DVI input module

# IM-586

User's Manual

Ver.1.05

DVI input module

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User's Manual

2005.10

Ver.1.05

ASTRODESIGN,Inc

# Table of Contents

# Introduction

Thank you for purchasing the IM-586 DVI IN module.
This document describes the functions and operating method of the IM-586, as well as the precautions to observe when using it. Be sure to read this document before using the IM-586 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 of malfunction occurs, unplug the power cord and then contact your local dealer or the ASTRODESIGN sales group.**

# 1 Edition revision history

| Ver. | Date | Page | Item no. | Description |
|---|---|---|---|---|
| 1.00 | 2005/04/14 | | | Initial edition |
| 1.01 | 2005/05/12 | 8 | 4.1.1 | MENU mode:<br>Misspelling of "Perset" corrected to "Preset." |
| 1.02 | 2005/06/06 | 13 | 4.2.2 | Editing the input timing data:<br>Horizontal total width changed.<br>Before change: 512 to 4096<br>After change: 512 to 1608 |
| 1.03 | 2005/07/06 | 1 | 1 | Edition revision history added.<br>Accompanying the addition of items, item numbers in subsequent chapters moved forward. |
| | | 3 | 2.2 | Limitation due to specifications added. |
| | | 16 | 5.2.2 | Editing the input timing data:<br>In the "Horizontal active width" section, Note *5 added. |
| | | 16 | 5.2.2 | Editing the input timing data:<br>In the "Vertical active width" section, Note *6 added. |
| | | 16 | 5.2.2 | Editing the input timing data:<br>In the "Repetition adjustment" section, incorrect setting value of "1 to 12" corrected to "1 to 2." |
| | | 16 | 5.2.2 | Editing the input timing data:<br>In the "Horizontal total width" section, Note *2 changed. |
| | | 16 | 5.2.2 | Editing the input timing data:<br>In the "Repetition adjustment" section, Note *4 changed. |
| | | 16 | 5.2.2 | Editing the input timing data:<br>In the "Pixel clock" section, incorrect setting value of "10.00 to 165.00" corrected to "12.50 to 165.00." |
| | | 16 | 5.2.2 | Editing the input timing data:<br>In the "Horizontal total width" and "Vertical active width" sections, Note *2 changed. |
| | | 16 | 5.2.2 | Editing the input timing data:<br>In the "Horizontal total width," "Horizontal back porch," "Horizontal sync width," "Vertical total width," "Vertical back porch" and "Vertical sync width" sections, descriptions in remarks column changed. |
| | | 25 | 7.1 | "Pixel clock" specifications item:<br>Incorrect specification of "10.0 to 165" corrected to "12.5 to 165." |
| 1.04 | 2005/08/12 | 9 | 5.1 | Menu configuration:<br>Diagram for VIDEO mode changed. |
| | | 14 | 5.1.3 | VIDEO mode:<br>Diagram and explanatory text for default screen in VIDEO mode changed. |
| 1.05 | 2005/08/29 | 25 | 7.1 | Specifications:<br>Number of pixels displayed categorized by progressive and interlace systems. |

# 2 About the IM-586

## 2.1 Overview

- The IM-584 is an DVI input module that can be installed in the SC-2055 series (2 inputs, 2 outputs).

## 2.2 Limitations due to the specifications

The SC-2055 has certain limitations which, when exceeded, may cause the images shown on the output screen to be disturbed.
In cases like since, restrictions due to characteristics also affect the unit's function, take the appropriate precautions when using the unit.

(1) Concerning the input sync signals

Depending on the phase difference between the HSYNC and VSYNC signals which are input, the unit may not be able to track the input timing signals, the image on the output screen may be disturbed and the unit may not operate properly in other ways.
Furthermore, if the input DISP signal is not input periodically except during the vertical blanking period, the image may be disturbed and the unit may not operate properly in other ways. (Fixed at low level during vertical blanking period)

# 3 Names and Functions of Individual Components

## 3.1 IM-586 rear panel view and component names

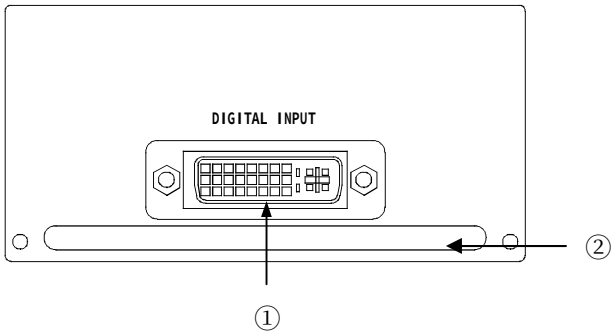



**Fig. 3.1 IM-586 Rear Panel View**

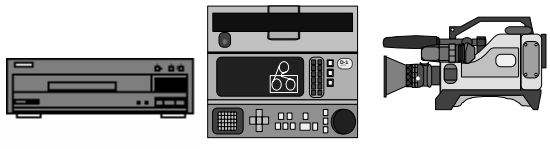
**Table 3.1 Names of Rear Panel Parts**

| No. | Name of part | Description |
|---|---|---|
| ① | DVI input connector | This is the DVI (DVI-I) input connector. * Analog signals are not supported. |
| ② | Handle | This is used when plugging in or unplugging the modules. |

# 4 Connecting the Module

## 4.1 Connecting the input signal

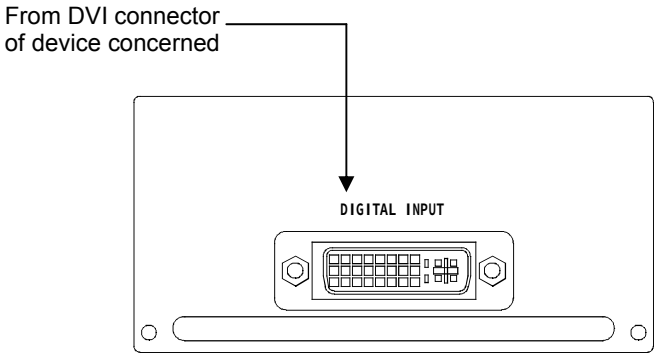
The DVI output signals of the VTR, DVD or other device are connected to the INPUT connector on the IM-586 as shown in the figure below.



DVD
LD

VTR

Camera



# 5 Adjustments and Settings

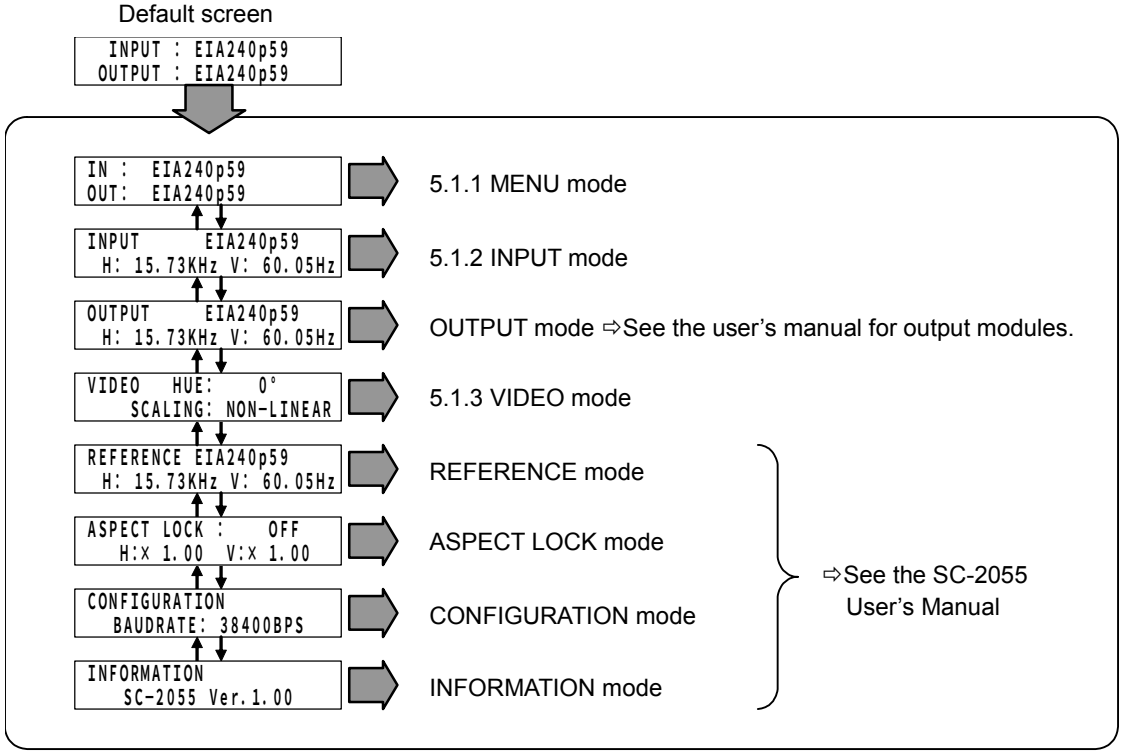
## 5.1 Menu structure

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.

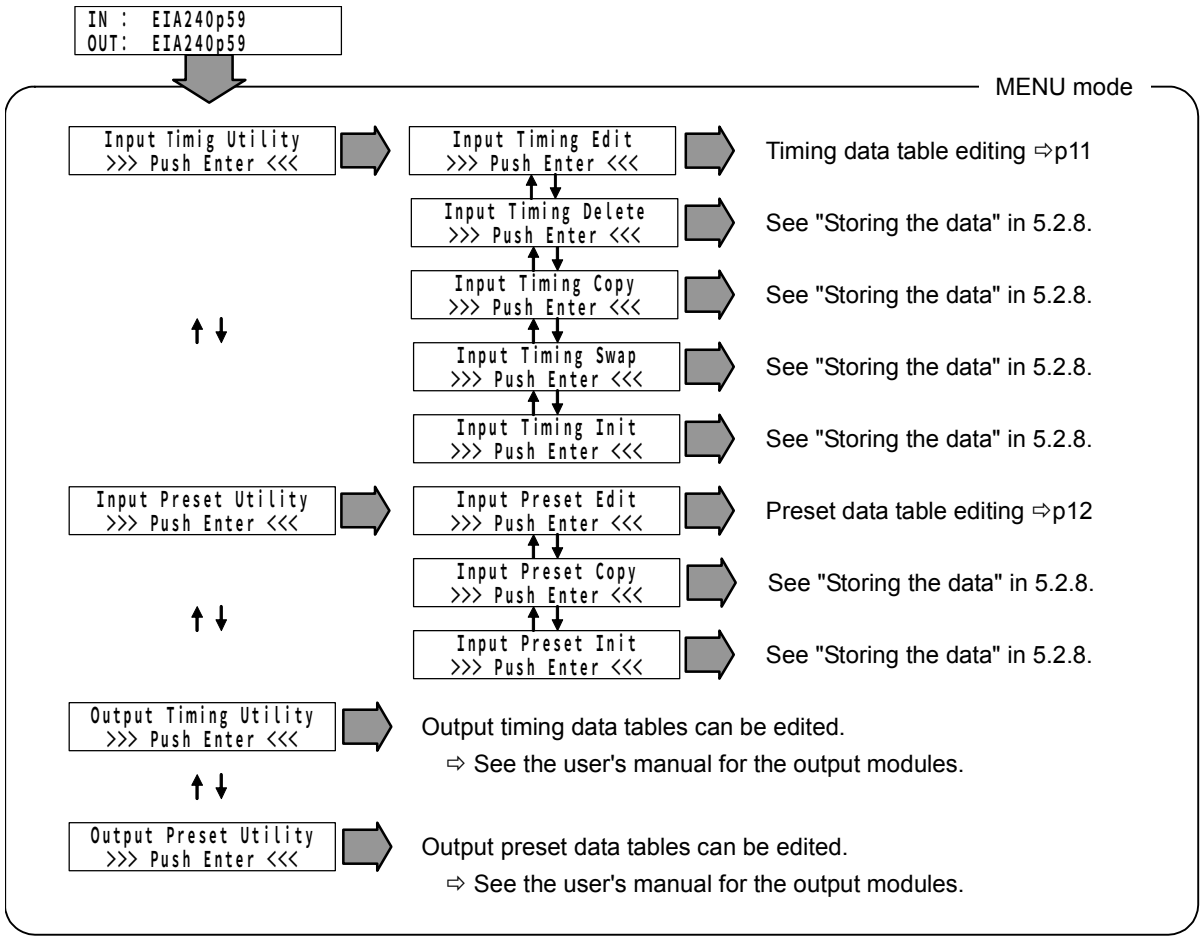
Symbols are defined below.

| | |
|---|---|
| ⇩ ⇨ | PUSH operation |
| ↑ ↓ | Rotate operation |

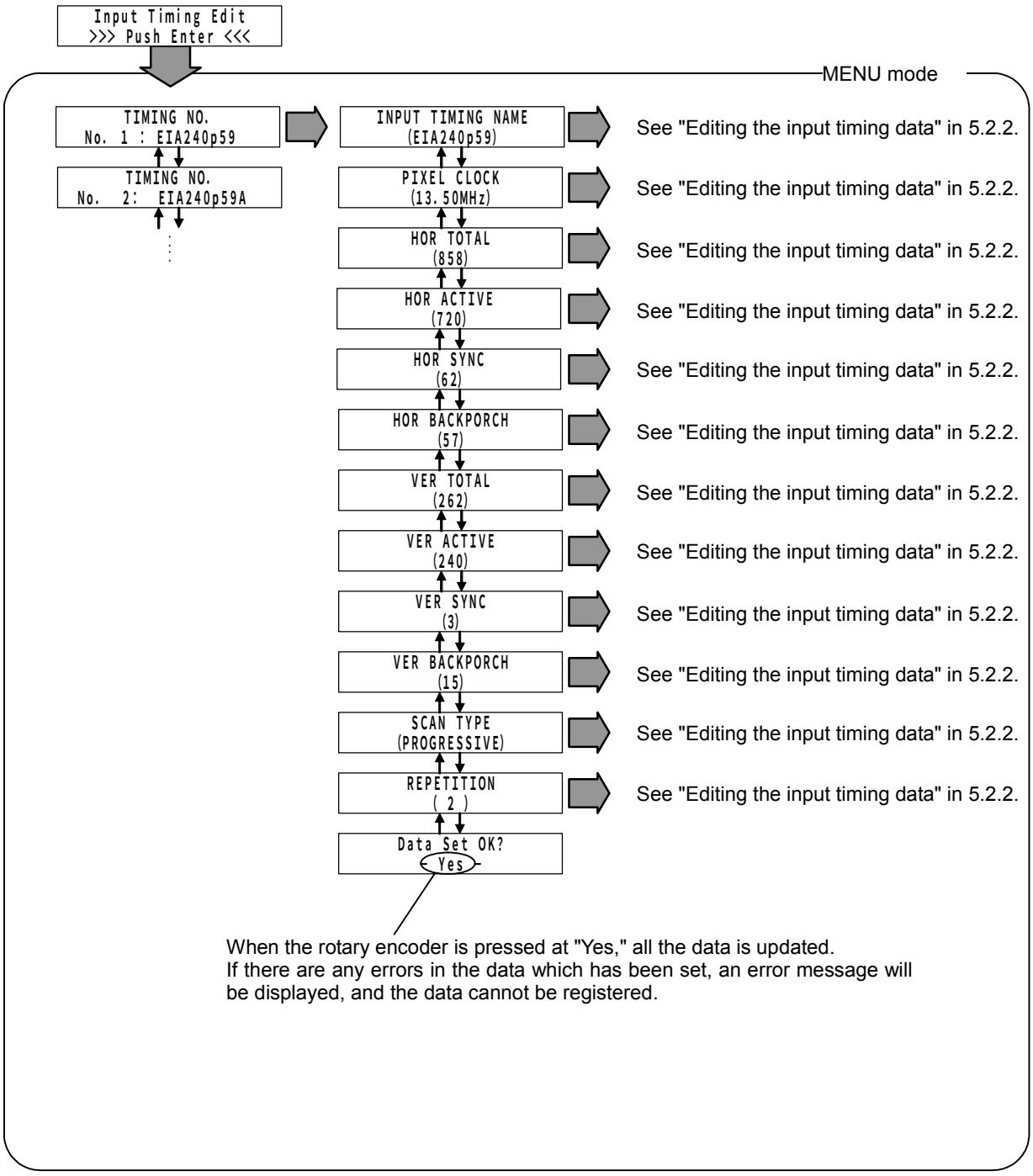
Default screen



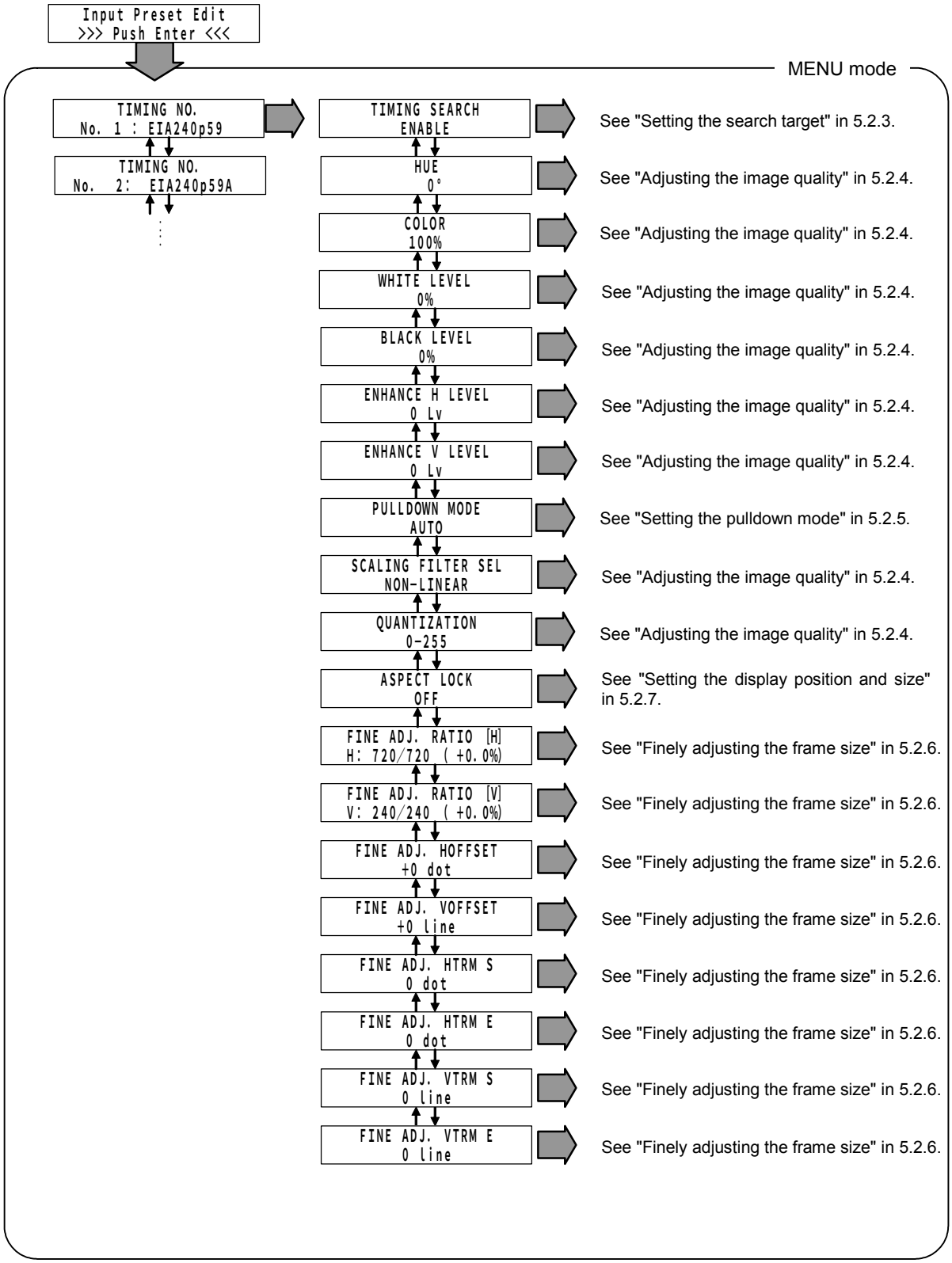
### 5.1.1 MENU mode



Timing data table editing

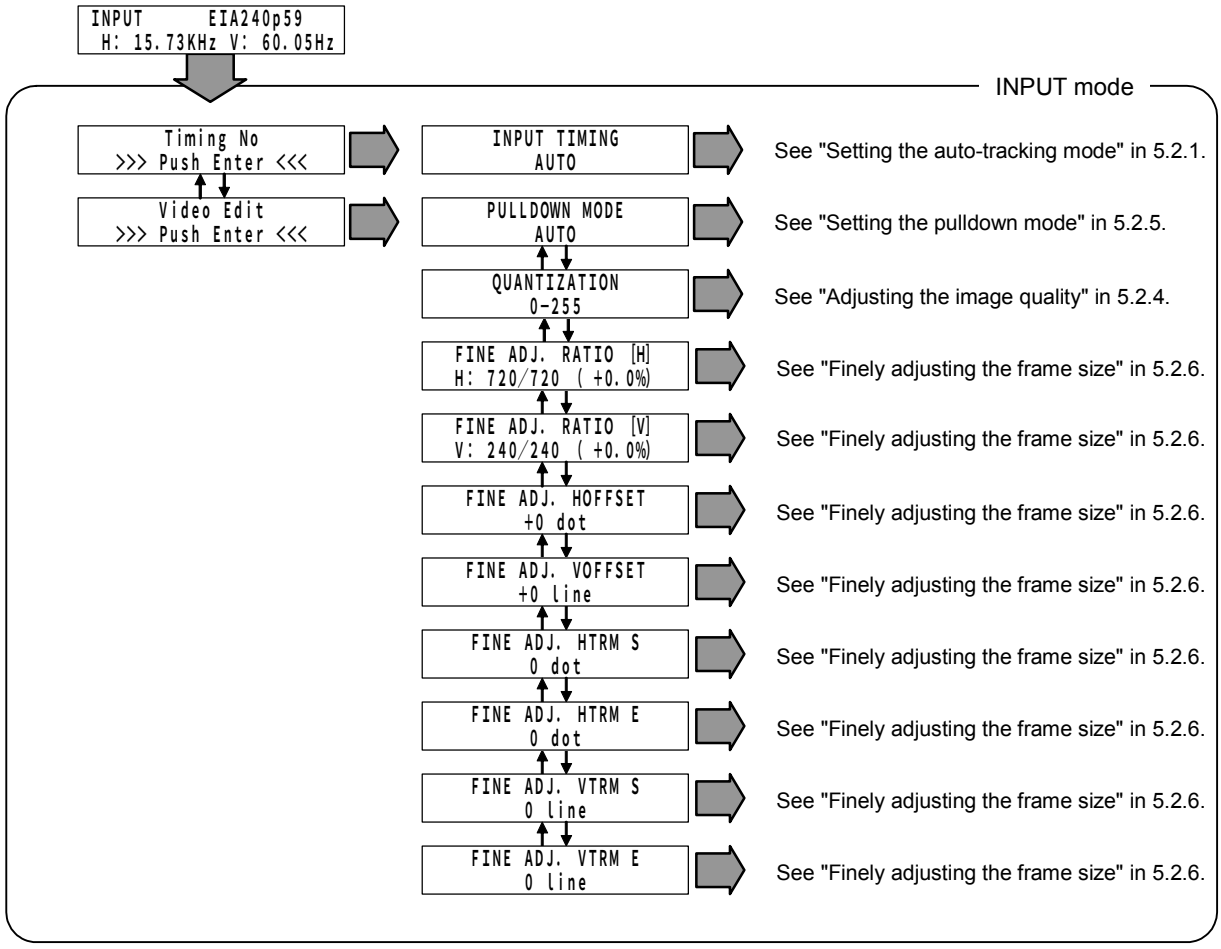


Preset data table editing



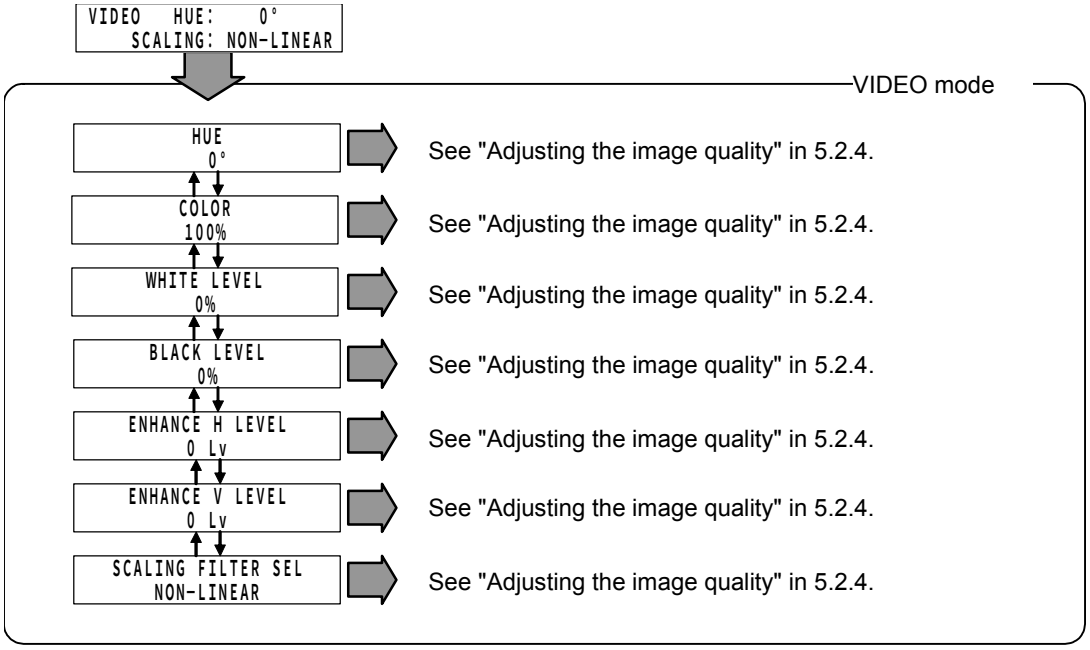
## 5.1.2 INPUT mode

The selected input timing data is displayed on the default screen in the INPUT mode.



### 5.1.3 VIDEO mode

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



# 5.2 Setting parameters

## 5.2.1 Setting the auto-tracking mode

Sets the input timing.

| Setting Parameter | Description | Setting Value | Comments |
|---|---|---|---|
| INPUT TIMING | Auto Tracking Mode | AUTO/<br>Timing name *1 | Sets the auto-tracking mode. |

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

### 5.2.2 Editing the input timing data

The parameters in this section are used to edit the input timing data which has been selected. However, the standard timing data cannot be edited. If data cannot be edited, its setting is enclosed in parentheses.

| Setting parameter | Description | Setting value | Comments |
|---|---|---|---|
| INPUT TIMING NAME | Input timing data name | 14 characters | This parameter is used to display the name of the selected input timing data. |
| PIXEL CLOCK | Pixel clock | 12.50 to 165.00 (in 10 kHz increments) | This parameter is used to adjust the pixel clock. *1 |
| HOR TOTAL | Horizontal total width | 512 to 4608 (in 1-dot increments) | This parameter is used to adjust the horizontal total width. *2 |
| HOR SYNC | Horizontal sync width | 16 to 1024 (in 1-dot increments) | This parameter is used to adjust the horizontal sync width. *2 (The output image is not affected.) |
| HOR BACKPORCH | Horizontal back porch | 0 to 2048 (in 1-dot increments) | This parameter is used to adjust the horizontal back porch. *2 (The output image is not affected.) |
| HOR ACTIVE | Horizontal active width | 256 to 2560 (in 1-dot increments) *5 | This parameter is used to adjust the horizontal display period (size). *2 |
| VER TOTAL | Vertical total width | 256 to 2560 (in 1-line increments) | This parameter is used to adjust the vertical total width. *3 |
| VER SYNC | Vertical sync width | 1 to 64 (in 1-line increments) | This parameter is used to adjust the vertical sync width. (The output image is not affected.) |
| VER BACKPORCH | Vertical back porch | 0 to 1024 (in 1-line increments) | This parameter is used to adjust the vertical back porch. (The output image is not affected.) |
| VER ACTIVE | Vertical active width | 128 to 1580 (in 1-line increments) *6 | This parameter is used to adjust the vertical display period (size). |
| SCAN TYPE | Scanning system | PROGRESSIVE/ INTERLACE/ SEGMENTFRAME | This parameter is used to select the scanning system. |
| REPETITION | Repetition adjustment | 1 to 2 | This parameter is used to adjust the repetition. *4 |

*1: The following must be satisfied: pixel clock x repetition ≥ 25 MHz.
*2: Set this parameter in 2-dot increments if the pixel clock frequency is higher than 74.25 MHz.
*3: Set this parameter in odd-numbered increments when the interlace system is used.
*4: Repetition is a function which increases the pixel clock frequency by a multiple and repeatedly transfers the data. If 2 is set for repetition, the input data is sampled by half the clock frequency. Set this item when the DVI sending side has used the repetition function to send the data twice.
The repetition can be set in a range where 74.25 MHz ≥ pixel clock frequency x repetition ≥ 25 MHz.
*5: This width must be within a range from 256 to 1920 dots for the interlace system.
*6: This width must be within a range from 128 to 1080 dots for the interlace system.

### 5.2.3 Setting the search target

The parameter in this section is used to set what is to be searched during auto-tracking.

| Setting parameter | Setting value | Comments |
|---|---|---|
| TIMING SEARCH | ENABLE | Targeted by auto-tracking searches. |
| | DISABLE | Not targeted by auto-tracking searches. |

### 5.2.4 Adjusting the image quality

Adjusts image quality and sets parameters related to video display.

| Setting Parameter | Description | Setting Value | Comments |
|---|---|---|---|
| HUE | Hue adjustment | -180 to +180°<br>(1° increments) | Adjusts the hue. |
| COLOR | Color adjustment | 0 to 150%<br>(1% increments) | Adjusts the color density. |
| WHITE LEVEL | White level adjustment | -30 to +30%<br>(1% increments) | Adjusts white areas (white level) throughout the entire screen. |
| BLACK LEVEL | Black level adjustment | -30 to +30%<br>(1% increments) | Adjusts the standard level of brightness (black level) throughout the entire screen. |
| COLOR SPACE | Color space setting | SDTV/HDTV/<br>HDTV1035 | Sets the color space. |
| ENHANCE H LEVEL | Enhance H setting | Level 0 to 15 | Controls video frequency characteristics and adjusts the contour enhancement. |
| ENHANCE V LEVEL | Enhance V setting | Level 0 to 15 | Controls video frequency characteristics and adjusts the contour enhancement. |
| SCALING FILTER SEL | Scaling filter selection | PIXEL/LINEAR/<br>NON-LINEAR | Sets the scaling filter. |
| QUANTIZATION | Image quantizing level setting | 0-255/16-235 | Changes the dynamic range of the digital input signals. |

### 5.2.5 Setting the pulldown mode

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

| Setting Parameter | Setting Value | 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 using 22PULLDOWN or 32PULLDOWN, the video signals may be disturbed if the setting does not match the interpolation pattern of the input video source. In a case like this, use VIDEO instead.

## 5.2.6 Fine adjustment of the frame size

Finely adjusts the size of the image to be displayed.

| Setting Parameter | Description | Setting Value | Comments |
|---|---|---|---|
| FINE ADJ. RATIO [H] | Zoom ratio [H] | ±30% of H ACTIVE at input timing | Adjusts the zoom ratio with the horizontal active width. *1 |
| FINE ADJ. RATIO [V] | Zoom ratio [V] | ±30% of V ACTIVE at 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 | H trimming Start position | 0 to 128 | Sets the horizontal trimming start position. *2 |
| FINE ADJ. H TRM E | H trimming End position | 0 to 128 | Sets the horizontal trimming end position. *2 |
| FINE ADJ. V TRM S | V trimming Start position | 0 to 32 | Sets the vertical trimming start position. *3 |
| FINE ADJ. V TRM E | V 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 ≤74.25MHz, 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.

## 5.2.7 Setting the display position and size

Changes the image display size and specifies the display position.

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

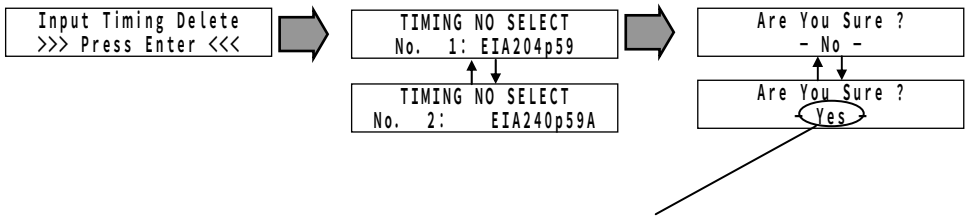
## 5.2.8 Storing the data

The parameters in this section enable data to be copied, swapped, initialized or deleted.

| Setting parameter | Description | Comments |
|---|---|---|
| Input Timing Delete | Timing data deletion | This parameter is used to delete the input timing data. However, the timing data which has been specified by the auto-tracking mode setting cannot be deleted. |
| Input Timing Copy | Timing data copying | This parameter is used to copy input timing data into empty tables. Data cannot be copied if it involves overwriting already existing data in a table. |
| Input Timing Swap | Timing data swapping | This parameter is used to swap the input timing data. |
| Input Timing Init | Timing data initialization | This parameter is used to initialize the input timing data to the factory data. |

Example: Deleting timing data

Select deletion menu. → Select timing data to be deleted. → Confirm and enter.



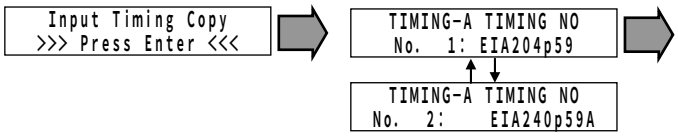

When the rotary encoder is pressed at "Yes," the data is deleted.

⇨ See "MENU mode" in 5.1.1 on page 10.

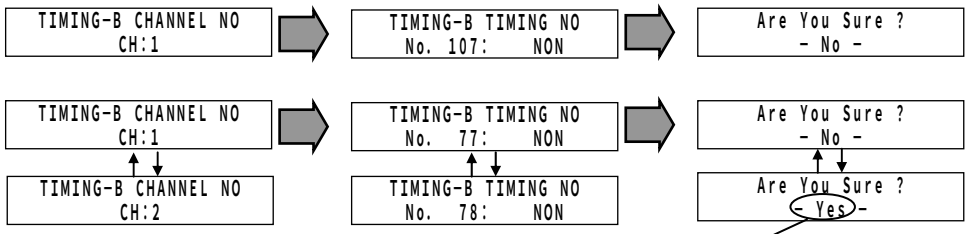
Example: Copying timing data

In this example, the TIMING-A timing data is copied to the TIMING-B timing data.

(1) Select copy menu. → Select copy source timing data.




(2) Select copy destination channel number. → Select copy destination timing data. → Confirm and enter.



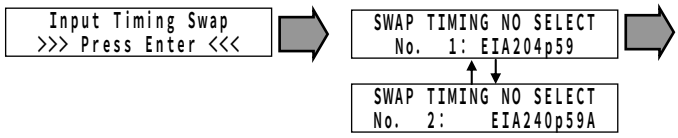

When the rotary encoder is pressed at "Yes," the data is copied.

⇨ See "MENU mode" in 5.1.1 on page 10.

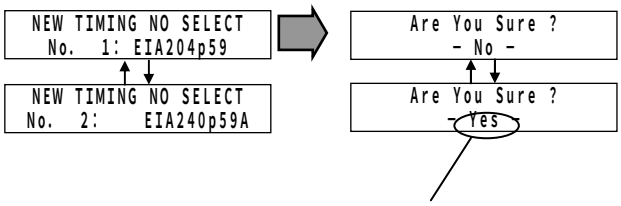
Example: Swapping timing data

In this example, the SWAP timing data is replaced with the NEW timing data.

(1) Select swapping menu. → Select timing data which will replace existing data.




(2) Select timing data to be replaced. → Confirm and enter.



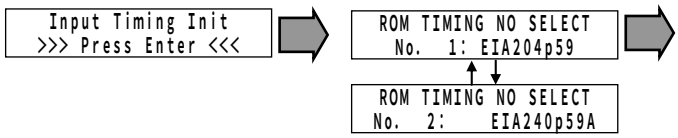

When the rotary encoder is pressed at "Yes," the data is swapped.

⇨ See "MENU mode" in 5.1.1 on page 10.

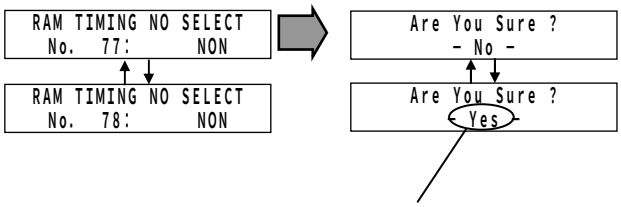
Example: Initializing timing data

In this example, the RAM timing data is initialized by the ROM timing data.

(1) Select initialization menu. → Select factory timing data.




(2) Select operation timing data. → Confirm and enter.



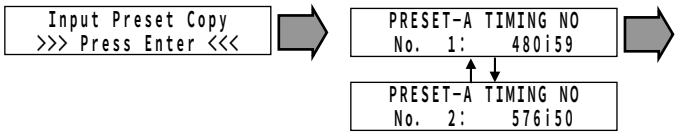

When the rotary encoder is pressed at "Yes," the data is initialized.

⇨ See "MENU mode" in 5.1.1 on page 10.

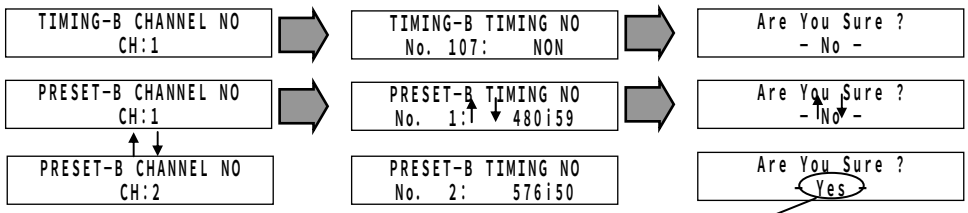
| Setting parameter | Description | Comments |
|---|---|---|
| Input Preset Copy | Preset data copy | This parameter is used to copy preset data into empty tables. Data cannot be copied if it involves overwriting already existing data in a table. |
| Input Preset Init | Preset data initialization | This parameter is used to initialize the preset data to the factory data. |

Example: Copying preset data

(1) Select copy menu. → Select copy source timing data.




(2) Select copy destination channel. → Select copy destination timing data. → Confirm and enter.




When the rotary encoder is pressed at "Yes," the data is copied.
⇨ See "MENU mode" in 5.1.1 on page 10.

# 6 Timing Table List

## 6.1 Input timing table

| No | Format | Clock (MHz) | Htotal (dot) | Hactive (dot) | Hcync (dot) | Hbp (dot) | Vtotal (line) | Vactive (line) | Vsync (line) | Vbp (line) | Scan | Rep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EIA240p59 | 13.5 | 858 | 720 | 62 | 57 | 262 | 240 | 3 | 15 | PROG | 2 |
| 2 | EIA240p59A | 13.5 | 858 | 720 | 62 | 57 | 263 | 240 | 3 | 15 | PROG | 2 |
| 3 | EIA240pW59 | 13.5 | 858 | 720 | 62 | 57 | 262 | 240 | 3 | 15 | PROG | 2 |
| 4 | EIA240pW59A | 13.5 | 858 | 720 | 62 | 57 | 263 | 240 | 3 | 15 | PROG | 2 |
| 5 | EIA240p60 | 13.51 | 858 | 720 | 62 | 57 | 262 | 240 | 3 | 15 | PROG | 2 |
| 6 | EIA240p60A | 13.51 | 858 | 720 | 62 | 57 | 263 | 240 | 3 | 15 | PROG | 2 |
| 7 | EIA240pW60 | 13.51 | 858 | 720 | 62 | 57 | 262 | 240 | 3 | 15 | PROG | 2 |
| 8 | EIA240pW60A | 13.51 | 858 | 720 | 62 | 57 | 263 | 240 | 3 | 15 | PROG | 2 |
| 9 | EIA288p50 | 13.5 | 864 | 720 | 63 | 69 | 312 | 288 | 3 | 19 | PROG | 2 |
| 10 | EIA288p50A | 13.5 | 864 | 720 | 63 | 69 | 313 | 288 | 3 | 19 | PROG | 2 |
| 11 | EIA288p50B | 13.5 | 864 | 720 | 63 | 69 | 314 | 288 | 3 | 19 | PROG | 2 |
| 12 | EIA288pW50 | 13.5 | 864 | 720 | 63 | 69 | 312 | 288 | 3 | 19 | PROG | 2 |
| 13 | EIA288pW50A | 13.5 | 864 | 720 | 63 | 69 | 313 | 288 | 3 | 19 | PROG | 2 |
| 14 | EIA288pW50B | 13.5 | 864 | 720 | 63 | 69 | 314 | 288 | 3 | 19 | PROG | 2 |
| 15 | EIA480p59 | 27 | 858 | 720 | 62 | 60 | 525 | 480 | 6 | 30 | PROG | 1 |
| 16 | EIA480p59A | 25.17 | 800 | 640 | 96 | 48 | 525 | 480 | 2 | 33 | PROG | 1 |
| 17 | EIA480pW59 | 27 | 858 | 720 | 62 | 60 | 525 | 480 | 6 | 30 | PROG | 1 |
| 18 | EIA480i59 | 13.5 | 858 | 720 | 62 | 57 | 525 | 480 | 6 | 30 | INT | 2 |
| 19 | EIA480iW59 | 13.5 | 858 | 720 | 62 | 57 | 525 | 480 | 6 | 30 | INT | 2 |
| 20 | EIA480p60 | 27.02 | 858 | 720 | 62 | 60 | 525 | 480 | 6 | 30 | PROG | 1 |
| 21 | EIA480p60A | 25.2 | 800 | 640 | 96 | 48 | 525 | 480 | 2 | 33 | PROG | 1 |
| 22 | EIA480pW60 | 27.02 | 858 | 720 | 62 | 60 | 525 | 480 | 6 | 30 | PROG | 1 |
| 23 | EIA480i60 | 13.51 | 858 | 720 | 62 | 57 | 525 | 480 | 6 | 30 | INT | 2 |
| 24 | EIA480iW60 | 13.51 | 858 | 720 | 62 | 57 | 525 | 480 | 6 | 30 | INT | 2 |
| 25 | EIA576p50 | 27 | 864 | 720 | 64 | 68 | 625 | 576 | 5 | 39 | PROG | 1 |
| 26 | EIA576pW50 | 27 | 864 | 720 | 64 | 68 | 625 | 576 | 5 | 39 | PROG | 1 |
| 27 | EIA576i50 | 13.5 | 864 | 720 | 63 | 69 | 625 | 576 | 5 | 39 | INT | 2 |
| 28 | EIA576iW50 | 13.5 | 864 | 720 | 63 | 69 | 625 | 576 | 5 | 39 | INT | 2 |
| 29 | EIA720p50 | 74.25 | 1980 | 1280 | 40 | 220 | 750 | 720 | 5 | 20 | PROG | 1 |
| 30 | EIA720p59 | 74.17 | 1650 | 1280 | 40 | 220 | 750 | 720 | 5 | 20 | PROG | 1 |
| 31 | EIA720p60 | 74.25 | 1650 | 1280 | 40 | 220 | 750 | 720 | 5 | 20 | PROG | 1 |
| 32 | EIA1080p23 | 74.17 | 2750 | 1920 | 44 | 148 | 1125 | 1080 | 5 | 36 | PROG | 1 |
| 33 | EIA1080p24 | 74.25 | 2750 | 1920 | 44 | 148 | 1125 | 1080 | 5 | 36 | PROG | 1 |
| 34 | EIA1080p25 | 74.25 | 2640 | 1920 | 44 | 148 | 1125 | 1080 | 5 | 36 | PROG | 1 |
| 35 | EIA1080p29 | 74.17 | 2200 | 1920 | 44 | 148 | 1125 | 1080 | 5 | 36 | PROG | 1 |
| 36 | EIA1080p30 | 74.25 | 2200 | 1920 | 44 | 148 | 1125 | 1080 | 5 | 36 | PROG | 1 |
| 37 | EIA1080p50 | 148.5 | 2640 | 1920 | 44 | 148 | 1125 | 1080 | 5 | 36 | PROG | 1 |
| 38 | EIA1080i50 | 74.25 | 2640 | 1920 | 44 | 148 | 1125 | 1080 | 10 | 30 | INT | 1 |
| 39 | EIA1080p59 | 148.35 | 2200 | 1920 | 44 | 148 | 1125 | 1080 | 5 | 36 | PROG | 1 |

| No | Format | Clock (MHz) | Htotal (dot) | Hactive (dot) | Hcync (dot) | Hbp (dot) | Vtotal (line) | Vactive (line) | Vsync (line) | Vbp (line) | Scan | Rep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | EIA1080i59 | 74.17 | 2200 | 1920 | 44 | 148 | 1125 | 1080 | 10 | 30 | INT | 1 |
| 41 | EIA1080p60 | 148.5 | 2200 | 1920 | 44 | 148 | 1125 | 1080 | 5 | 36 | PROG | 1 |
| 42 | EIA1080i60 | 74.25 | 2200 | 1920 | 44 | 148 | 1125 | 1080 | 10 | 30 | INT | 1 |
| 43 | VESA350p85 | 31.5 | 832 | 640 | 64 | 96 | 445 | 350 | 3 | 60 | PROG | 1 |
| 44 | VESA400p85 | 31.5 | 832 | 640 | 64 | 96 | 445 | 400 | 3 | 41 | PROG | 1 |
| 45 | VESA400p85A | 35.5 | 936 | 720 | 72 | 108 | 446 | 400 | 3 | 42 | PROG | 1 |
| 46 | VESA480p60 | 25.17 | 800 | 640 | 96 | 48 | 525 | 480 | 2 | 33 | PROG | 1 |
| 47 | VESA480p60A | 33.75 | 1088 | 848 | 112 | 112 | 517 | 480 | 8 | 23 | PROG | 1 |
| 48 | VESA480p72 | 31.5 | 832 | 640 | 40 | 128 | 520 | 480 | 3 | 28 | PROG | 1 |
| 49 | VESA480p75 | 31.5 | 840 | 640 | 64 | 120 | 500 | 480 | 3 | 16 | PROG | 1 |
| 50 | VESA480p85 | 36 | 832 | 640 | 56 | 80 | 509 | 480 | 3 | 25 | PROG | 1 |
| 51 | VESA600p56 | 36 | 1024 | 800 | 72 | 128 | 625 | 600 | 2 | 22 | PROG | 1 |
| 52 | VESA600p60 | 40 | 1056 | 800 | 128 | 88 | 628 | 600 | 4 | 23 | PROG | 1 |
| 53 | VESA600p72 | 50 | 1040 | 800 | 120 | 64 | 666 | 600 | 6 | 23 | PROG | 1 |
| 54 | VESA600p75 | 49.5 | 1056 | 800 | 80 | 160 | 625 | 600 | 3 | 21 | PROG | 1 |
| 55 | VESA600p85 | 56.25 | 1048 | 800 | 64 | 152 | 631 | 600 | 3 | 27 | PROG | 1 |
| 56 | VESA768i43 | 44.9 | 1264 | 1024 | 176 | 56 | 817 | 768 | 4 | 20 | INT | 1 |
| 57 | VESA768p60 | 65 | 1344 | 1024 | 136 | 160 | 806 | 768 | 6 | 29 | PROG | 1 |
| 58 | VESA768p70 | 75 | 1328 | 1024 | 136 | 144 | 806 | 768 | 6 | 29 | PROG | 1 |
| 59 | VESA768p75 | 78.75 | 1312 | 1024 | 96 | 176 | 800 | 768 | 3 | 28 | PROG | 1 |
| 60 | VESA768p85 | 94.5 | 1376 | 1024 | 96 | 208 | 808 | 768 | 3 | 36 | PROG | 1 |
| 61 | VESA768pW60 | 68.25 | 1440 | 1280 | 32 | 80 | 790 | 768 | 7 | 12 | PROG | 1 |
| 62 | VESA768pW60 A | 79.5 | 1664 | 1280 | 128 | 192 | 798 | 768 | 7 | 20 | PROG | 1 |
| 63 | VESA768pW60 B | 85.5 | 1792 | 1360 | 112 | 256 | 795 | 768 | 6 | 18 | PROG | 1 |
| 64 | VESA768pW75 | 102.25 | 1696 | 1280 | 128 | 208 | 805 | 768 | 7 | 27 | PROG | 1 |
| 65 | VESA768pW85 | 117.5 | 1712 | 1280 | 136 | 216 | 809 | 768 | 7 | 31 | PROG | 1 |
| 66 | VESA864p75 | 108 | 1600 | 1152 | 128 | 256 | 900 | 864 | 3 | 32 | PROG | 1 |
| 67 | VESA960p60 | 108 | 1800 | 1280 | 112 | 312 | 1000 | 960 | 3 | 36 | PROG | 1 |
| 68 | VESA960p85 | 148.5 | 1728 | 1280 | 160 | 224 | 1011 | 960 | 3 | 47 | PROG | 1 |
| 69 | VESA1024p60 | 108 | 1688 | 1280 | 112 | 248 | 1066 | 1024 | 3 | 38 | PROG | 1 |
| 70 | VESA1024p75 | 135 | 1688 | 1280 | 144 | 248 | 1066 | 1024 | 3 | 38 | PROG | 1 |
| 71 | VESA1024p85 | 157.5 | 1728 | 1280 | 160 | 224 | 1072 | 1024 | 3 | 44 | PROG | 1 |
| 72 | VESA1050p60 | 101 | 1560 | 1400 | 32 | 80 | 1080 | 1050 | 1 | 23 | PROG | 1 |
| 73 | VESA1050p60 A | 121.75 | 1864 | 1400 | 144 | 232 | 1089 | 1050 | 1 | 32 | PROG | 1 |
| 74 | VESA1050p75 | 156 | 1896 | 1400 | 144 | 248 | 1099 | 1050 | 1 | 42 | PROG | 1 |
| 75 | VESA1200p60 | 162 | 2160 | 1600 | 192 | 304 | 1250 | 1200 | 3 | 46 | PROG | 1 |
| 76 | VESA1200p60 A | 154 | 2080 | 1920 | 32 | 80 | 1235 | 1200 | 6 | 26 | PROG | 1 |

# 7 Main Specifications

## 7.1 Specifications

**Table 7.1 IM-586 Specifications**

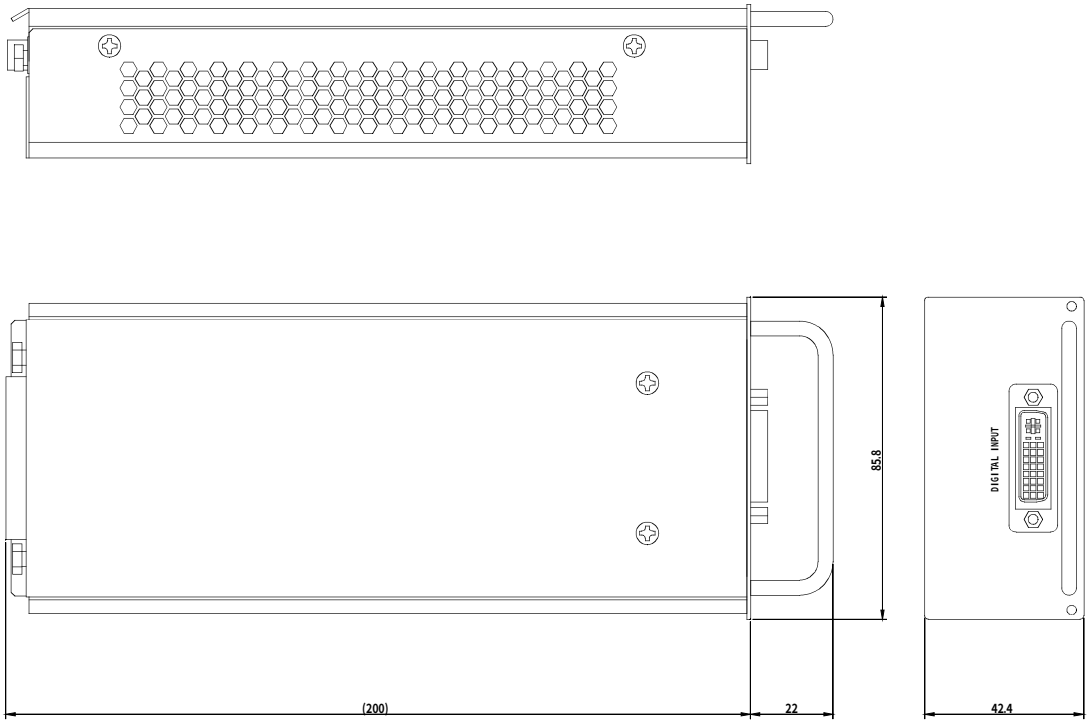
| Item | Specifications |
|---|---|
| Data format | Digital RGB DVI R1.0 |
| Scanning system | Progressive, interlace |
| Pixel clock frequency | 12.5 to 165 MHz (max. 74.25 MHz for interlace) * |
| Image data resolution | 8 bits |
| Horizontal frequency | 15 to 150 kHz |
| Vertical frequency | 24 to 150 Hz (differs depending on resolution of input/output) |
| Number of pixels displayed | Max. 2560 x 1580 (progressive system)<br>Max. 1920 x 1080 (interlace system) |
| DDC | Supported |
| Number of channels | 1 system (DVI-I connector) * Analog signals are not supported |
| Through-out | None |

* Repetition output at frequencies of 25 MHz and below.

## 7.2 Accessory

| | |
|---|---|
| User's Manual | 1 copy |

## 7.3 Outline Drawing



IM-586 User's Manual

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