HD-SDI input module

IM-585

User's Manual

Ver.1.00

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2005.10

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ASTRODESIGN,Inc

Table of Contents

Introduction

Thank you for purchasing the IM-585 HD-SDI input module.
This document describes the functions and operating method of the IM-585, as well as the precautions to observe when using it.
Be sure to read this document before using the IM-585 since improper use may result in accidents.
After reading, please retain this document in a safe place for future reference.

Safety Precautions

⚠ Warning

Avoid contact with foreign substances

- **Do not spill liquid or drop a flammable substance or metal inside the module. Usage under such conditions may result in fire, electrical shock, or malfunction.**

Do not disassemble

- **Do not attempt to disassemble this module. To avoid the risk of electrical shock or injury to the user, or malfunction of the module, do not open the case or remove/reinstall the internal board.**

⚠ Caution

Handling of the module

- **The module consists of precision components; handle it with extreme care.**
- **To avoid the risk of electrical shock, injury, or malfunction, do not remove or add a module while the power is on.**
- **When removing the module, be careful to avoid brushing your hand against the connectors.**

Avoid mechanical shock and impact

- **The module is a precision instrument that may be damaged by mechanical shock and impact. Be extremely careful when transporting the module.**
- **Do not drop the module.**

In case of an abnormality or malfunction

- **If an abnormality or malfunction occurs, unplug the power cord and then contact your local dealer or the ASTRODESIGN sales group.**

1 About the IM-585

1.1 Overview

- The IM-585 is an HD-SDI input module that can be installed in the SC-2055 Series (2 inputs, 2 outputs).
- Equipped with connectors for HD-SDI input (2CH) and monitor OUT output (1CH).
- Accepts SMPTE-292M-compliant serial digital signals.

2 Names and Functions of Individual Components

2.1 IM-585 rear-panel view and component names

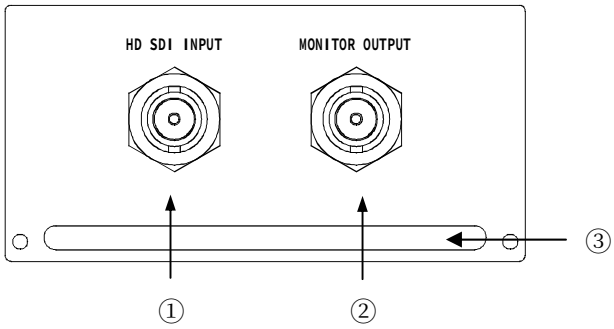


Fig. 2.1 IM-584 Rear Panel View

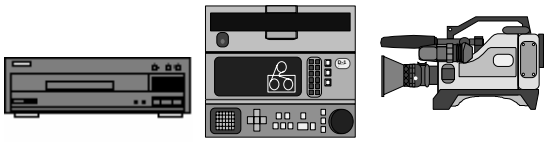
Table 2.1 Names of Rear-Panel Components

No.	Name	Explanation
①	HD-SDI input connector	HD-SDI input connector (BNC connector)
②	MONITOR out connector	HD-SDI monitor output connector (BNC connector)
③	Handle	Used when inserting or removing the module

3 Connecting the Module

3.1 Connecting the input signal

As shown in the figure, appropriately connect the HD-SDI output signal from the IM-585's output connector to a peripheral device, such as a VCR or DVD player

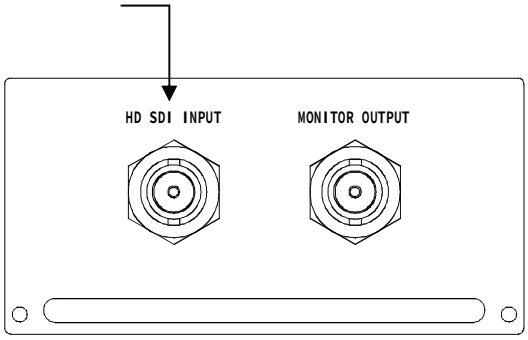


DVD
LD

VTR

Camera

From the HD-SDI pin of a device



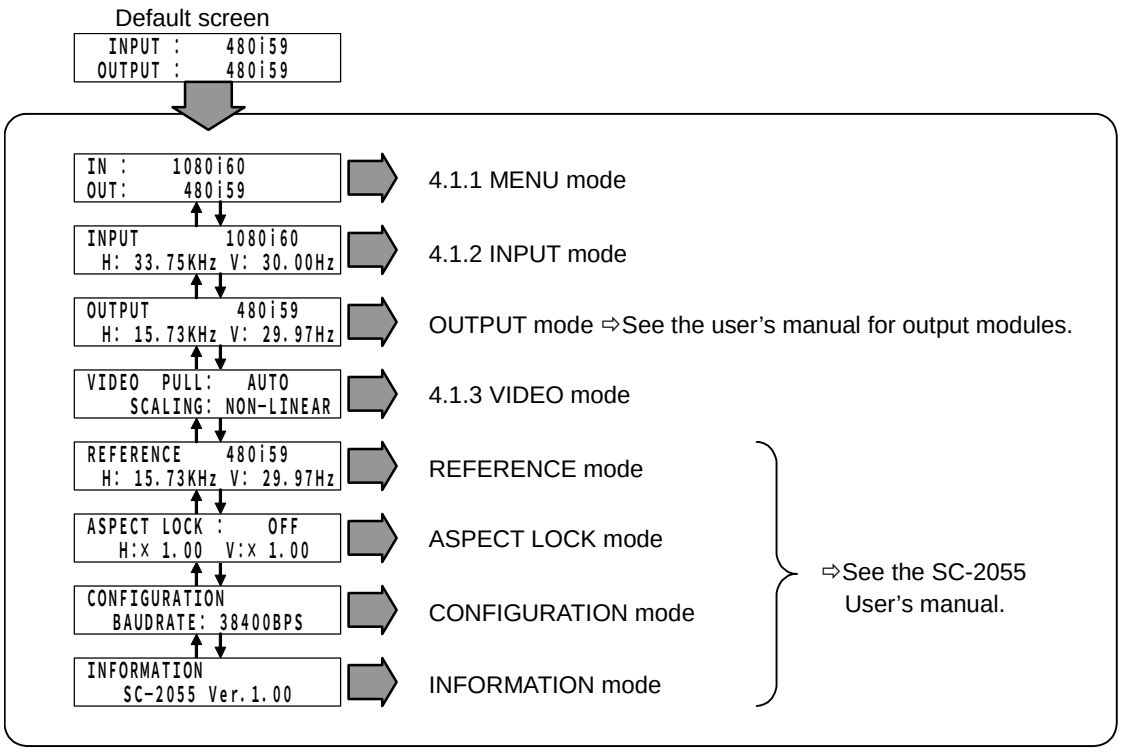
4 Adjustments and Settings

4.1 Menu structure

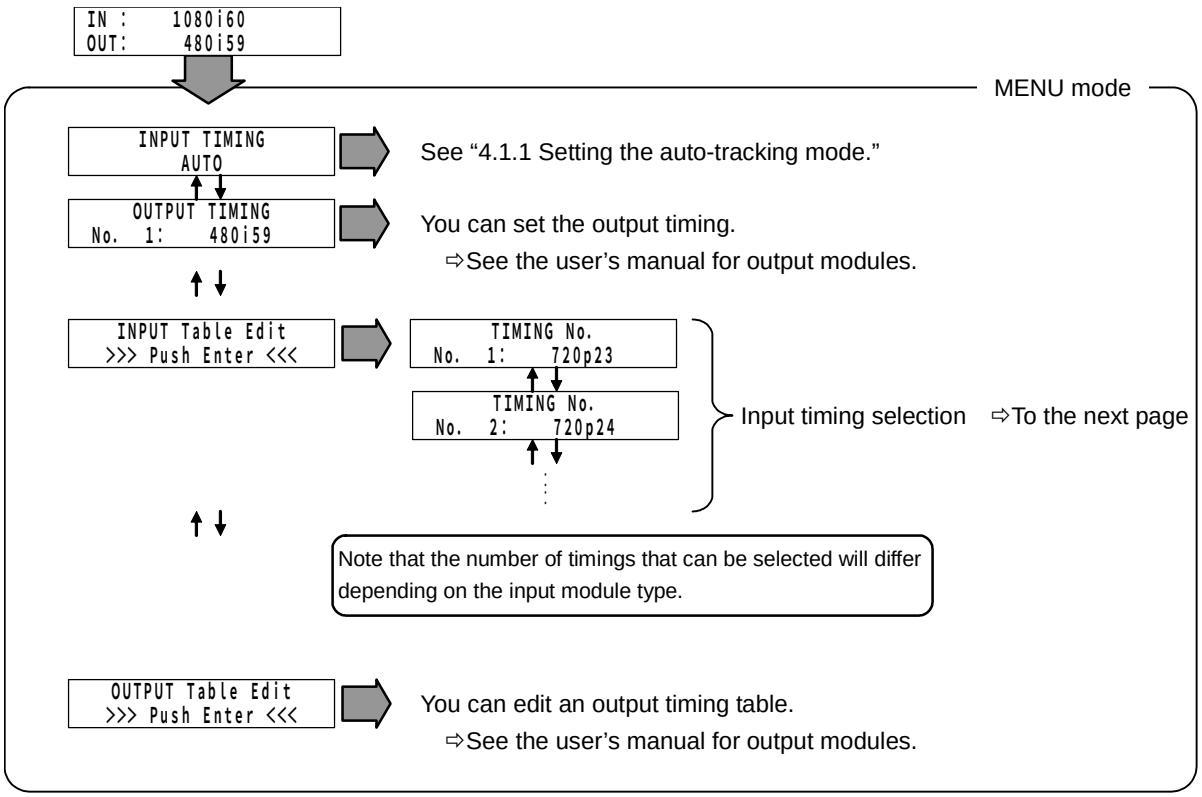
From the default screen, push the rotary encoder to enter the menu structure described below.
For the operation method, see the SC-2055 User's Manual.

Symbols are defined below.

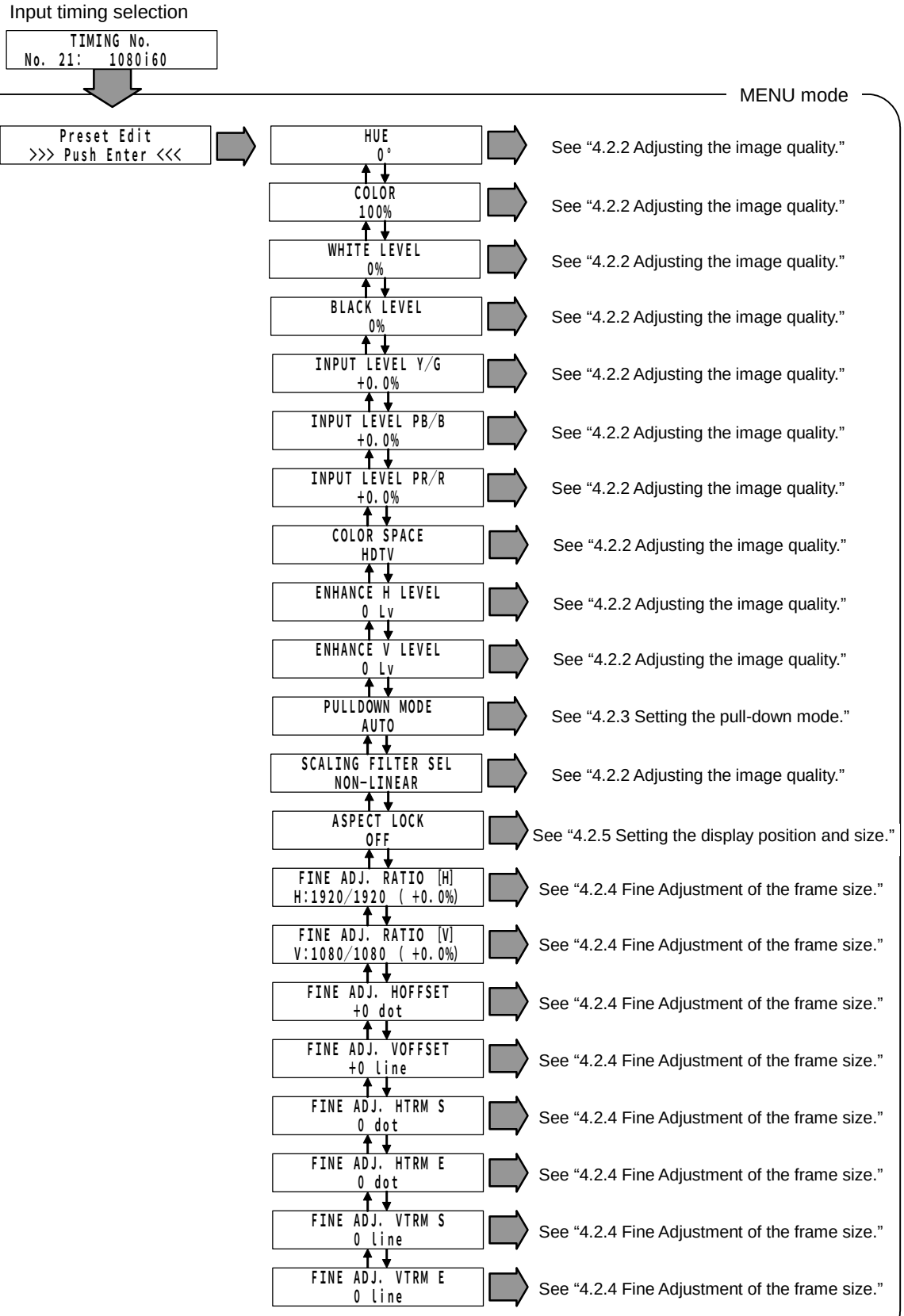
⇩ ⇨	PUSH operation
↑ ↓	Rotate operation



4.1.1 MENU mode

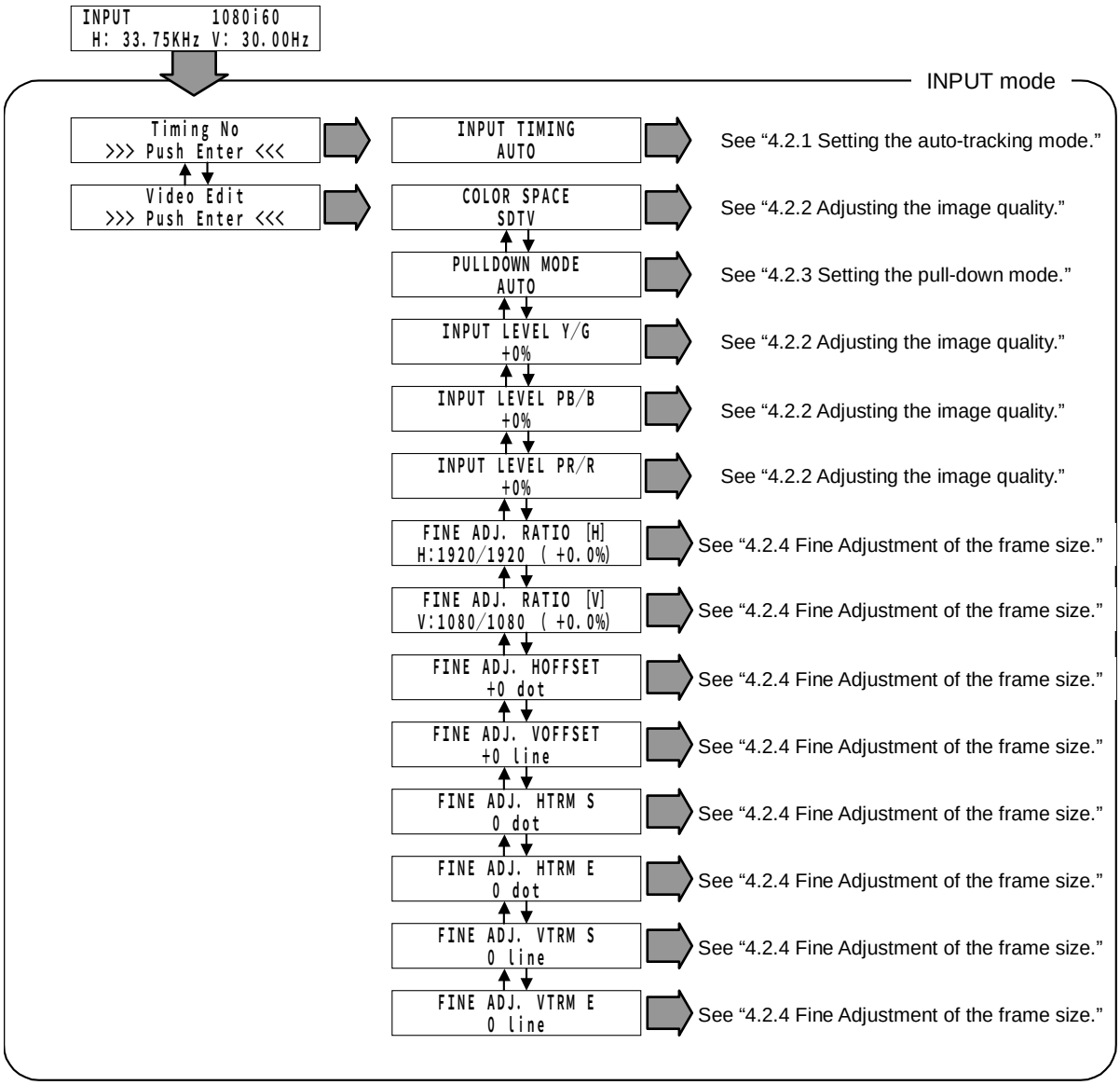


Input timing selection



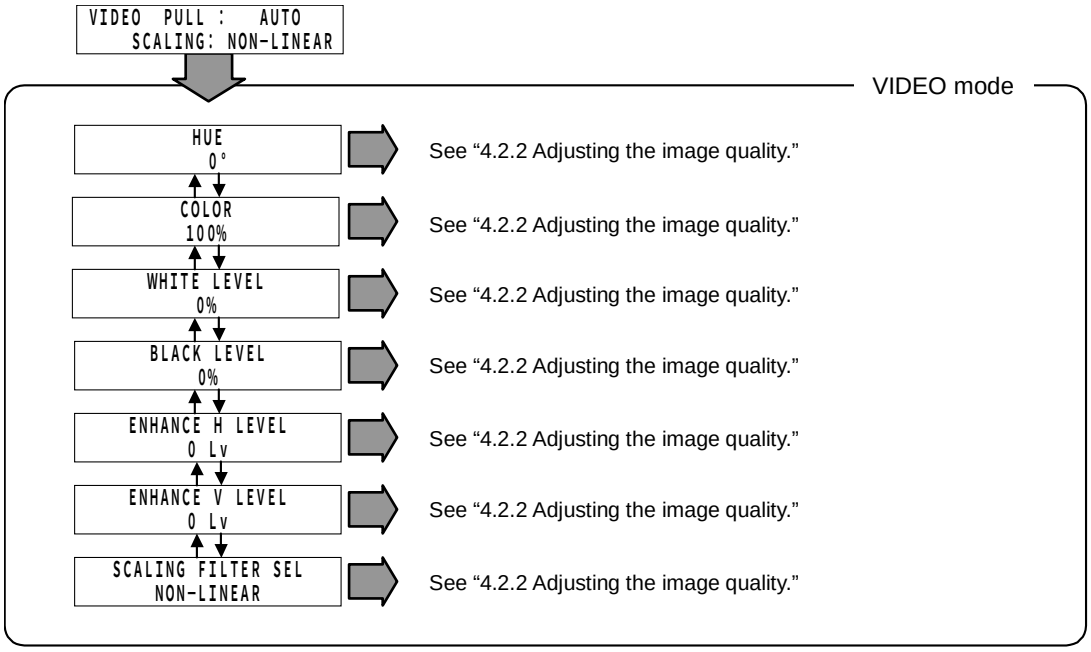
4.1.2 INPUT mode

The default screen of the INPUT mode displays the selected input timing.



4.1.3 VIDEO mode

The default screen of the VIDEO mode displays the settings for the pulldown mode and the scaling filter.



4.2 Setting parameters

4.2.1 Setting the auto-tracking mode

Sets the input timing.

Parameter	Description	Setting value	Comments
INPUT TIMING	**Auto-tracking mode**	AUTO/ Timing name*1	Sets the auto-tracking mode.

*1: The number of timing names that can be selected differs depending on the input module type.

4.2.2 Adjusting the image quality

Adjusts image quality and sets parameters related to video display.

Parameter	Description	Setting Value	Comments
HUE	HUE adjustment	-180 to +180 ° (in 1° increments)	Adjusts the hue.
COLOR	Color adjustment	0 to 150% (in 1% increments)	Adjusts the color density.
WHITE LEVEL	White level adjustment	-30 to +30% (in 1% increments)	Adjusts white areas (white level) throughout the entire screen.
BLACK LEVEL	Black level adjustment	-30 to +30% (in 1% increments)	Adjusts the standard level of brightness (black level) throughout the entire screen.
INPUT LEVEL Y/G	Input image level (Y/G) adjustment	-30 to +30% (in 0.1% increments)	Adjusts the input video level.
INPUT LEVEL PB/B	Input image level (PB/B) adjustment	-30 to +30% (in 0.1% increments)	Adjusts the input video level.
INPUT LEVEL PR/R	Input image level (PR/R) adjustment	-30 to +30% (in 0.1% increments)	Adjusts the input video level.
COLOR SPACE	Color space setting	SDTV/HDTV/ HDTV1035	Sets the color space.
ENHANCE H LEVEL	Enhancement H setting	Levels 0 to 15	Controls video frequency characteristics and adjusts the contour enhancement.
ENHANCE V LEVEL	Enhancement V setting	Levels 0 to 15	Controls video frequency characteristics and adjusts the contour enhancement.
SCALING FILTER SEL	Scaling filter selection	PIXEL/LINEAR/ NON-LINEAR	Sets the scaling filter.

4.2.3 Setting the pulldown mode

Automatically detects 24/30-frame video data such as video signals from film and computer graphic sources.

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Parameter	Description	Comments
PULLDOWN MODE	AUTO	Automatically identifies which pulldown mode (VIDEO, 22PULLDOWN or 32PULLDOWN) is appropriate for the video source.
	VIDEO	This mode converts a normal interlaced motion picture video signal into a progressive signal.
	22PULLDOWN	For a still image video source, such as a source that reproduces a 1 frame image with even and odd fields, this mode automatically detects and displays a 2-2, 2-2 pulldown pattern from the flow of images on the screen.
	32PULLDOWN	For the video source of a motion picture signal (24 frames per second) converted to a video signal (60 fields per second), this mode automatically detects and displays a 2-3, 2-3, 2-3 pulldown pattern from the flow of images on the screen.

Note

When 22PULLDOWN or 32PULLDOWN is used, the image signal may become distorted if the interpolation pattern does not match the interpolation pattern for the input image source.

In such a case, use the “VIDEO” mode.

4.2.4 Fine Adjustment of the frame size

Finely adjusts the size of the image to be displayed.

Setup item	Setup content	Setup value	Remarks
FINE ADJ. RATIO [H]	Zoom rate [H]	±30% of H ACTIVE input timing	Adjusts the zoom ratio with the horizontal active width. *1
FINE ADJ. RATIO [V]	Zoom rate [V]	±30% of V ACTIVE input timing	Adjusts the zoom ratio with the vertical active width. *1
FINE ADJ. H OFFSET	Offset [H]	-127 to +127	Sets the horizontal offset.
FINE ADJ. V OFFSET	Offset [V]	-31 to +31	Sets the vertical offset.
FINE ADJ. H TRM S	Horizontal trimming start position	0 to 128	Sets the horizontal trimming start position. *2
FINE ADJ. H TRM E	Horizontal trimming end position	0 to 128	Sets the horizontal trimming end position. *2
FINE ADJ. V TRM S	Vertical trimming start position	0 to 32	Sets the vertical trimming start position. *3
FINE ADJ. V TRM E	Vertical trimming end position	0 to 32	Sets the vertical trimming end position. *3

*1: MIN and MAX values differ according to the input timing.

*2: If the input timing scanning method is progressive and the pixel clock is ≦74.25 MHz, settings are in 1-dot increments. In all other cases, settings are in 2-dot increments.

*3: If the input timing scanning method is progressive, settings are in 1-line increments. If the input timing scanning method is interlace or segment-frame, settings are in 2-line increments.

4.2.5 Setting the display position and size

Changes the image display size and specifies the display position.

Parameter	Description	Setting Value	Comments
ASPECT LOCK	Aspect setup	OFF/V JUST/ ARIB 13:9/ARIB 14:9/ ARIB 15:9/H JUST	Sets the image frame size.

5 Timing Table List

5.1 Input timing table

No	Name	Clock (MHz)	H period (dot)	H disp (dot)	H sync (dot)	H bp (dot)	V total (line)	V disp (line)	V sync (line)	V bp (line)	Scan
1	720p23	74.25 /1.001	4125	1280	40	260	750	720	5	20	Progressive
2	720p24	74.25	4125	1280	40	260	750	720	5	20	Progressive
3	720p25	74.25	3960	1280	40	260	750	720	5	20	Progressive
4	720p29	74.25 /1.001	3300	1280	40	260	750	720	5	20	Progressive
5	720p30	74.25	3300	1280	40	260	750	720	5	20	Progressive
6	720p50	74.25	1980	1280	40	260	750	720	5	20	Progressive
7	720p59	74.25 /1.001	1650	1280	40	260	750	720	5	20	Progressive
8	720p60	74.25	1650	1280	40	260	750	720	5	20	Progressive
9	1080p23	74.25 /1.001	2750	1920	44	192	1125	1080	5	36	Progressive
10	1080p24	74.25	2750	1920	44	192	1125	1080	5	36	Progressive
11	1080p25	74.25	2640	1920	44	192	1125	1080	5	36	Progressive
12	1080p29	74.25 /1.001	2200	1920	44	192	1125	1080	5	36	Progressive
13	1080p30	74.25	2200	1920	44	192	1125	1080	5	36	Progressive
14	1080i50	74.25	2640	1920	44	192	1125	1080	10	30	Interlace
15	1080i59	74.25 /1.001	2200	1920	44	192	1125	1080	10	30	Interlace
16	1080i60	74.25	2200	1920	44	192	1125	1080	10	30	Interlace
17	1035i59	74.25 /1.001	2200	1920	44	192	1125	1035	10	69	Interlace
18	1035i60	74.25	2200	1920	44	192	1125	1035	10	69	Interlace
19	1080sF23	74.25 /1.001	2750	1920	44	192	1125	1080	10	30	Progressive (sF)
20	1080sF24	74.25	2750	1920	44	192	1125	1080	10	30	Progressive (sF)
21	1080sF25	74.25	2640	1920	44	192	1125	1080	10	30	Progressive (sF)
22	1080sF29	74.25 /1.001	2200	1920	44	192	1125	1080	10	30	Progressive (sF)
23	1080sF30	74.25	2200	1920	44	192	1125	1080	10	30	Progressive (sF)

6 Main Specifications

6.1 Specifications

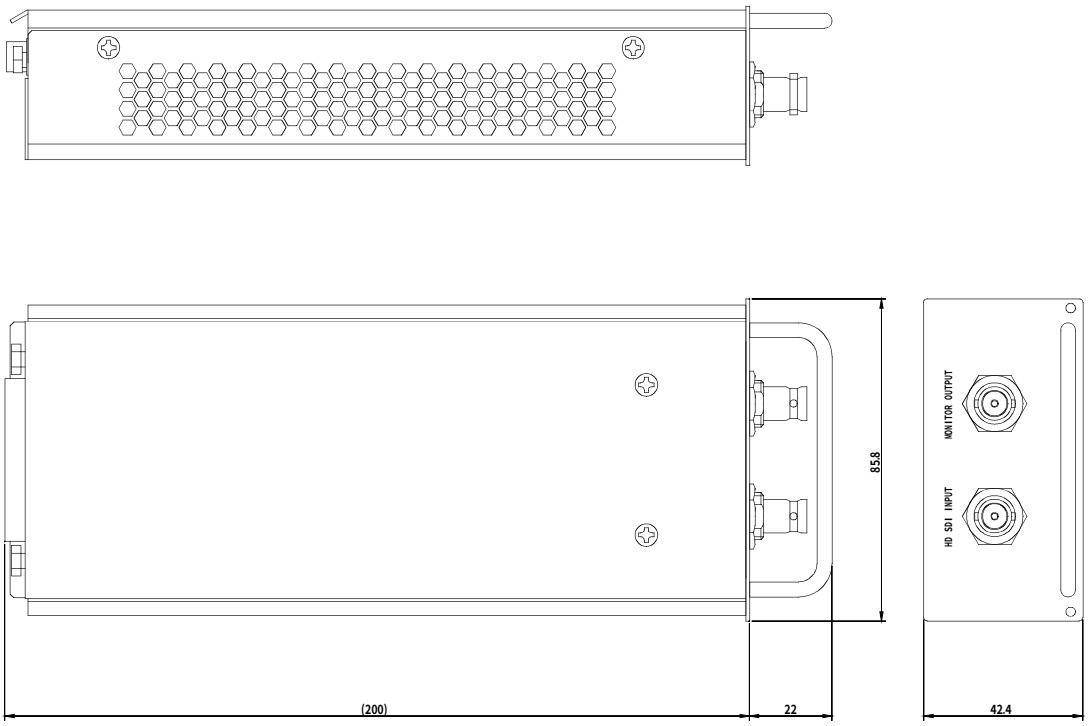
Table 6.1 IM-585 specifications

Item	Specification
Supported standard	SMPTE-292M
Timing	1920×1035×60/59.94i 1920×1080×60/59.94i 1920×1080×50i 1920×1080×30/29.97p 1920×1080×25p 1920×1080×24/23.98p 1920×1080×24/23.98sF 1280× 720×60/59.94p 1280× 720×50p 1280× 720×30/29.97p 1280× 720×25p 1280× 720×24/23.98
Color format	YpbPr (SMPTE240M, SMPTE274M, SMPTE296M)/4:2:2
Image data resolution	10 bits
Number of channels	1 (BNC)

6.2 Accessory

User's Manual	1 copy

6.3 Outline drawing



IM-585 User's Manual

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