFER, NATIVE)
SUMMARY 3 SPEAK (Specification of sink device)	Speaker configuration
SINK EDID → BASIC (EDID detail information)	Detail information of BASIC EDID (BLOCK0)
SINK EDID → EXTENSION #1 (EDID detail information)	Detail information of EXTENSION #1 EDID (BLOCK1)
SINK EDID → EXTENSION #2 (EDID detail information)	Detail information of EXTENSION #2 EDID (BLOCK2)
SINK EDID → EXTENSION #3 (EDID detail information)	Detail information of EXTENSION #3 EDID (BLOCK3)
SINK EDID → EXTENSION #4 (EDID detail information)	Detail information of EXTENSION #4 EDID (BLOCK4)

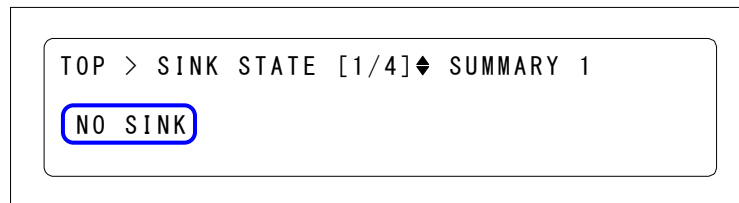
WEB page

http://The GF-100's IP address/sink_state.html

7.2 Displaying sink status

7.2.1 Detecting sink device

If the GF-100 cannot detect sink device, "NO SINK" is displayed.



[Fig. 7.2] Sink device is not detected

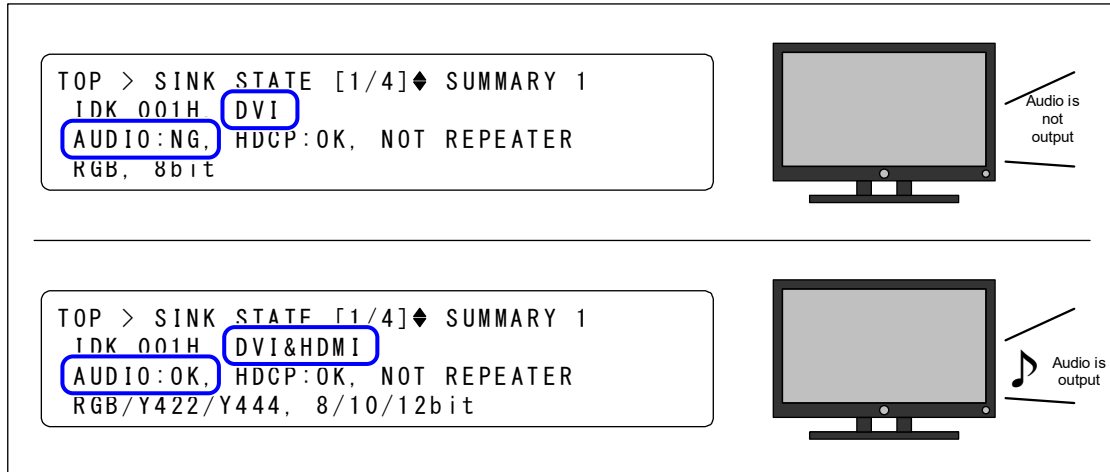
<Recommended actions>

- Check the connection, power supply, and input switching (if there are some inputs) of the sink device.
- Perform the cable test (P.51).
- Replace the cable.

7.2.2 HDMI supported/not supported Audio supported/not supported

If the connected sink device does not support HDMI (audio), “DVI” is displayed while “DVI&HDMI” is displayed for devices that support HDMI.

If the sink device does not support audio, “AUDIO NG” is displayed while “Audio OK” is displayed in an opposite case.



[Fig. 7.3] HDMI supported/not supported Audio supported/not supported

<Recommended actions>

For when the image cannot be displayed on the sink device;

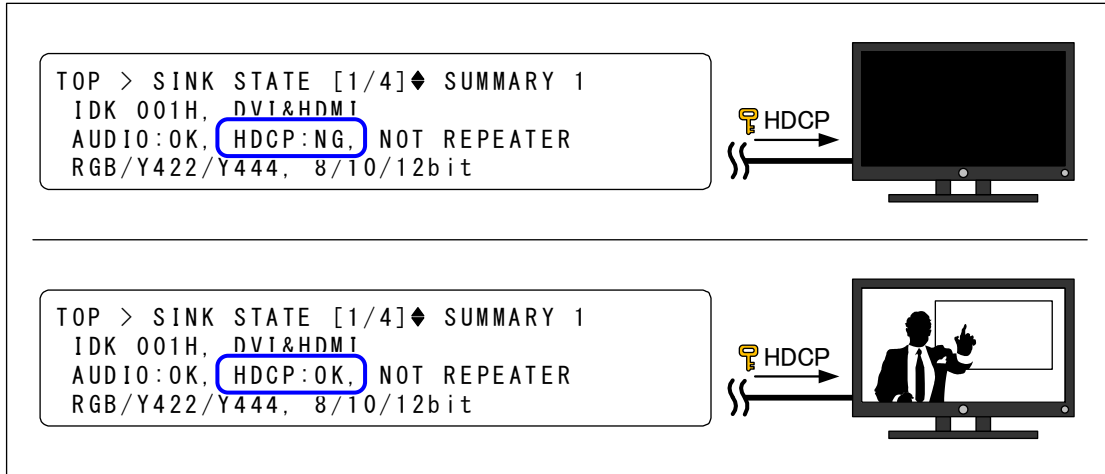
- Check the power supply, input switching (if there are some inputs), and operation using test patterns (P.41) of the sink device
- Check the presence or absence of output signals of the source device (P.22)

For when the audio is not output from the sink device (HDMI supported);

- Check the volume, mute, presence or absence of headphone, audio input setting (analog/digital), and operation using test tones (P.41) of the sink device.
- Check the presence or absence of audio output (P.23)

7.2.3 HDCP (copyright protection) supported/not supported

If the sink device does not support HDCP (copyright protection), “HDCP:NG” is displayed while “HDCP:OK” is displayed for device that supports HDCP. Sink devices that do not support HDCP cannot display or output audio video and audio having HDCP.



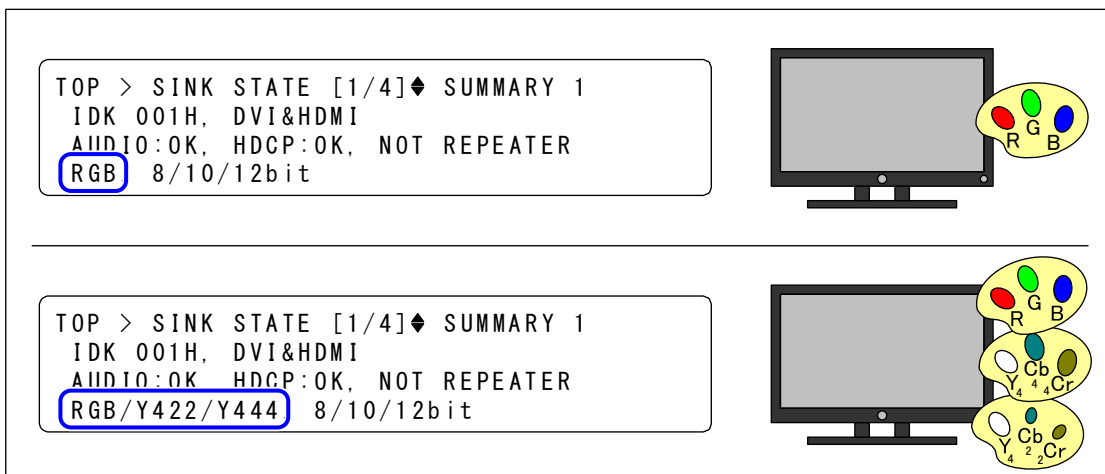
[Fig. 7.4] HDCP supported/not supported

<Recommended actions for when the image cannot be displayed on the sink device>

- Check the power supply, input switching (if there are some inputs), and operation using test patterns (P.41) of the sink device.
- Check the presence or absence of output signals (P.22) and HDCP (P.24) of the source device.

7.2.4 Supported color space

RGB4:4:4: “RGB”, YCbCr4:2:2: “Y422”, YCbCr4:4:4: “Y444”



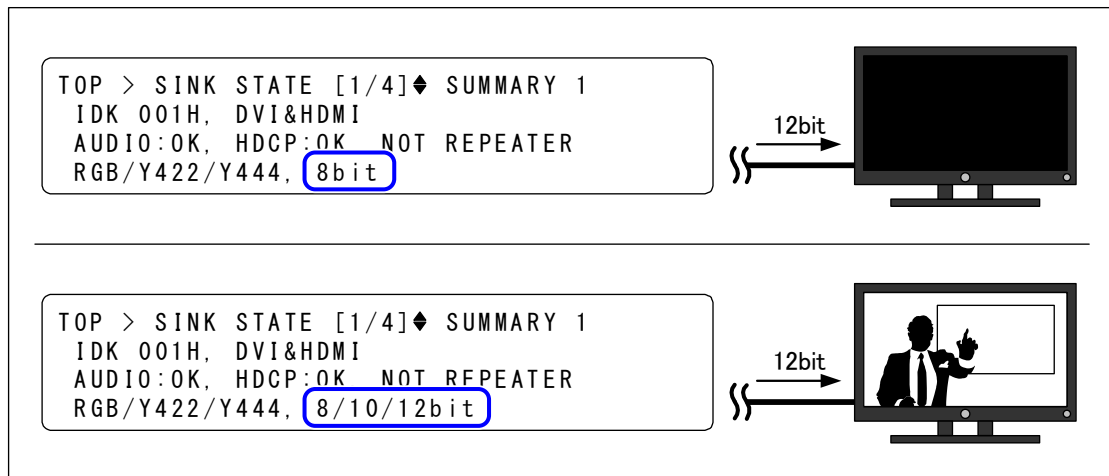
[Fig. 7.5] Supported color space

<Recommended actions for when the image is not display with correct colors>

- Sink device: Check the operation using test patterns (P.41)
- Source device: Change the color space of the output signals (P.24)

7.2.5 Supported color depth (Deep Color)

12 bit (36 bit/pixel): "12bit" 10 bit (30 bit/pixel): "10bit" 8 bit (24 bit/pixel): "8bit"



[Fig. 7.6] Supported color depth

<Recommended actions for when the image cannot be displayed on the sink device>

- Sink device: Check the power supply, input switching (if there are some inputs), and operation using test patterns (P.41).
- Source device: Check the presence or absence of output signals (P.22) and color depth of output signals (P.25).

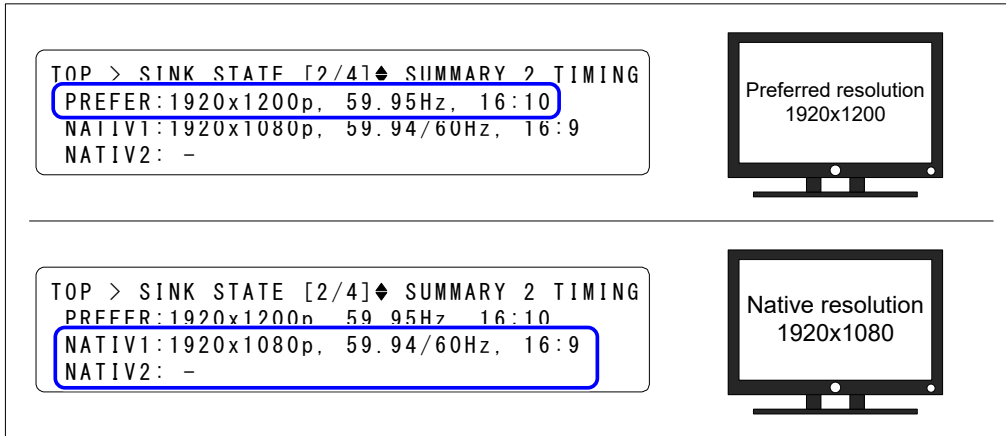
7.2.6 Preferred/native resolution

“PREFER”: resolution recommended by the manufacturer of the sink device

“NATIV1” and “NATIV2”: native resolution (the maximum resolution of sink devices’ pixel)

For other supported resolutions, see “7.2.8 Detailed EDID”.

Note: Handling preferred and native resolutions differs by manufacturers. The preferred resolution is sometimes higher than the native resolution due to scaling.

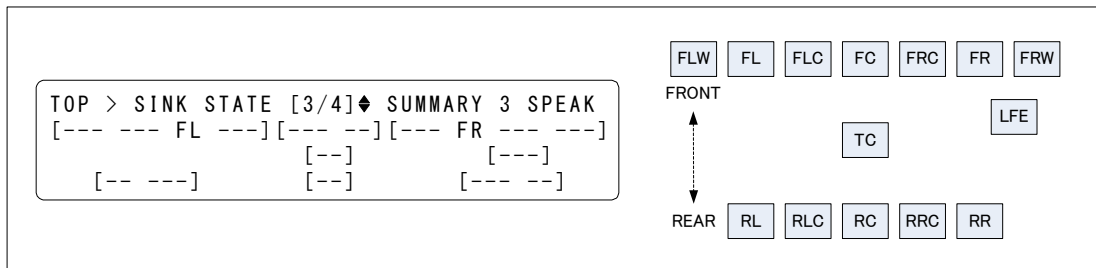


[Fig. 7.7] Preferred/native resolution

<Recommended actions for when the image cannot be displayed on the sink device>

- Sink device: Check the power supply, input switching (if there are some inputs), and operation using test patterns (P.41).
- Source device: Check the presence or absence of output signals (P.22) and output resolution (P.22).

7.2.7 Configuration of supported speakers



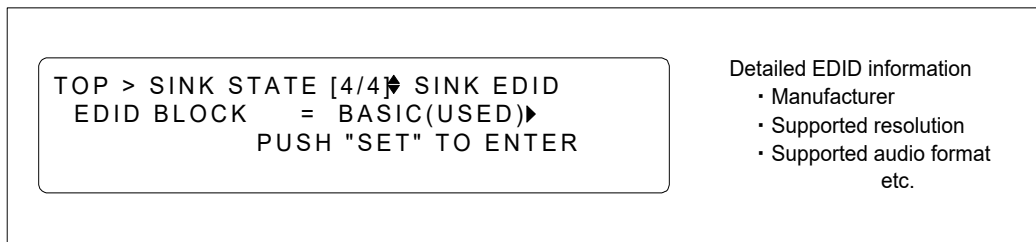
[Fig. 7.8] Speaker configuration

[Table 7.2] Speaker position

Name	Position	Name	Position	Name	Position
FL	Front Left	RC	Rear Center	FRW	Front Right Wide
FC	Front Center	RR	Rear Right	FLH	Front Left High
FR	Front Right	RLC	Rear Left Center	FCH	Front Center High
FLC	Front Left Center	RRC	Rear Right Center	FRH	Front Right High
FRC	Front Right Center	LFE	Low Frequency Effect	TC	Top Center
RL	Rear Left	FLW	Front Left Wide		

7.2.8 Detailed EDID information

Displaying the detailed EDID information of the sink device, such as manufacturer, supported resolution and audio format.



[Fig. 7.9] Detailed EDID information

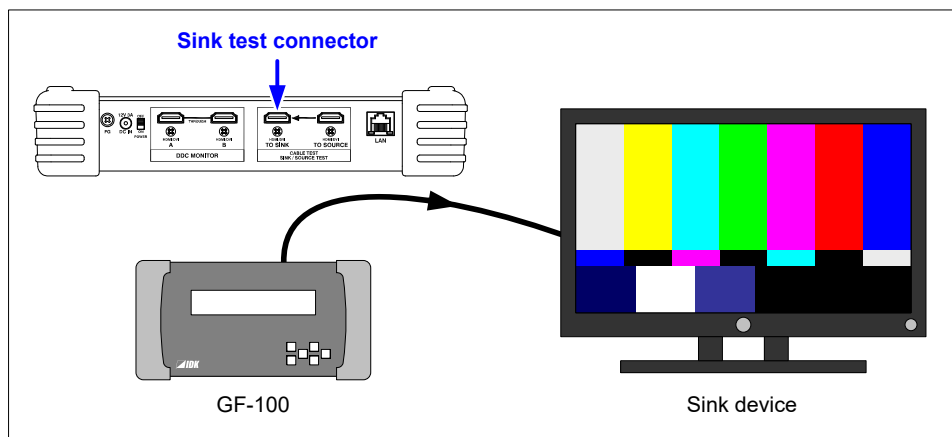
<Reference>

E-EDID: VESA Enhanced Extended Display Identification Data Standard Release A, Revision 2

CEA-861: CEA Standard A DTV Profile for Uncompressed High Speed Digital Interfaces

7.3 Test pattern/tone

7.3.1 Outputting test pattern/tone



[Fig. 7.10] Outputting test pattern

Menu

TOP → TEST PATTERN → OUTPUT

Set value

OFF: Outputting the signals of the source test connector to the sink test connector

ON: Outputting test pattern/tone [Default]

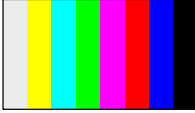





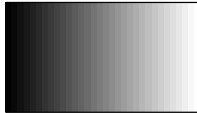

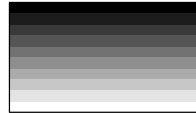
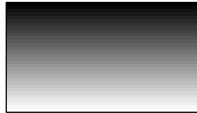
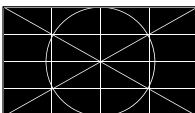
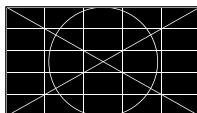
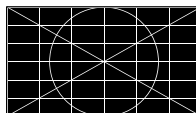
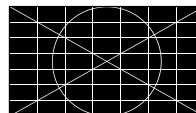
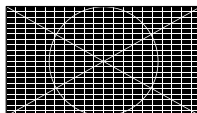
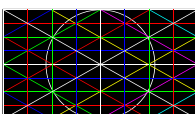
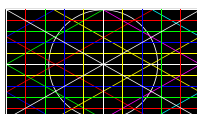
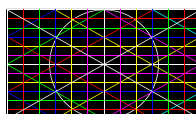
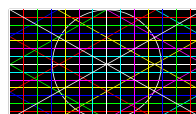
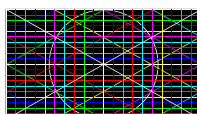
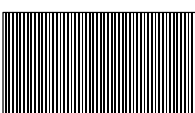
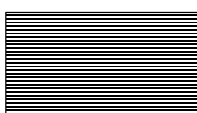
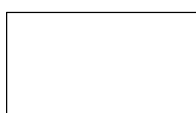







7.3.2 Selecting test pattern

Menu

TOP → TEST PATTERN → CONTENTS

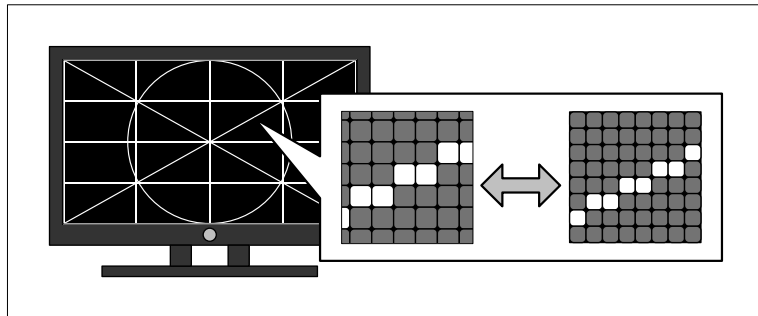
Set value

[Default: ARIB COLOR BAR]

 75% COLOR BAR	 EIA COLOR BAR	 SMPTE COLOR BAR	 ARIB COLOR BAR	 H GRAY SCALE
 H GRAY SCALE 10 STEP	 H GRAY SCALE 32 STEP	 V GRAY SCALE	 V GRAY SCALE 10 STEP	 V GRAY SCALE 32 STEP
 4x4 CROSS HATCH	 5x5 CROSS HATCH	 6x6 CROSS HATCH	 7x7 CROSS HATCH	 20x20 CROSS HATCH
 MULTI SET 8x8	 MULTI SET 10x10	 MULTI SET 12x12	 MULTI SET 14x14	 MULTI SET 20x20
 VERTICAL STRIPES	 HORIZONTAL STRIPES	 100% WHITE RASTER	 75% GRAY RASTER	 50% GRAY RASTER
 25% GRAY RASTER	 BLACK RASTER	 RED RASTER	 GREEN RASTER	 BLUE RASTER

[Fig. 7.11] Test patterns

7.3.3 Test pattern resolution



[Fig. 7.12] Test pattern resolution

Menu

TOP → TEST PATTERN → RESOLUTION

Set value

AUTO: Automatic [Default]

[Table 7.2]: Manual

[Table 7.3] Test pattern resolution

PC resolution				TV resolution			
Set value	Resolution	Frame rate	Aspect	Set value	Resolution	Frame rate	Aspect
VGA	640x 480	60 Hz	4:3	480i @59.94Hz	720x 480	29.97 Hz	4:3
SVGA	800x 600	60 Hz	4:3	480p @59.94Hz	720x 480	59.94 Hz	4:3
XGA	1024x 768	60 Hz	4:3	576i @50Hz	720x 576	25 Hz	4:3
OV-MP	1024x 768	59.94 Hz	4:3	576p @50Hz	720x 576	50 Hz	4:3
WXGA-1	1280x 768	60 Hz	5:3	720p @50Hz	1280x 720	50 Hz	16:9
WXGA-2	1280x 800	60 Hz	16:10	720p @59.94Hz	1280x 720	59.94 Hz	16:9
Quad-VGA	1280x 960	60 Hz	4:3	720p @60Hz	1280x 720	60 Hz	16:9
SXGA	1280x1024	60 Hz	5:4	1080i @50Hz	1920x1080	25 Hz	16:9
WXGA-3	1360x 768	60 Hz	16:9	1080i @59.94Hz	1920x1080	29.97 Hz	16:9
WXGA-4	1366x 768	60 Hz	16:9	1080i @60Hz	1920x1080	30 Hz	16:9
SXGA+	1400x1050	60 Hz	4:3	1080p @50Hz	1920x1080	50 Hz	16:9
WXGA+	1440x 900	60 Hz	16:10	1080p @59.94Hz	1920x1080	59.94 Hz	16:9
WXGA++	1600x 900	60 Hz	16:9	1080p @60Hz	1920x1080	60 Hz	16:9
UXGA	1600x1200	60 Hz	4:3				
WSXGA+	1680x1050	60 Hz	16:10				
WUXGA	1920x1200	60 Hz	16:10				
QWXGA	2048x1152	60 Hz	16:9				

WUXGA/QWXGA: Reduced Blanking

7.3.4 Test pattern HDCP

Menu

TOP → TEST PATTERN → HDCP OUT

Set value

AUTO: automatic [Default]

OFF: without HDCP

ON: with HDCP

7.3.5 Test pattern format/color space

Menu

TOP → TEST PATTERN → FORMAT

Set value

AUTO: automatic [Default]

DVI

HDMI RGB4:4:4

HDMI YCbCr4:2:2

HDMI YCbCr4:4:4

7.3.6 Test pattern color depth

Menu

TOP → TEST PATTERN → COLOR DEPTH

Set value

AUTO: automatic [Default]

8 bit: 24 bit/pixel (8 bit/component)

10 bit: 30 bit/pixel (10 bit/component)

12 bit: 36 bit/pixel (12 bit/component)

Note: If “7.3.5 Test pattern format/color space” is set to “DVI”, “8 bit” will be applied automatically.

7.3.7 Test pattern color range

Menu

TOP → TEST PATTERN → COLOR RANGE

Set value

AUTO: automatic [Default]

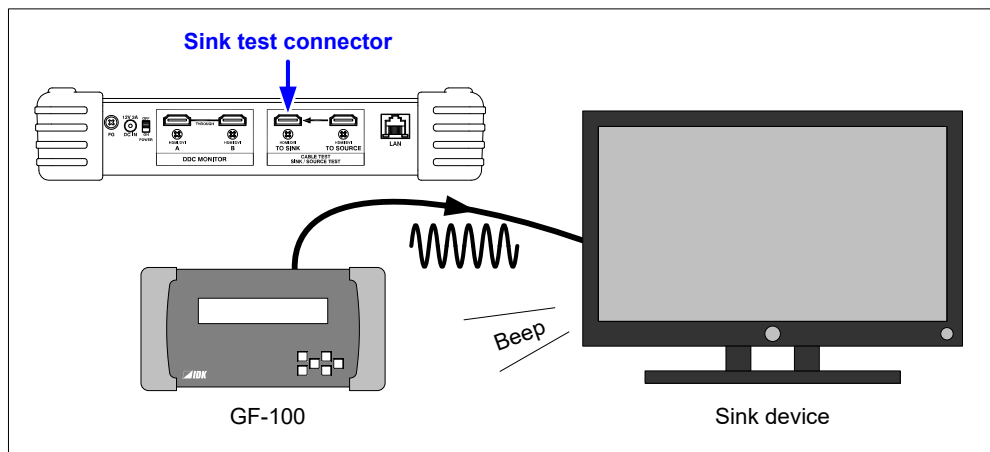
LIMITED RANGE

FULL RANGE

Note:

If “7.3.5 Test pattern format/color space” is set to “DVI”, “FULL RANGE” will be selected.

7.3.8 Selecting test tone



[Fig. 7.13] Test tone

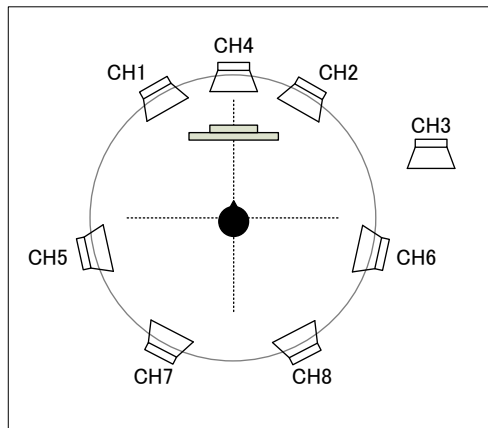
Menu

TOP → TEST PATTERN → TEST TONE

Set value

MUTE,	400Hz(CH3=30Hz),	400Hz(CH3=80Hz)	
	1000Hz(CH3=30Hz),	1000Hz(CH3=80Hz)	[Default]

7.3.9 Test tone: output channel



[Fig. 7.14] Speaker configuration example

Menu

TOP → TEST PATTERN → TONE CH

Set value

CH1-CH8, CH1-CH2 [Default]

CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8

7.3.10 Test tone: standard level

Menu

TOP → TEST PATTERN → TONE LEVEL

Set value

-20 dBFS: Standard signal level [Default]

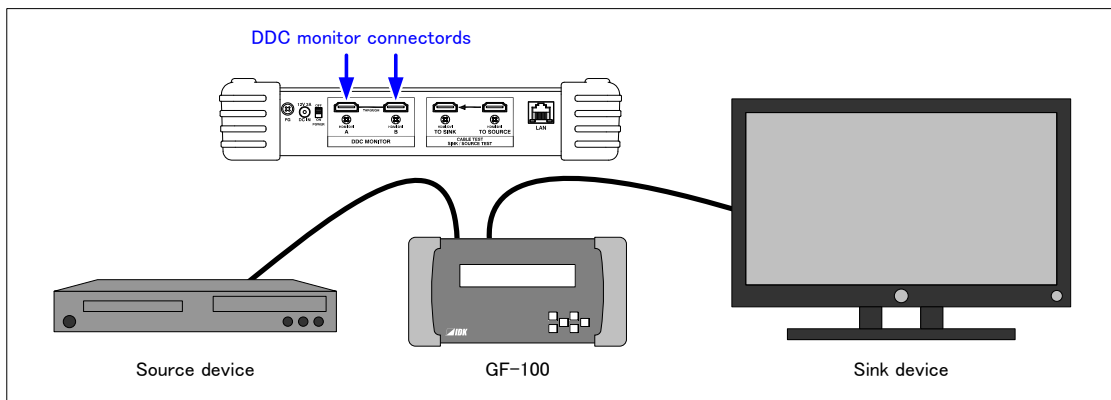
0 dBFS: Full-scale level

8 Monitoring DDC

8.1 Outline

DDC communication between the source device and sink device (hot plug voltage, DDC voltage, EDID, and HDCP) can be output to a browser or TCP/IP port “1100”.

Connect the sink device and source device to the DDC monitor connectors (in the example below, the source device is connected to connector A, but it can be connected to the connector B as well).



[Fig. 8.1] Connection for monitoring DDC

Terminal software

The communication contents are output to TCP/IP port “1100”.

Hot plug/DDC voltage, EDID, and HDCP are displayed in light blue, yellow, and green, respectively.(P.50)

```

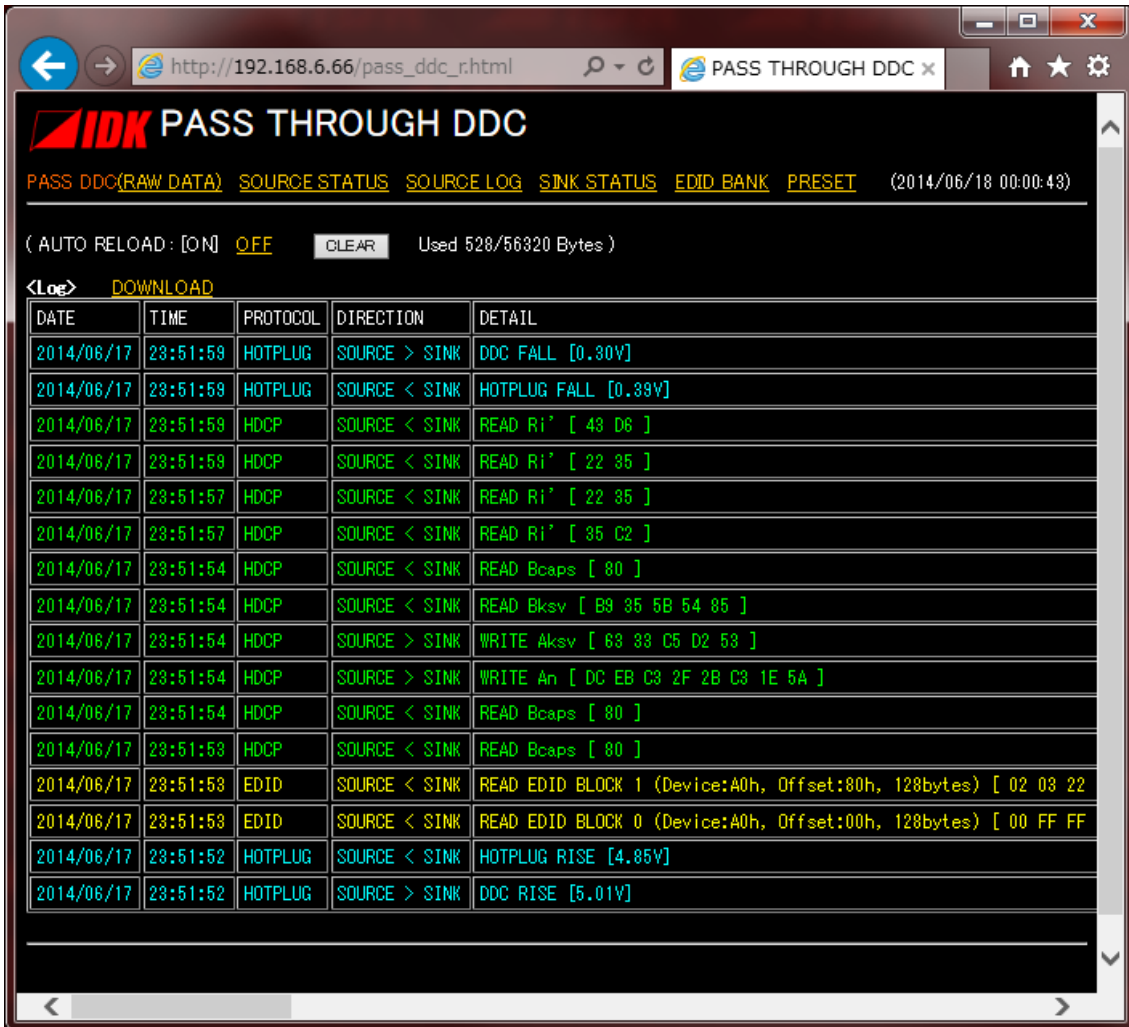
192.168.6.66:1100 - Tera Term VT
File Edit Settings Controls Window Help
03 80 30 1B 78 2E 27 95 A5 55 50 A2 27 0B 50 54 A5 6B 80 61 C0 81 00 81
81 40 81 80 A9 C0 B3 00 D1 C0 02 3A 80 18 71 38 2D 40 58 2C 45 00 DD 0C
00 00 1E 00 00 00 FF 00 59 39 44 30 34 31 39 30 53 4C 30 0A 20 00 00 00
00 32 4C 1E 53 11 00 0A 20 20 20 20 20 20 20 00 00 00 FC 00 42 65 6E 51 20
57 32 32 35 35 0A 20 01 C5 ]
2014/06/17,23:51:54,HDCP,SOURCE < SINK,READ Bksv [ B9 35 5B 54 85 ]
2014/06/17,23:51:54,HDCP,SOURCE > SINK,WRITE Aksv [ 63 33 C5 D2 53 ]
2014/06/17,23:51:54,HDCP,SOURCE > SINK,WRITE An [ DC EB C3 2F 2B C3 1E 5
2014/06/17,23:51:54,HDCP,SOURCE < SINK,READ Bcaps [ 80 ]
2014/06/17,23:51:54,HDCP,SOURCE < SINK,READ Bcaps [ 80 ]
2014/06/17,23:51:57,HDCP,SOURCE < SINK,READ Ri' [ 35 C2 ]
2014/06/17,23:51:57,HDCP,SOURCE < SINK,READ Ri' [ 22 35 ]
2014/06/17,23:51:59,HDCP,SOURCE < SINK,READ Ri' [ 22 35 ]
2014/06/17,23:51:59,HDCP,SOURCE < SINK,READ Ri' [ 43 D6 ]
2014/06/17,23:51:59,HOTPLUG,SOURCE < SINK,HOTPLUG FALL [0.39V]
2014/06/17,23:51:59,HOTPLUG,SOURCE > SINK,DDC FALL [0.30V]
    
```

[Fig. 8.2] Terminal software for monitoring DDC

WEB page

http://The GF-100's IP address/pass_ddc_r.html : Displays the protocol of EDID and HDCP
 http://The GF-100's IP address /pass_ddc_raw_r.html : Displays the DDC communication data

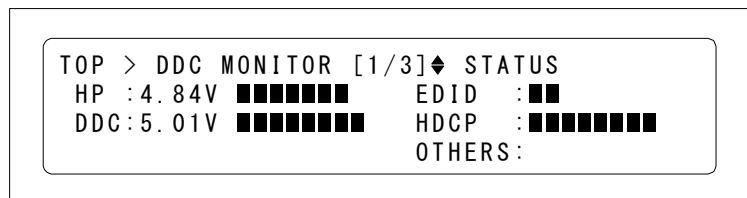
- The history data of the DDC monitoring data is kept even after turning off the GF-100.
- When no space is available in the save area of communication history (56,320 byte), from the oldest data will be deleted.



[Fig. 8.3] WEB page for monitoring DDC

Menu

TOP → DDC MONITOR → STATUS
 The simplified communication status is displayed.



[Fig. 8.4] Simplified display

8.2 Recording item

The recording of DDC communication items

Menu

TOP → DDC MONITOR → HP/DDC LOG: Hot plug/DDC voltage

TOP → DDC MONITOR → EDID LOG: EDID

TOP → DDC MONITOR → HDCP LOG: HDCP

TOP → DDC MONITOR → OTHERS LOG: other protocols

Set value

OFF: Not recorded

ON: Recorded [Default]

8.3 Beep sound

You can enable or disable the beep sound when a DDC communication is detected.

If “**10.5.2 Beep sound**” is set to “OFF”, it does not sound.

Menu

TOP → DDC MONITOR → BUZZER

Set value

OFFON

[Default]

8.4 DDC Escape sequence

Adding letter color codes to the terminal software

Menu

TOP → DDC MONITOR → ESCAPE CODE

Set value

DISABLE

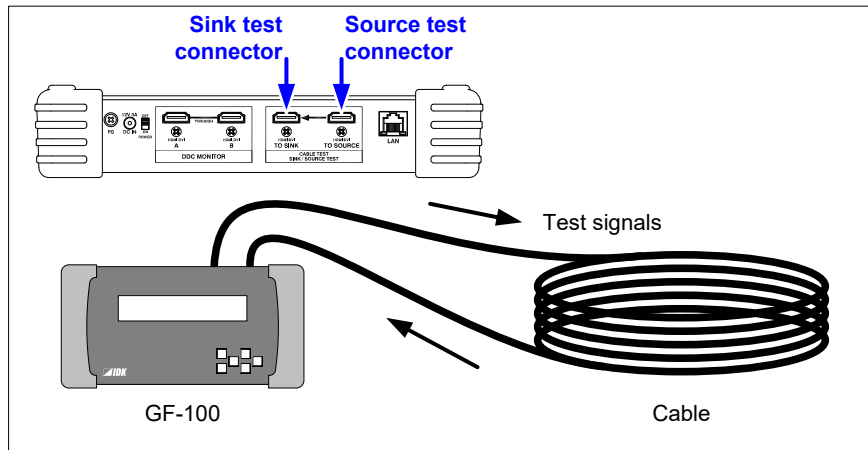
ENABLE : Hot plug/DDC voltage, EDID, and HDCP are displayed in light blue, yellow, and green, respectively [Default]

9 Cable /transmission path test

9.1 Outline

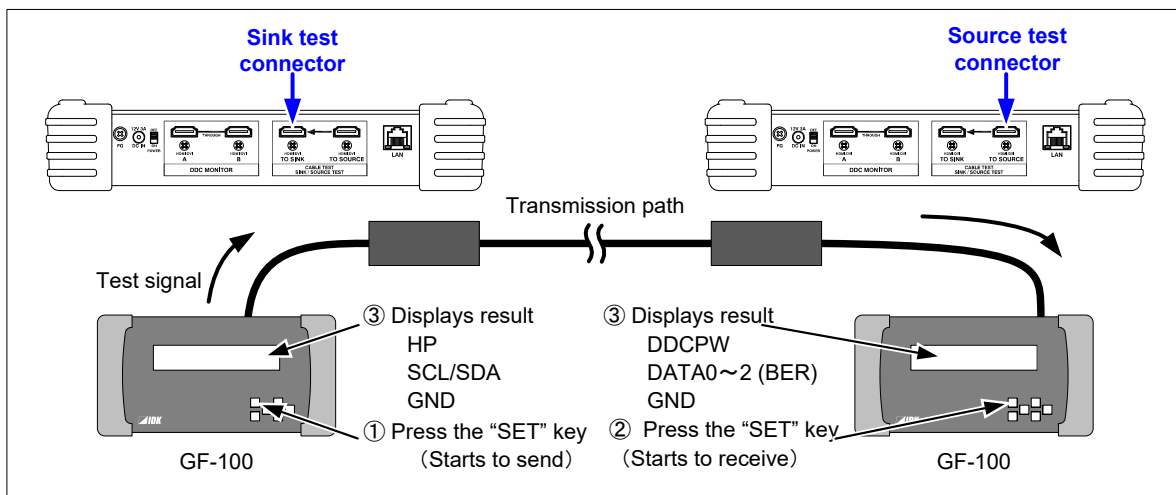
The GF-100 outputs the test signals in order to measure the quality (bit color) of the cable/transmission path. The test signals consist of random data and data that is under tougher condition (the hardware of the cable and its transmission).

The resolution and color depth of the test signals can be selected.



[Fig. 9.1] Connection for Cable/transmission path test

With two GF-100 units, the transmission path test between two distant sites can be performed.



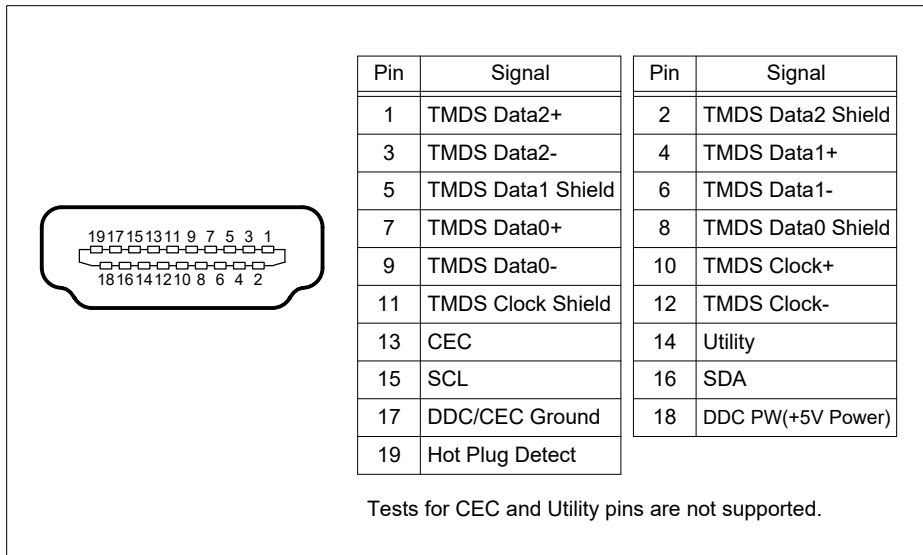
[Fig. 9.2] Connection between two distance sites

Menu

TOP → CABLE TEST →

The cable/transmission path test can be started by pressing the "SET" key while the CABLE TEST menu is displayed after devices are connected to GF-100.

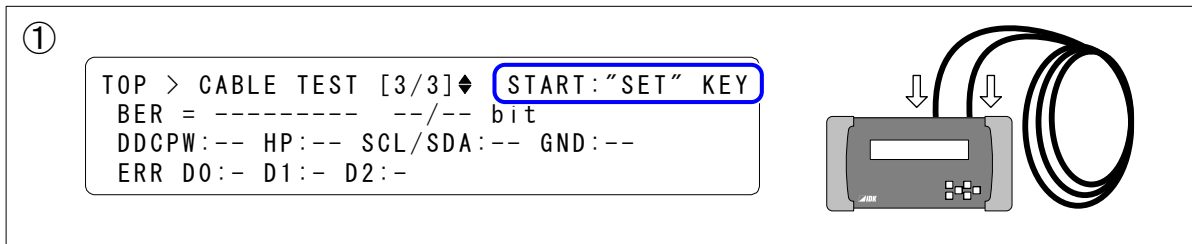
Note: The GF-100 is a simplified analyzer for field supports of AV systems. Please note that it does not provide calibrations.



[Fig. 9.3] Pin assignments (GF-100 side)

9.2 Operation and display example

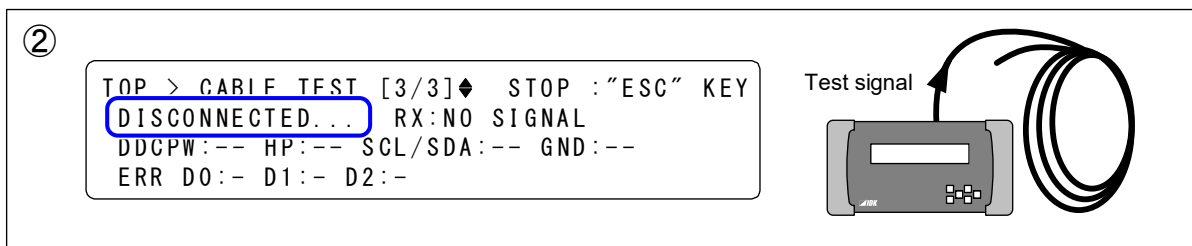
Example of a cable/transmission path test



[Fig. 9.4] Starting measurement

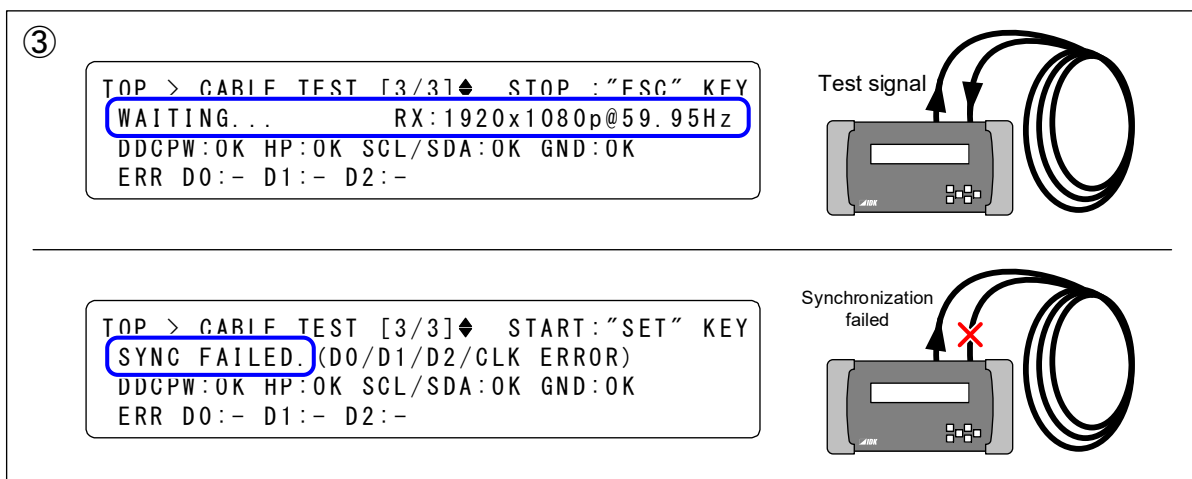
The cable/transmission path test can be started by pressing the “SET” key while any of the cable test menus is displayed.

If “9.7 Starting measurement” is set to “AUTO”, the measurement can be started by unplugging and plugging the cable while the cable test status is displayed (TOP→CABLE TEST [3/3]).



[Fig. 9.5] Signals are not detected

If the test signals cannot be received due to the cable disconnection or TMDS Data/TMDS Clock or if the resolutions or color depth of the received and test signals do not match, “DISCONNECTED...” is displayed.

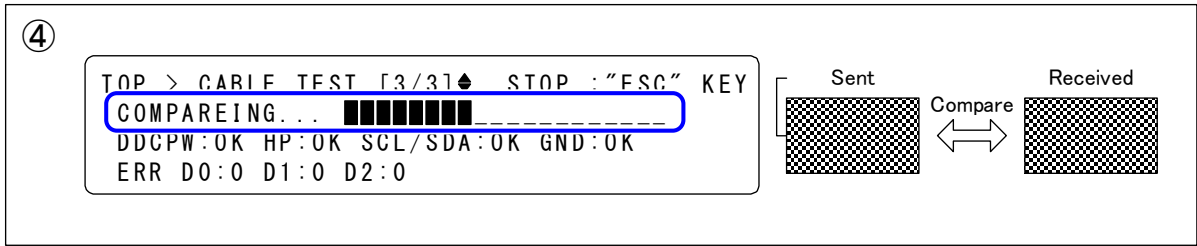


[Fig. 9.6] Waiting for signal stability/Synchronization failed

When the GF-100 detects received signals, it displays “WAITING...” and waits until the signals become stabilized.

You can change the waiting time in “9.6 Waiting time for starting pixel scan”.

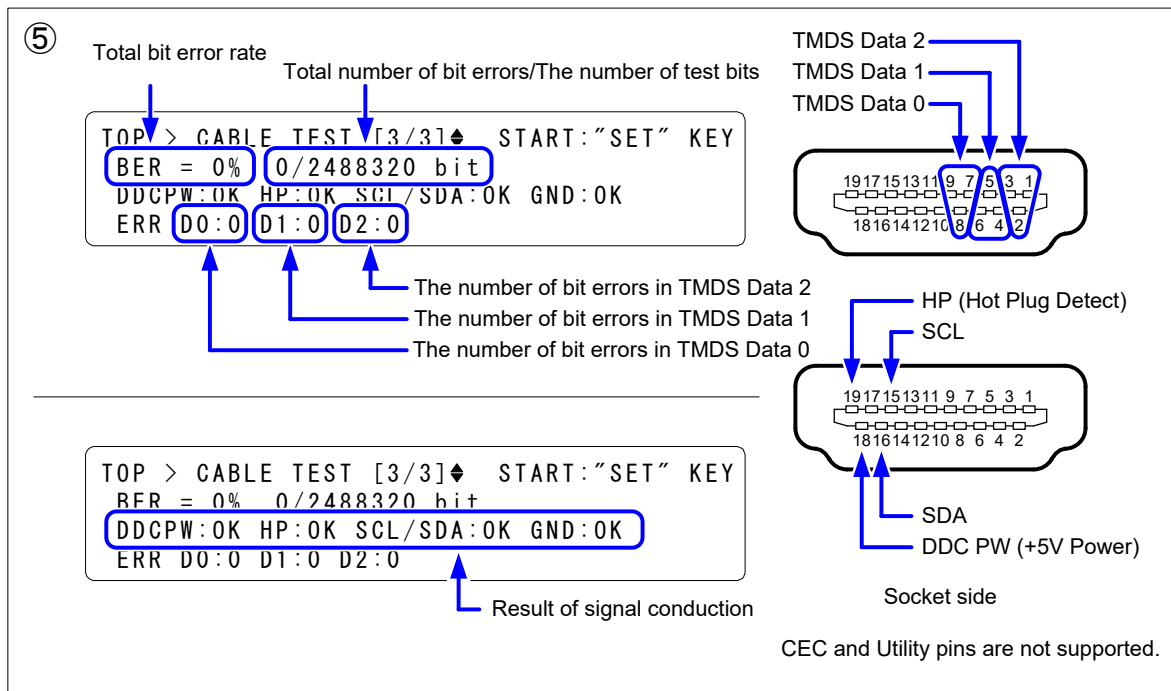
If the bit error cannot be measured due to signal deterioration or if there is a device that makes the resolution unstable during transmission, the GF-100 displays “SYNC FAILED” and finishes the measurement.



[Fig. 9.7] Signals comparison

The GF-100 displays “COMPAREING...” and measures the bit error by comparing the test signals and received signals.

You can set the amount of those signals for the comparison in “9.4 The amount of test data”.



[Fig. 9.8] Result

When the measurement of the bit error is completed, the result is displayed.

If the total number of bit errors is “0” and all signal conductions are “OK”, the cable is normal.

Even if the bit error is not “0”, video may be displayed correctly, depending on the equalizer performance of the sink device and the output signal quality of the source device.

Table 9.2 on the next page shows the measurement results of IDK’s cables as examples.

For IDK’s 20 m/65.62 ft. or shorter cables, the acceptance criteria is fixed at “0”. For long cables, the criteria vary depending on the usage environment.

Note: Please do not apply an extra force to the connector at the time of connection; otherwise, the measurement may not be performed correctly.

[Table 9.1] Measurement results (example)

Cable	Resolution	Color depth [bit]	Number of test bits	Number of bit errors/Result
20 m or shorter (without equalizer)	480p	8	8294400	0
		10	10368000	0
		12	12441600	0
	720p	8	22118400	0
		10	27648000	0
		12	33177600	0
	1080p	8	49766400	0
		10	62208000	0
		12	74649600	0
30 m (without equalizer)	480p	8	8294400	0
		10	10368000	0
		12	12441600	1290
	720p	8	22118400	6
		10	27648000	19
		12	33177600	30884
	1080p	8	49766400	0
		10	62208000	SYNC FAILED
		12	74649600	SYNC FAILED
50 m (without equalizer)	480p	8	8294400	2761826
		10	10368000	SYNC FAILED
		12	12441600	SYNC FAILED
	720p	8	22118400	SYNC FAILED
		10	27648000	SYNC FAILED
		12	33177600	SYNC FAILED
	1080p	8	49766400	DISCONNECTED
		10	62208000	DISCONNECTED
		12	74649600	DISCONNECTED
30 m or shorter (with equalizer)	480p	8	8294400	0
		10	10368000	0
		12	12441600	0
	720p	8	22118400	0
		10	27648000	0
		12	33177600	0
	1080p	8	49766400	0
		10	62208000	0
		12	74649600	0

9.3 Test signal resolution

Menu

TOP → CABLE TEST → RESOL.

Press the “SET” key to start the cable/transmission path test.

Set value

[Default: 1080p @59.94Hz]

[Table 9.2] TMDS clock of test signals

Set value	Resolution	TMDS clock		
		8bit color	10bit color	12bit color
480p @59.94Hz	720x 480	27.00 MHz	33.75 MHz	40.50 MHz
720p @59.94Hz	1280x 720	74.18 MHz	92.72 MHz	111.26 MHz
1080p @59.94Hz	1920x1080	148.35 MHz	185.44 MHz	222.53 MHz

9.4 The amount of test data

You can set the amount of the data which is compared (percentage of data amount in one frame).

Menu

TOP → CABLE TEST → AMOUNT

Press the “SET” key to start the cable/transmission path test.

Set value

5% to 100% [Default: 5%]

[Table 9.3] Data comparing time

Resolution	Data comparing time	
	Amount of test data: 5%	Amount of test data: 100%
480p @59.94Hz	0.3 sec.	6.5 sec.
720p @59.94Hz	0.8 sec.	16.2 sec.
1080p @59.94Hz	1.8 sec.	35.8 sec.

Note: Time to detect test signals and waiting time for starting pixel scan are not included.

9.5 Test signals color depth

Menu

TOP → CABLE TEST → COL.DEPTH

Press the “SET” key to start the cable/transmission path test.

Set value

8bit: 24 bit/pixel (8 bit/component) [Default]

10bit: 30 bit/pixel (10 bit/component)

12bit: 36 bit/pixel (12 bit/component)

9.6 Waiting time for starting pixel scan

You can set the waiting time from synchronous signal detection to starting pixel scan

For transmission path on which noise or a black frame appears, the measurement may not be performed correctly immediately after video signals are connected. In this case, delay the starting time of pixel scan.

Menu

TOP → CABLE TEST → CAPT.WAIT (capture wait)
Press the “SET” key to start the cable/transmission path test.

Set value

500ms to 30000ms [Default: 2000 ms.]

9.7 Starting measurement

Menu

TOP → CABLE TEST → START
Press the “SET” key to start the cable/transmission path test.

Set value

MANUAL: Starts the test by pressing the “SET” key. [Default]
AUTO: Starts the test by pressing the “SET” key or unplug and plug the cable while the cable test status is displayed (TOP→CABLE TEST [3/3]). Use this mode to perform the cable test repeatedly.

Note: If DDCPW(+5V) is disconnected, the GF-100 tries to restart the measurement repeatedly.

Related information

“5.2 Setting/canceling key lock” and “10.5.3 Resume”

10 Setting GF-100

10.1 Source test connector

10.1.1 Requesting input signals

If you change the EDID setting of the GF-100 or restart it while the connected source device is turned on, some source devices stop outputting signals. In such a case, use this menu to request the source device to output signals.

Menu

TOP → SETTINGS → VIDEO INPUT → SIGNAL REQUEST

Set value

OFF: The GF-100 does not request to output signals even if the source device stops outputting signals.
1 sec to 30 sec: The GF-100 requests to output signals after the set time if the source device stops outputting signals. [Default: 20 sec]

10.1.2 Input DC balance

Set this menu if video of the source device cannot be displayed.

Menu

TOP → SETTINGS → VIDEO INPUT → RECV OFFSET

Set value

DISABLE [Default]
ENABLE

10.1.3 HDCP enabled/disabled

Menu

TOP → SETTINGS → VIDEO INPUT → HDCP INPUT

Set value

ACTIVE: [Default]
INACTIVE

10.1.4 Input bus reset time

If the GF-100 detects an error in input signals, it disconnects the internal input bus for the set time in order to resolve the problem.

Menu

TOP → SETTINGS → VIDEO INPUT → BUS RESET TIME

Set value

OFF

1ms to 800ms: Input bus reset time [Default: 200 ms]

10.2 Sink test connector

10.2.1 Outputting signals forcibly

Menu

TOP → SETTINGS → VIDEO OUTPUT → FORCED OUT

Set value

OFF [Default]

ON: Signals are output forcibly even if the GF-100 cannot detect the sink device.

10.3 System Clock

10.3.1 Setting current time of the GF-100

Menu

TOP → SETTINGS → CLOCK

Press the "SET" key to set the setting.

10.4 LAN

10.4.1 IP address

Menu

TOP → SETTINGS → LAN → IP ADDRESS
[Default 192.168.001.199]

10.4.2 Default gateway

Menu

TOP → SETTINGS → LAN → GATEWAY ADDR.
[Default 192.168.001.001]

10.4.3 Subnet mask

Menu

TOP → SETTINGS → LAN → SUBNET MASK
[Default 255.255.255.000]

10.4.4 Displaying MAC address

Menu

TOP → SETTINGS → LAN → MAC ADDRESS

10.5 Others

10.5.1 Time for turning off backlight

When any key operation is not performed for the set time, the backlight will be turned off.

Menu

TOP → SETTINGS → OTHERS → BACKLIGHT OFF

Set value

DISABLE: The backlight is always turned on [Default]

1 sec to 600 sec: The backlight is turned off after the set time.

10.5.2 Beep sound

A beep that sounds every time a key is pressed.

Menu

TOP → SETTINGS → OTHERS → BUZZER

Set value

OFF

ON [Default]

10.5.3 Resume

Menu

TOP → SETTINGS → OTHERS → RESUME

Set value

OFF: The top menu is displayed at start-up.

ON: Displays the menu that was shown at the time of turning off last time. [Default]

5 min to 120 weeks: Displays the top menu after the set time passes. In other cases, displays the menu that was shown at the time of turning off last time.

10.5.4 Versions

Menu

TOP → SETTINGS → OTHERS → FIRM VER.: Firmware version

TOP → SETTINGS → OTHERS → BOAD VER.: Board version

TOP → SETTINGS → OTHERS → FPGA VER.: FPGA version

11 Setting list

Setting item	Page	Menu	Set value	Default
Key lock	P.19	-	OFF, ON	OFF
Beep for source	P.29	SETTINGS → SOURCE LOG → BUZZER	OFF, ON	OFF
Source status Escape sequence	P.29	SETTINGS → SOURCE LOG → ESCAPE CODE	DISABLE ENABLE	ENABLE
Wait time for detecting source status	P.29	SETTINGS → SOURCE LOG → DETECT WAIT	NO WAIT 100ms to 10000ms	800ms
EDID output mode	P.31	EDID OUT → EDID MODE	AUTO ORIGINAL BANK 1 to 5	AUTO
Resolution of GF-100 original EDID	P.32	EDID OUT → RESOLUTION	SVGA to QWXGA	1080p
Color depth of GF-100 original EDID	P.32	EDID OUT → COLOR DEPTH	24 bit 24/30 bit 24/30/36 bit	24 bit
The number of audio channels of GF-100 original EDID	P.33	EDID OUT → AUDIO CHANNEL	2, 2.1, 3.1, 5, 5.1, 7, 7.1CH	7.1 CH
Audio format of GF-100 original EDID	P.34	EDID OUT → PCM	MAX 32.0 to 192.0 kHz	MAX 48.0 kHz
		EDID OUT → Dolby Digital	OFF, MAX 32.0 to 48.0 kHz	MAX 48.0 kHz
		EDID OUT → AAC	OFF, MAX 32.0 to 96.0 kHz	MAX 48.0 kHz
		EDID OUT → Dolby Digital+	OFF, MAX 32.0 to 48.0 kHz	MAX 48.0 kHz
		EDID OUT → DTS	OFF, MAX 32.0 to 96.0 kHz	MAX 48.0 kHz
		EDID OUT → DTS-HD	OFF, MAX 32.0 to 192.0 kHz	MAX 192.0 kHz
		EDID OUT → Dolby TrueHD	OFF, MAX 32.0 to 192.0 kHz	MAX 96.0 kHz
Test pattern/tone	P.41	TEST PATTERN → OUTPUT	OFF, ON	ON
Selecting test pattern	P.42	TEST PATTERN → CONTENTS	75% COLOR BAR to BLUE RASTER	ARIB COLOR BAR
Test pattern resolution	P.43	TEST PATTERN → RESOLUTION	AUTO VGA to QWXGA 480i@59.94Hz to 1080p@60Hz	AUTO
Test pattern HDCP	P.44	TEST PATTERN → HDCP OUT	AUTO, OFF, ON	AUTO
Test pattern format/color space	P.44	TEST PATTERN → FORMAT	AUTO DVI HDMI RGB4:4:4 HDMI YCbCr4:2:2 HDMI YCbCr4:4:4	AUTO
Test pattern color depth	P.44	TEST PATTERN → COLOR DEPTH	AUTO, 8 bit, 10 bit, 12 bit	AUTO
Test pattern color range	P.45	TEST PATTERN → COLOR RANGE	AUTO LIMITED RANGE FULL RANGE	AUTO
Selecting test tone	P.45	TEST PATTERN → TEST TONE	MUTE 400Hz(CH3=30Hz) 400Hz(CH3=80Hz) 1000Hz(CH3=30Hz) 1000Hz(CH3=80Hz)	1000Hz (CH3=80Hz)

Setting item	Page	Menu	Set value	Default
Test tone: output channel	P.46	TEST PATTERN → TONE CH	CH1-CH8 CH1-CH2 CH1 to CH8	CH1-CH2
Test tone: standard level	P.47	TEST PATTERN → TONE LEVEL	-20 dBFS, 0 dBFS	-20 dBFS
Recording item	P.50	TOP → DDC MONITOR → HP/DDC LOG TOP → DDC MONITOR → EDID LOG TOP → DDC MONITOR → HDCP LOG TOP → DDC MONITOR → OTHERS LOG	OFF, ON	ON
Beep sound	P.50	TOP → DDC MONITOR → BUZZER	OFF, ON	ON
DDC monitor escape sequence	P.50	TOP → DDC MONITOR → ESCAPE CODE	DISABLE, ENABLE	ENABLE
Test signal resolution	P.56	CABLE TEST → RESOL.	480p@59.94Hz to 1080p@59.94Hz	1080p @59.94Hz
The amount of test data	P.56	CABLE TEST → AMOUNT	5% to 100 %	5%
Test signals color depth	P.56	CABLE TEST → COL.DEPTH	8 bit 10 bit 12 bit	8 bit
Waiting time for starting pixel scan	P.57	CABLE TEST → CAPT.WAIT	500ms to 3000ms	2000 ms
Starting measurement	P.57	CABLE TEST → START	MANUAL, AUTO	MANUAL
Requesting input signals	P.58	SETTINGS → VIDEO INPUT → SIGNAL REQUEST	OFF, 1 sec to 30 sec	20 sec
Input DC balance	P.58	SETTINGS → VIDEO INPUT → RECV OFFSET	DISABLE, ENABLE	DISABLE
HDCP enabled/disabled	P.58	SETTINGS → VIDEO INPUT → HDCP INPUT	ACTIVE, INACTIVE	ACTIVE
Input bus reset time	P.59	SETTINGS → VIDEO INPUT → BUS RESET TIME	OFF, 1ms to 800ms	200ms
Outputting signals forcibly	P.59	SETTINGS → VIDEO OUTPUT → FORCED OUT	OFF, ON	OFF
Setting current	P.59	SETTINGS → CLOCK	-	-
IP	P.60	SETTINGS → LAN → IP ADDRESS	-	192.168.001.199
Default gateway	P.60	SETTINGS → LAN → GATEWAY ADDR.	-	192.168.001.001
Subnet mask	P.60	SETTINGS → LAN → SUBNET MASK	-	255.255.255.000
Time for turning off backlight	P.61	SETTINGS → OTHERS → BACKLIGHT OFF	DISABLE, 1 sec to 600 sec	DISABLE
Beep sound	P.61	SETTINGS → OTHERS → BUZZER	OFF, ON	ON
Resume	P.61	SETTINGS → OTHERS → RESUME	OFF, ON 5min to 120weeks	ON
Version	P.61	SETTINGS → OTHERS → FIRM VER.	-	-
		SETTINGS → OTHERS → BOAD VER.	-	-
		SETTINGS → OTHERS → FPGA VER.	-	-

12 Product specification

Source test / cable test / transmission test

Item		Description
Video	HDMI / DVI	Number / Signal 1 input / HDMI Deep Color (*1) / DVI 1.0 / HDCP 1.4 - TMDS single link - TMDS clock: 25 MHz to 225 MHz - Dot clock 25 MHz to 165 MHz
		Connector 1 female HDMI Type A
Audio	Digital Audio	Number / Signal 1 input / Multi-channel LPCM up to 8 channels - Sampling frequency: 32 kHz to 192 kHz - Sample size: 16 bit to 24 bit - Reference level:-20 dBFS - Max. input level: 0 dBFS
		Connector 1 female HDMI Type A
Functions		Video status display - Resolution / Frame rate / Aspect Ratio / HDMI signal status / DVI signal status / HDCP status / Color space / color depth / DDC voltage status / Video timing / Dot clock frequency / Info frame information / etc... Audio status display - Audio format / number of audio channel / sampling frequency / sample size / speaker position / Info frame information / etc... EDID emulation (with copy function) Comparing transmitted signal and received signal by test signal Source status is output to terminal software Status log display and confirmation by web browser

Sink test / cable test / transmission test

Item		Description
Video	HDMI / DVI	Number / Signal 1 output / HDMI Deep Color (*1) / DVI 1.0 / HDCP 1.4 - TMDS single link - TMDS clock: 25 MHz to 225 MHz - Dot clock 25 MHz to 165 MHz
		Connector 1 female HDMI Type A
		Test pattern output Format Color space: RGB 4:4:4 / YCbCr 4:2:2 / YCbCr 4:4:4 Color Depth: 24 bit, 30 bit, 36 bit Deep Color Resolution: 480i / 480p / 576i / 576p / 720p / 1080i / 1080p VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / WUXGA / QWXGA *WUXGA/QWXGA are output as Reduced Blanking
Audio	Digital Audio	Number / Signal 1 output / Multi-channel LPCM up to 8 channels - Sampling frequency: 32 kHz to 192 kHz - Sample size: 16 bit to 24 bit - Reference level:-20 dBFS - Max. input level: 0 dBFS
		Connector 1 female HDMI Type A
		Test tone output Format 1 output / Multi-channel linear PCM up to 8 channels - Sampling frequency: 48 kHz - Sample size: 24 bit - Reference level:-20 dBFS - Max. input level: 0 dBFS
Functions		Sink device specification display - Supported resolution / HDMI signal support or not / HDCP support or not / Color space / color depth / speaker position / EDID information / etc... Test pattern output - Color bar / gray scale / crosshatch / stripe / raster / etc... Test tone output - Test audio / speaker test by each audio channel (1000 Hz / 400 Hz / 80 Hz / 40 Hz) Comparing transmitted signal and received signal by test signal Status display by web browser / EDID information download

DDC Monitoring

Item	Description
Operation	Pass through
Connector	2 female HDMI Type A
Functions	DDC communication check and display between source device and sink device - Hot Plug voltage / DDC voltage / EDID / HDCP Communication log is output to terminal software Communication log display and confirmation by web browser

LAN

Item	Description
LAN	Number / Signal 1 port / 10Base-T (Auto Negotiation), 100Base-TX (Auto Negotiation), Auto MDI/MDI-X
	Connector 1 RJ-45

Others

Item	Description
AC adapter	Input: 100 - 240 VAC \pm 10%, 50 Hz / 60 Hz \pm 3 Hz Output: DC 12V 3A (AC adapter supplied)
Power consumption	About 11 Watts
Dimensions	10.2 x 2.1 x 5.2" (260(W) x 53.5(H) x 133(D) mm)
Weight	2 lbs. (0.9 kg)
Temperature	Operating: 32°F to 104°F (0°C to +40°C) Storage: -4°F to +176°F (-20°C to +80°C)
Humidity	Operating/Storage: 20% to 90% (Non Condensing)

*This product supports 36 bits/pixel Deep color (12 bit/component). It does not support x.v.Color, 3D, ARC, HEC and CEC.

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