ASTRO

12G-SDI Audio Monitor / Loudness Audio Monitor

AM-3825/AM-3826

Instruction manual

Ver. 4.10

ASTRODESIGN, Inc.

Safety Precautions (Always Observe)

Always observe the following precautions. Failure to do so can result in fires, electric shock, serious injury or death, and damage to property.

Warning Indications and Their Meanings

This manual uses the following warning indications and symbols. Before reading this manual, make sure that you understand the meaning of these indications.

Warning Indications

⚠	**Warning**	Failure to heed this warning can result in fire, electric shock, serious injury, or death.
⚠	**Caution**	Failure to heed this caution can lead to injury due to electric shock or other accidents, and damage to the unit and other property in the vicinity.

Symbols

- Caution symbols

  Fire　　Electric shock　　High temperatures　　Finger injury hazard

- Symbols for forbidden actions

  Forbidden　　Do not disassemble

- Symbols for required actions

  Required actions

⚠ Warning　Fire　Electric shock

About Handling the Unit

Forbidden

Do not throw or subject to strong shocks
Doing so can result in cracks, overheating, and fire.

Do not use where there is a risk of fire or explosions.
Doing so can result in fires

Do not allow water or foreign objects inside the unit
Doing so can result in fires and electric shock.
If water or foreign objects should get inside, immediately turn the unit off and contact your dealer or an ASTRODESIGN, Inc. sales department.

Do not disassemble

Do not disassemble, repair, or modify
Doing so can result in fires and electric shock.

Required actions

If thunder is heard during outdoor use, immediately turn the unit off, unplug the power cord from the power outlet, and move the unit to a safe place.
Failure to do so can result in fires and electric shock due to lightning.

About Handling the Power Cord

Forbidden

Do not damage the power cord
Damage to the power cord can result in fires and electric shock.

Do not modify the power cord.
Do not forcibly bend the power cord, bundle, or tie it, and place heavy objects on it

Keep the power cord away from heaters and do not allow it to become hot
Always grasp the plug when unplugging the power cord.

⚠ Caution

About Handling the Unit

🚫
Forbidden

Do not install in a wobbly or unstable location.
The unit may fall off, leading to injury or damage to the unit.

Do not put anything on this Unit.
This may cause the unit to malfunction.

Do not place objects around this unit.
Blocking the fan may cause the unit to malfunction.

Do not place vertically.
Temperature rise due to heat generation may cause malfunction.

Do not use in the following environment.
It may cause a malfunction.
・ Places where the ambient temperature is outside the range of 5 to 40 °C.
・ Places where the ambient humidity is outside the range of 30 to 80% RH.
・ Located near air conditioning equipment, where there is sudden temperature change and dew condensation.
・ Places exposed to direct sunlight.
・ Worse places of corrosive gases and dust.
・ Places where a strong magnetic field occurs.
・ Places where there is a danger of getting splashed with water, oil, chemicals.
・ Locations where vibration is transmitted from the floor.
・ Unstable place
*1: If the surface temperature of the liquid crystal panel exceeds 60 ° C, the backlight may be damaged.
*2: If it is exposed to direct ultraviolet rays for a long time, the polarizing plate may become brown and the contrast may be deteriorated, which may impair the display quality.

Do not turn the power on again immediately after turning off the power.
This may cause the unit to malfunction.

About Handling the Power Cord

Be sure to connect to an outlet with a protective ground terminal.

Required actions

If the installation process is not performed, it may cause electric shock or malfunction.
If an outlet with a protective ground terminal cannot be used, be sure to use the FG terminal for grounding.

Use a dedicated power supply.

Use a dedicated power supply for this unit only.
Do not use the same power source as a device that consumes a lot of power, such as a copier, and may generate noise.
It may cause a malfunction.

Use the power cable that came with this unit

Required actions

Use the power cable supplied with this unit for the AC power cable.
Install this unit near an outlet to make it easier to shut off the power.

About OLED

※Due to the nature of the liquid crystal, missing pixels (bright spots, dead spots) may occur, but this is not a malfunction.

Do not apply force to the area around the screen.

Forbidden

・ Holding or gripping the enclosure around the screen or applying other strong forces may damage the OLED panel.

Hold the rear handle when moving this device.

Be careful of shards of glass if the OLED panel is cracked.

Finger injury hazard

If you accidentally damage the OLED panel, be careful not to cut your hands with broken glass.

Handle OLED panel carefully

Required actions

・ Do not wipe with benzene, thinner, etc on the panel.
・ Do not allow the panel to get wet.
・ Do not allow prolonged exposure to ultraviolet light.
・ Do not use this device in an environment with excessive condensation.
・ Do not hit, hit or otherwise shock the unit.

FCC sheet

WARNING：

FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

NOTE：

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.

Supplier's Declaration of Conformity

Astrodesign Optical Transmission Device, AM-3825/AM-3826

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:
       ASTRODESIGN, Inc.
       780 Montague Expressway、Suite 302 San Jose、CA 95131 U.S.A
       TEL +1-408-435-7800 / FAX +1-408-435-7900

If the Unit Malfunctions or Trouble Occurs

Stop using the unit, unplug the power cord, and contact your dealer or an ASTRODESIGN, Inc. sales department

Before operation

Introduction

Thank you for purchasing the audio monitor AM-3825/AM-3826.

This instruction manual (hereinafter referred to as this manual) describes how to use the audio monitor AM-3825/AM-3826 and precautions for use. Be sure to read this manual to ensure proper use.
Also, please keep this manual in a safe place.

Notational Conventions

In this manual, some terms are written as follows for the sake of brevity.

Item	Term used in this manual
12G-SDI Audio Monitor AM-3825/AM-3826	This unit

About bundled items

The items included in this device are as follows. If any item is missing or damaged, please contact your dealer or the sales department of ASTRODESIGN,Inc.

Accessories	Quantity
AM-3825/AM-3826 body	1
AM-3825/AM-3826　Instruction Manual (this manual)	1
SP-3825 Main controller software(AM-3825 only supported)	1
SP-3825 Instruction Manual (AM-3825 only supported)	1
AC power cord	1
Rack mount bracket	1

> **! Important**

・Be sure to use the included accessories. Using anything other than the accessories may cause a malfunction.
・For the rubber feet on the bottom of this device or the screws for fixing the rack mount bracket, use the specified screws provided. Installation with screws not specified may cause a malfunction.

About difference function between AM-3825 and AM-3826

AM-3826 doesn't have the following three functions. For details, please refer to "Chapter 3 Setting up this device".

AM-3826 doesn't support
Dante Input/Output function
Remapping function (Example: Mixing AES input and Dante input with MADI output)
Control function by SP-3825 (external control application)

About bright spots and dark spots

The LCD panel of this unit is manufactured with great precision, but in rare cases there may be bright spots (always lit pixels) or dark spots on the screen.
Please note that this is not a malfunction.

About installation

When installing this unit in a rack, install it so that the ventilation holes (intake and exhaust) on the side are not blocked to ensure ventilation.
Also, do not use it in a place where the environmental temperature exceeds 40 degrees. Be careful not to exceed the environmental temperature, especially when installing products on top of each other.

Trademarks and registered trademarks

Dante and Dante Controller are registered trademarks of Audinate.

Contents

Chapter1　About this unit

This chapter describes the features of this unit, and the names and functional outlines of each part.

1.1　Features of this unit

This is an audio monitor that separates the audio signal (embedded audio) superimposed on each SDI signal of 12G, 6G, 3G, HD, and SD from the video signal, and monitors the audio using the built-in speaker or headphones.
It has AES, MADI, Dante, analog, and abundant audio input / output interfaces.
The features of this unit are as follows.

●Supported Wide variety of video formats

It supports 12G, 6G, 3G, HD, SD SDI signals and the following video formats.

- ・ 12G-SDI compatible standard: SMPTE 2082M standard compliant
- ・ 6G-SDI compatible standard: SMPTE 2081M standard compliant
- ・ 3G-SDI compatible standard: SMPTE 425M standard compliant
- ・ HD-SDI compatible standard: SMPTE292M, BTA S-004B standard compliant
- ・ SD-SDI compatible standard: SMPTE 259M standard compliant

●Wide variety of audio input/output interfaces

Equipped with the following audio input / output connectors.

- ・ 2 SDI inputs (32ch 48kHz / 24bit PCM)
- ・ AES3id input / output 4 systems (8ch 48kHz / 24bit PCM)
- ・ MADI input / output 1 system (64ch 48kHz / 24bit PCM)
- ・ Dante input / output 1 system (64ch 48kHz / 24bit PCM) (AM-3825 only supported)
- ・ Analog balanced input / output 1 system (8ch A / D 48kHz / 24bit)

●Equipped with audio sampling rate converter (SRC)

Even if you connect audio that operates at a different clock to the input signal, the audio can be output without noise or interruption. (AM-3825 only supported)

●ARIB TR-B32 standard (ITU-R BS.1770 standard) Measurement of loudness value based on loudness algorithm

- ・ The maximum continuous measurement time is 6 hours.
- ・ The loudness measurement display can be integrated (program average loudness value), loudness range, short term (MAX), and momentary (MAX) measurement.
- ・ Supports various audio modes (Mono, ST, 5.1, 7.1, 22.2).
- ・ It is possible to measure up to 4ES (multiple audio modes) at the same time.
- ・ Channel assignment of audio channels is possible in each audio mode.
- ・ 22.2 channel audio can be 5.1 downmixed and 5.1 channel audio can be ST downmixed for measurement.
- ・ Loop measurement between specified times is possible.
- ・ The audio mode can be mixed and measured.
- ・ Overwrite measurement is possible with time code information.
- * When Lch or Rch is selected in mono measurement, the input signal is distributed to Lch / Rch, and the loudness value can be measured.

●User button function

Simply assign a function to a user button ([U1]～ [U8] button) and press the button to execute the function.

●LCD with superior visibility

Using the LCD, you can visually check the sound on various meter displays. The main meters are as follows.

- Loudness meter (ARIB TR-B32 standard (ITU-R BS.1770 standard))
- Level bar
- VU meter
- Spectrum analyzer
- History display
- Lissajous waveform
- Picture display
- Status etc.

It also supports a multi-display function that allows you to combine two of the above meters.

●Downmix function

You can monitor 22.2ch and 5.1ch surround sound by 5.1ch downmixing and ST downmixing.

- There is separate 5.1 downmix and ST downmix for monitor and output, which can be operated independently.

* Corresponding standard: ISO / IEC 13818-7: 1997 (E) standard calculation formula, ARIB STD-B21 standard calculation formula

●Control function by GPI remote controller

By connecting a GPI remote controller to the GPI input connector, you can switch audio channels and load preset data.

●Abundant expandability

- By connecting to the RJ45 connector via LAN, you can acquire logs, make various settings, and perform operations on your computer. (Using SP-3825 main unit controller software) (AM-3825 only supported)
- You can enter the timecode using the TC 1/2 (analog timecode) connector.
- An optional remote box can be connected to the GPIO connector to connect an external control device. Please contact us for details on the remote box.

Space saving with a 1U type thin housing that supports rack mounting.
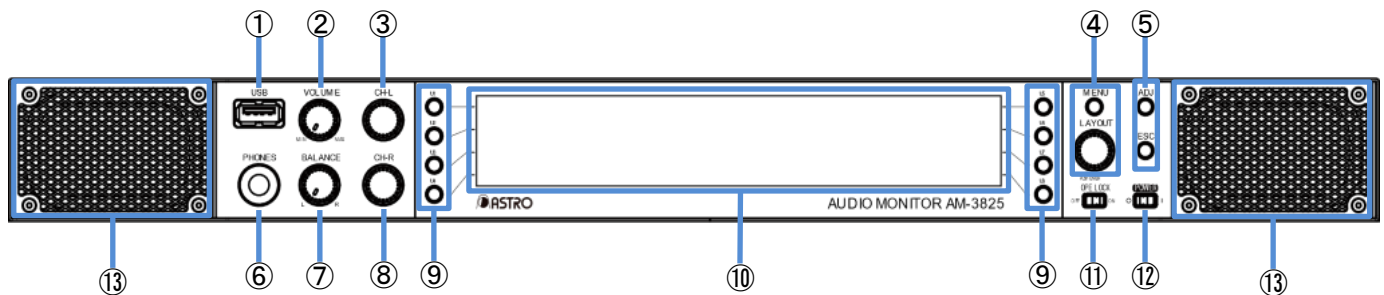
●Compatible with AC power

The power supply supports AC input.
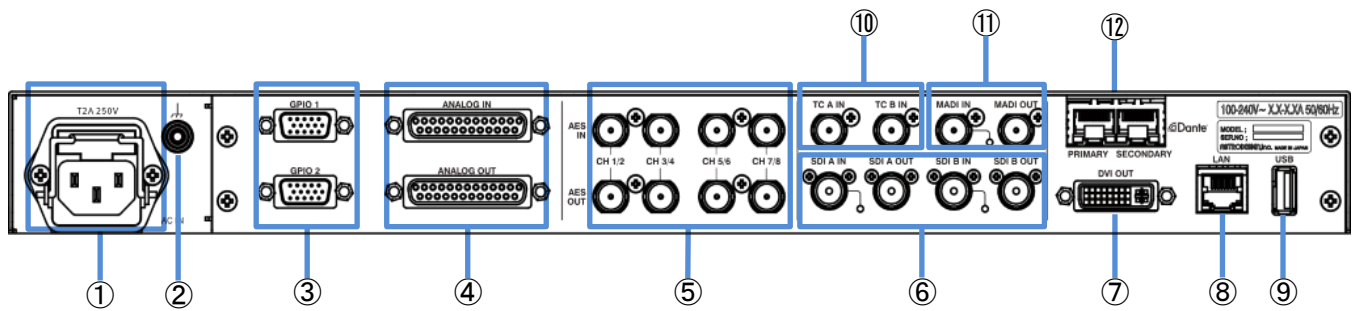
1.2　Names and functions of each part

The names and functional outlines of each part of this device are as follows. Common to AM-3825/AM-3826.

1.2.1　Front of this unit

No.	Name	Function	Reference
①	USB connector	Connect the USB device. It is used when upgrading the firmware of this unit.	
②	[VOLUME] dial	Adjusts the volume of the output audio of the speakers and headphones.	2.2 Basic operation
③	[CH-L] Encoder dial	Switches the sound from the left speaker. The channel number is displayed on the LCD panel. You can increment by channel pair by pushing the dial.	2.2 Basic operation
④	[MENU] button	Press to switch between the home screen and menu screen.	2.2 Basic operation
	[LAYOUT] dial	Used to switch the layout (liquid crystal display) display. When the menu screen is displayed, the [PUSH ENTER] button is used to select and change menu setting items.	
⑤	[ADJ] button	Used for adjustments within each layout. Example History scrolling, status display switching	2.2 Basic operation
	[ESC] button	Press while setting an item on the menu screen to return to the next higher level of the menu. Press at the top level to return to the home screen.	
⑥	[PHONES] Jack	Plug in the headphones. (Large Φ6.3mm)	2.2 Basic operation
⑦	[BALANCE] dial	Adjust the left / right volume balance of the output sound of the speaker and headphones.	2.2 Basic operation
⑧	[CH-R] Encoder dial	Switches the sound from the right speaker. The channel number is displayed on the LCD panel. You can decrement with a channel pair by pushing the dial.	2.2 Basic operation
⑨	User button [U1]～[U8]	Operate the function assigned to the button. The assigned function name is displayed on the LCD panel.	2.2 Basic operation 5.1 Assign functions to user buttons
⑩	LCD panel	When the home screen is displayed: Display and operate the functions assigned to the user buttons and check the status of the input signal. When the menu screen is displayed: Set the functions of this unit.	
⑪	[OPE LOCK] switch	When the switch is turned on, the operation on the front of the unit is locked and cannot be operated. Lights orange when locked. To unlock, turn the switch off.	2.2 Basic operation
⑫	Power button	Turns on / off the power of this unit. Lights green when the power is turned on.	2.2 Basic operation
⑬	Speaker	Left and right speakers. Output audio	2.2 Basic operation

1.2.2　Rear of this unit

No.	Name	Function	Reference
①	AC IN connector (AC power connector)	When using AC power, connect the included AC power cord. Specifications: AC100-240V, built-in fuse holder (2A)	**2.1　Preparation**
②	FG terminal	This is the ground terminal. Use when the AC power cord cannot be grounded.	
③	GPIO1/GPIO2 connector	GPIO1 / GPIO2 each has 6 inputs for GPI, 6 outputs for GPO, and 1 output for + 12V OUT. GPI can output the control of the main unit, and GPO can output the status of the main unit. + 12V OUT can be used for LED lighting in combination with GPO. Specifications: D-sub 15pin (female)	
④	ANALOG IN connector	It is a connector for analog balanced input. Specifications: 1-8ch input, 600Ω balanced, pinout: TASCAM, YAMAHA compatible * Only speaker monitoring is supported.	
	ANALOG OUT connector	It is a connector for analog balanced output. Specifications: 1-8ch output, 600Ω balanced, pinout: TASCAM, YAMAHA compatible	
⑤	AES IN connector	BNC connector for AES3id input. Specifications: Input impedance 75Ω	
	AES OUT connector	BNC connector for AES3id output. Specifications: Output impedance 75Ω	
⑥	SDI A IN/OUT connector	SDI input / output connector. OUT is a reclock out.	
	SDI B IN/OUT connector		
⑦	DVI OUT connector	1080p60Hz, 8ch AUDIO output	
⑧	LAN connector	It is used when connecting a personal computer to set the main unit and acquire logs. Specifications: RJ-45 connector (AM-3825 only supported)	
⑨	USB connector	Connect the USB device. To upgrade the firmware of this unit.	
⑩	TC A/B IN connector	To enter analog timecode. Specifications: Termination 10kΩ	
⑪	MADI IN/OUT connector	MADI input / output terminal Lights green during signal input. (LED indicator is displayed next to the input terminal)	
⑫	Dante PRIMARY/SECONDARY LAN connector	Dante audio input / output terminal (AM-3825 only supported) 64ch IN / 64ch OUT (48 kHz) 24bit PCM. RJ-45 connector For Dante audio channel routing, use Audinate's Dante Controller software. Refer to Audinate's Dante Controller User Guide for more information.	

※The connectors for ③, ④, and ⑦ are inch screws.

Chapter2　Preparation and basic operation of this unit

This chapter describes the connection, start / end, and basic operation methods of this unit.

2.1　Preparation of this unit

The connection and start / end methods of this unit are as follows.

● Connection of power supply and input device

1　**Make sure that the power of this unit is off (LED is off).**

Turn off

AM-3825
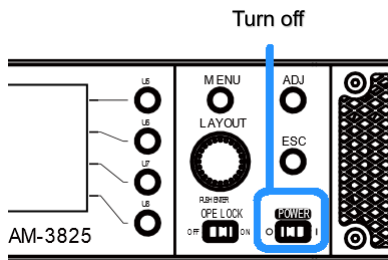
If the power is on (LED is lit in green), press the power button to turn it off

2　**Connect the included AC power cord to the AC IN connector.**

3　**Connect the input device to this unit.**

Connect the input device to the SDI A, B IN / OUT connectors.

The recommended cables to use for the connection are:

SDI signal type	Recommended cable	Remarks
12G-SDI	BNC coaxial cable for 12GHz band (Belden1694A etc.)	Input serial signal conforming to SMPTE2082M
6G-SDI	BNC coaxial cable for 6GHz band (Belden1694A etc.)	Input serial signal conforming to SMPTE2081M
3G-SDI	BNC coaxial cable for 3GHz band (Belden1694A etc.)	Input serial signal conforming SMPTE425M
HD-SDI	BNC coaxial cable for 1.5GHz band (Equivalent to 5C-FB)	Input serial signal conforming SMPTE292M
SD-SDI	BNC coaxial cable	Input serial signal conforming SMPTE259M

4　**In addition, connect related devices as needed.**

5　**Make sure the power switch is on (LED is green).**

Lights up in green

AM-3825
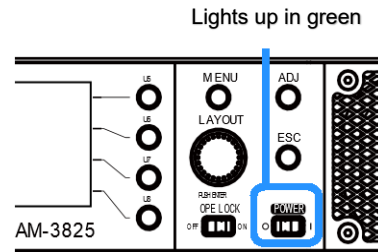
After the initialization is completed, you can use this unit.

❗ Important

・ Do not turn off the power of this unit during initialization. It may cause a malfunction.

● Termination of this device

● Turn off the power switch. The switch LED turns off.

・ If you do not use the unit for a long time, unplug the power cord from the outlet.

2.2 Basic operation of this unit

The basic operation of this unit is as follows.

2.2.1 How to switch the display of the LCD panel

● About LCD panel

The LCD panel displays a home screen that displays the functions assigned to the user buttons, operations, and speaker output channels, and a menu screen that sets the functions of this unit.
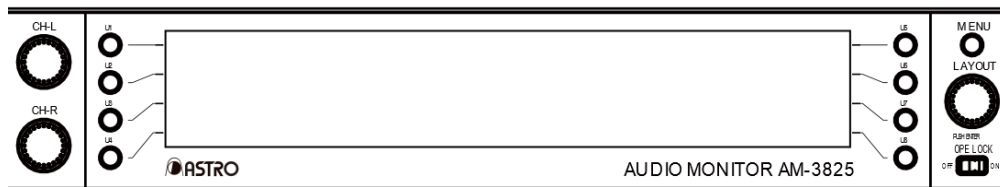
● Switching the display between the home screen and menu screen

If you press the [MENU] button while the home screen is displayed, you can switch to the menu screen.

To switch from the menu screen to the home screen, press the [MENU] button.
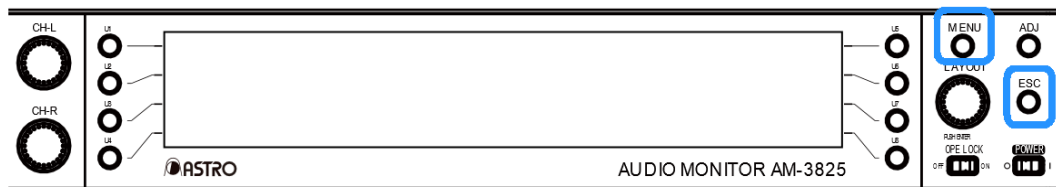
MEMO

・ If the top level of the menu screen is displayed, you can switch to the home screen by pressing the [ESC] button.

● Switching display screen

The display screen can be switched in the following ways.

You can switch the display screen each time you press the [LAYOUT] dial.
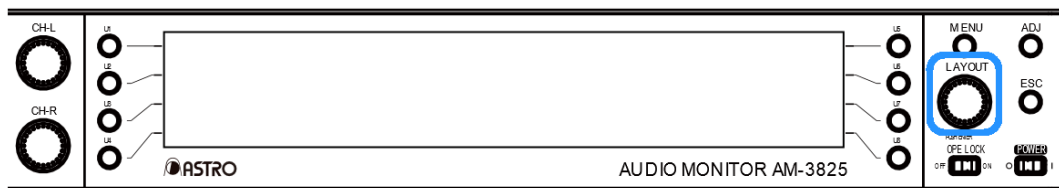
2.2.2 Home screen overview and operation method

The home screen displays and operates the functions assigned to the user buttons and confirms the status of the input signal.

● **User button display**

The following functions are assigned to the user buttons ([U1] to [U8] buttons) at the time of shipment.

When you press each button, the corresponding function is executed.

The assignment of functions to user buttons can be changed as desired. For the allocation method, see **"5.1 Assign Functions to User Buttons"**.

Input switching (SDI A) — U1 — Loudness start*
Input switching (SDI B) — U2 — Loudness pause *
Input switching (AES) — U3 — Loudness stop *
Input switching (Analog) — U4 — Loudness reset*
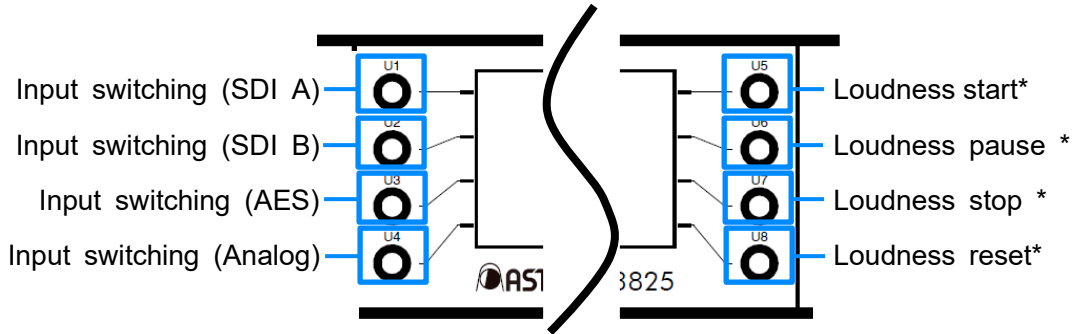
* Check the loudness measurement results by switching the layout.

2.2.3 Menu screen overview and operation method

The setting items for this function are displayed on the menu screen.

For the operation method of the setting items, see **"3.1 Basic operation of settings"**, and for the details of the setting items, see **"3.2 List of setting items"**.
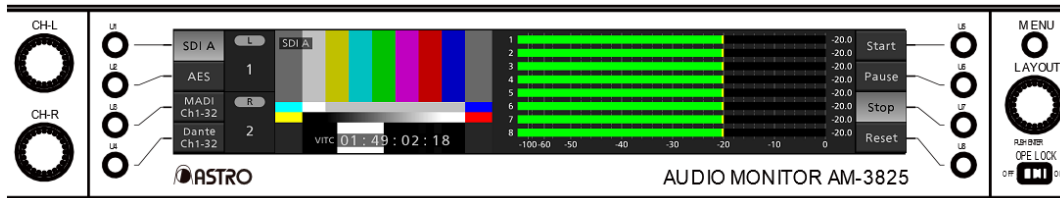
2.2.4 How to adjust the speaker channel

You can select the left channel with the [CH-L] (encoder) dial and the right channel with the [CH-R] (encoder) dial.

Press the [CH-L] (encoder) dial to increment the channel pair.

Press the [CH-R] (encoder) dial to decrement the channel pair.
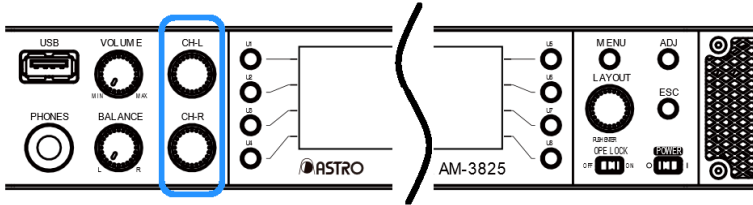
2.2.5 How to adjust the volume

With the [VOLUME] dial, you can adjust the volume of the output audio from the speakers and headphones.
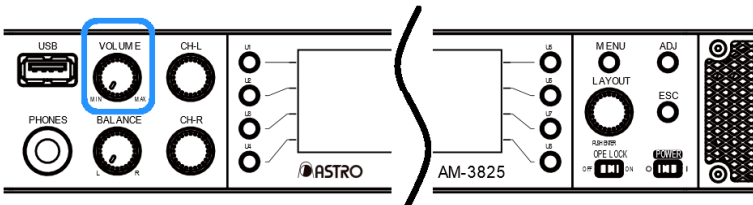
Turn the dial to the right to increase the volume.

Turn the dial to the left to reduce the volume.

2.2.6 How to adjust the left / right volume balance

With the [BALANCE] dial, you can adjust the left / right volume balance of the audio output from the speakers and headphones.
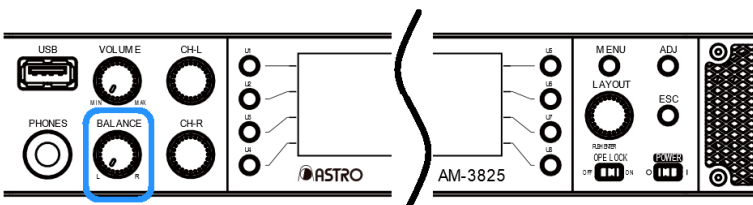
Turn the dial to the right to reduce the volume of Lch.
Turn the dial to the left to reduce the volume of Rch.
When the dial is set in the center, Lch and Rch have the same volume balance.

Chapter3   Set up this unit

This chapter describes the settings of this unit that can be performed on the menu screen.

3.1   Basic operation of settings

3.1.1 How to move the menu

To move the menu, follow the steps below.

1   **[LAYOUT] Turn the dial left or right to display the menu to be used.**
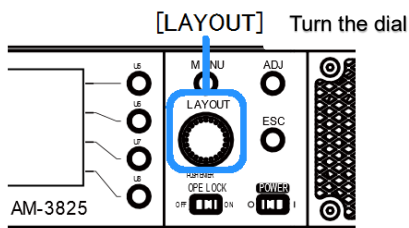
2   **[LAYOUT]Press the dial to enable the setting operation of the displayed menu.**
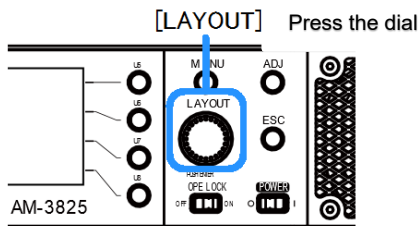
3.1.2 How to set the function

To set the function, follow the steps below.

1   **[LAYOUT] Turn the dial to highlight the setting item.**
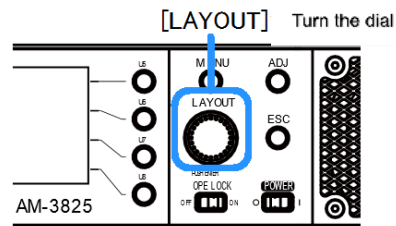
2   **[LAYOUT] Press the dial.**
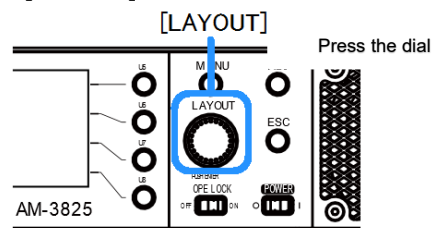
The setting value of the selected setting item is displayed.

3   **[LAYOUT] Turn the dial to select the setting value.**

4   **[LAYOUT] Press the dial to confirm the setting.**

5   **To exit the menu hierarchy of the selected setting item, press the [ESC] button.**

・ To switch from the menu screen to the home screen, press the [MENU] button.

MEMO

・If the top level of the menu screen is displayed, you can switch to the home screen by pressing the [ESC] button.

3.2 List of setting items

The menu screen is roughly divided into INPUT / OUTPUT / LOUDNESS / SETTINGS / MEMORY menus, and setting items are displayed for each.

3.2.1 INPUT menu

In the INPUT menu, select and adjust the input signal of the audio 32ch to be monitored.

MEMO

・The menu contents may differ depending on the software version.

Input Select

Select the input signal.

The setting items are as follows.

Set value (initial setting: underlined)	Function
SDI A SDI B SDI DUAL AES Analog MADI Ch1-32 MADI Ch33-64 Dante Ch1-32 ※ Dante Ch33-64 ※	When SDI A, SDI B, MADI, or Dante is selected, audio can be monitored up to 32 channels. When MADI or Dante is selected, the audio can be monitored by switching between the first 32ch and the second 32ch of the 64ch. When SDI DUAL is selected, audio can be input up to 16 channels for each of the SDI-A / SDI-B inputs, for a total of 32 channels. When AES or Analog is selected, audio can be input up to 8ch.

※　AM-3825 only supported

Timecode Select

Selects the time code signal for the input signal.

The setting items are as follows.

Setting items	Set value (initial setting: underlined)	Function
SDI A SDI B SDI DUAL AES MADI Analog Dante ※	SDI VITC, SDI LTC, EXT TC1, EXT TC2, RTC, PC, B39	SDI VITC: Uses VITCs multiplexed on the SDI signal. 　　　　When SDI DUAL is selected, VITC on the SDI A side is used. SDI LTC: Uses LTC multiplexed on the SDI signal. 　　　　When SDI DUAL is selected, LTC on the SDI A side is used. EXT TC1: Uses the external input TC1 timecode (LTC). EXT TC2: Uses the external input TC2 timecode (LTC). RTC: Uses the internal clock of this device. PC: Uses a PC clock (connected to the unit via LAN). B39: Uses the station time of the inter-station control signal multiplexed with the SDI signal. 　　　　When SDI DUAL is selected, B39 on the SDI A side is used.

※　AM-3825 only supported.

SDI Audio Grp per Sub image

Sets the audio group configuration used by SDI.

The setting items are as follows.

Setting items 1	Setting items 2	Set value (initial setting: underlined)	Function
SDI Single	12G-SDI	2, 4, 8 Groups	When SDI single (SDI A or SDI B) input is selected, select the number of audio groups to use in each sub image. ※1
	6G-SDI	2, 4 Groups	
	3G-SDI Level-A	2, 4, 8 Groups	SDI single (SDI A or SDI B) When selecting an input, select the number of audio groups to use.
	3G-SDI Level-B	2, 4 Groups	
	HD-SDI	2, 4 Groups	
	SD-SDI	2, 4 Groups	
SDI Dual	12G-SDI	2, 4 Groups	When SDI Dual input is selected, select the number of audio groups to use in each sub-image per LINK. ※2
	6G-SDI	2, 4 Groups	
	3G-SDI Level-A	2, 4 Groups	When SDI Dual input is selected, select the number of audio groups to be used per LINK. ※2
	3G-SDI Level-B	2, 4 Groups	
	HD-SDI	2, 4 Groups	
	SD-SDI	2, 4 Groups	

※1　SDI Single uses up to 2 sub images up to 32ch (8 groups).

※2　SDI Dual is limited to a maximum of 16 channels (4 groups) of audio channels per LINK.

　At the time of SDI Dual input, the SDI A / B signal must be synchronized in the same format.

	Set value	Subimage1 (3G-SDI LV-B LinkA)	Subimage2 (3G-SDI LV-B LinkB)
12G-SDI	8groups	○32ch	-
	4groups	○16ch	○16ch
	2groups	○8ch	○8ch
6G-SDI	4groups	○16ch	○16ch
	2groups	○8ch	○8ch
3G-SDI LV-A	8groups	○32ch	-
	4groups	○16ch	-
	2groups	○8ch	-
3G-SDI LV-B	4groups	○16ch	○16ch
	2groups	○8ch	○8ch
HD-SDI	4groups	○16ch	-
	2groups	○8ch	-
SD-SDI	4groups	○16ch	-
	2groups	○8ch	-

List of audio channels used for SDI Single input※

	Set value	SDI LINK1(SDI A)				SDI LINK2(SDI B)			
		Subimage1 (3G-SDI LV-B LinkA)	Subimage2 (3G-SDI LV-B LinkB)	Sub image3	Sub image4	Subimage1 (3G-SDI LV-B LinkA)	Subimage2 (3G-SDI LV-B LinkB)	Sub image3	Sub image4
12G-SDI	4groups	○16ch	-	-	-	○16ch	-	-	-
	2groups	○8ch	○8ch	-	-	○8ch	○8ch	-	-
6G-SDI	4groups	○16ch	-	-	-	○16ch	-	-	-
	2groups	○8ch	○8ch	-	-	○8ch	○8ch	-	-
3G-SDI LV-A	4groups	○16ch	-	-	-	○16ch	-	-	-
	2groups	○8ch	-	-	-	○8ch	-	-	-
3G-SDI LV-B	4groups	○16ch	-	-	-	○16ch	-	-	-
	2groups	○8ch	○8ch	-	-	○8ch	○8ch	-	-
HD-SDI	4groups	○16ch	-	-	-	○16ch	-	-	-
	2groups	○8ch	-	-	-	○8ch	-	-	-
SD-SDI	4groups	○16ch	-	-	-	○16ch	-	-	-
	2groups	○8ch	-	-	-	○8ch	-	-	-

List of audio channels used for SDI Dual input※

※Depending on the setting value, the Sub image to be used will be marked with a ○. The audio of the ○ mark is the monitoring target, and the Ch number next to the ○ mark is the number of audio channels used by each Sub image. If Subimage1 to 2 have multiple ○ marks, the level bar will be displayed in order from Subimage1.

（Example: When 12G-SDI is set to 2 groups when inputting SDI Single, Subimage1 is displayed on level bar 1 to 8ch, Subimage2 is displayed on level bar 9 to 16ch.）

Analog Settings

Set the analog audio input.

The setting items are as follows.

Setting items 1	Setting items 2	Set value (initial setting: underlined)	Function
600ohm Terminal Enable	1ch 2ch 3ch 4ch 5ch 6ch 7ch 8ch	Disable, Enable	Set the termination of each analog audio input channel. Disable: No 600Ω termination (about 100kΩ termination) Enable: With 600Ω termination
dB Level adjustment	1ch 2ch 3ch 4ch 5ch 6ch 7ch 8ch	-6.0 ～ 0.0 ～ +6.0 dB, 0.1step	The analog audio reference level of this unit is + 4dBu (without 600Ω termination), but it can be adjusted within the range of ± 6.0dB. Used to adjust each analog audio input channel.

Ref Clock Source

Select an external reference signal. The selected signal is used as a reference for SRC processing and output as audio.

The setting items are as follows.

setting items 1	Set value (initial setting: underlined)	Description
Ref Clock Source	Input Select, SDI A, SDI B, AES, MADI, Dante, Internal	Input Select：Reference the input signal selected by Input Select※ SDI A：Reference the SDI A input signal※ SDI B：Reference the SDI B input signal※ AES：Reference the AES input signal※ MADI：Reference the MADI input signal※ Dante：Reference the Dante network sync signal※ Internal：Works internally (free run)

※ If the selected reference signal is no signal, it will work internally.

3.2.2　Output menu

In the Output menu, you can select and set the channel mapping for AES / Analog / MADI / Dante / DVI output.

It also makes a save recall to the preset of the channel mapping setting value.

SDI A	→ INPUT	Audio Out Remap Settings		Start
AES	⇥ OUTPUT	Front Speaker Output		Pause
MADI Ch1-32	◀€ LOUDNESS	Link to Front Volume		Stop
Dante Ch1-32	⚙ SETTINGS			Reset
	👥 MEMORY			

MEMO

・The menu contents may differ depending on the software version.

Audio Out Remap Settings

Set the audio output channel mapping and audio output preset data.

The setting items are as follows.

setting items 1	setting items 2	setting items 3	Set value (initial setting: underlined)	Function
Audio Out Remap Preset	Load	-	Preset 1～Preset 12	Call the registered preset to call the audio output channel mapping of this unit. Press to execute.
	Save	-	Preset 1～Preset 12	Register the audio output channel mapping settings as a preset. Press to execute
	Clear	-	Preset 1～Preset 12	Deletes the audio output channel mapping settings preset. Press to execute.
	Rename	-	Preset 1～Preset 12	Rename the registered preset. Press to edit.
Audio Out Remap	AES Remap	AES 1 ～AES 8	Monitor Ch1～32 Monitor Front L Monitor Front R	Assign the input signal audio (Monitor, SDI A, SDI B, AES, MADI, Analog, Dante, Downmix, none) to the AES1 to AES8 output channels.　※2
	Analog Remap	Analog 1 ～Analog 8	Monitor Downmix 5.1-L Monitor Downmix 5.1-R Monitor Downmix 5.1-C	Assign the input signal audio (Monitor, SDI A, SDI B, AES, MADI, Analog, Dante, Downmix, none) to the Analog1 to Analog8 output channels.　※2
	MADI Remap	MADI 1 ～MADI 64	Monitor Downmix 5.1-LFE Monitor Downmix 5.1-Ls	Assign the input signal audio (Monitor, SDI A, SDI B, AES, MADI, Analog, Dante, Downmix, none) to the MADI1 to MADI64 output channels.　※2
	Dante Remap ※1	Dante 1 ～Dante 64	Monitor Downmix 5.1-Rs Monitor Downmix ST-L Monitor Downmix ST-R	Assign the input signal audio (Monitor, SDI A, SDI B, AES, MADI, Analog, Dante, Downmix, none) to the Dante1 to Dante64 output channels.　※2
	DVI Remap	DVI 1 ～DVI 8	SDI A Ch1～32　※1 SDI B Ch1～32　※1 AES Ch1～8　※1 Analog Ch1～8　※1 MADI Ch1～64　※1 Dante Ch1～64　※1 Downmix 5.1-L Downmix 5.1-R Downmix 5.1-C Downmix 5.1-LFE Downmix 5.1-Ls Downmix 5.1-Rs Downmix ST-L Downmix ST-R none	Assign the input signal audio (Monitor, SDI A, SDI B, AES, MADI, Analog, Dante, Downmix, none) to the DVI1 to DVI8 output channels.　※2

※1 AM-3825 only supported.

※2 Monitor assigns the signal selected in the INPUT menu> Input Select. (Channels 1 to 32 channels that have no input signal

are silently output)

Monitor Downmix assigns monitor-specific downmixed audio.

Front L / Front R assigns the signal selected with the CH-L and CH-R dials on the front.

Downmix assigns output-only downmixed audio.

None does not assign audio. (Silent output)

If none is assigned to both L and R of each AES, no AES signal is output (fixed to LOW).

Front Speaker Output

Sets the operation of the front speakers

The setting items are as follows.

setting items	Set value (initial setting: underlined)	Function
Front Speaker Output	AUTO, Always-on, MUTE	AUTO：When headphones are connected to the jack, the speaker audio is automatically muted. If it is not connected, the sound will be output from the speaker. Always-on: The sound is always output from the speaker. MUTE: Always mute the speaker audio.

Link to Front Volume

Set whether to control the audio level by linking the audio output with the audio volume on the front of the unit.

The setting items are as follows

setting items 1	setting items 2	Set value (initial setting: underlined)	Function
Link to Front Volume	Analog Audio out	OFF, ON	Set ON / OFF whether to control the volume of analog output audio with the audio volume on the front of the unit. OFF: Fixed level (maximum) ON: Linked to the front volume
	Digital Audio out	OFF, ON	Set ON / OFF whether to control the volume of digital output audio (AES3id, MADI, Dante, DVI) with the audio volume on the front of this unit. OFF: Fixed level (maximum) ON: Linked to the front volume

3.2.3 Loudness menu

In the Loudness menu, you can control loudness measurement and set measurement channel mapping.

> 📖 **MEMO**
>
> ・The menu contents may differ depending on the software version.

Operation

Set the operation for loudness measurement.

The setting items are as follows.

setting items	Description
Start	Start loudness measurement. Press to execute.
Pause	Pause loudness measurement. Press to execute. Use when you want to pause the measurement temporarily.
Stop	Stops loudness measurement. Press to execute. The measurement is completed, and the loudness measurement result is output as a log.
Reset	Resets the loudness measurement. Press to execute. The previous loudness measurement results will be reset.

Settings

Make various settings for the loudness meter.

The setting items are as follows.

setting items 1	setting items 2	setting items 3	Set value (initial setting: underlined)	Function
General Settings	Measuring method	—	Sample Order, TC Chase	Sample Order: Measures in the order in which the measurements are started and plots the history, regardless of the time code. TC Chase: Measure according to timecode and plot history. It can be repeated and remeasured. Set the operation in TC Chase Settings.
	TC Chase Settings	Start Point	Manual, Auto	Set the time code start point at the start of measurement. Manual: Follows the time code set manually. Auto: Follows the entered time code.
		Manual Point	①②:③④:⑤⑥:⑦⑧	Set the time code when setting the Manual of Start Point. Specify 8 digits.
		Offset	-6.0 hour〜0.0 hour、0.5step	Sets the loudness measurement time offset.
		Duration	30sec,1min,5min,30min,1hour, 2hour,3hour, 6hour	Sets the width of the loudness measurement time.
		TC Count Up Check	0.0〜0.2〜30.0sec, 0.1step	Set the time to judge whether the time code is entered normally.
	Loop Integrated	—	OFF, ON	Set ON / OFF the function to measure the loudness in a loop at the specified time. Used to check the loudness value for the most recent specified period.
	Loop Integrated time	—	00:01〜01:00〜06:00 1min step	Sets the time for the function to make repeated loop measurements for loudness measurements at a specified time. ①②:③④Set with 4 digits of hours and minutes. The upper limit is 6 hours. If the specified time is exceeded, the data will be overwritten and erased in chronological order.

26

setting item 1	setting item 2	setting item 3	setting item 4	Set value (initial setting: underlined)	Function
Trigger Settings	Trigger Mode Select	—	—	STD, Master	Select the main type of trigger for loudness measurement. STD: Select a trigger that uses timecode, audio ON/ OFF, and color bar detection. Master: Select a trigger for the master room, such as a trigger using a broadcasting station control code.
	STD Trigger	Start Trigger	—	Manual, Timecode, TC Cnt Up, 1kHz, Level, Color bar	Select a start trigger. Trigger is started by operation or detection. Manual: Manual operation starts. Timecode: Specify the start time code. TC Cnt Up: Detects timecode count-up. 1kHz: Detects 1kHz audio Level: Detects the audio level Color bar: Detects the color bar.
		Stop Trigger	—	Manual, Timecode, TC Cnt Up, 1kHz, Level, Color bar	Select a stop trigger. The trigger is stopped by operation or detection. Manual: Manual operation stops. Timecode: Specify the stop time code. TC Cnt Up: Detects timecode count-up. 1kHz: Detects 1kHz audio Level: Detects the audio level Color bar: Detects the color bar.

MEMO

＜Manually measure loudness①＞

Set the IN point and OUT point with the [START]-[RESET] buttons on the operation tab and measure the loudness.

It can be operated regardless of the selected trigger.

Trigger: When manual is selected, only this operation and switch operation on the main unit can be used.

＜Manually measure loudness ②＞
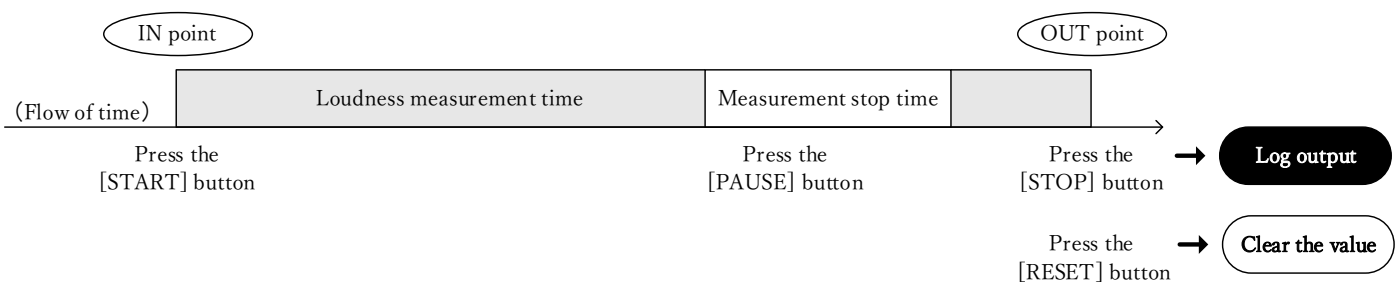
Set the IN point and OUT point with the switch on the main unit and measure the loudness.

It can be operated regardless of the selected trigger.

Trigger: When manual is selected, only this operation and switch operation on the main unit can be used.
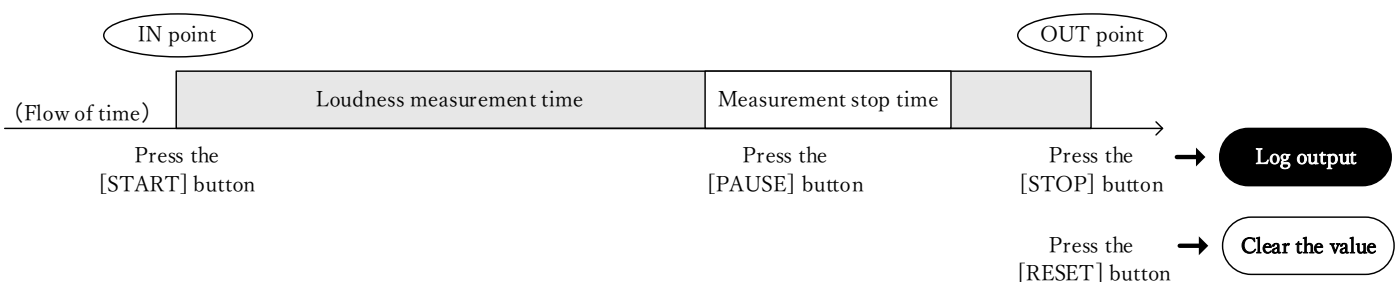
setting item 1	setting item 2	setting item 3	setting item 4	Set value (initial setting: underlined)	Function
Trigger Settings	STD Trigger	Timecode ※3	Start Timecode	①②:③④:⑤⑥:⑦⑧	Specify the 8-digit start time code. If you select *, the digit will not be monitored.
			Stop Timecode	①②:③④:⑤⑥:⑦⑧	Specify the 8-digit stop time code. If you select *, the digit will not be monitored.
			Start Timing	-2.0 ～ 0.0 ～ 2.0 sec, 0.1step	Detects the start time code and adjusts the timing until the start※1
			Stop Timing	-2.0 ～ 0.0 ～ 2.0 sec, 0.1step	Detects the stop time code and adjusts the timing until it stops※2

📖 **MEMO**

・It is recommended to use Start Timing / Stop Timing with the initial values. Due to timing adjustment, if the measurement start position and end position are close to each other, the loudness measurement may not start or end correctly.

※1: ・Start Timing allows you to adjust the actual measurement start position from the start trigger.
　　　＋Direction: The actual measurement start position can be delayed from the trigger.
　　　－Direction: The actual measurement start position can be traced back from the trigger.
　　・Start Timing is recommended to be adjusted in the + direction. This prevents the extra audio data just before the trigger generated by the gating process from affecting the measurement.

※2: ・Stop Timing allows you to adjust the actual measurement end position from the stop trigger
　　　＋Direction: The actual measurement end position can be delayed from the trigger.
　　　－Direction: The actual measurement end position can be traced back from the trigger.
　　・Stop Timing is recommended to be adjusted in the - direction. This prevents the extra audio data immediately after the trigger generated by the gating process from affecting the measurement.

※3: ・＜Trigger: Measure loudness by specifying time code＞

　　　Loudness is measured by automatically setting IN and OUT points triggered by the time code.

　　　Trigger: Available when **Timecode** is selected.

IN point			OUT point	
（Flow of time）	Loudness measurement time	Measurement stop time		
	Reached the timecode set in START	Press the [PAUSE] button	Reached the timecode set in STOP ➡	Log output

setting item 1	setting item 2	setting item 3	setting item 4	Set value (initial setting: underlined)	Function
Trigger Settings	STD Trigger	TC Count Up ※3	Start Timing	-2.0 ～ 0.1 ～ 2.0 sec, 0.1step	Detects timecode count-up and adjusts timing to start※1
			Stop Timing	-2.0 ～ -0.2 ～ 2.0 sec, 0.1step	Detects a timecode stop and adjusts the timing until the stop※2

MEMO

・It is recommended to use Start Timing / Stop Timing with the initial values.
  Due to the timing adjustment, if the measurement start position and the measurement end position are close to each other, the loudness measurement may not start or end correctly.

※1： ・Start Timing allows you to adjust the actual measurement start position from the start trigger.
        ＋Direction: The actual measurement start position can be delayed from the trigger.
        －Direction: The actual measurement start position can be traced back from the trigger.
     ・Start Timing is recommended to be adjusted in the + direction. This prevents the extra audio data just before the trigger generated by the gating process from affecting the measurement.

※2： ・Stop Timing allows you to adjust the actual measurement end position from the stop trigger
        ＋Direction: The actual measurement end position can be delayed from the trigger.
        －Direction: The actual measurement end position can be traced back from the trigger.
     ・Stop Timing is recommended to be adjusted in the - direction. This prevents the extra audio data immediately after the trigger generated by the gating process from affecting the measurement.

※3： ・＜Trigger: Time count up / Measure loudness with discon＞
        Loudness is measured by automatically setting IN and OUT points triggered by the time code count-up.
        Trigger: Available when **TC Count Up** is selected.

setting item 1	setting item 2	setting item 3	setting item 4	Set value (initial setting: underlined)	Function
Trigger Settings	STD Trigger	1kHz ※3	Start Timing	-2.0 ～ 0.1 ～ 2.0 sec, 0.1step	Detects the end of 1kHz audio and adjusts the timing until it starts. ※1
			Stop Timing	-2.0 ～ -0.2 ～ 2.0 sec, 0.1step	Detects the start of 1kHz audio and adjusts the timing until it stops. ※2
			Restart Mask	0.0～10.0 sec, 0.1step	Set restart mask time After the measurement is stopped, the trigger will not be detected for the set time. Prevents restarting with 1kHz audio.
			Monitoring Ch	Ch 1～32	Select the audio channel to perform the 1kHz audio trigger.
			1kHz Period	0.0～2.0 sec, 0.1step	Set the period to recognize as 1kHz audio.

MEMO

・It is recommended to use Start Timing / Stop Timing with the initial values.
  Due to the timing adjustment, if the measurement start position and the measurement end position are close to each other, the loudness measurement may not start or end correctly.

※1： ・Start Timing allows you to adjust the actual measurement start position from the start trigger.
      ＋Direction: The actual measurement start position can be delayed from the trigger.
      －Direction: The actual measurement start position can be traced back from the trigger.
    ・Start Timing is recommended to be adjusted in the + direction. This prevents the extra audio data just before the trigger generated by the gating process from affecting the measurement.

※2： ・Stop Timing allows you to adjust the actual measurement end position from the stop trigger
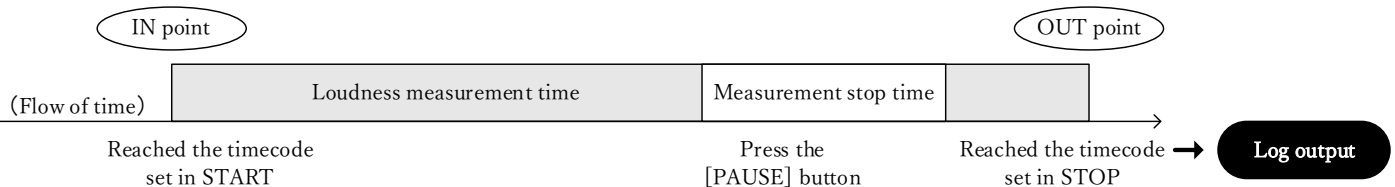   ＋Direction: The actual measurement end position can be delayed from the trigger.
      －Direction: The actual measurement end position can be traced back from the trigger.
    ・Stop Timing is recommended to be adjusted in the - direction. This prevents the extra audio data immediately after the trigger generated by the gating process from affecting the measurement.

・ ※3： ・About 1kHz trigger
      Please use at 1kHz of digital audio, Sine wave, Duty 50%.
      The trigger function does not work properly for 1kHz audio that includes microphone input.
                    ＜Trigger: Measure loudness with 1kHz audio＞
        Loudness is measured by automatically setting the IN and OUT points triggered by 1kHz audio.
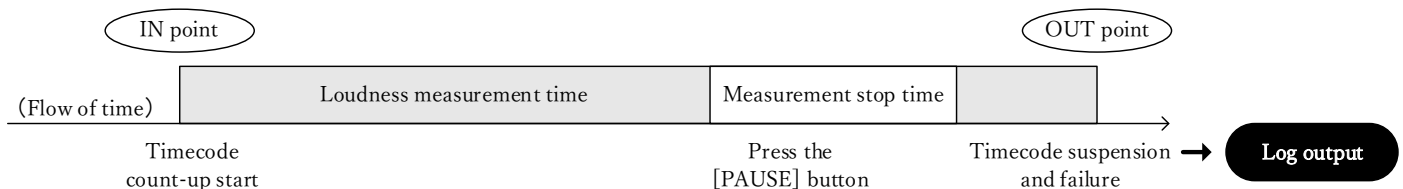   Trigger: Can be used when 1kHz is selected.
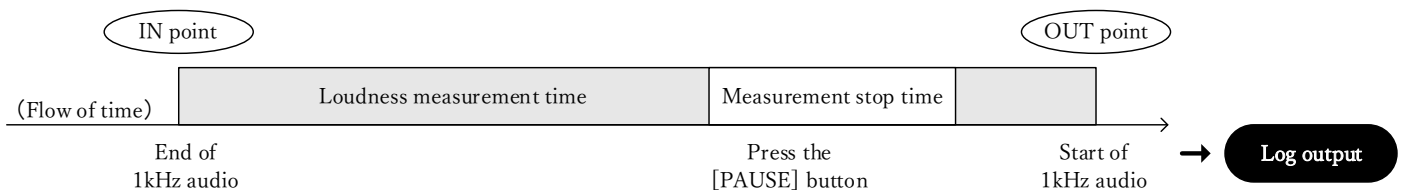
setting item 1	setting item 2	setting item 3	setting item 4	Set value (initial setting: underlined)	Function
Trigger Settings	STD Trigger	Level ※3	Start Timing	-2.0 〜 -0.3 〜 2.0 sec, 0.1step	Detects a sound level above the set threshold and adjusts the timing until it starts. ※1
			Stop Timing	-2.0 〜 0.0 〜 2.0 sec, 0.1step	Detects the sound level below the set threshold and adjusts the timing until it stops. ※2
			Restart Mask	0.0〜10.0 sec, 0.1step	Set restart mask time After the measurement is stopped, the trigger will not be detected for the set time. Prevents restarting with level trigger
			Monitoring Ch	Ch 1〜32	Select the audio channel to perform level detection
			Low Level Period	0.3〜2.0 sec, 0.1step	Set the period for determining the sound level below the threshold
			Threshold	-70〜40 dB	Set the threshold of the judgment level

📖 **MEMO**

・It is recommended to use Start Timing / Stop Timing with the initial values.
  Due to the timing adjustment, if the measurement start position and the measurement end position are close to each other, the loudness measurement may not start or end correctly.

※1： ・Start Timing allows you to adjust the actual measurement start position from the start trigger.
    ＋Direction: The actual measurement start position can be delayed from the trigger.
    －Direction: The actual measurement start position can be traced back from the trigger.
  ・Start Timing is recommended to be adjusted in the + direction. This prevents the extra audio data just before the trigger generated by the gating process from affecting the measurement.

※2： ・Stop Timing allows you to adjust the actual measurement end position from the stop trigger
    ＋Direction: The actual measurement end position can be delayed from the trigger.
    －Direction: The actual measurement end position can be traced back from the trigger..
  ・Stop Timing is recommended to be adjusted in the - direction. This prevents the extra audio data immediately after the trigger generated by the gating process from affecting the measurement.

※3： ・＜Trigger: Measure loudness with mute＞
        Loudness is measured by automatically setting IN and OUT points triggered by Audio Level.
        Trigger: Available when Level is selected.

IN point   OUT point

（Flow of time） | Loudness measurement time | Measurement stop time |

Audio level is above threshold   Press the [PAUSE] button   Audio level is below threshold ➡ **Log output**

setting item 1	setting item 2	setting item 3	setting item 4	Set value (initial setting: underlined)	Function
Trigger Settings	STD Trigger	Color bar ※3	Start Timing	-2.0 ～ 0.1 ～ 2.0 sec, 0.1step	Detects the end of the color bar and adjusts the timing until it starts※1
			Stop Timing	-2.0 ～ -0.2 ～ 2.0 sec, 0.1step	Detects the start of the color bar and adjusts the timing until it stops※2
			Restart Mask	0.0～10.0 sec, 0.1step	Set restart mask time
					After the measurement is stopped, the trigger will not be detected for the set time. Prevents restarting with color bar trigger
			Color bar Period	0.0～2.0 sec, 0.1step	Set the period for judging as a color bar
			Color bar Level	75%, 100%	Sets the level of the color bar to use. 75%　color bar 100%　color bar

MEMO

・It is recommended to use Start Timing / Stop Timing with the initial values.
　Due to the timing adjustment, if the measurement start position and the measurement end position are close to each other, the loudness measurement may not start or end correctly.

※1：・Start Timing allows you to adjust the actual measurement start position from the start trigger.
　　　＋Direction: The actual measurement start position can be delayed from the trigger.
　　　－Direction: The actual measurement start position can be traced back from the trigger.
　　・Start Timing is recommended to be adjusted in the + direction. This prevents the extra audio data just before the trigger generated by the gating process from affecting the measurement.

※2：・Stop Timing allows you to adjust the actual measurement end position from the stop trigger.
　　　＋Direction: The actual measurement end position can be delayed from the trigger.
　　　－Direction: The actual measurement end position can be traced back from the trigger.
　　・Stop Timing is recommended to be adjusted in the - direction. This prevents the extra audio data immediately after the trigger generated by the gating process from affecting the measurement.

※3　＜Trigger: Measure loudness with color bars＞
　Loudness is measured by automatically setting IN and OUT points with the color bar as a trigger.

　Trigger: Can be used when Color bar is selected.

setting item 1	setting item 2	setting item 3	setting item 4	Set value (initial setting: underlined)	Function
Trigger Settings	Master Trigger	Operation Mode	—	Manual, Auto	Enables or disables the master trigger. Manual: Master trigger is disabled. (Manual trigger operation can be performed.) Auto: Master trigger is enabled.
		Divide Program and CM	—	OFF, ON	Loudness measurement is performed separately for the program period and the CM period. OFF: The measurement is not performed separately. ON: Measure separately.
		CM Interval Trigger	—	S Signal/GPI, CM Code&Mute	Select either Status Signal, GPI, CM Code & Mute. ※3
		CM Interval Conditions	S1	OFF, ON	Select the status signal or GPI to trigger. (If both S1 to S16 and GPI are selected, the trigger will be applied at one of the edges.) ※3
			S2	OFF, ON	
			S3	OFF, ON	
			S4	OFF, ON	
			S5	OFF, ON	
			S6	OFF, ON	
			S7	OFF, ON	
			S8	OFF, ON	
			S9	OFF, ON	
			S10	OFF, ON	
			S11	OFF, ON	
			S12	OFF, ON	
			S13	OFF, ON	
			S14	OFF, ON	
			S15	OFF, ON	
			S16	OFF, ON	
			GPI	OFF, ON	
		Divide Each CM	—	OFF, ON	Loudness measurement is performed separately for each CM. (Trigger is applied by CM code) OFF: The measurement is not performed separately. ON: Measure separately.
		CM Start Timing	—	-2.0～1.0～2.0 sec, 0.1step	Adjust the start timing of the CM period by the status signal or GPI. ※1
		CM Stop Timing	—	-2.0～0.0～2.0 sec, 0.1step	Adjust the stop timing of the CM period by the status signal or GPI ※2
		CM Code Emb.Timing	—	0.0～1.0～10.0 sec, 0.1step	Set the position (time) where the CM code is multiplexed from the beginning of the CM
		GPI Polarity	—	Open-active, Make-active	Select the polarity of the CM period for GPI. (Assign Open or Make and control the CM period with GPI)
		CM Code Capt.Offset	—	0～255	Set the start position of the CM code (material code). Based on the beginning of the user data word (UDW) in the user data defined in ARIB STD-B23. (This is a setting related to the 100ms raw data storage function of SP-3825)
		CM Code Capt.Length	—	1～10～32	Set the length of the CM code (material code). This is the setting for the raw data storage function of SP-3825.

Import the character string for the Length word from the above Offset position as a CM code. (Settings related to the 100ms raw data storage function of SP-3825)

MEMO

・It is recommended to use Start Timing / Stop Timing with the initial values.
Due to the timing adjustment, if the measurement start position and the measurement end position are close to each other, the loudness measurement may not start or end correctly.
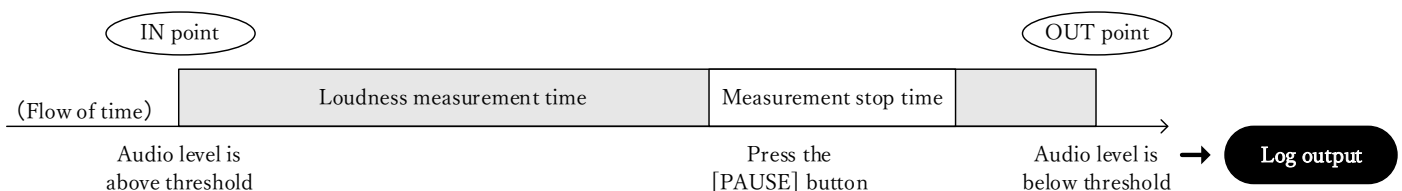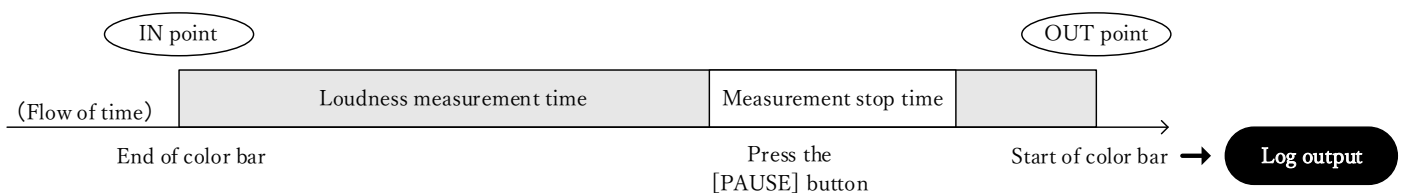
※1：・Start Timing allows you to adjust the actual measurement start position from the start trigger.
  ＋Direction: The actual measurement start position can be delayed from the trigger.
  －Direction: The actual measurement start position can be traced back from the trigger.
  ・Start Timing is recommended to be adjusted in the + direction. This prevents the extra audio data just before the trigger generated by the gating process from affecting the measurement.

※2：・Stop Timing allows you to adjust the actual measurement end position from the stop trigger.
  ＋Direction: The actual measurement end position can be delayed from the trigger.
  －Direction: The actual measurement end position can be traced back from the trigger.
  ・Stop Timing is recommended to be adjusted in the - direction. This prevents the extra audio data immediately after the trigger generated by the gating process from affecting the measurement.

> If you set the CM code embedded timing, the start and stop operations may be delayed.

※3 ＜Trigger: Measure loudness with a status signal＞

Loudness is measured by automatically setting the IN and OUT points of each CM and program triggered by the status signal.

Divide Program and CM: ON, CM Interval Trigger: Status Signal / GPI, CM Interval Conditions:

It can be used when S1 to S16 is Selected.

＜Trigger: Measure loudness with GPI＞
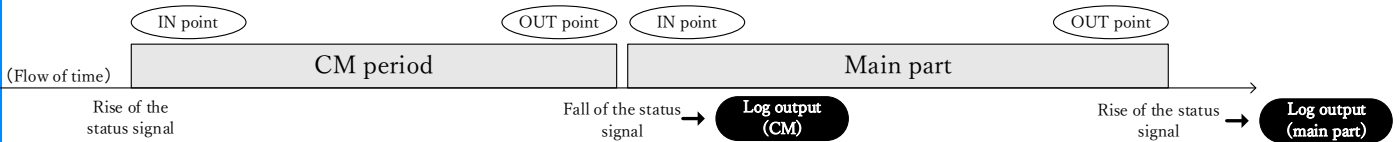
Loudness is measured by setting the IN point and OUT point of each CM and program with GPI as a trigger.

It can be used when Divide Program and CM：ON、CM Interval Trigger：Status Signal/GPI、CM Interval Conditions：

Is selected.

GPI Polarity:When Open-Active
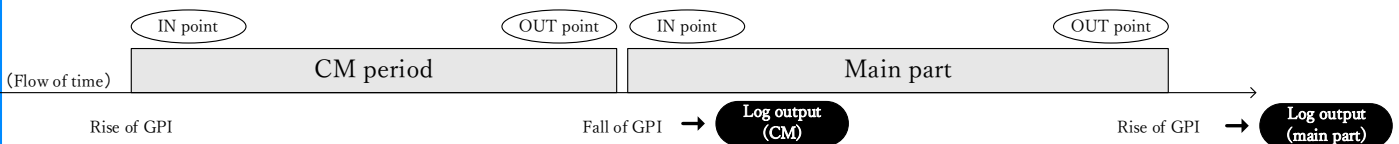
GPI Polarity:When Make-Active
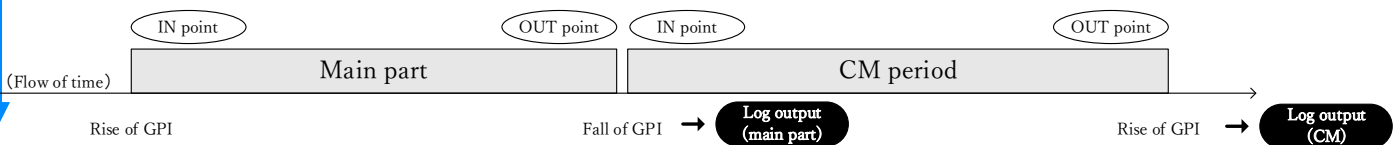
＜Trigger: Measure loudness with CM code & MUTE＞

The loudness is measured by setting the IN point and OUT point of each CM and program with the CM code & MUTE as a trigger.

This trigger monitors the mute period of 0.5Sec at the beginning of the CM or the beginning of the program and triggers it. CM or

The program is judged by the presence or absence of the CM code after mute.

It can be used when Divide Program and CM：ON、CM Interval Trigger：Status CM Code & Mut is selected.

| OUT point | IN point | | OUT point | IN point |

| (Flow of time) | CM period | MUTE | Main part | MUTE | CM code | CM period |

Trigger from MUTE without CM code

Go back and set the OUT point of the CM period, set the IN point of the main part → Log output (CM)

Trigger from MUTE with CM code

Go back and set the OUT point of the main part, Set the IN point of the CM period → Log output (main part)
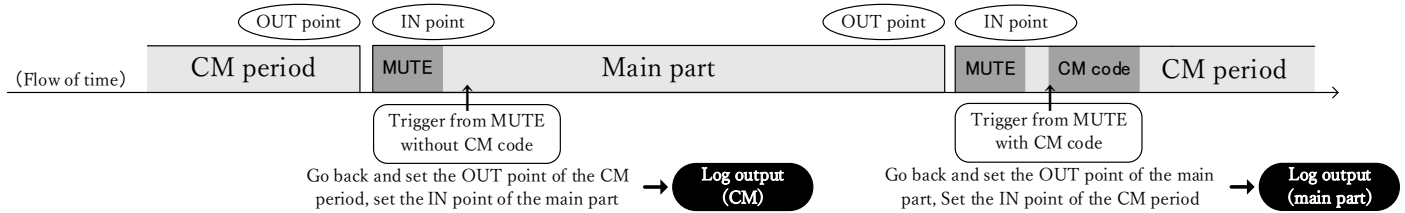
Set Mute Perio: to 0.3-0.5Sec to monitor the mute period at the beginning of the commercial or the beginning of the program.

If there is a dramatic mute during the CM period, this unit will judge that the CM is over.
To avoid this case, Use Trigger: Status Signal or Trigger: GPI

＜Measure loudness for each CM (CM Interval Trigger: Status Signal / GPI)＞

The IN point and OUT point are automatically set for each CM using the status signal and CM code as a trigger, and the loudness is measured.

It Can be used when Divide Program and CM: ON, CM Interval Trigger: Status Signal / GPI, Divide Each CM: ON are selected.

| IN point | OUT point | IN point | OUT point | IN point | OUT point |

| (Flow of time) | CM1 | CM code | CM2 | CM code | CM3 |

Rise of the status signal

Trigger with CM code

Go back and set the OUT point of CM1, Set the IN point of CM2 → Log output (CM1)

Trigger with CM code

Go back and set the OUT point of CM2, Set the IN point of CM3 → Log output (CM2)

Fall of the status signal → Log output (CM3)
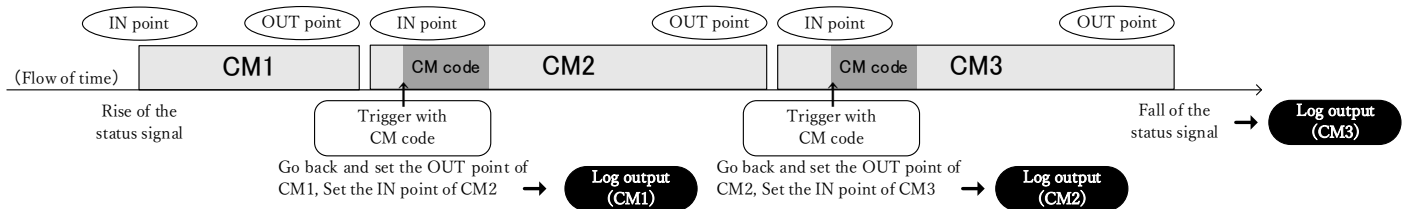
＜Measure loudness for each CM (in the case of CM Interval Trigger: CM Code & Mute)＞

Loudness is measured by setting IN and OUT points for each CM using the CM code & MUTE as a trigger.

It can be used when selected when Divide Program and CM: ON, CM Interval Trigger: Status CM Code & MuteI, Divide Each CM: ON are selected.

| IN point | OUT point | IN point | OUT point | IN point | OUT point |

| (Flow of time) | CM1 | MUTE | CM code | CM2 | MUTE | CM code | CM3 | MUTE |

Trigger from MUTE with CM code

Go back and set the OUT point of CM1, Set the IN point of CM2 → Log output (CM1)

Trigger from MUTE with CM code

Go back and set the OUT point of CM2, Set the IN point of CM3 → Log output (CM2)

Trigger from MUTE without CM code

Go back and set the OUT point of CM3, Set the IN point of the program → Log output (CM3)

Set Mute Perio: 0.3 to 0.5Sec to monitor the mute period at the beginning of the commercial or the beginning of the program.

If there is a dramatic mute during the CM period, this unit will judge that the CM is over.
To avoid this case, Use Trigger: Status Signal or Trigger: GPI.

setting item 1	setting item 2	setting item 3	setting item 4	Set value (initial setting: underlined)	Function
Trigger Settings	Roll Support	—	—	OFF, ON	Turns the roll function ON / OFF. This function adds up and outputs the loudness measurement results for the set number of times from the start of measurement. Refer to Roll Settings for more information
	Roll Settings ※1	Roll Count	—	1〜63, Infi.	Set the number of rolls Infi. Set unlimited number of rolls

MEMO

※ 1 ＜Measure loudness using the roll function＞

The image of loudness measurement when using the roll function is shown in the figure below.

It can be used when Roll Support is selected on the Operations tab.

前

setting item 1	setting item 2	setting item 3	Set value (initial setting: underlined)	Function
B39 Audio Mode Settings	Auto M'ment Mode	—	OFF, ON	Monitors the audio mode code of ARIB STD-B39 and automatically switches the audio mode preset data for loudness measurement.
	Auto Preset Load	—	OFF, ON	Monitors the audio mode code of ARIB STD-B39 and automatically loads the preset data.
	Auto Audio Out Remap Load	—	OFF, ON	Monitors the audio mode code of ARIB STD-B39 and automatically loads the audio output remap preset data.
	M'ment Mode Map	0x01	Preset 1～ Preset 12、 ---	Set the audio mode preset number for each audio mode code of ARIB STD-B39. By turning on Auto M'ment Mode, you can automatically follow the audio mode code. 0x1F + 0x ** sets the audio mode for each audio mode code when the audio mode (extended) is enabled.
		0x02		
		0x03		
		0x04		
		0x05		
		0x06		
		0x07		
		0x08		
		0x09		
		0x0A		
		0x0B		
		0x0C		
		0x0D		
		0x0E		
		0x0F		
		0x10		
		0x11		
		0x12		
		0x13		
		0x14		
		0x15		
		0x16		
		0x17		
		0x18		
		0x19		
		0x1A		
		0x1F + 0x01		
		0x1F + 0x02		
		0x1F + 0x03		
		0x1F + 0x04		
		0x1F + 0x05		
		0x1F + 0x06		
		0x1F + 0x07		
		0x1F + 0x08		
		0x1F + 0x09		
		0x1F + 0x0A		
		0x1F + 0x0B		
		0x1F + 0x0C		
		0x1F + 0x0D		
		0x1F + 0x0E		
		0x1F + 0x0F		
		0x1F + 0x10		
		0x1F + 0x11		
		0x1F + 0x12		
		0x1F + 0x13		
		0x1F + 0x14		

setting item 1	setting item 2	setting item 3	Set value (initial setting: underlined)	Function
B39 Audio Mode Setting	Preset Map	0x01	Preset 1～ Preset 12、 ---	Set the preset number for each audio mode code of ARIB STD-B39. By turning on Auto Preset Load, you can automatically follow the audio mode code. 0x1F + 0x ** sets the preset number for each audio code when audio mode (extended) is enabled.
		0x02		
		0x03		
		0x04		
		0x05		
		0x06		
		0x07		
		0x08		
		0x09		
		0x0A		
		0x0B		
		0x0C		
		0x0D		
		0x0E		
		0x0F		
		0x10		
		0x11		
		0x12		
		0x13		
		0x14		
		0x15		
		0x16		
		0x17		
		0x18		
		0x19		
		0x1A		
		0x1F + 0x01		
		0x1F + 0x02		
		0x1F + 0x03		
		0x1F + 0x04		
		0x1F + 0x05		
		0x1F + 0x06		
		0x1F + 0x07		
		0x1F + 0x08		
		0x1F + 0x09		
		0x1F + 0x0A		
		0x1F + 0x0B		
		0x1F + 0x0C		
		0x1F + 0x0D		
		0x1F + 0x0E		
		0x1F + 0x0F		
		0x1F + 0x10		
		0x1F + 0x11		
		0x1F + 0x12		
		0x1F + 0x13		
		0x1F + 0x14		

setting item 1	setting item 2	setting item 3	Set value (initial setting: underlined)	Function
B39 Audio Mode Setting	Audio Out Remap Map	0x01	Preset 1〜 Preset 12、 ---	Set the audio output remap preset number for each audio mode code of ARIB STD-B39. 0x1F + 0x ** sets the preset number for each audio mode code when audio mode (extended) is enabled.
		0x02		
		0x03		
		0x04		
		0x05		
		0x06		
		0x07		
		0x08		
		0x09		
		0x0A		
		0x0B		
		0x0C		
		0x0D		
		0x0E		
		0x0F		
		0x10		
		0x11		
		0x12		
		0x13		
		0x14		
		0x15		
		0x16		
		0x17		
		0x18		
		0x19		
		0x1A		
		0x1F + 0x01		
		0x1F + 0x02		
		0x1F + 0x03		
		0x1F + 0x04		
		0x1F + 0x05		
		0x1F + 0x06		
		0x1F + 0x07		
		0x1F + 0x08		
		0x1F + 0x09		
		0x1F + 0x0A		
		0x1F + 0x0B		
		0x1F + 0x0C		
		0x1F + 0x0D		
		0x1F + 0x0E		
		0x1F + 0x0F		
		0x1F + 0x10		
		0x1F + 0x11		
		0x1F + 0x12		
		0x1F + 0x13		
		0x1F + 0x14		

setting item 1	setting item 2	setting item 3	Set value (initial setting: underlined)	Function
Level Settings	Standard Preset Load	ITU-R BS.1770 ARIB TR-B32 EBU R128 EBU R128 S1 ATSC A/85	—	Selecting each standard, switches the loudness measurement unit, target level, and threshold. Press to execute.
	Target Level	Mono ST 5.1 7.1 22.2	-28.0〜-24.0〜-20.0 LKFS, 0.1step	Set the target level. The set value becomes the standard for each loudness meter display. When the measurement result is at the target level, it turns green.
	Alarm Low Level	Mono ST 5.1 7.1 22.2	-8.0〜-1.0〜-0.0 dB, 0.1step	Set how low the value is from the target level to display the alarm. When the alarm is displayed, the loudness meter turns blue.
	Alarm High Level	Mono ST 5.1 7.1 22.2	-8.0 〜 -1.0 〜 -0.0 dB, 0.1step	Set how high the value is from the target level to display the alarm. When the alarm is displayed, the loudness meter turns red.
	Max True Peak Alarm Level	Mono ST 5.1 7.1 22.2	-8.0 〜 -1.0 〜 -0.0 dB, 0.1step	dBTP Sets the maximum alarm level. If it is larger than the set value, it will be red. If it is low (normal), it will be white. The peak indicator of the short term and momentary hand meter lights up when the set value is exceeded.
	Max Momentary Alarm Level	Mono ST 5.1 7.1 22.2	-10.0 〜 -30.0, -.-LKFS 0.1step	Sets the maximum momentary alarm level in the program. If it is larger than the set value, it will be red. If it is low (normal), it will be white. -.-LKFS is alarm disabled
	Maximum Short-term Alarm Level	Mono ST 5.1 7.1 22.2	-10.0 〜 -30.0, -.-LKFS 0.1step	Sets the alarm level for the maximum short term in the program. If it is larger than the set value, it will be red. If it is low (normal), it will be white. -.-LKFS is alarm disabled
	Loudness Range Alarm Level	Mono ST 5.1 7.1 22.2	5.0〜25.0〜40.0, -.-LU, 0.1step	Sets the loudness range alarm level. If it is larger than the set value, it will be red. If it is low (normal), it will be white. -.-LU is alarm disabled

M'ment Mode

Set the number of ESs for loudness measurement (the number of audio programs to be measured), the audio mode for each ES, and the channel mapping for each ES.

The settings are saved in a preset and recalled.

setting item 1	setting item 2	setting item 3	Set value (initial setting: underlined)	Function
M'ment Mode Preset	Load	—	Preset 1～Preset 12	Loads the preset that saved the audio mode settings. Press to execute.
	Save	—	Preset 1～Preset 12	Set the audio mode and save to a preset. Press to execute.
	Clear	—	Preset 1～Preset 12	Select the preset that saved the audio mode settings and clear the data. Press to execute.
	Rename	—	Preset 1～Preset 12	Rename the registered preset. Press to edit.

setting item 1	setting item 2	Set value (initial setting: underlined)	Function
ES Program Number	—	1, 2, 3, 4	Set the number of audio ES (Elementary Stream) programs used for loudness measurement. (Example: Set 2 for 2 stereos. Set 3 for 22.2 + 5.1 + ST)
ES1 Audio Mode	—	Mono	Audio ES Sets the audio mode for the 1st stream.
ES2 Audio Mode	—	ST	Audio ES Sets the audio mode for the 2nd stream.
ES3 Audio Mode	—	5.1	Audio ES Sets the audio mode for the 3rd stream.
ES4 Audio Mode	—	7.1 22.2	Audio ES Sets the audio mode for the 4th stream.
ES1 Channel Map ES2 Channel Map ES3 Channel Map ES4 Channel Map	Mono ST L ST R 5.1 L 5.1 R 5.1 C 5.1 LFE 5.1 Ls 5.1 Rs 7.1 L 7.1 R 7.1 C 7.1 LFE 7.1 Ls 7.1 Rs 7.1 Ltf 7.1 Rtf 22.2 FL 22.2 FR 22.2 FC 22.2 LFE1 22.2 BL 22.2 BR 22.2 FLc 22.2 FRc 22.2 BC 22.2 LFE2 22.2 SiL 22.2 SiR 22.2 TpFL 22.2 TpFR 22.2 TpFC 22.2 TpC 22.2 TpBL 22.2 TpBR 22.2 TpSiL 22.2 TpSiR 22.2 TpBC 22.2 BtFC 22.2 BtFL 22.2 BtFR	Ch. 1, Ch. 2, Ch. 3, Ch. 4, Ch. 5, Ch. 6, Ch. 7, Ch. 8, Ch. 9, Ch. 10, Ch. 11, Ch. 12, Ch. 13, Ch. 14, Ch. 15, Ch. 16, Ch. 17, Ch. 18, Ch. 19, Ch. 20, Ch. 21, Ch. 22, Ch. 23, Ch. 24, Ch. 25, Ch. 26, Ch. 27, Ch. 28, Ch. 29, Ch. 30, Ch. 31, Ch. 32, Downmix 5.1-L, Downmix 5.1-R, Downmix 5.1-C, Downmix 5.1-LFE, Downmix 5.1-Ls, Downmix 5.1-Rs, Downmix ST-L, Downmix ST-R, Front L, Front R, none	Audio ES1 to 4 Set the channel mapping of the audio mode of the stream.

3.2.4 Settings menu

In the Settings menu, set the functions displayed on the LCD panel and the hardware settings of this unit.

SDI A	→ INPUT	Level Meter		Start
AES	⇥ OUTPUT	Lissajous		Pause
MADI Ch1-32	◖ LOUDNESS	Needle Meter		Stop
Dante Ch1-32	⚙ SETTINGS	Spectrum Analyzer		Reset
	⌂ MEMORY	Numerical Table		
		History		

MEMO

・The menu contents may differ depending on the software version.

Level Meter

Set the level meter display.

The setting items are as follows

setting items 1	setting items 2	Set value (initial setting: underlined)	Function
Display Select	—	Audio, Loudness	Select the level meter display Audio: Show audio level bar Loudness: Displays the loudness level meter
Audio Settings	Ch Display	LR, 8ch, 16ch, 32ch	Set how many channels the audio level bar is displayed at the same time LR: Display 2 channels of LR 8ch: Display 8 channels 16ch: 16 channels are displayed 32ch: Display 32 channels
	Response	Peak, VU	Sets the operation response of the audio level bar. Peak: Peak meter operation VU: VU operation
	Ref Level	-20, -18 dBFS	Set the reference level

setting items 1	setting items 2	setting items 3	Set value (initial setting: underlined)	Function
Audio Settings	Peak Value	Display	ON, OFF	Set whether to display the current dBTP peak value ON: Display OFF: Hide
		Select	Peak, MAX	dBTP Sets the display content of the peak value. Peak: Displays the current level value. MAX: Displays the maximum value in the measurement interval.
		Peak Hold	ON, OFF	When Select sets Peak, set whether to hold the maximum value of dBTP peak up to that point. ON: Hold OFF: Do not hold
		Peak Hold Reset	—	When Select sets Peak, it resets the maximum dBTP peak value that has been held up to that point. Press to execute.
	Peak Hold Time	—	0.1～ 2.0 ～10.0sec, Infi.sec	Sets the hold time for the peak display of the audio level bar. Infi. Holds until the Peak Hold Reset operation is performed when setting.
	Peak Hold Reset	—	—	Resets the previous peak hold Press to run
	Peak Fall Time	—	0.1～ 1.2 ～5.0sec	Sets the return time for the peak display of the audio level bar.
	Bottom Level	—	No Limit, -80dB	Set how far the bottom price of the audio level bar is displayed No Limit: Show all -80dB: -80dB or less is not displayed.
Loudness Settings	ES Display	—	Single, ALL	Sets the display mode of the ES stream. Single: Displays one of ES. To switch ES, press the [ADJ] button and operate the [U1] button. ALL: Shows all ES
	Loudness Select	—	Momentary, Short-term, Dual	Select the loudness level bar display. Momentary: Displays the momentary. Short-term: Displays a short term. Dual: Display both momentary and short terms
	Scale	—	LKFS, LU ＋9 scale, LU ＋18 scale	Sets the loudness scale. LKFS: Set to LKFS. LU + 9 scale: Set to LU + 9 scale. LU + 18 scale: Set to LU + 18 scale
	Loudness Value	Display	OFF, ON	Set whether to display the level value in the loudness bar. OFF: Not displayed. ON: Displayed.
		Select	Peak, MAX	Set the display content of the level value in the loudness bar. Peak: Displays the current level value. MAX: Displays the maximum value in the measurement section.

setting items 1	setting items 2	setting items 3	Set value (initial setting: underlined)	Function
Loudness Settings	Peak Hold Display	—	OFF、ON	Set whether to display the peak hold of the loudness level bar. OFF: Not displayed. ON: Displayed.
	Peak Hold Time	—	0.1～ 2.0 ～10.0sec	Sets the hold time for the peak display on the loudness level bar.
	Peak Fall Time	—	0.1～ 1.2 ～5.0sec	Sets the return time for the peak display on the loudness level bar.
	Guide Marker 1 (Red)	—	OFF ,-0.0～-70.0 LKFS	A red guide marker is displayed on the loudness level bar. OFF: Not displayed. -0.0 to -70.0 LKFS: Sets the level of guide markers to display
	Guide Marker 2 (Blue)	—	OFF ,-0.0～-70.0 LKFS	A blue guide marker is displayed on the loudness level bar. OFF: Not displayed. -0.0 to -70.0 LKFS: Sets the level of guide markers to display.
	Guide Marker 3 (Green)	—	OFF ,-0.0～-70.0 LKFS	A green guide marker is displayed on the loudness level bar. OFF: Not displayed. -0.0 to -70.0 LKFS: Sets the level of guide markers to display.
	Guide Marker 4 (Yellow)	—	OFF ,-0.0～-70.0 LKFS	A yellow guide marker is displayed on the loudness level bar. OFF: Not displayed. -0.0 to -70.0 LKFS: Sets the level of guide markers to display.
	Guide Marker 5 (White)	—	OFF ,-0.0～-70.0 LKFS	A white guide marker is displayed on the loudness level bar. OFF: Not displayed. -0.0 to -70.0 LKFS: Sets the level of guide markers to display.

Lissajous

Make various settings for Lissajous.

The setting items are as follows.

setting items 1	setting items 2	Set value (initial setting: underlined)	Function
Ch Display	—	LR, 8ch, 16ch, 32ch	Set the number of channels for Lissajous display. LR: Displays 2ch of front LR. 8ch: 8ch is displayed. 16ch: 16ch is displayed. 32ch: 32ch is displayed.
Auto Gain	—	OFF, ON	The magnification is automatically adjusted so that the Lissajous waveform fits on the scale. This is effective when the input signal is -40 to 0 db. OFF: Fixes the magnification. 0 dB is the maximum scale. ON: Magnification is automatically adjusted.
Lissajous Display	—	OFF, ON	Set whether to display the Lissajous waveform. OFF: Not displayed. ON: Display.
Correlator Display	—	OFF, ON	Set whether to display the phase correlation. OFF: Not displayed. ON: Display.
Correlator Response	—	Low, Medium, High	Sets the phase correlation detection response. Low: Set to Low (detected from 300msec section) Medium: Set to Medium (detected from 200msec section) High: Set to High (detected from 100msec section)
Correlator ALARM	—	OFF, ON	Set whether to display a warning (amber color) when there is an inverse correlation from the set threshold value in the phase correlation display of the Lissajous waveform. OFF: Not displayed. ON: Display. A warning (amber color) is displayed when the correlation is inversely higher than the threshold value.
ALARM Threshold	—	-1.00〜-0.50〜1.00 0.05step	Set the threshold value for displaying a warning on the phase correlation display. -1.00-1.00 A warning is displayed when there is an inverse correlation (smaller value) than the set value.
ALARM Hold Time	—	1.0, 2.0, 3.0, 4.0sec	Detects an inverse correlation and sets the hold time from when the warning turns on to when it goes out.
Display Method	—	Matrix, X-Y	Set how to display the Lissajous waveform Matrix: Lissajous axis with matrix type (X type) Display the waveform. XY: Lissajous is displayed with the axis set to XY.

setting items 1	setting items 2	Set value (initial setting: underlined)	Function
Lissajous Ch Map	Lissajous1-1	Ch1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, Downmix 5.1-L, Downmix 5.1-R, Downmix 5.1-C, Downmix 5.1-LFE, Downmix 5.1-Ls, Downmix 5.1-Rs, Downmix ST-L, Downmix ST-R	Set 1 channel of Lissajous 1.
	Lissajous1-2		Set 2 channels of Lissajous 1.
	Lissajous2-1		Set 1 channel of Lissajous 2
	Lissajous2-2		Set 2 channels of Lissajous 2.
	Lissajous3-1		Set 1 channel of Lissajous 3.
	Lissajous3-2		Set 2 channels of Lissajous 3
	Lissajous4-1		Set 1 channel of Lissajous 4.
	Lissajous4-2		Set 2 channels of Lissajous 4.
	Lissajous5-1		Set 1 channel of Lissajous 5.
	Lissajous5-2		Set 2 channels of Lissajous 5.
	Lissajous6-1		Set 1 channel of Lissajous 6.
	Lissajous6-2		Set 2 channels of Lissajous 6.
	Lissajous7-1		Set 1 channel of Lissajous 7.
	Lissajous7-2		Set 2 channels of Lissajous 7.
	Lissajous8-1		Set 1 channel of Lissajous 8.
	Lissajous8-2		Set 2 channels of Lissajous 8.
	Lissajous9-1		Set 1 channel of Lissajous 9.
	Lissajous9-2		Set 2 channels of Lissajous 9.
	Lissajous10-1		Set 1 channel of Lissajous 10.
	Lissajous10-2		Set 2 channels of Lissajous 10.
	Lissajous11-1		Set 1 channel of Lissajous 11.
	Lissajous11-2		Set 2 channels of Lissajous 11.
	Lissajous12-1		Set 1 channel of Lissajous 12.
	Lissajous12-2		Set 2 channels of Lissajous 12.
	Lissajous13-1		Set 1 channel of Lissajous 13
	Lissajous13-2		Set 2 channels of Lissajous 13.
	Lissajous14-1		Set 1 channel of Lissajous 14.
	Lissajous14-2		Set 2 channels of Lissajous 14.
	Lissajous15-1		Set 1 channel of Lissajous 15.
	Lissajous15-2		Set 2 channels of Lissajous 15.
	Lissajous16-1		Set 1 channel of Lissajous 16.
	Lissajous16-2		Set 2 channels of Lissajous 16.

Needle Meter

Set the needle meter.

The setting items are as follows.

setting items 1	setting items 2	setting items 3	Set value (initial setting: underlined)	Function
Display Select	—	—	VU, LU	VU: Displays the VU meter. LU: Displays the LU meter.VU
VU Settings	Response Time	—	200〜300〜400msec 25step	Set the response time of the VU meter.
	Ch Peak indicator	Hold Time	1〜10, Infi.sec	Sets the peak indicator hold time for VU meters.
		Hold Reset	—	Resets the hold of the peak indicator on the VU meter. Press to execute.
		Threshold	-10.0〜-1.0〜0.0dB 0.1step	Sets the threshold level of the peak indicator on the VU meter
	0VU Ref Level	—	-30.0〜-20.0〜-10.0dB 0.1step	Set the reference level of the VU meter.
LU Settings	Loudness Select	—	Momentary, Short-term, Dual	Momentary: Set to the momentary display. Short-term: Set to short term display. Dual: Set to display both momentary and short terms at the same time.
	Scale	—	LU ＋9 scale, LU ＋18 scale	LU + 9 scale: Set to LU + 9 scale LU + 18 scale: Set to LU + 18 scale
	ES Peak indicator	dBTP Select	Realtime dBTP, Trigger dBTP	Sets how the peak indicator of the LU meter is displayed Realtime dBTP: Detects and displays in real time. Trigger dBTP: Detects and displays the entire period of loudness measurement.
		Hold Time	1〜10, Infi.sec	Set the peak indicator hold time of the LU meter ※
		Hold Reset	—	Resets the hold of the peak indicator on the LU meter. Press to execute. ※
		Threshold	-10.0〜-1.0dB〜0.0dB 0.1step	Sets the threshold level of the peak indicator on the LU meter. ※
Meter Color	—	—	Light, Dark	Sets the background brightness of the VU / LU meter Light: Makes a meter with a bright tone. Dark: Use a black-based meter.

※Only works when the dBTP Select setting is Realtime dBTP

Spectrum Analyzer

Set the spectrum analyzer display.

The setting items are as follows.

setting items 1	setting items 2	Set value (initial setting: underlined)	Function
Display	—	L/R Single, L/R Dual, 1ES Single, 1ES DUAL, ES ALL	Set the windows to be displayed by total / channel. If you set by channel, you can select the channel by pressing the [ADJ] button and turning the encoder. L / R Single: The total of the audio selected by the front L / R encoder is displayed. L / R Dual: The audio selected by the front L / R encoder is displayed. 1ES Single: Displayed by total or channel of one selected audio mode. To switch, press the [ADJ] button and use the encoder. 1ES Dual: Both the total of one selected audio mode and each channel are displayed. To switch channels, press the [ADJ] button and use the encoder. ES ALL: The total of all audio modes is displayed.
Window Arrangement	—	H, V	Set the vertical and horizontal display when "Display" is set to "Dual". H: Displayed side by side. V: Display vertically
Freeze Display	—	OFF, ON	Set whether to pause the display. OFF: The display is not paused. ON: Pauses the display
Display Response	—	Low, Medium, High	Set the response (display speed) of the real-time display. Low: Slows the response. Medium: Set the response to about the middle. High: Speeds up the response.
Peak Hold	Peak Hold Display	ON, OFF	Set whether to display peaks. ON: Peak display. OFF: Peak is not displayed.
	Peak Hold Time	0.1～10sec, Infi.sec	Set the peak display time.
	Peak Hold Reset	_	Resets the peak display. Press to execute.
	Peak Fall Time	Low, Medium, High	Set the return time of the peak display. Low Slows the return time. Medium Set the return time to about the middle. Fast Faster return time
K Weight Filter	—	OFF, ON	Use or set the loudness K Weight Filter before measuring with a spectrum analyzer OFF: Do not apply K Weight Filter ON: Apply K Weight Filter

Numerical Table

Set the numerical display.

The setting items are as follows.

setting items 1	Set value (initial setting: underlined)	Function
Loudness Scale	LKFS, LUFS, LU	Sets the unit of loudness numerical (Integrated, Momentary, Short-term) display.
Display - Integrated	OFF, ON	Set ON / OFF Integrated numerical display during the measurement period.
Display - True Peak	OFF, ON	Set ON / OFF the current True Peak numerical display during measurement.
Display - Max True Peak	OFF, ON	Set ON / OFF True Peak maximum value display during the measurement period.
Display - Momentary	OFF, ON	Set ON / OFF the current Momentary numerical display during measurement.
Display - Max Momentary	OFF, ON	Set ON / OFF the Momentary maximum value display during the measurement period.
Display - Short-term	OFF, ON	Set ON / OFF the current Short-term numerical display during measurement.
Display - Max Short-term	OFF, ON	Set ON / OFF the Short-term maximum value display during the measurement period.
Display - Loudness Range	OFF, ON	Set the ON / OFF the Loudness Range numerical display during the measurement period.

History

Set the history display.

The setting items are as follows.

setting items 1	Set value (initial setting: underlined)	Function
Min-Max Loud. Select	Momentary, Short-term, Mo & Sh	Set whether to display the maximum / minimum value of momentary or short term in the history. Momentary: Displays the maximum / minimum value of momentary. Short-term: Displays the maximum / minimum value of the short term. Mo & Sh: Displays the values of momentary (light blue) and short term (pink).
Auto Scroll Cursor	Right edge, Center	Sets the history cursor position. Right edge: Set the cursor position on the right edge of the screen. Center: Set the cursor position in the center of the screen
Overwrite Guide Color	Light, Medium, Dark	Changes the brightness of the history background color (pink) of the data overwrite part when plotting data with TC Chase. Light: Brightens the background color. Medium: Sets the brightness of the background color to the middle. Dark: Darkens the background color.
Always linked to Timecode	OFF, ON	Set whether to follow the history time axis according to the input time code even during the measurement pause. ON: Follow. OFF: Does not follow.
Display - Integrated	OFF, ON	Set whether to display the integrated history. ON: Displayed. OFF: Not displayed.
Display - Minmax	OFF, ON	Set whether to display the history of the maximum / minimum loudness of momentary or short terms. ON: Displayed. OFF: Not displayed.
Display – True Peak	OFF, ON	Set whether to display the history of true peak values. ON: Displayed. OFF: Not displayed.
Display - Loudness Level Meter	OFF, ON	Set whether to display the loudness level bar next to the history. ON is displayed. OFF is not displayed.
Display - Loudness Range	OFF, ON	Set whether to display the width of the loudness range value in the green band next to the history. ON: Displayed. OFF: Not displayed.
Display - Loudness Distribution	OFF, ON	Set whether to display the loudness value (short term) distribution next to the history. ON: Displayed. OFF: Not displayed

Layout

Set the layout.

The setting items are as follows.

setting items 1	setting items 2	setting items 3	Set value (initial setting: underlined)	Function
Skip Layout select	Level Meter	—	OFF, ON	Set ON / OFF the level bar display.
	Lissajous	—	OFF, ON	Set ON / OFF the display of Lissajous waveform.
	Needle Meter	—	OFF, ON	Set ON / OFF the needle meter display.
	Spectrum Analyzer	—	OFF, ON	Set ON / OFF the spectrum analyzer display.
	Numerical	—	OFF, ON	Set ON / OFF numerical display.
	History	—	OFF, ON	Set ON / OFF history display
	Status	—	OFF, ON	Set ON / OFF the status display.
	Multi 1	—	OFF, ON	Set ON / OFF for 2-screen multi-display 1
	Multi 2	—	OFF, ON	Set ON / OFF for 2-screen multi-display 2.
	Multi 3	—	OFF, ON	Set ON / OFF for 2-screen multi-display 3.
	Multi 4	—	OFF, ON	Set ON / OFF for 2-screen multi-display 4.
Multi Layout Settings	Multi 1	Left	Level Meter, Lissajous, Needle Meter, Spectrum Analyzer, Numerical, History	2-screen multi-display 1 to 4 Set the elements to be displayed on the left and right of each. * If the same element is selected on the left and right, it will be displayed only on the right side.
		Right		
	Multi 2	Left		
		Right		
	Multi 3	Left		
		Right		
	Multi 4	Left		
		Right		
Picture Display	—		OFF, ON	Set the SDI input video display. OFF: The image is not displayed. ON: Displays the image.
Timecode Display	—		OFF, ON	Set the time code display. OFF: Not displayed. ON: Display
Timecode Settings	TC NDF/DF Indicator		OFF, ON	Set whether to detect and display the drop / non-drop of the entered time code. OFF: Drop / non-drop is detected and not displayed. ON: Detects and displays drop / non-drop.
	TC Frame Indicator		OFF, ON	Set whether to use F notation in the frame number part of the time code display. OFF: F notation is not used. ON: F notation is used.

Downmix

Make various downmix settings.

The setting items are as follows.

setting items 1	setting items 2	setting items 3	setting items 4	Set value (initial setting: underlined)	Function
for Monitoring ※1	Speaker Monitoring 5.1	—	—	<u>OFF</u>, ON	5.1 Set whether to output the downmix to the speaker. OFF: No output ON: Output. Channel selection is selected using the front CH-L / R encoder
	Speaker Monitoring ST	—	—	<u>OFF</u>, ON	Set whether to output the ST downmix to the speaker. OFF: No output ON: Output. When the speaker output of the above 5.1 downmix is ON, the channel selection is selected using the front CH-L / R encoder.
	5.1 Downmix Settings	Channel Map	22.2ch FL	Ch 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, none	Set the FL channel for 5.1ch downmix.
			22.2ch FR		Set the FR channel for 5.1ch downmix.
			22.2ch FC		Set the FC channel for 5.1ch downmix.
			22.2ch LFE1		Set the LFE1 channel for 5.1ch downmix.
			22.2ch BL		Set the BL channel for 5.1ch downmix
			22.2ch BR		Set the BR channel for 5.1ch downmix.
			22.2ch FLc		Set the FLc channel for 5.1ch downmix.5.1ch
			22.2ch FRc		Set the FRc channel for 5.1ch downmix.5.1ch.
			22.2ch BC		Set the BC channel for 5.1ch downmix.
			22.2ch LFE2		Set the LFE2 channel for 5.1ch downmix.
			22.2ch SiL		Set the SiL channel for 5.1ch downmix.5.1ch.
			22.2ch SiR		Set the SiR channel for 5.1ch downmix.
			22.2ch TpFL		Set the TpFL channel for 5.1ch downmix.
			22.2ch TpFR		Set the TpFR channel for 5.1ch downmix.5.1ch
			22.2ch TpFC		Set the TpFC channel for 5.1ch downmix.
			22.2ch TpC		Set the TpC channel for 5.1ch downmix.5.1ch
			22.2ch TpBL		Set the TpBL channel for 5.1ch downmix.5.1ch
			22.2ch TpBR		Set the TpBR channel for 5.1ch downmix.
			22.2ch TpSiL		Set the TpSiL channel for 5.1ch downmix.5.1ch
			22.2ch TpSiR		Set the TpSiR1 channel for 5.1ch downmix.5.1ch
			22.2ch TpBC		Set the TpBC channel for 5.1ch downmix.5.1ch
			22.2ch BtFC		Set the BtFC channel for 5.1ch downmix.5.1ch
			22.2ch BtFL		Set the BtFL channel for 5.1ch downmix.5.1ch
			22.2ch BtFR		Set the BtFR channel for 5.1ch downmix.5.1ch

setting items 1	setting items 2	setting items 3	setting items 4	Set value (initial setting: underlined)	Function
for Monitoring ※1	5.1 Downmix Settings	Downmix Method	g1	0〜-4.5〜-9dB, Infi.dB	Sets the downmix factor g1.　※2 Refer to the calculation formula
			g2	0〜-4.5〜-9dB, Infi.dB	Sets the downmix factor g2.　※2 Refer to the calculation formula
			g3	0〜-1.5〜-9dB, Infi.dB	Sets the downmix factor g3.　※2 Refer to the calculation formula
			g4	0〜-6〜-9dB, Infi.dB	Sets the downmix factor g4.　※2 Refer to the calculation formula
			g5	0〜-3〜-9dB, Infi.dB	Sets the downmix factor g5.　※2 Refer to the calculation formula
			g6	+10〜-3〜-40dB, Infi.dB	Sets the downmix factor g6.　※2 Refer to the calculation formula

※1　A downmix dedicated to monitoring. It does not affect output-only downmixes.

※2　$C = FC + g1 \times FLc + g1 \times FRc + g3 \times (TpFC + g4 \times TpC + BtFC)$

$L = FL + g1 \times FLc + g2 \times SiL + g3 \times (TpFL + g2 \times TpSiL + BtFL)$

$R = FR + g1 \times FRc + g2 \times SiR + g3 \times (TpFR + g2 \times TpSiR + BtFR)$

$Ls = BL + g5 \times BC + g2 \times SiL + g3 \times (TpBL + g5 \times TpBC + g2 \times TpSiL + g4 \times TpC)$

$Rs = BR + g5 \times BC + g2 \times SiR + g3 \times (TpBR + g5 \times TpBC + g2 \times TpSiR + g4 \times Tp)$

$LFE = g6 \times (LFE1 + LFE2)$

setting items 1	setting items 2	setting items 3	setting items 4	Set value (initial setting: underlined)	Function
for Monitoring ※1	Stereo Settings	Channel Map	5.1ch L	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, Downmix 5.1-L/R/C/LFE/Ls/Rs,none	Sets the L channel for stereo downmix.
			5.1ch R		Sets the R channel for stereo downmix.
			5.1ch C		Sets the C channel for stereo downmix.
			5.1ch LFE		Sets the LFE channel for stereo downmix.
			5.1ch Ls		Sets the Ls channel for stereo downmix.
			5.1ch Rs		Sets the Rs channel for stereo downmix.
		Downmix Method	Select	ARIB STD-B21(1), ARIB STD-B21(2), ISO/IEC 13818(1), ISO/IEC 13818(2), ISO/IEC 14496(1), ISO/IEC 14496(2)	ARIB STD-B21(1)： $L=(a)×(L＋C/\sqrt{2}＋(k)×LS)$ $R=(a)×(R＋C/\sqrt{2}＋(k)×RS)$ ARIB STD-B21(2)： $L=(a)×(L＋C/\sqrt{2}\text{-}(k)×(LS＋RS))$ $R=(a)×(R＋C/\sqrt{2}＋(k)×(LS＋RS))$ ISO/IEC 13818(1)： $L=(1/(1＋(1/\sqrt{2})＋(a)))×(L＋C/\sqrt{2}＋(k)×LS)$ $R=(1/(1＋(1/\sqrt{2})＋(a)))×(R＋C/\sqrt{2}＋(k)×RS)$ ISO/IEC 13818(2)： $L=(1/(1＋(1/\sqrt{2})＋(a)))×(L＋C/\sqrt{2}\text{-}(k)×(LS＋RS))$ $R=(1/(1＋(1/\sqrt{2})＋(a)))×(R＋C/\sqrt{2}＋(k)×(LS＋RS))$ ISO/IEC 14496(1)： $L = (a)×(L＋C/\sqrt{2}＋(k)×Ls) ＋ LFE×m$ $R = (a)×(R＋C/\sqrt{2}＋(k)×Rs) ＋ LFE×m$ ISO/IEC 14496(2)： $L=(a)×(L＋C/\sqrt{2}\text{-}(k)×(Ls＋Rs))＋ LFE×m$ $R=(a)×(R＋C/\sqrt{2}＋(k)×(Ls＋Rs))＋LFE×m$
			a	0～-9dB, Infi.dB	Sets the downmix factor a.
			k	0～-3～-9dB, Infi.dB	Sets the downmix factor k.
			m	0～-40dB, Infi.dB	Sets the downmix factor m.

※1　A downmix dedicated to monitoring. Does not affect output-only downmix

setting items 1	setting items 2	setting items 3	setting items 4	Set value (initial setting: underlined)	Function
for Output ※1	5.1 Downmix Settings	Channel Map	22.2ch FL	Monitor Ch1～32	Set the FL channel for 5.1ch downmix.
			22.2ch FR	SDI A Ch1～32 ※2	Set the FR channel for 5.1ch downmix.5.1ch
			22.2ch FC	SDI B Ch1～32 ※2	Set the FC channel for 5.1ch downmix.5.1ch
			22.2ch LFE1	AES Ch1～8 ※2	Set the LFE1 channel for 5.1ch downmix.5.1ch
			22.2ch BL	Analog Ch1～8 ※2	Set the BL channel for 5.1ch downmix.5.1ch
			22.2ch BR	MADI Ch1～64 ※2	Set the BR channel for 5.1ch downmix.5.1ch
			22.2ch FLc	Dante Ch1～64 ※2	Set the FLcchannel for 5.1ch downmix.5.1ch
			22.2ch FRc	none	Set the FRcchannel for 5.1ch downmix.5.1ch
			22.2ch BC		Set the BC channel for 5.1ch downmix.5.1ch
			22.2ch LFE2		Set the LFE2 channel for 5.1ch downmix.5.1ch
			22.2ch SiL		Set the SiL channel for 5.1ch downmix.5.1ch
			22.2ch SiR		Set the TpFL channel for 5.1ch downmix.5.1ch
			22.2ch TpFL		Set the FL channel for 5.1ch downmix.5.1ch
			22.2ch TpFR		Set the TpFC channel for 5.1ch downmix.5.1ch
			22.2ch TpFC		Set the FL channel for 5.1ch downmix.5.1ch
			22.2ch TpC		Set the TpC channel for 5.1ch downmix.5.1ch
			22.2ch TpBL		Set the TpBR channel for 5.1ch downmix.5.1ch
			22.2ch TpBR		Set the FL channel for 5.1ch downmix.5.1ch
			22.2ch TpSiL		Set the TpSiR channel for 5.1ch downmix.5.1ch
			22.2ch TpSiR		Set the FL channel for 5.1ch downmix.5.1ch
			22.2ch TpBC		Set the TpBC channel for 5.1ch downmix.5.1ch
			22.2ch BtFC		Set the BtFC channel for 5.1ch downmix.5.1ch
			22.2ch BtFL		Set the FL channel for 5.1ch downmix.
			22.2ch BtFR		Set the BtFR channel for 5.1ch downmix.5.1ch

※1 This is an output-only downmix. It does not affect the downmix dedicated to monitoring.

※2 AM-3825 only supported.

setting items 1	setting items 2	setting items 3	setting items 4	Set value (initial setting: underlined)	Function
for Output ※1	5.1 Downmix Settings	Downmix Method	g1	0〜-4.5〜-9dB, Infi.dB	Sets the downmix factor g1. ※2 Refer to the calculation formula.
			g2	0〜-4.5〜-9dB, Infi.dB	Sets the downmix factor g2. ※2 Refer to the calculation formula.
			g3	0〜-1.5〜-9dB, Infi.dB	Sets the downmix factor g3. ※2 Refer to the calculation formula.
			g4	0〜-6〜-9dB, Infi.dB	Sets the downmix factor g4. ※2 Refer to the calculation formula.
			g5	0〜-3〜-9dB, Infi.dB	Sets the downmix factor g5. ※2 Refer to the calculation formula.
			g6	+10〜-3〜-40dB, Infi.dB	Sets the downmix factor g6. ※2 Refer to the calculation formula.

※1　This is an output-only downmix. It does not affect the downmix dedicated to monitoring.

※2　$C = FC + g_1 \times FLc + g_1 \times FRc + g_3 \times (TpFC + g_4 \times TpC + BtFC)$

$L = FL + g_1 \times FLc + g_2 \times SiL + g_3 \times (TpFL + g_2 \times TpSiL + BtFL)$

$R = FR + g_1 \times FRc + g_2 \times SiR + g_3 \times (TpFR + g_2 \times TpSiR + BtFR)$

$Ls = BL + g_5 \times BC + g_2 \times SiL + g_3 \times (TpBL + g_5 \times TpBC + g_2 \times TpSiL + g_4 \times TpC)$

$Rs = BR + g_5 \times BC + g_2 \times SiR + g_3 \times (TpBR + g_5 \times TpBC + g_2 \times TpSiR + g_4 \times TpC)$

$LFE = g_6 \times (LFE1 + LFE2)$

setting items 1	setting items 2	setting items 3	setting items 4	Set value (initial setting: underlined)	Function
for Output ※1	Stereo Settings	Channel Map	5.1ch L	Monitor Ch1～32	Sets the L channel for stereo downmix.
			5.1ch R	Monitor Front L	Sets the R channel for stereo downmix.
			5.1ch C	Monitor Front R	Sets the C channel for stereo downmix.
			5.1ch LFE	Monitor Downmix 5.1-L	Sets the LFE channel for stereo downmix.
				Monitor Downmix 5.1-R	
			5.1ch Ls	Monitor Downmix 5.1-C	Sets the Ls channel for stereo downmix.
			5.1ch Rs	Monitor Downmix 5.1-LFE	Sets the Rs channel for stereo downmix.
				Monitor Downmix 5.1-Ls	
				Monitor Downmix 5.1-Rs	
				SDI A Ch1～32 ※2	
				SDI B Ch1～32 ※2	
				AES Ch1～8 ※2	
				Analog Ch1～8 ※2	
				MADI Ch1～64 ※2	
				Dante Ch1～64 ※2	
				Downmix 5.1-L	
				Downmix 5.1-R	
				Downmix 5.1-C	
				Downmix 5.1-LFE	
				Downmix 5.1-Ls	
				Downmix 5.1-Rs	
				none	
		Downmix Method	Select	ARIB STD-B21(1), ARIB STD-B21(2), ISO/IEC 13818(1), ISO/IEC 13818(2), ISO/IEC 14496(1), ISO/IEC 14496(2)	ARIB STD-B21(1)： $L=(a)\times(L+C/\sqrt{2}+(k)\times LS)$ $R=(a)\times(R+C/\sqrt{2}+(k)\times RS)$ ARIB STD-B21(2)： $L=(a)\times(L+C/\sqrt{2}-(k)\times(LS+RS))$ $R=(a)\times(R+C/\sqrt{2}+(k)\times(LS+RS))$ ISO/IEC 13818(1)： $L=(1/(1+(1/\sqrt{2})+(a)))\times(L+C/\sqrt{2}+(k)\times LS)$ $R=(1/(1+(1/\sqrt{2})+(a)))\times(R+C/\sqrt{2}+(k)\times RS)$ ISO/IEC 13818(2)： $L=(1/(1+(1/\sqrt{2})+(a)))\times(L+C/\sqrt{2}-(k)\times(LS+RS))$ $R=(1/(1+(1/\sqrt{2})+(a)))\times(R+C/\sqrt{2}+(k)\times(LS+RS))$ ISO/IEC 14496(1)： $L=(a)\times(L+C/\sqrt{2}+(k)\times Ls)+LFE\times m$ $R=(a)\times(R+C/\sqrt{2}+(k)\times Rs)+LFE\times m$ ISO/IEC 14496(2)： $L=(a)\times(L+C/\sqrt{2}-(k)\times(Ls+Rs))+LFE\times m$ $R=(a)\times(R+C/\sqrt{2}+(k)\times(Ls+Rs))+LFE\times m$
			a	0～-9dB, Infi.dB	Sets the downmix factor a.
			k	0～-3～-9dB, Infi.dB	Sets the downmix factor k.
			m	0～-40dB, Infi.dB	Sets the downmix factor m.

※1　This is an output-only downmix. It does not affect the downmix dedicated to monitoring.

※2　AM-3825 only supported.

Hardware

Make various settings related to the hardware of this unit.

The setting items are as follows.

setting items 1	setting items 2	Set value (initial setting: underlined)	Function
LCD Brightness	—	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	Adjusts the brightness of the LCD panel backlight. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 Select the brightness.
GPI Enable	—	Disable, Enable	Enables / disables GPI control. Disable Disables GPI control. Enable Enables GPI control.
GPI Assign	GPI 1-1	None	Set the function to be assigned to GPI. For the allocation function, refer to **"3.3 List of GPI allocation functions"**
	GPI 1-2	None	
	GPI 1-3	None	
	GPI 1-4	None	
	GPI 1-5	None	
	GPI 1-6	None	
	GPI 2-1	None	
	GPI 2-2	None	
	GPI 2-3	None	
	GPI 2-4	None	
	GPI 2-5	None	
	GPI 2-6	None	
GPO Assign	GPO1-1	None	Set the function to be assigned to GPO. For the allocation function, refer to **"3.4 GPO Assignment Function List"**
	GPO1-2	None	
	GPO1-3	None	
	GPO1-4	None	
	GPO1-5	None	
	GPO1-6	None	
	GPO2-1	None	
	GPO2-2	None	
	GPO2-3	None	
	GPO2-4	None	
	GPO2-5	None	
	GPO2-6	None	
+12V Out Enable	—	Disable, Enable	Enables / disables the + 12V output of the GPIO1 / 2 pin. When enabled, + 12V output is output from both GPIO1 / 2 terminals. Disable Disables + 12V output. Twice Enable Enables + 12V output.

setting items 1	setting items 2	Set value (initial setting: underlined)	Function
Clock Adjustment	Data(Y/M/D)	Year/Month/Day	Set the built-in clock of this device
	Time(H:M:S)	Hour：Minute：Second	
IP Configuration ※	IP Address	0.0.0.0〜 192.168.1.128〜 255.255.255.255	Set the IP address.
	Subnet Mask	0.0.0.0〜 255.255.255.0〜 255.255.255.255	Set the subnet mask.
	Default Gateway	0.0.0.0〜192.168.1.1〜 255.255.255.255	Set the default gateway.
	Unit ID Name		Change the unit ID name displayed on SP-3825. Press to edit.
System Information	—	—	For system management of this unit.
System Maintenance	—	—	For system management of this unit.

※ AM-3825 only supported.

3.2.5 Memory menu

In the Memory menu, the settings are registered, recalled, and deleted as presets.

SDI A				
	⊟ INPUT	Preset Memory		Start
AES	⊡ OUTPUT	External Memory		Pause
MADI Ch1-32	ⅈ(LOUDNESS			Stop
Dante Ch1-32	⚙ SETTINGS			Reset
	👥 MEMORY			

MEMO

・The menu contents may differ depending on the software version.

Preset Memory

Settings Operate and set preset data.

The operation / setting items are as follows.

setting items 1	setting items 2	Set value (initial setting: underlined)	Function
Load	—	Preset 1〜Preset 12	Call the registered preset and use it for the setting value of this device. Press to execute.
Save	—	Preset 1〜Preset 12	Register the settings as a preset. Press to execute.
Clear	—	Preset 1〜Preset 12	Delete the registered preset. Press to execute.
Rename	—	Preset 1〜Preset 12	Rename the registered preset. Press to edit.
Factory Preset	OK	—	Resets the settings of this device.
	Cancel	—	OK: Perform a reset. Cancel: Does not perform a reset. Press to execute.

※*The following settings are not included in the preset.

・User button assignment settings

・ Settings under Hardware in the Settings menu

External Memory

The preset data of this device is saved in the USB memory, and the data saved in the USB memory is recalled to this device. Also, save the log data to a USB memory as CSV.

The operation items are as follows.

setting items 1	setting items 2	Function
Preset File	Export Preset	Save preset memory 1 to 12 to USB memory.　※2 Press to execute.
	Export Out Remap	Audio Out Remap Save preset memories 1 to 12 to a USB memory.　※2 Press to execute.
	Export M'ment Mode	Save M'ment Mode preset memories 1 to 12 to a USB memory.　※2 Press to execute.
	Export Full Backup	Save the entire backup including all presets and other settings to a USB stick.　※2 Press to execute. The backup file contains the following data: ・　Preset memory 1-12 ・　Audio Out Remap Preset memory 1-12 ・　M'ment Mode preset memory 1-12 ・　User button assignment settings ・　Settings under Hardware in the Settings menu　※1
	Import File Select	Select the USB memory file to be called to this unit.　※2
	Import	Calls the file of the selected USB memory to this unit.　※1　※2 Press to execute.
Log File	Export Loudness Log	Save the loudness event log to a USB stick　※3 Press to execute.
	Export Alarm Log	Save the alarm event log to a USB memory.　※3 Press to execute.
	Clear Loudness Log	Clears the loudness event log recorded on the Unit. Press to execute.
	Clear Alarm Log	Clears the alarm event log recorded on the Unit. Press to execute.

※1　Please note that the full backup also includes settings related to external connections such as GPI, GPO, and IP address.

※2　Save the file with the extension [amb] in the root directory of the USB memory. If you change the extension, you cannot select it with Import File Select.

※3　Save the file with the extension [csv] in the root directory of the USB memory.

3.3 GPI List of assigned functions

The following is a list of operations assigned to pins GPI1-1 to GPI2-6 of the GPI connector.

The assignment function works on the edge except for the items marked with Level.

Setting function name		Function content
None		Select if you do not want to assign a function
INPUT	SDI A	Switch input signal to SDI A input
	SDI B	Switch input signal to SDI A input
	SDI Dual	Switch input signal to SDI DUAL A input.
	AES	Switch input signal to AES input
	Analog	Switch input signal to Analog input
	MADI Ch1-32	Switch input signal to MADI Ch33-6 input
	MADI Ch33-64	Switch input signal to MADI Ch33-6 input
	Dante Ch1-32 ※	Switch input signal to Dante Ch1-32 input
	Dante Ch33-64 ※	Switch input signal to Dante Ch33-64 input
FRONT L/R	Ch 1-2	Switch FRONT L / R audio output to Ch 1 (L) / Ch 2 output
	Ch 3-4	Switch FRONT L / R audio output to Ch 3(L)/Ch 4 output.
	Ch 5-6	Switch FRONT L / R audio output to Ch 5(L)/Ch 6 output
	Ch 7-8	Switch FRONT L / R audio output to Ch 7(L)/Ch 8 output
	Ch 9-10	Switch FRONT L / R audio output to Ch 9(L)/Ch 10 output
	Ch 11-12	Switch FRONT L / R audio output to Ch 11(L)/Ch 12 output
	Ch 13-14	Switch FRONT L / R audio output to Ch 13(L)/Ch 14 output
	Ch 15-16	Switch FRONT L / R audio output to Ch 15(L)/Ch 16 output
	Ch 17-18	Switch FRONT L / R audio output to Ch 17(L)/Ch 18 output
	Ch 19-20	Switch FRONT L / R audio output to Ch 19 (L) / Ch 20 output
	Ch 21-22	Switch FRONT L / R audio output to Ch 21 (L) / Ch 22 output
	Ch 23-24	Switch FRONT L / R audio output to Ch 23 (L) / Ch 24 output
	Ch 25-26	Switch FRONT L / R audio output to Ch 25 (L) / Ch 26 output
	Ch 27-28	Switch FRONT L / R audio output to Ch 27 (L) / Ch 28 output
	Ch 29-30	Switch FRONT L / R audio output to Ch 29 (L) / Ch 30 output
	Ch 31-32	Switch FRONT L / R audio output to Ch 31 (L) / Ch 32 output
Load Preset	Preset 1～12	Recalls the selected presets 1-12 data.
Load Audio Remap	Preset 1～12	Recalls the selected audio output presets 1-12 data.
Load M'ment	Preset 1～12	Recall selected audio mode presets 1-12 data
Operation	Start	Start loudness measurement.
	Stop	Stops loudness measurement.
	Start/Stop	Switches the loudness measurement start / stop.
	Start/Stop (Level)	Loudness measurement starts when Make and stops when Open.
	Pause	Pauses loudness measurement.
	Pause (Level)	Loudness measurement is paused during Make.
	Reset	Stops loudness measurement and resets the value.
OTHER	GPI Enable (Level)	Enable GPI only at the time of Make. GPI is enabled whenever all GPIs do not select GPI Enable (Level).

※ AM-3825 only supported.

3.4 GPO List of assigned functions

The following is a list of operations assigned to pins GPO1-1 to GPO2-6 of the GPO connector.

Setting function name		Function content
None		Select if you do not want to assign a function.
Operation	Start	Outputs the start signal for loudness measurement.
	Stop	Outputs a stop signal for loudness measurement
	Start/Stop	Outputs the start signal / stop signal for loudness measurement.
	Start/Stop (Level)	Make is output while the loudness measurement is being measured, and Open is output when the loudness measurement is stopped.
	Pause	Outputs a pause signal for loudness measurement.
	Pause (Level)	Make is output while the loudness measurement is paused.
	Reset	Outputs the reset signal of the integrated measurement of the loudness meter.
	Status Start	Loudness measurement status output, Make output during measurement。
	Status Stop	Outputs loudness measurement status, and outputs Make when stopped.
	Status Pause	Outputs loudness measurement status and Make during pause.
	Status Reset	Loudness measurement status output, Make output when reset is executed.
	Status Start/Pause	Outputs loudness measurement status, Make during measurement, and Open when stopped. Make / Open inversion is repeated at regular intervals during pause.
Chk Remap	Preset 1～12	Outputs Make when the current state matches the selected audio output presets 1 to 12 data.
Chk M'ment	Preset 1～12	If the selected audio mode preset 1 to 12 data matches the current state, Make is output.

Chapter4 Check the input signal

This chapter describes the meters and pictures displayed on the LCD.

4.1 How to switch the display

The method for switching the meter and picture displayed on the LCD panel is as follows.

● **To switch the display on the LCD panel, turn the [LAYOUT] dial.**
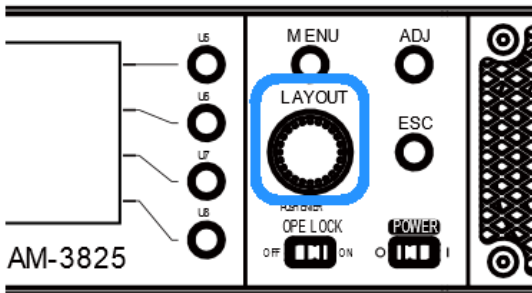
Each time you turn the [LAYOUT] dial to the right, the display changes in the order shown on the right. Turn it left to switch in the reverse orde

Level bar (dBTP or loudness) display

⬇

Lissajous display

⬇

Needle meter (VU or LU) display

⬇

Spectrum analyzer display

⬇

Numerical display (integrated, short term, momentary, dB peak, loudness range)

⬇

History display

⬇

Status display

⬇

2-screen multi-display 1-4

⬇

Return to level bar (dBTP or loudness) display
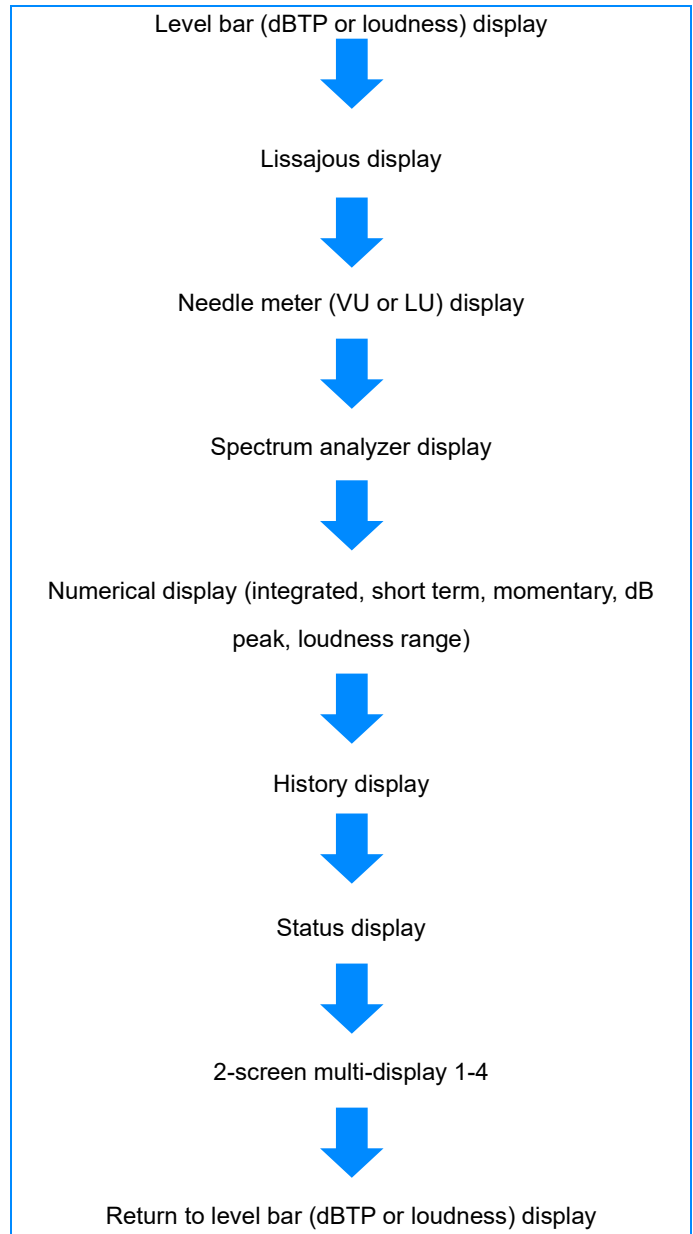
4.2 Confirmation of input video
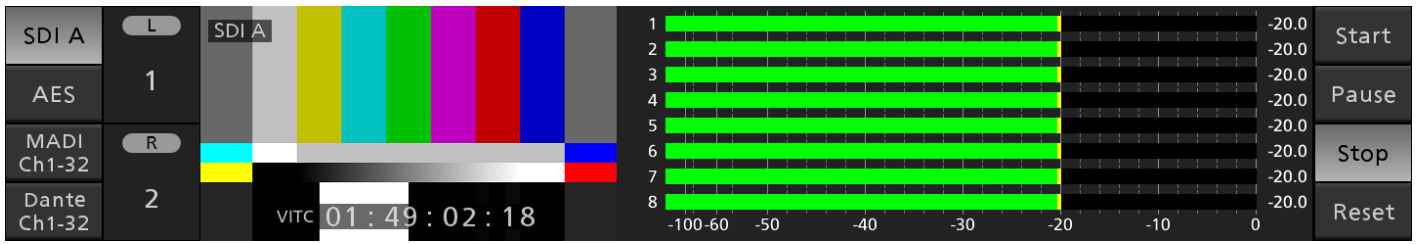
【Picture】
Input video

【Function】
· You can turn on / off the input video display from the Settings menu> Layout> Picture Display.
· The above ON / OFF settings can also be turned ON / OFF the input video display by pressing the [ADJ] button and pressing the Picture Display with the [U8] button during each layout display. (Excluding status display screen)

4.3 Checking the audio level bar
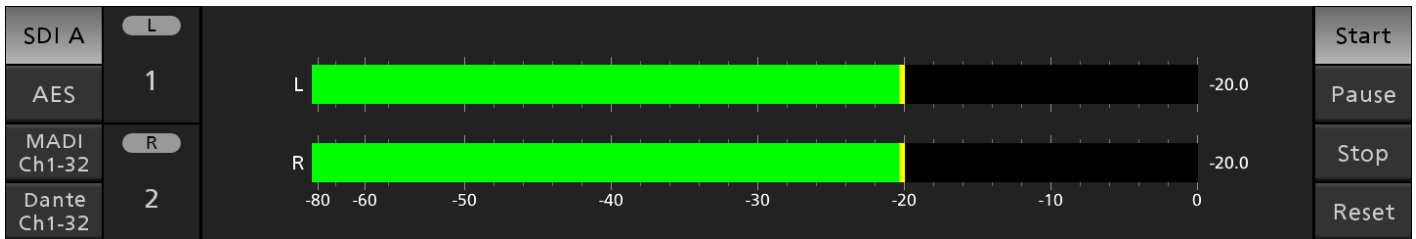
【L/R Level Meter】
L/R Audio level bar
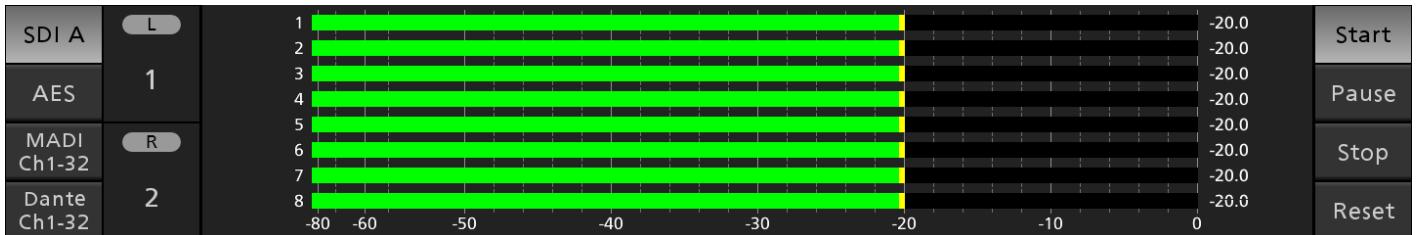
【8ch Level Meter】
1〜8ch Audio level bar
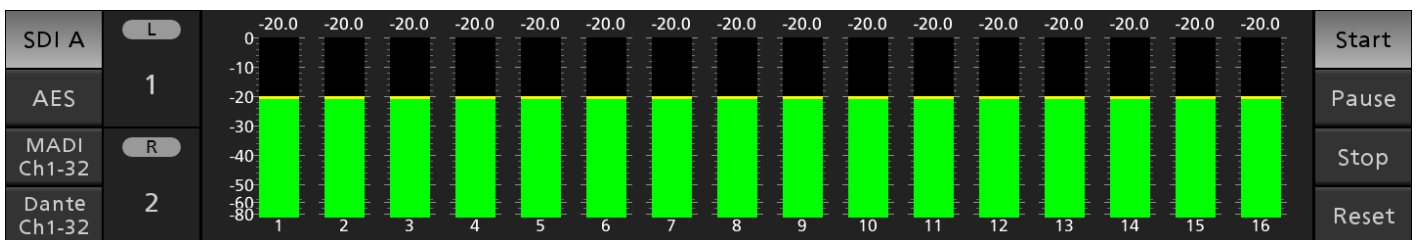
【16ch Level Meter】
1〜16ch Audio level bar
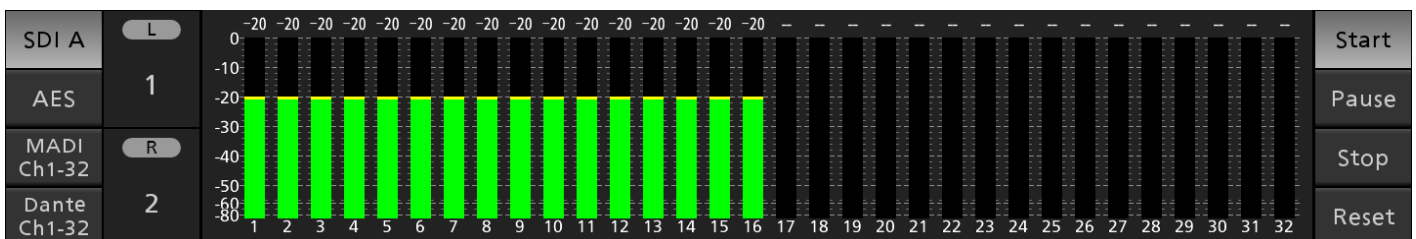
【32ch Level Meter】
1〜32ch Audio level bar ※Numerical display does not display after the decimal point.

【Function】
・　When Audio is set in Settings menu> Level Meter> Display Select, the audio level bar and numerical values are displayed.
・　When LR, 1-8ch, 1-16ch, 1-32ch are set in Settings menu> Level Meter> Audio Settings> Ch Display, the audio level bar and numerical value of that channel are displayed.
・　The L / R audio level bar is displayed as the L and R audio level bar and numerical values selected with the CH-L and CH-R dials on the front.
・　The L / R audio level bar displays the downmixed L and R as the audio level bar and numerical values when the downmix speaker monitoring is enabled.
・　Press the [ADJ] button and then the [U2] button to display the entire level. (Unenlarged)
・　Press the [ADJ] button and then the [U3] button to enlarge the vicinity of the reference level.
・　Press the [ADJ] button and then the [U4] button to enlarge the area near the bottom level.

4.4 Checking the loudness level bar
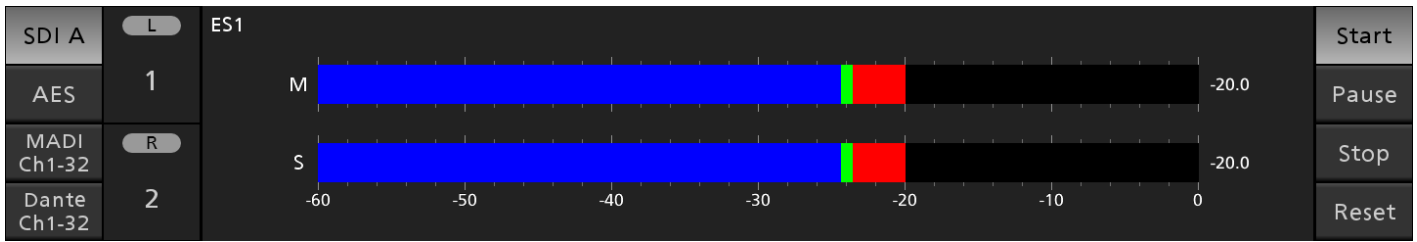
【Loudness Level Meter】
Loudness level bar display
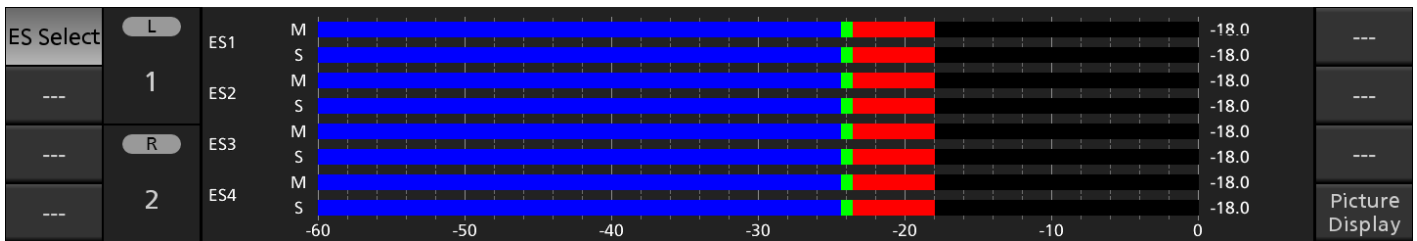
【Loudness Level Meter】
Loudness level bar display

【Function】
・ When Loudness is set in Settings menu> Level Meter> Display Select, the loudness level bar and numerical values are displayed.
・ The loudness level bar of the audio mode set in Loudness menu> M'ment Mode is displayed.
・ The display timing of the loudness level bar can be selected from either momentary or short term by selecting Settings menu> Level Meter> Loudness Settings> Loudness Select.
・ Press the [ADJ] button, select ES Select with the [U1] button, and switch the ES with the [LAYOUT] dial.

4.5 Confirmation of Lissajous waveform
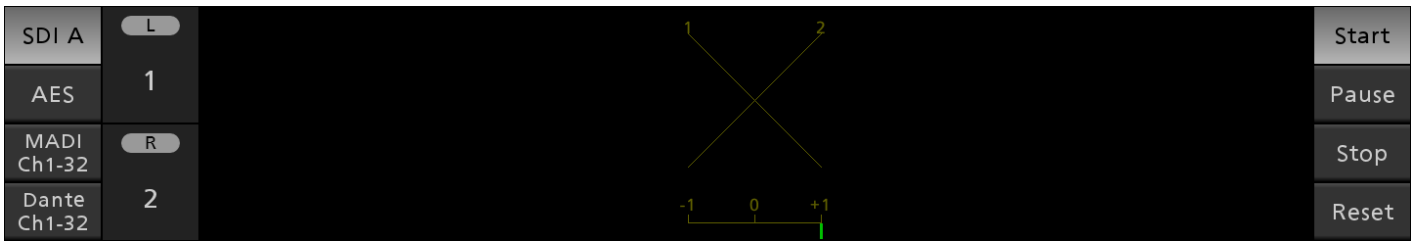
【L/R Lissajous】
L/R Lissajous waveform
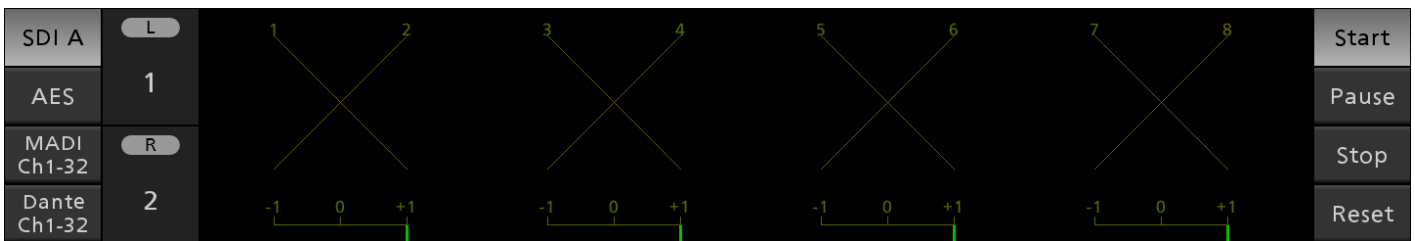
【8ch Lissajous】
8ch Lissajous waveform
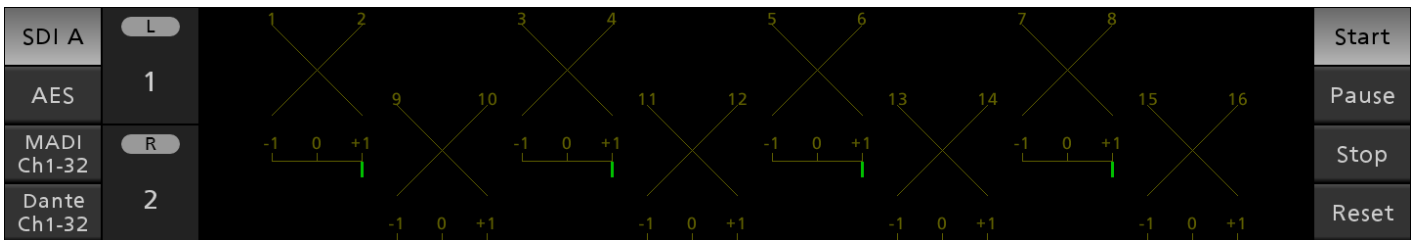
【16ch Lissajous】
16ch Lissajous waveform
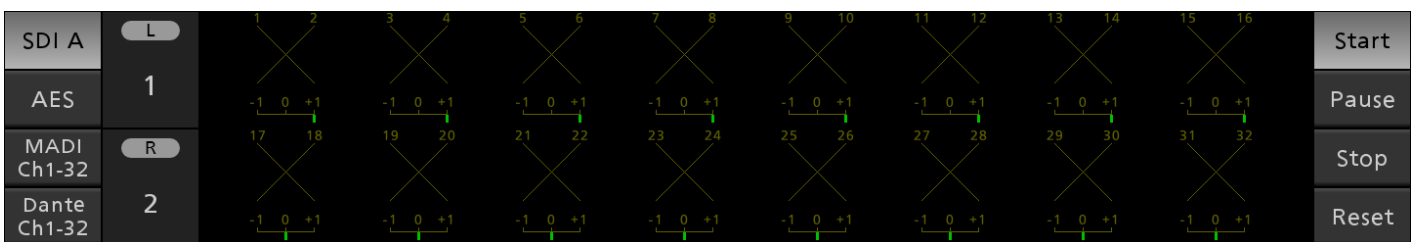
【32ch Lissajous】
32ch Lissajous waveform

【Function】
・ If you set LR ,, 8ch, 16ch, 32ch in Settings menu> Lissajous> Ch Display, the number of Lissajous waveforms and correlation meter will be displayed.
・ For the L / R Lissajous waveform, the Lissajous waveform that is a combination of L and R selected with the CH-L and CH-R dials on the front is displayed.
・ L / R Lissajous waveform is displayed as downmixed L and R Lissajous waveform when downmix speaker monitoring is enabled.
・ For 8ch, 16ch, and 32ch Lissajous waveforms, the Lissajous waveform set in the channel mapping of Settings> Lissajous> Ch Map is displayed.

# 4.6 Checking the needle meter
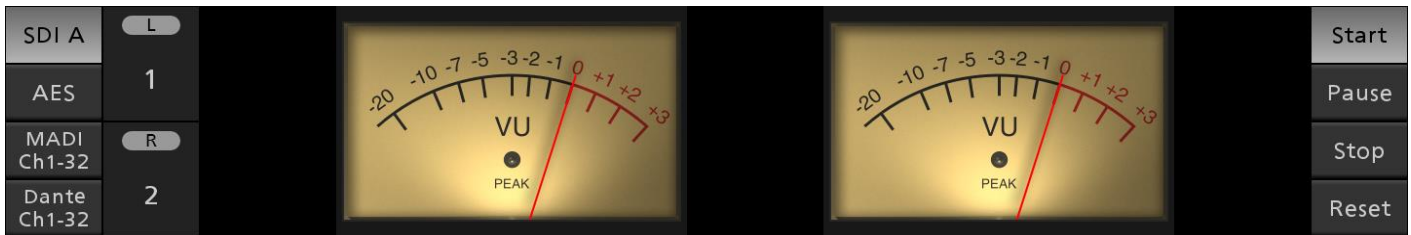
【VU Meter】
VU meter

【Function】
・   Select VU from Settings menu> Needle Meter> Display Select to display the L / R VU meter.
・   The selected L and R VU meters are displayed with the CH-L and CH-R dials on the front.
・   When downmix speaker monitoring is enabled, the downmixed L and R VU meters are displayed.
・   Needle shake that exceeds the LCD drawing speed (25 msec) may not be displayed.
・   The peak indicator lights red when peak detection is detected.
・   Various peak indicator settings are made in the Settings menu> Needle Meter> VU Settings> Ch Peak indicator.
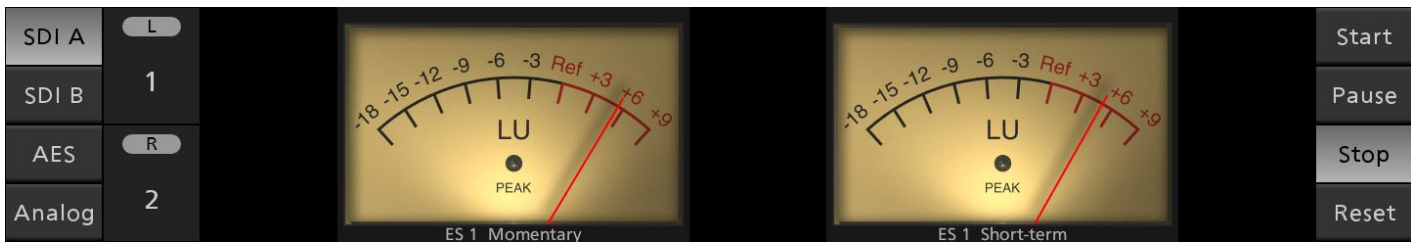

【LU Meter】
LU display of momentary and short terms

【Function】
・   When LU is selected in Settings menu> Needle Meter> Display Select, the LU meter is displayed.
・   You can switch between momentary, short term, or both display in Settings menu> Needle Meter> LU Settings> Loudness Select.
・   Press the [ADJ] button, select ES Select with the [U1] button, and switch the ES with the [LAYOUT] dial.
・   LU display displays Loudness menu> Settings> Level Settings> Target Level as Ref (0 dB).
・   LU can be switched between LU +9 scale and LU +18 scale in Settings menu> Needle Meter> LU Settings> Scale.
・   The peak indicator lights red when peak detection is detected.
・   Various peak indicator settings are made in the Settings menu> Needle Meter> LU Settings> ES Peak indicator.

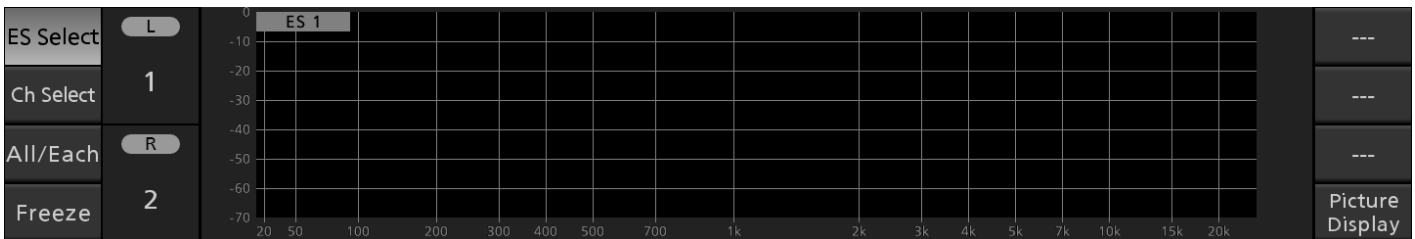# 4.7 Checking the spectrum analyzer
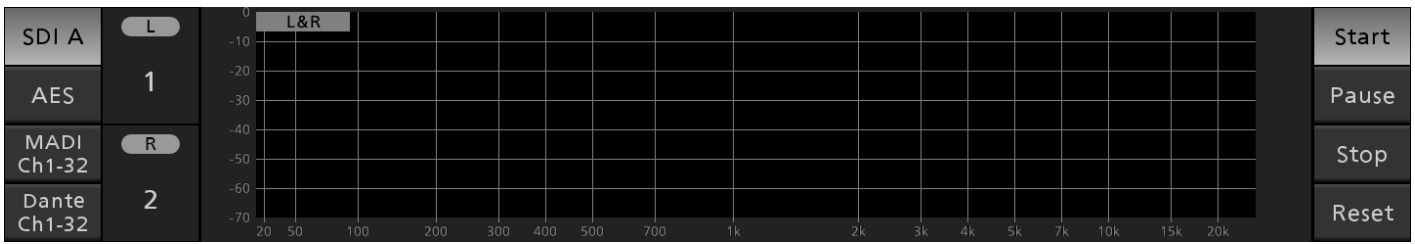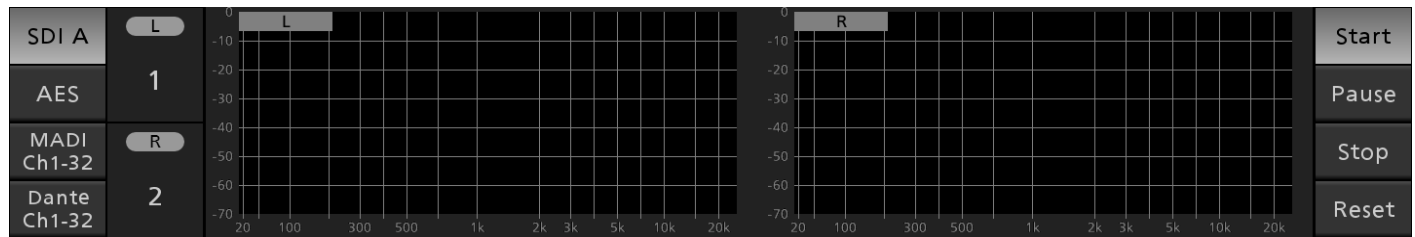
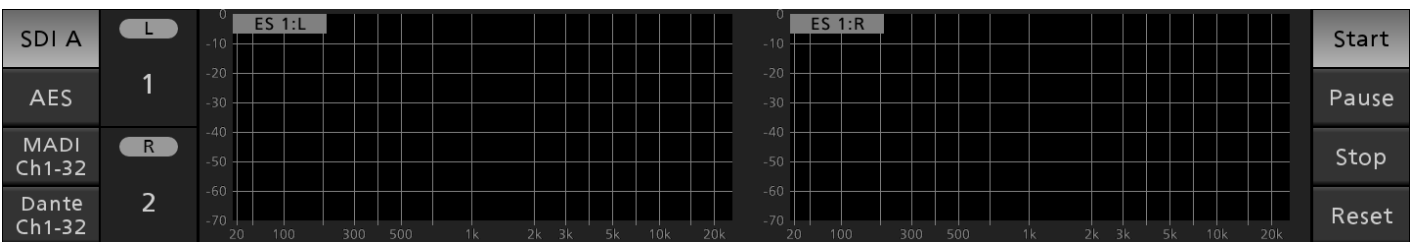**【L/R Single Spectrum Analyzer】**
L/R   Single spectrum analyzer

【L/R Dual Spectrum Analyzer】
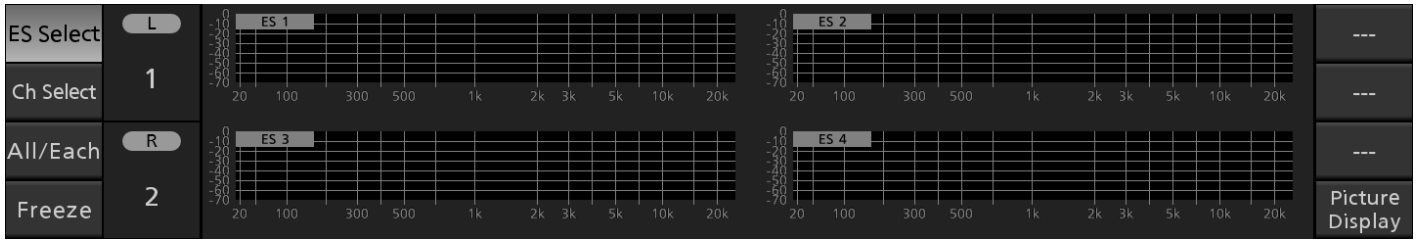L/R   Dual spectrum analyzer

【1ES Single Spectrum Analyzer】
1ES Single spectrum analyzer

【1ES Dual Spectrum Analyzer】
1ES   Dual spectrum analyze

【ES ALL Spectrum Analyzer】
ES All spectrum analyzer

【Function】
・ L / R Single, L / R Dual, 1ES Single, 1ES Dual, ES ALL can be displayed by selecting Settings menu> Spectrum analyzer> Display.
・ L / R Single display (Display the total of selected L and R with the CH-L and CH-R dials on the front)
・ L / R Dual display (L and R selected with the CH-L and CH-R dials on the front are displayed respectively)
・ 1ES Single display (displays the total of all channels of the selected audio mode or by channel)
・ 1ES Dual display (L / R simultaneous display for stereo, simultaneous display for all channels and channel for 5.1ch)
・ ES ALL display (When the audio mode is 4ES, the total of all channels of the four audio modes is displayed. When the audio mode is 2ES, the total of all channels of that audio mode is displayed)
・ Press the [ADJ] button, select ES Select with the [U1] button, and switch the ES with the [LAYOUT] dial.
・ Switching is used when multiple ES measurements are performed for 1ES Single display and 1ES Dual display.
・ Press the [ADJ] button, select Ch Select with the [U2] button, and switch channels with the [LAY OUT] dial.
・ Switching is used when the following Each (by channel) is set for 1ES Single display and 1ES Dual display.
・ Press the [ADJ] button and press the [U3] button to switch between ALL (total) and Each (by channel).
・ Switching is used for 1ES Single display and 1ES Dual display.
・ Press the [ADJ] button and press the [U4] button to turn on / off the waveform freeze (pause).

4.8 Confirmation of loudness measurement

【1ES(ST) Loudness measurement】
Display all loudness measurements (Integrated / True Peak / Max True Peak / Momentary / Max Momentary / Short-term / Max Short-term / Loudness Range)
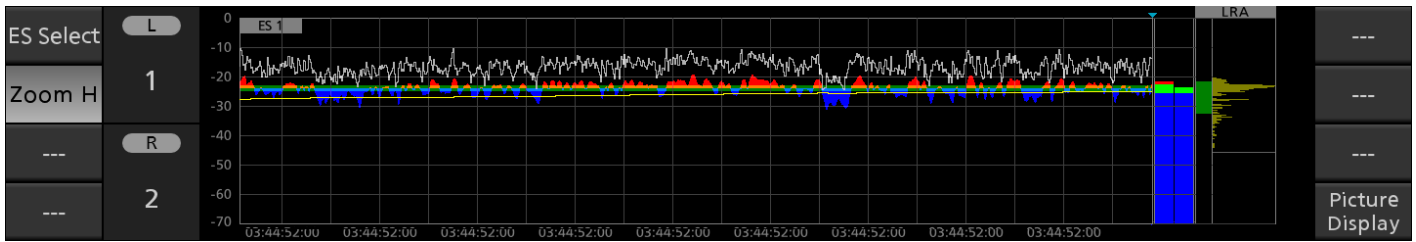

【4ES(ST) Loudness measurement】
Display loudness measurements (Integrated / Max True Peak)

【Function】
・ The following measurement value display can be turned ON / OFF individually in Settings menu> Numerical Table> Display ***.
　Integrated- (Integrated loudness value)
　True Peak- (Current true peak value being measured)
　Max True Peak- (Maximum true peak value during the measurement period)
　Momentary- (Current momentary value being measured)
　Max Momentary- (Maximum momentary value during the measurement period)
　Short-term- (Current short-term value being measured)
　Max Short-term- (Maximum short-term value during the measurement period)
　Loudness Range- (Loudness range value during the measurement period)
・ For the audio mode configuration, set the number of ES programs, audio mode, and channel mapping for each ES in Loudness menu> M'ment Mode.
・ Manual measurement Start / stop is assigned to the [U5] button to [U8] button (initial state of this device).
・ Measurement start / stop with various triggers is set in Loudness menu> Settings> Trigger Settings.
・ The alarm display of the measured value (value is red or blue) is set in the target level and alarm level of Loudness menu> Settings> Level Settings.

4.9 Check history

【History】
Loudness measurement history

【Function】
・　The history of the loudness measurement period can be displayed. The display contents can be changed by turning ON / OFF Settings> History> Display-***.
Integrated- (Integrated loudness) The transition is displayed with a yellow line.
MinMax- (Momentary, short-term maximum / minimum value) If it is higher than the target level, it is displayed in red. If it is lower, it is displayed in a blue band. When both momentary and short terms are displayed at the same time, the momentary (light blue) and short term (pink) lines are displayed, and the color sample is displayed in the lower left of the history.
dBTP Peak- (True Peak) Displayed as a white line.
Loudness Level Meter- (Loudness Meter) Displays the level bar of momentary and short terms.
Loudness Range- (Loudness range) The loudness range width is displayed in the green vertical band in the display area of the LRA.
Loudness Distribution- (Short term distribution) The distribution of short terms used for LRA calculation is displayed in yellow in the LRA display area.
・　Press the [ADJ] button, select ES Select with the [U1] button, and switch the ES with the [LAYOUT] dial.
・　To change the X-axis time, press the [ADJ] button, select Zoom H with the [U2] button, and use the [LAY OUT] dial.
・　The target level is displayed as a green line.

History display
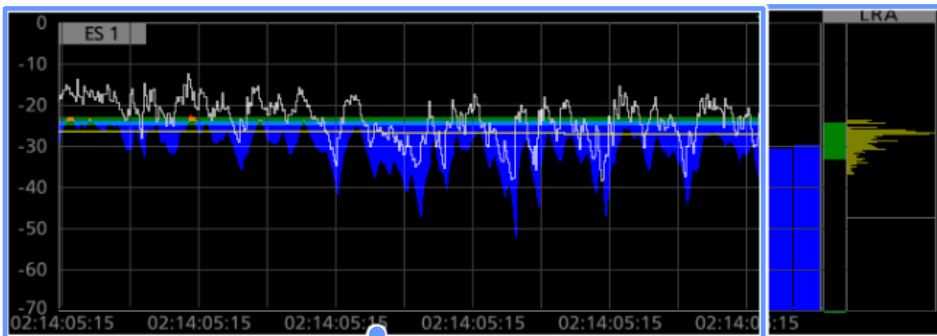
Shows integrated, momentary / short term, and true peak loudness measurements.
・　The horizontal axis displays the time such as time code and time.
・　The vertical axis shows the maximum / minimum value of integrated, momentary / short term, and the level of true peak.
You can display momentary / short terms at the same time by selecting Mo & Sh in the Settings menu> History> Min-Max Loud. Select. When this setting is selected, it is displayed as a momentary (light blue) and short term (pink) line.
・　If the measured value is abnormal (greater than or equal to the Alarm High Level setting value), the graph area is displayed in red.
・　If the measured value is abnormal (below the Alarm Low Level setting value), the graph area is displayed in blue.
・　The graph area of the target level range is displayed as a green band.

Displays the loudness momentary / short term level bar, LRA range width display, and LRA distribution display.
・　If the measured value exceeds 0LKFS, "0.0LKFS" is displayed.
・　These displays can be turned ON / OFF individually.
・　The level bar of momentary / short term is displayed in green when the target level range is displayed in green, and when the measured value is abnormal (above the alarm high level setting value), it is displayed in red, and the measured value is abnormal (alarm low level). If it is below the set value, it will be displayed in blue.
・　For the momentary / short term level bar, the level bar selected in Settings menu> History> Min-Max Loud. Select is displayed. Select Mo & Sh to display both level bars.
・　The loudness range display is displayed with a green vertical band. (Display can be turned ON / OFF)
・　The LRA distribution (short term value) is displayed in yellow. Displays as a relative value (0% to 100%) with values of 0.0LKFS or less to -70LKFS or more valid. (Display can be turned ON / OFF)
・　The relative gate value is displayed as a gray dotted line in the LRA distribution. Distributions lower than the relative gate value are displayed in gray.

4.10 Check status

Audio Error : SDI A - C Stream 1 - Channel 1-16

Ch	Parity	Varidity	CRCC	BCH	DBN	Ch	Parity	Varidity	CRCC	BCH	DBN
1	1	0	0	0	0	9	0	0	0	0	0
2	1	0	0	0	0	10	1	0	0	0	0
3	0	1	0	0	0	11	1	1	0	0	0
4	1	1	0	0	0	12	1	1	0	0	0
5	0	0	0	0	0	13	0	1	0	0	0
6	2	1	0	0	0	14	1	2	0	0	0
7	1	0	0	0	0	15	1	0	0	0	0
8	1	0	0	0	0	16	0	0	0	0	0

【Audio Error】
Audio packet error display

Channel Status : SDI A - C Stream 1 - Channel 1

Field	Status	Field	Status
Use of Ch Status	Professional	Aux Bits	24bits
Audio/non Audio	Linear PCM	Src Word Length	24 bit
Emphasis	No Emphasis	Alignment	Not Indicated
Locking of Src	Locked	Reference Signal	Not a reference
Sampling Freq.	48 kHz	Origin	
Channel Mode	Two-channel	Destionation	
User Bits	192 bit block	Time of Day	00:00:00
		CRC	85h (OK)

Binary

Byte b0....b7	Byte b0....b7	Byte b0....b7
0 10100001	8 00000000	16 00000000
1 00010001	9 00000000	17 00000000
2 00110100	10 00000000	18 00000000
3 00000000	11 00000000	19 00000000
4 00000000	12 00000000	20 00000000
5 00000000	13 00000000	21 00000000
6 00000000	14 00000000	22 00000000
7 00000000	15 00000000	23 10100001

【Channel status】
Channel status display

Date	ES	Mode	Integrated	True Peak	Momentary	Shortterm	LRA	TC Sel	Start TC	End TC
2021/08/19 19:43:13	ES 1	ST	-14.1	-20.0	-14.1	-14.1	0.0	VITC	00:00:00.00	05:30:20.20
2021/08/19 18:55:33	ES 4	22.2	-25.0	-12.0	-18.9	-21.5	10.4	VITC	00:00:00.00	00:00:54.23
2021/08/19 18:55:33	ES 3	7.1	-26.0	-12.0	-20.0	-22.6	10.4	VITC	00:00:00.00	00:00:54.23
2021/08/19 18:55:33	ES 2	5.1	-24.0	-12.0	-17.8	-20.4	10.4	VITC	00:00:00.00	00:00:54.23
2021/08/19 18:55:33	ES 1	ST	-22.1	-12.0	-15.9	-18.5	10.4	VITC	00:00:00.00	00:00:54.23
2021/08/19 15:52:57	ES 4	22.2	-17.5	-20.0	-13.4	—	—	VITC	00:00:00.00	00:03:10.11
2021/08/19 15:52:57	ES 3	7.1	-18.5	-20.0	-15.7	—	—	VITC	00:00:00.00	00:03:10.11
2021/08/19 15:52:57	ES 2	5.1	-18.5	-20.0	-16.4	—	—	VITC	00:00:00.00	00:03:10.11
2021/08/19 15:52:57	ES 1	ST	-20.3	-20.0	-19.4	—	—	VITC	00:00:00.00	00:03:10.11

【Loudness Log】
Loudness event log display

Date	Event	Ch/ES	Value	Mode	TC Sel	Timecode
2021/08/19 20:34:29	CRCC	SDI A-1-1,2,3,4,5,6,7,8,				
2021/08/19 19:49:36	CRCC	SDI A-1-1,2,3,4,5,6,7,8,				
2021/08/19 19:43:13	Integrated Over	ES 1	-14.1	ST	VITC	05:30:20.20
2021/08/19 18:55:33	Integrated Under	ES 4	-25.0	22.2	VITC	00:00:54.23
2021/08/19 18:55:33	Integrated Under	ES 3	-26.0	7.1	VITC	00:00:54.23
2021/08/19 18:55:33	Integrated Over	ES 1	-22.1	ST	VITC	00:00:54.23
2021/08/19 18:44:41	CRCC	SDI A-1-1,2,3,4,5,6,7,8,				
2021/08/19 18:39:41	CRCC	SDI A-1-1,2,3,4,5,6,7,8,				
2021/08/19 17:29:43	CRCC	SDI A-1-1,2,3,4,5,6,7,8,				

【Alarm Log】
Alarm event log display

【Function】
・ On the status screen, you can check the audio error and audio channel status (SDI, AES, MADI digital audio only), loudness event log and alarm event log.

【Audio Error】
・ Press the [ADJ] button and switch to Audio Error (audio packet error display) with the [U1] button.
   When an error is detected, the number of errors counts up (every second). When you count, it turns into a deficit. (Maximum 999).
   Parity-Detects parity bit errors in audio data.
   Validity-Detects the HIGH of the Validity flag for each channel of audio data.
   CRCC-Detects CRC errors in C status (IEC60958-3) for each channel of audio data.
   BCH -Detects ECC BCH errors in SDI audio packets. (SMPTE299M only) is detected.
   Detects DBN -SDI Data Block Number continuity errors.
・ Press the [ADJ] button, select Input Select with the [U5] button, and use the [LAYOUT] dial to switch between SDI, AES, and MADI inputs.
・ Press the [ADJ] button, select the SDI C_Stream Sel with the [U6] button, and switch the SDI C stream with the [LAYOUT] dial.
・ Press the [ADJ] button, select the Channel Sel with the [U7] button, and switch the audio channel with the [LAY OUT] dial.

【Channel Status】
・ Press the [ADJ] button and switch to Channel status (channel status display) with the [U2] button.
   The meaning of the channel status bit data is displayed on the left side of the screen, and the binary RAW data is displayed on the right side of the screen.
・ Press the [ADJ] button, select Input Select with the [U5] button, and use the [LAYOUT] dial to switch between SDI, AES, and MADI inputs.
・ Press the [ADJ] button, select the SDI C_Stream Sel with the [U6] button, and switch the SDI C stream with the [LAYOUT] dial.
・ Press the [ADJ] button, select the Channel Sel with the [U7] button, and switch the audio channel with the [LAY OUT] dial.

【Loudness Log】
・ Press the [ADJ] button and switch to the Loudness Log (loudness event log display) with the [U3] button.
   Lists the loudness events of the measurement results.
   Holds the latest 500 events in internal memory.
・ You can scroll with the [LAYOUT] dial.
・ You can save to a USB memory with Memory menu> External Memory> Log File> Export Loudness Log.
・ You can clear the list with Memory menu> External Memory> Log File> Clear Loudness Log.

【Alarm Log】
・ Press the [ADJ] button and switch to Alarm Log (alarm event log display) with the [U4] button.
   Lists Audio alarm events, Integrated alarm events, and Peak Over alarm events. You can select display / non-display for each alarm type.
   Holds the latest 500 events in internal memory.
・ You can scroll with the [LAYOUT] dial.
・ Press the [ADJ] button and select the display / non-display of the Audio alarm event with the [U5] button.
・ Press the [ADJ] button and select the display / non-display of the Integrated alarm event with the [U6] button.
・ Press the [ADJ] button and select the display / non-display of the Peak Over alarm event with the [U7] button.
・ You can save to a USB memory with Memory menu> External Memory> Log File> Export Alarm Log.
・ You can clear the list with Memory menu> External Memory> Log File> Clear Alarm Log.

4.11 Confirmation with 2-screen multi-display
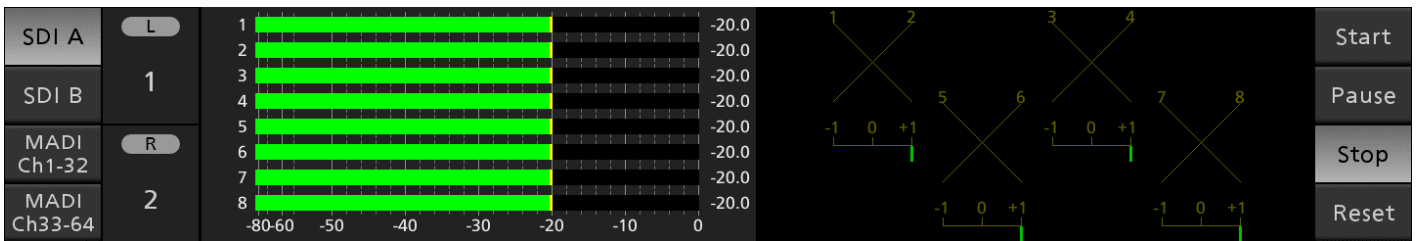
【Multi 1～4】

Display two types of information on a screen divided into two

【Function】

・   You can set the left and right combinations of Multi 1 to 4 by selecting from the following in Settings menu> Layout> Multi Layout Settings.

Level Meter

Needle Meter

Spectrum Analyzer

Numerical

History

・   Displays are performed according to the settings of each element but may differ from the individual display depending on the settings. (Ex. Numerical values cannot be displayed, etc.)

・   Even if it is set to display multiple ESs, only 1ES is displayed.

・   Press the [ADJ] button, select ES Select with the [U1] button, and switch the ES with the [LAYOUT] dial.

・

Chapter5 Useful function

This chapter describes features such as user buttons and preset values to help you work efficiently.

5.1 Assign functions to user buttons

The function assignments to the user buttons ([U1] to [U8]) can be changed as desired.

This section describes how to change it by taking the method of assigning the Input Select SDI A function of INPUT to the [U4] button as an example.
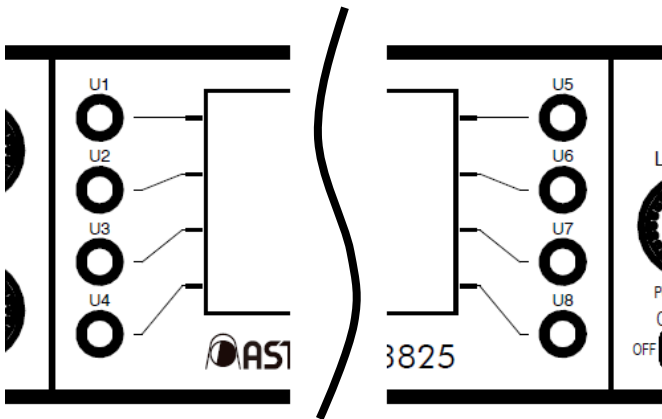
1 Press the [MENU] button to display the menu screen.

2 Press the [LAYOUT] dial to display the INPUT menu.

Make the SDI A of input Select selected (blue).

3 Press and hold the [U4] button.

After about 1 second, the button background will turn orange and return after about 3 seconds.

> **! Important**
>
> ・For functions that cannot be assigned to the user button, the highlight frame does not turn orange even if the user button is pressed and held.

4 Press the [MENU] button to return to the home screen.

5 Confirm that the [U4] display on the home screen has been changed to SDI A.

If it has not changed, repeat steps 3-4.

Chapter6　Operation image example

In this chapter, the operation flow, precautions, settings, etc. are explained using a typical pattern for loudness measurement as an example.

Perform loudness measurements
- ・ I want to measure and confirm the loudness of the entire program under the following conditions.
  - Sound is used as a trigger to start measurement, and silence is used as a trigger to stop measurement.
  - Audio will be AES stereo input.
  - Check the measurement result on the history display.

MEMO

- ・ If there is a possibility of overwriting the measurement result, measure in TC Chase mode from the first measurement.

Preparation

1　Turn on the power.

2　If the previous measurement result is displayed, press the RESET button.

3　Turn the LAYOUT dial to display the history.

Screen example

MEMO

- ・ The screen display used for explanation may differ from the screen display of your device.

Setting

Make the following settings in the Input item on the MENU screen.

4　Set Input Select to AES.

MEMO

At the time of shipment, the AES input selection is assigned to the user button U3.

Make the following settings in the Loudness item on the MENU screen.

5　Set Settings → General Settings → Measuring method to TC Chase.

6　Set Settings → General Settings → TC Chase Settings as follows:

Start Point：Auto ⎤

Offset：0.0 hour ⎬ Normally use this setting

Duration：6 hour ⎦

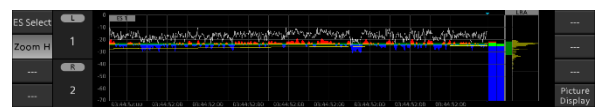**7**　Set Settings → Trigger Settings → STD Trigger as follows.

Start Trigger：Level

Pause Trigger：Level

Measurement

Press the MENU button to finish the setting

8　Start playing the device to be measured

9　Start measurement by audio input.

10　The measurement ends at the same time as the playback ends.

11　Check the measurement result in the history display.

79

Measure using the overwrite function（TC Chase）

- As a result of measuring the loudness of the entire program, the loudness was higher than the target value. When I checked the details on the history display, the volume was extremely loud only in a part, so I adjusted the playback level of that part on the output side.
- Remeasure the adjusted section (overwrite measurement) and recalculate the loudness value of the entire program.

MEMO

- Materials measured in Sample Order mode cannot be overwritten.

Preparation

1 **Turn the LAYOUT dial to display the history.**

Setting

Make the following settings in the Input item on the MENU screen.

2 **Set Input Select to SDI A.**

MEMO

At the time of shipment, the SDI A input selection is assigned to U1 on the user button.

3 **Timecode Select → Set SDI A to SDI LTC.**

Make the following settings in the Loudness item on the MENU screen.

4 **Set Settings → General Settings → Measuring method to TC Chase.**

5 **Set Settings → Trigger Settings → STD Trigger as follows**

Start Trigger：Timecode

Stop Trigger：Timecode

6 **Enter the start time code of the adjusted section in Trigger Settings-> STD Trigger-> Timecode Start Timecode.**

7 **Enter the stop time code of the adjusted section in Trigger Settings → STD Trigger → Time code Stop Time code.**

8 **Set Trigger Settings → Roll Support to ON.**

9 **Set Trigger Settings → Roll Settings to Infi.**

MEMO

10 By setting steps 8 and 9, even if Stop Trigger operates, it will be in the pause state, and the manual Start operation or the manual Start operation will be performed again.

You can restart the measurement with Start Trigger.

measurement

Press the MENU button to finish the setting.

11 **Starts playback of the device to be measured in the vicinity before the start time code set in step 6.**

12 **Overwrite the time code part set in steps 6 and 7 to end the measurement.**

MEMO

- The overwritten area will be highlighted in pink. To see the overall waveform, press the ADJ button and select and set the Zoom H assigned to U2.

Measure without using the overwrite function（Sample Order）
- A request to prevent the part with the same time code from being overwritten Since multiple programs with the same time code are measured together,
- Request to record measurement data in the order of measurement without being affected by time code

---

📖 **MEMO**

- Materials measured in Sample Order mode cannot be overwritten

Preparation

1　**Press the LAYOUT button to display the history.**

Setting

Make the following settings in the Input item on the MENU screen.

2　**Set Input Select to SDI A.**

📖 **MEMO**

At the time of shipment, the SDI A input selection is assigned to U1 on the user button.

Make the following settings for Loudness on the MENU screen.

3　**Set Settings → General Settings → Measuring method to Sample Order.**

4　**Set Settings → Trigger Settings → STD Trigger as follows.**

Start Trigger：Manual

Stop Trigger：Manual

**Measurement**

Press the MENU button to finish the setting.

5　**Starts playing the measuring device.**

6　**Use the START button and PAUSE button to manually measure loudness.**

7　**Record the measurement results in the order of the played programs.**

For an actual measurement example, see **"● Measurement example"** below.

● **Measurement example**

The measurement method is explained using the following audio data as an example.

Voice data①	Voice data②	Voice data③	Voice data④
Start 00:00:20:00	Start 00:00:40:00	Start 00:00:25:00	Start 00:00:10:00
End 00:00:30:00	End 00:00:50:00	End 00:00:35:00	End 00:00:20:00

Case study: TC Chase

Voice data④	Voice data①	Voice data③		Voice data②
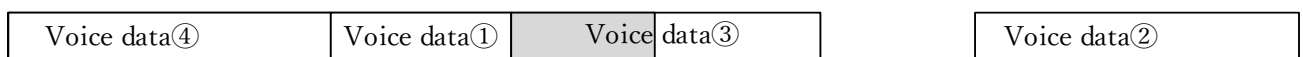
There is an overlapping part of the time code in the audio data ① and the audio data ③. The data of audio data ③ is overwritten in the overlapping part.

Case study: Sample Order

Voice data①	Voice data②	Voice data③	Voice data④
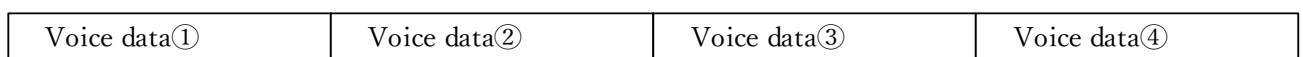
Chapter7　When in trouble

This chapter describes what to do if the unit does not operate normally.

7.1　When it does not work properly

If the unit does not operate normally, refer to the following table and take appropriate action.

If the problem persists, please contact your dealer or ASTRODESIGN,Inc. Sales Department.

Condition	Check point	How to respond
No video is displayed when an SDI signal is selected.	① Is the input format appropriate? ②Are the input channel settings correct?	① There is a possibility of an input format that is not supported by this device. For the supported input formats, see "7.2 Input Signal Method". ② Check the setting of INPUT menu> Input Select.
This Unit does not operate even if the operation button is pressed.	① Is the operation locked?	①[OPE LOCK] When the switch is turned on, the button operation is locked. Please unlock. ②If you still cannot operate after performing the operation in ①, please contact the sales department of ASTRODESIGN, Inc.
GPI controller does not work.	① Is the operation method of the GPI controller correct? ②Are the level and edge behavior settings correct? ③ Are the GPI Enable settings correct?	①Please refer to the instruction manual of the GPI controller and operate it correctly. ② Check the level and edge behavior settings. ③Settings menu> Hardware> Check the GPI Enable settings. Also, if you have assigned the GPI Enable function to GPI, make sure that GPI Enable is Make (LOW).
The 1kHz trigger does not work at the intended point.	Is 1kHz audio included in the measurement period?	It may be possible to avoid this by extending the judgment period for recognizing as 1kHz audio. It can be changed by Loudness menu-> Settings-> Trigger Settings-> STD Trigger-> 1kHz-> 1kHz Period.

> **MEMO**
> ・ Due to the nature of the liquid crystal display, the following phenomena may occur, but this is not a malfunction.
>   - Response time, brightness, and color change depending on ambient temperature
>   - Uneven brightness, flicker, vertical streaks, and subtle spots can be seen
>   - Optical characteristics (brightness, uneven display, etc.) change depending on the operating time (especially in a low temperature environment)
>   - The display color changes depending on the visual cortex.
>   - Noise occurs on the startup screen
>   - Afterimages occur when a fixed pattern is displayed for a long time.

7.2　If the Unit Malfunctions or Trouble Occurs

Discontinue use, disconnect the power cable, and contact your dealer or ASTRODESIGN,Inc. sales department.
Damage to the LCD panel will be repaired or replaced for a fee regardless of the warranty period.

7.3　When the error status is displayed

If an error is detected on the status screen, check the contents in the table below.

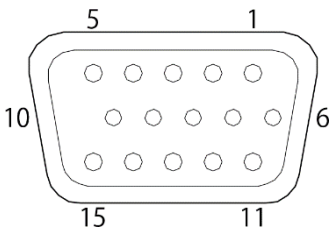| Status name	Explanation
Parity	Detects parity bit error in audio data
Validity	Detects HIGH of the Validity flag for each channel of audio data
CRCC	Detects CRC error of C status (IEC60958-3) for each channel of audio data.
BCH	Detects ECC BCH errors in SDI audio packets. (SMPTE299M only) is detected.
DBN	Detects SDI Data Block Number continuity errors.

Chapter8　Specifications of this unit

This chapter describes the specifications of this device.

8.1　Main unit rear connector

8.1.1　GPIO1/GPIO2 connector

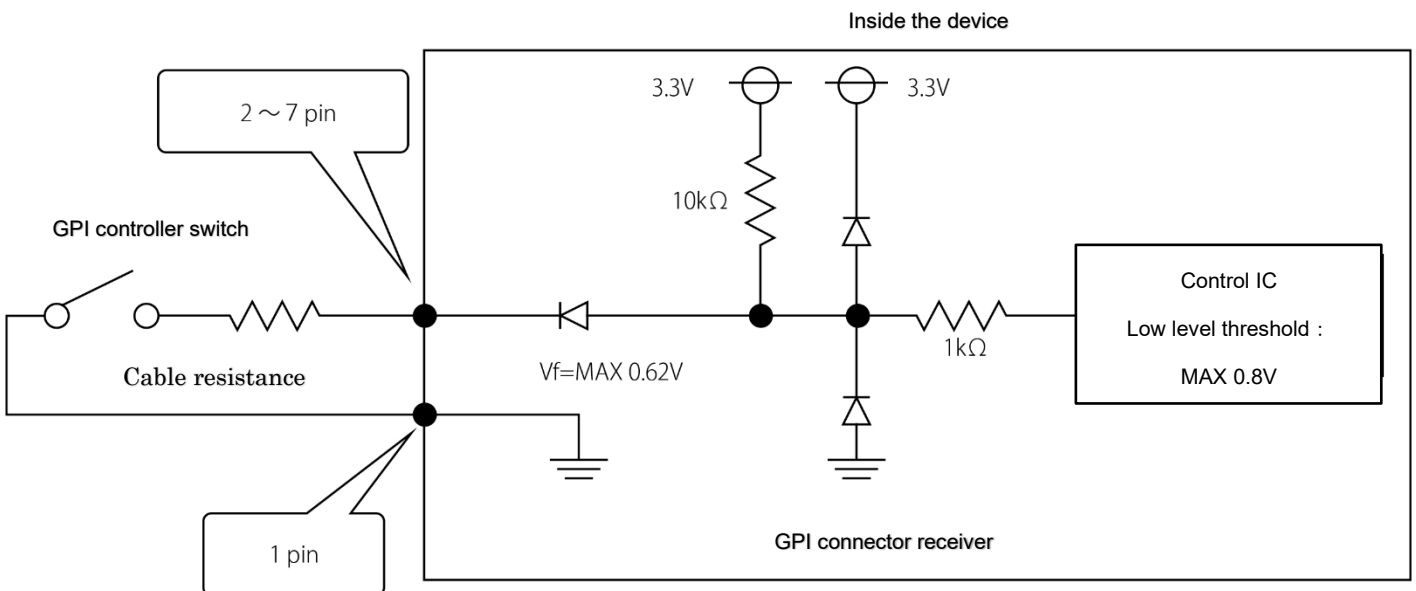The pin arrangement of GPIO1 and GPIO2 is common.

Functions can be assigned to GPIO1 and GPIO2 respectively.

Pin number	Function
1	GND
2	GPI1：User selection
3	GPI2：User selection
4	GPI3：User selection
5	GPI4：User selection
6	GPI5：User selection
7	GPI6：User selection
8	GPO1：User selection
9	GPO2：User selection
10	GPO3：⊐ User selection
11	GPO4：User selection
12	GPO5：User selection
13	GPO6：User selection
14	＋12V output
15	GPOCOMMON

・ Connector shape: High-density D-Sub 15 pin (female)
※ GPI ENABLE is the GPI input of the GPIO connector
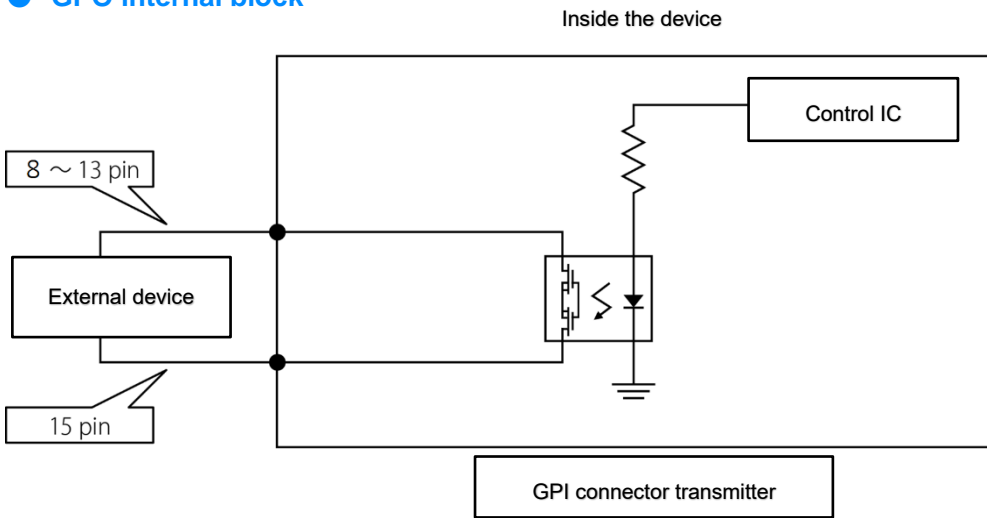When ON (LOW) or GPI ENABLE function
This is valid when not selected.

● **GPI internal block**

Inside the device

GPI controller switch

2～7 pin

Cable resistance

Vf=MAX 0.62V

10kΩ

3.3V　　3.3V

1kΩ

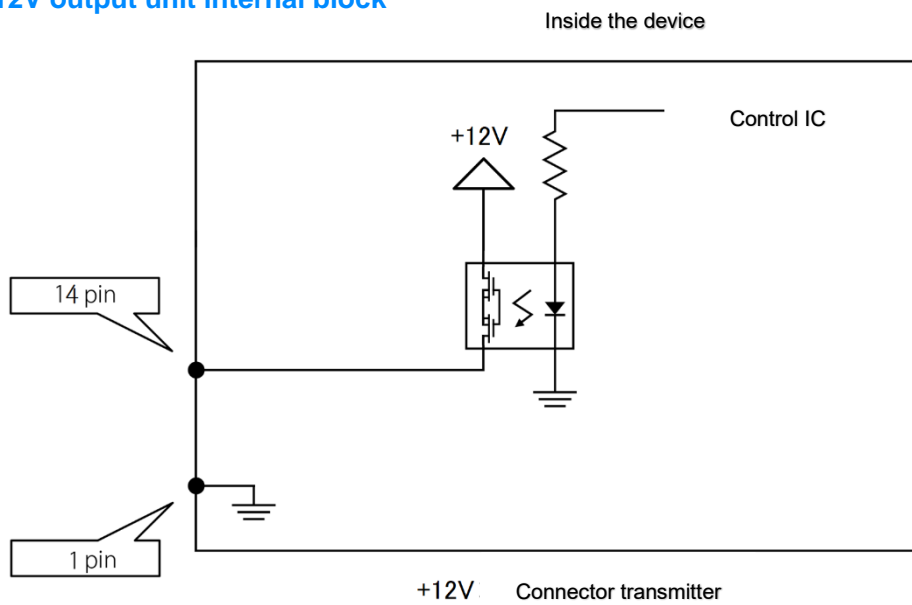Control IC

Low level threshold：

MAX 0.8V

1 pin

GPI connector receiver

※Cable resistance depends on the material, thickness and length of the cable. Design so that it is 50Ω or less.

● **GPO internal block**

Inside the device

8 ～ 13 pin

External device

15 pin

Control IC

GPI connector transmitter

● **+ 12V output unit internal block**

Inside the device

+12V

Control IC

14 pin

1 pin

+12V Connector transmitter

※The maximum output is + 12V / 450mA. Use pin 1 of the GPIO connector for GND.

It can be used for low power LED lighting, etc. in combination with the output function of GPO.

(Example: LED lights during loudness measurement)

Do not operate the unit using this + 12V. Use beyond the rating may cause a malfunction.

! Important

・ Do not connect or disconnect the GPIO connector while the power is on.

● **About GPI connector operation**

There are two types of GPI connector control methods: edge operation and level operation.

An example of each operation is shown below. For any operation, input a signal with a LOW width of 50 msec or more.

●Edge movement

In the edge operation, the instruction is executed when it is confirmed that the control signal has changed from open (HIGH) to LOW.

The operation executes the command with boost priority.
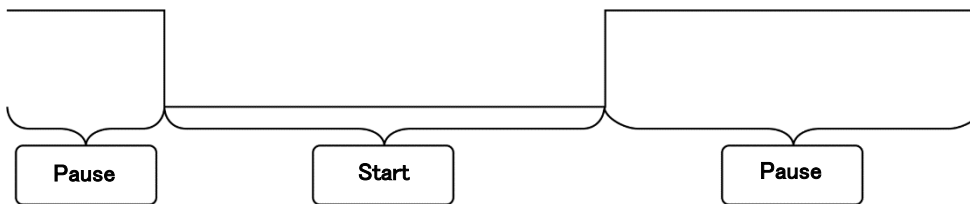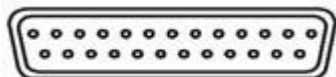
Example: Switching INPUT
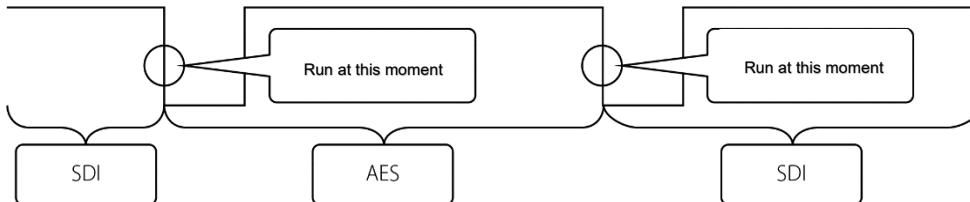
●Level operation

In the level operation, the instruction is executed in the state of the control signal.

The set value is retained even if a changeover command is issued by the front switch or the like.

Example: Switching Start / Pause (Level)

8.1.2 ANALOG IN/OUT Connector

Pin number	Function
1	8ch HOT
2	GND
3	7ch COLD
4	6ch HOT
5	GND
6	5ch COLD
7	4ch HOT
8	GND
9	3ch COLD
10	2ch HOT
11	GND
12	1ch COLD
13	N.C.
14	8ch COLD
15	7ch HOT
16	GND
17	6ch COLD
18	5ch HOT
19	GND
20	4ch COLD
21	3ch HOT
22	GND
23	2ch COLD
24	1ch HOT
25	GND

※Pin assignments are compatible with TASCAM and YAMAHA.

8.1.3 DVI OUT connector

The DVI OUT connector only supports digital signal output.

The output video is fixed at 1080 / 60P, and the loudness measurement value is displayed.
The content of the numerical display of the loudness measurement value is linked to the setting of each numerical display ON / OFF of the Numerical Table of Settings in the menu.

8.2 Input signal method

8.2.1 Video signal

Input specifications	SDI input specifications		Specifications
SDI input	12G-SDI	SDI input signal Embedded audio signal	：SMPTE ST2082 compliant ：SMPTE299M compliant 　(Sampling frequency 48kHz synchronous / asynchronous audio)
	6G-SDI	SDI input signal Embedded audio signal	：SMPTEST2081 compliant ：SMPTE299M compliant （Sampling frequency 48kHz Synchronous / asynchronous audio）
	3G-SDI	SDI input signal Embedded audio signal	：SMPTE 424M compliant ：SMPTE299M compliant （Sampling frequency 48kHz Synchronous / asynchronous audio）
	HD-SDI	SDI input signal Embedded audio signal	：BTA S-004B compliant、SMPTE 292M compliant ：SMPTE299M compliant （Sampling frequency 48kHz Synchronous / asynchronous audio）
	SD-SDI		：SMPTE 259M compliant ：SMPTE272M compliant （Sampling frequency 48kHz synchronous audio）
	Input format, field (frame) frequency 60.00 / 59.94 [Hz] automatically follows 12G-SDI can extend the cable up to 50m ※ 6G-SDI can extend the cable up to 100m ※ 3G-SDI can extend the cable up to 100m ※ HD-SDI can be extended up to 100m ※ SD-SDI can be extended up to 300m※ ・ ※Use a cable equivalent to Belden 1694A.		

8.2.2 Audio signal

Input specifications	specifications
AES Input	Standard: Unbalanced AES Bit length: 24bit PCM Sampling frequency: 48kHz Impedance: 75Ω
Analog Input	8ch analog balance Reference input level: + 4dBu (1.23 V (RMS)) Maximum output non-clip level: + 24dBu (12.28 V (RMS)) Input impedance: 600Ω, 100kΩ switching A / D processing: 48kHz sampling 24bit D-SUB 25-pin assignment: Compatible with YAMAHA and TASCAM
MADI Input	Sampling frequency: 48kHz Bit length: 24bit PCM Number of channels: 64ch Impedance: 75Ω
Dante Input ※	Sampling frequency: 48kHz Bit length: 24bit PCM Number of channels: 64ch Redundant connection using Primary / Secondary port or multiple connection by daisy chain is possible

※ AM-3825 only supported.

！ Important

・When playing audio with DOWNMIX or mixed channels, input signals with synchronized sampling to each input channel.

8.2.3 Other signals

Input specifications	Specifications
TIMECODE Input	Only LTC supported

8.3 Output signal method

8.3.1 Video signal

Output specifications	Specifications
SDI Output	Compliant with **"7.2.1 Video Signal"** The output is a through output by reclocking the input signal. Input jitter is output as it is.
DVI Output	Single link, 1080p 60Hz RGB fixed

8.3.2 Audio signal

Output specifications	Specifications
AES Output	Standard: Unbalanced AES Sampling frequency: 48kHz Bit length: 24bit PCM Impedance: 75Ω
MADI Output	Sampling frequency: 48kHz Bit length: 24bit PCM Number of channels: 64ch Impedance: 75Ω
Analog Output	8ch analog balanced output Output regulation level: + 4dBu (1.23 V (RMS), load impedance: 600Ω) ※Specified level -20dBFS fixed Maximum output non-clip level: + 24dBu (12.28 V (RMS)) Output impedance: 150Ω Compatible load impedance: 600Ω or more D-SUB 25-pin assignment: Compatible with YAMAHA and TASCAM
Dante Output ※	Sampling frequency: 48kHz Bit length: 24bit PCM Number of channels: 64ch Redundant connection using Primary / Secondary port or multiple connection by daisy chain is possible
DVI Output	Sampling frequency: 48kHz Bit length: 24bit PCM Number of channels: 8ch
Headphone Output	Maximum output: 20mW (16Ω)

※ AM-3825 only supported.

8.4 External control

External control	Specifications
Contact control	GPI
LAN	10/100BASE-T

8.5 General specifications

Item	Specifications
Operating temperature limit	0〜40℃
Operating humidity range	30〜80%RH（Ambient temperature 0〜40℃ Non-condensing）
External dimensions	430(W)×44(H)×205(D) mm（Excluding protrusions） EIA 1U
Mass	About 3.6kg
Rated voltage AC input	AC100-240V 50/60Hz
power consumption	35W (MAX)

8.6 LCD panel specifications

Display method	Specifications
liquid crystal	a-Si TFT liquid crystal
Display color	16.77 million colors
Contrast ratio	800：1(typ)
Response time	25ms (MAX: 90% all white → 10% all black + MAX: 10% all black → 90% all white)
Viewing angle	Up and down 160˚, left and right 160˚
Maximum brightness	900cd/㎡(typ)
Screen size	6.6 inch
Resolution	1440(H)×240(V) Pixels
Pixel pitch	0.114 (H)×0.114 (V) mm

8.7 Accessories

Accessories	Quantity
AM-3825/AM-3826 Instruction Manual	1
SP-3825（This device control application）(AM-3825 only supported.)	1
SP-3825 Instruction Manual (AM-3825 only supported.)	1
AC cable	1
Rack mount bracket	1

8.8 Options

Options
Remote control BOX

※Please contact us for details.

8.9 Block Diagram

Since the audio processing of the input signal differs between the monitor (measurement and speaker output) and the signal output (AES, analog, MADI, Dante, DVI), this product is described in two blocks.
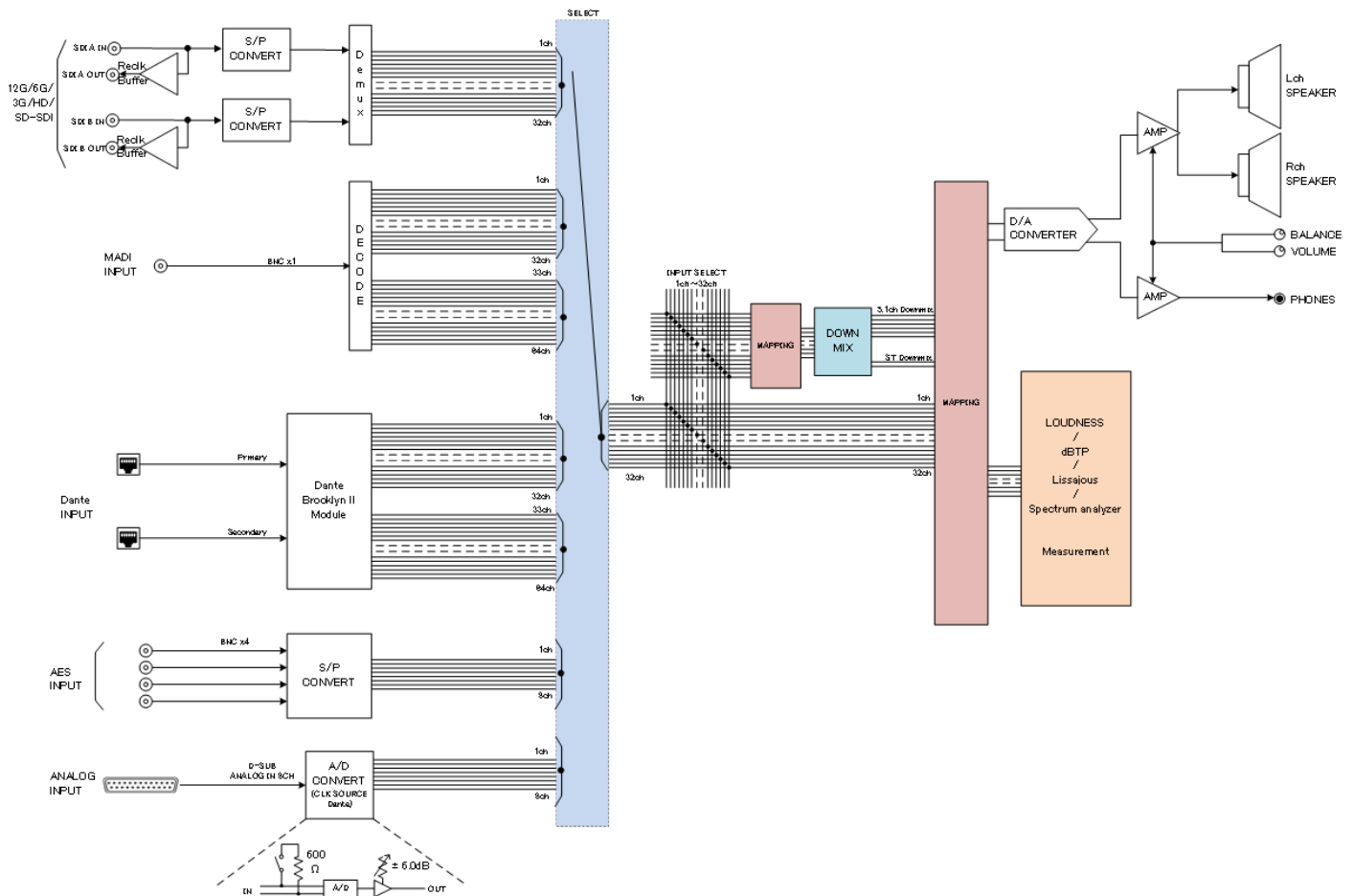
8.9.1 MONITOR　BLOCK

The monitor block is a block that performs loudness measurement, dBTP oversampling processing, resage, spectrum analyzer, and speaker (headphone) output processing of the input signal.

The monitor block can process up to 32 channels of the selected input signal.

There is a downmix circuit dedicated to the monitor.

※AM-3826 doesn't support Dante.

8.9.2 OUTPUT BLOCK

The signal output block describes how to process and output the input signal.

All input signals can be freely mapped and output. Output signals other than Dante are output based on the reference clock of INPUT > Ref Clock Source in the menu.

The Dante output signal outputs the Dante network synchronization signal as a reference clock. The audio input signal is SRC processed. The signal selected by 8.9.1 MONITOR BLOCK can also be selected as the output signal.
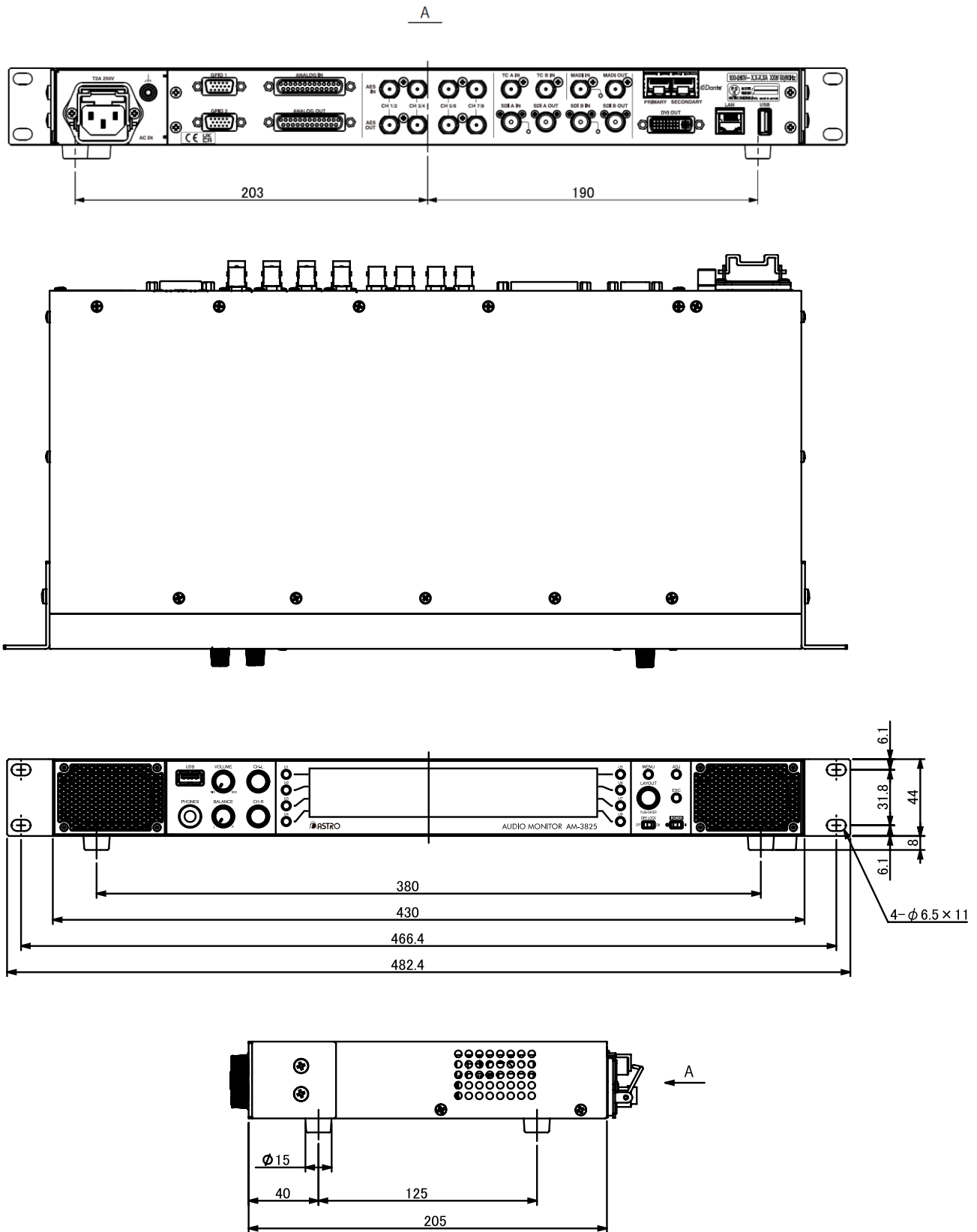
There is a downmix circuit dedicated to signal output.

※AM-3826 does not have Dante input/output and free mapping output function.
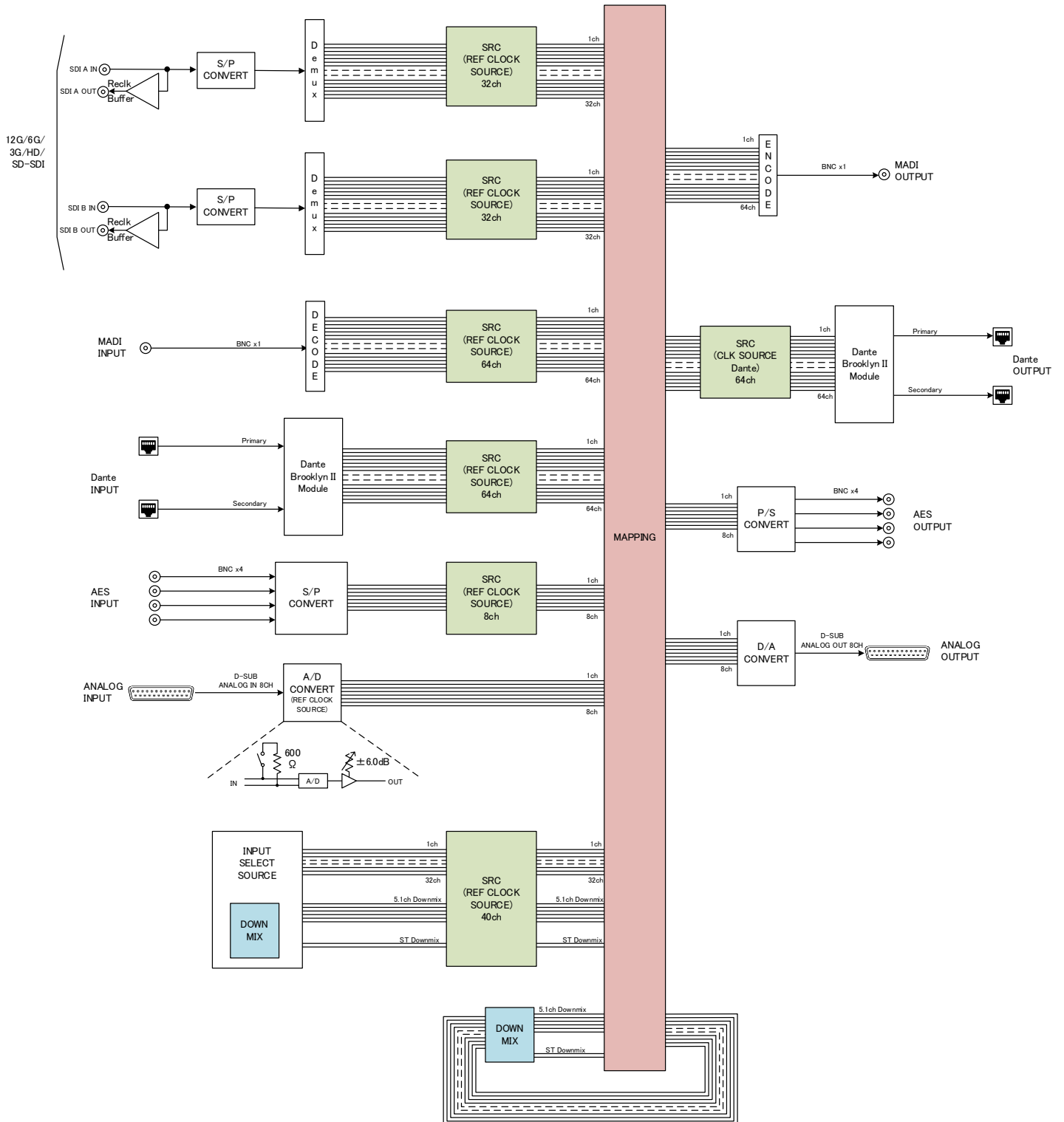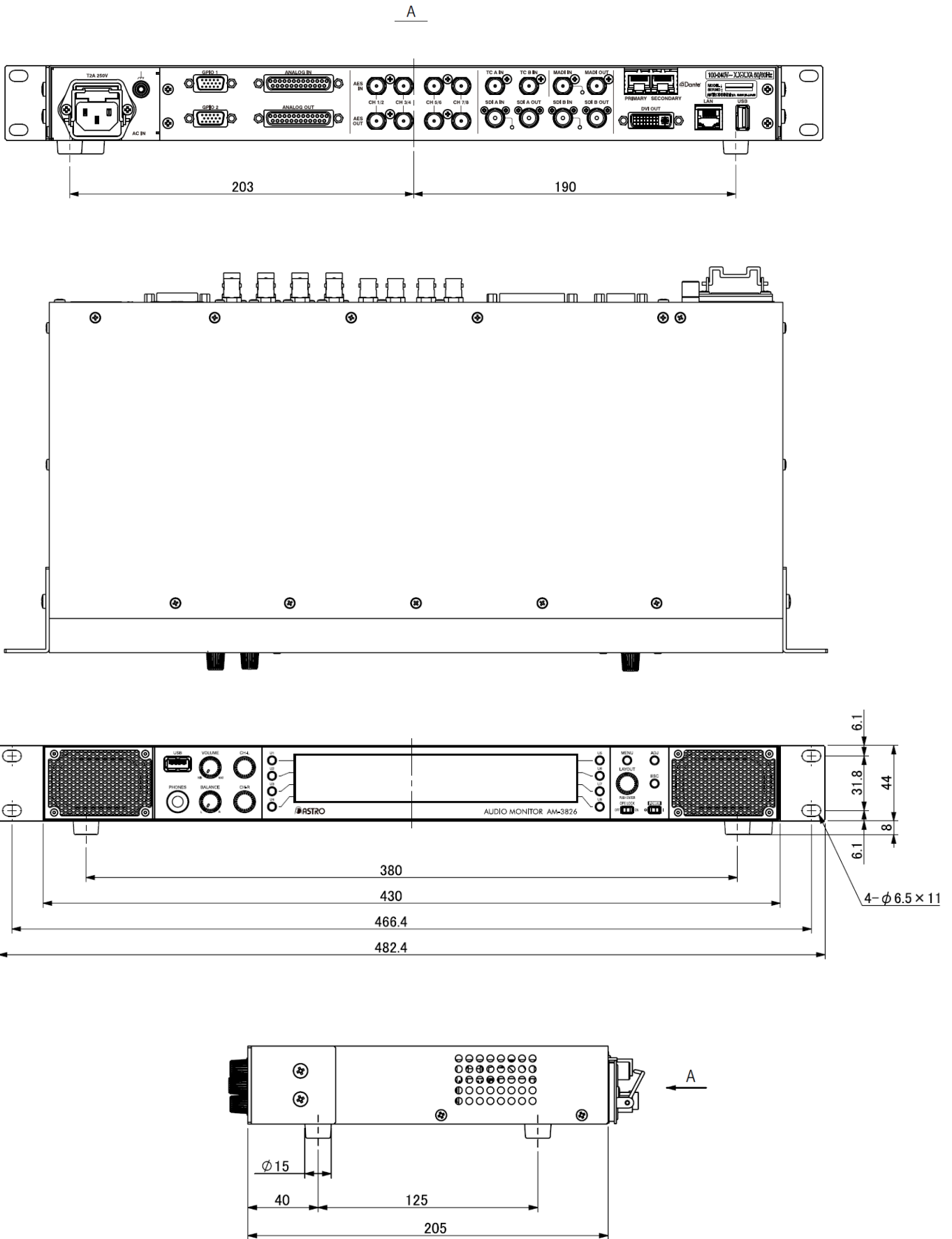
8.10 Dimensions
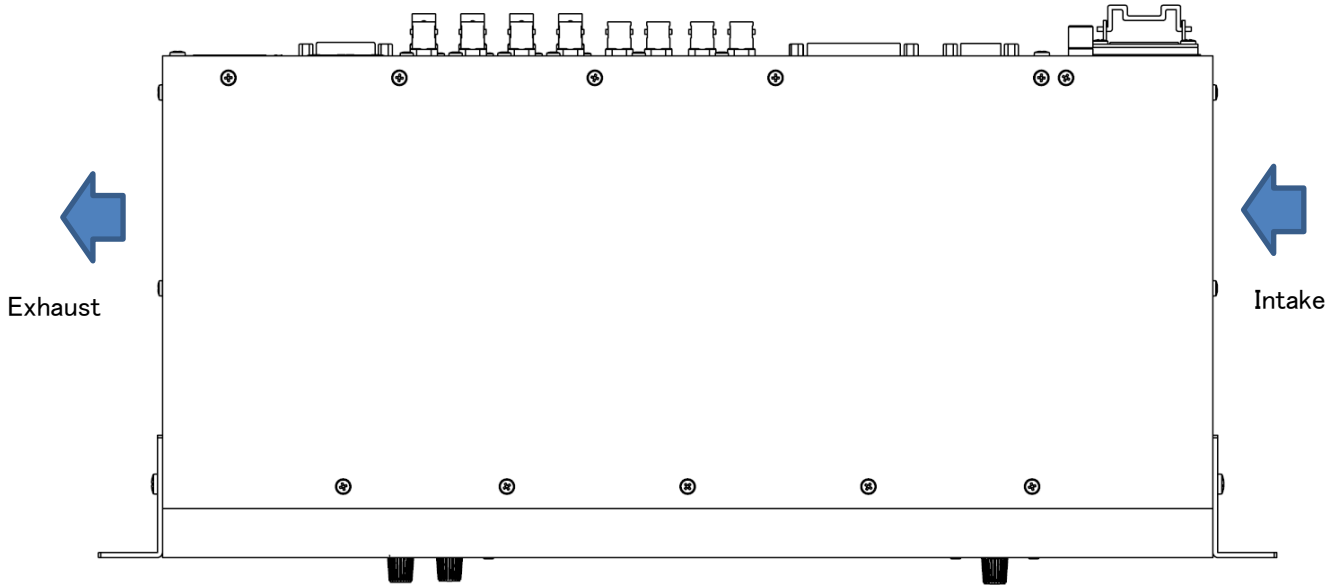
8.10.1 AM-3825 Dimensions

8.10.2 AM-3826 Dimensions

8.10.3 Cooling fan intake/exhaust port

AM-3825/3826 has intake and exhaust ports on each side (openings at 120mm to 170mm from the front). When rack mounting the unit, be sure not to block them.

Exhaust

Intake

Chapter9　Revision history

Ver.	Date	Page	Item number	Content
1.00	2021/02/17			First edition
2.00	2021/06/02	16	3.2.1	List of audio channels used for SDI Single input Corrected 3G-SDI LV-B Link B notation for 3G-SDI LV-B (Incorrect (-) → Correct (○ 16ch))
		18	3.2.2	Added Rename function to Audio Out Remap Settings> Audio Out Remap Preset
		21	3.2.3	Added setting> General Settings function in Loudness menu (Loudness overwrite measurement function and detailed settings, loop measurement function)
		22	〃	Added Trigger Settings> Trigger Mode Select Select STD (normal trigger) or Master (trigger for master room)
		29～31	〃	Added detailed settings for Master (trigger for master room) And operation of trigger for master room, addition of setting example
		31	〃	Added role function The loudness measurement results for the set number of times are added up and output.
		32～34	〃	B39 Audio Mode Settings function added The audio mode code of ARIB STD-B39 can be monitored, and the following three types of functions can be automatically switched or loaded. ・Switching audio mode preset data ・Loading the main unit preset data ・Loading audio output remap preset dataB39 Audio Mode Settings
		36	〃	Added Rename function to M'ment Mode> M'ment Mode Preset
		56	3.2.5	Added Rename function to Preset Memory in Memory menu
		71～73	Chapter 6	AM-3825 Added operational image
		79	8.1.3	Added DVI OUT connector description
3.00	2021/08/20	28	3.2.3	Added CM Code Capt. Offset and CM Code Capt. Length functions (Loudness menu> Settings> Trigger Settings> Master Trigger)
		47	3.2.4	Added settings for 2-screen multi-display function (Settings menu> Layout)
		55	3.2.4	Added a function to enter the unit ID name (Settings menu> Hardware> IP Configuration)
		56	3.2.5	Corrected an error in the preset memory description
		57	3.2.5	Corrected an error in the preset memory description
		60	4.1	Added 2-screen multi-display to layout switching order
		62	4.3	Added operation of enlarged display function of audio level bar
		63	4.4	Correction of operation explanation（ES Select）
		65	4.6	Correction of operation explanation（ES Select）
		70～71	4.10	Added logging function for loudness event and alarm event to status
		72	4.11	Added 2-screen multi-display
3.10	2022/05/13	59	3.4	Added a function to output the match / mismatch between the audio output preset and audio mode preset data and the current state to the GPO allocation function.
4.00	2022/10/13	4～89		Added AM-3826 model description and differences for each function
		15～16	3.2.1	Changed the input audio specification of the range of Subimage1 to Subimage4 of SDI to the range of Subimage1 to Subimage2.
		17	3.2.1	Added selection function for reference signal (Ref Clock Source)
		90	8.10.3	Added explanation about cooling fan intake/exhaust port
4.10	2023/04/19	5		Added FCC sheet

AM-3825/AM-3826   **Instruction Manual Ver. 4.10**

● Any incorrectly collated manuals or manuals with missing pages will be replaced.

● All copyrights pertaining to this product are the property of ASTRODESIGN, Inc.

● This manual may not be copied in whole or in part without written permission.

● The contents of this manual are subject to change without prior notice due to improvements.

● The manufacturer will not be liable for any effects caused by incorrect operation.

● All inquiries concerning this product should be addressed to your dealer or to the manufacturer at the contact numbers given below.

● The products and product names mentioned in this manual are the trademarks and registered trademarks of the companies concerned.

D0695B   **2023.04**