

# IP-900 Series V02 SOFTWARE USER'S GUIDE



### **USING IP-900 Series SAFELY**

#### Handling of This Manual

This manual contains important information regarding the safe use of IP-900 series. Before using this product, please read this document thoroughly and pay particular attention to the "Notes on Safety." Be sure to keep this document in a safe and convenient location for quick reference.

Fujitsu makes every effort to prevent users and bystanders from being injured and to prevent property damage. Be sure to use this product in accordance with the instructions in this manual.

#### Warning on Electromagnetic Interference

#### The following notice is for USA users only.

IP-900 series have been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Regulations. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generate, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instruction document, 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 expense.

#### The following notice is for Canada users only.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

#### The following notice is for EU (European Union) users only.

This is Class A product of Electromagnetic Interference (EMI) standard. In a domestic environment this product may cause radio interference in which case the user may be required to make adequate measures.

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### PREFACE

This document explains how to use software for IP-900 series.

For information on how to install IP-900 series, connect cables and use buttons and LEDs, refer to the following manual:

- IP-900 Series User's Guide

This document is intended for system designers or administrators who use IP-900 series. It assumes that these users have a basic understanding of networks and video streaming.



#### Product Use Environment

The product explained in this document is designed and manufactured for use in standard applications such as general office work, personal devices and household appliances. This product has not been designed or manufactured for special uses requiring extremely high levels of safety, or if the required level of safety cannot be ensured, for uses where a failure, operational error or some other factor could be life-threatening or cause a physical injury (such as nuclear-reactor control in atomic facilities, automatic flight control, air traffic control, mass transportation control, medical devices for life support, or missile launch controls in weapons facilities). (In this document, these special uses are referred to as "high-risk" uses.) The customer is urged not to use this product without taking measures to guarantee the level of safety required for such high-risk uses. Customers that are likely to use this product for high-risk applications are requested to consult our sales representative before embarking on such specialized use.

#### Note

The contents of this manual may be revised without prior notice.

## ALERT INDICATIONS

This document uses various alert indications to urge the user to use the equipment safely, to prevent users and bystanders from suffering personal injury or property damage. Alert indication consists of alert signal and alert statement. The alert signals and their meanings are as follows.



This indicates a hazardous situation that could result in death or serious personal injury if you do not perform the procedure correctly.



This indicates a hazardous situation that could result in minor or moderate personal injury if the user does not perform the procedure correctly. This signal also indicates that damage to the product or other property may occur if the user does not perform the procedure correctly.

#### Alert Indication in This Manual

An alert statement follows an alert signal. An alert signal is provided in the center of a line. An alert statement is indented on both ends to distinguish it from regular text. Similarly, one space line is inserted before and after the alert statement.

(Example)

#### **WARNING**

Electric shock

Consult the system administrator when checking the voltage at the outlet.

Otherwise, electric shock may result.

## NOTE ON HANDLING THE PRODUCT

#### Maintenance

#### **WARNING**

Users must not attempt to repair IP-900 series themselves. Consult the Fujitsu Service Center.

#### 

Read this document thoroughly before using the product. For clarification of any unclear points regarding the use of the product, consult the Fujitsu Service Center.

If a fault occurs, contact the Fujitsu Service Center with information on the fault and the alarm LED status.

#### CF card consideration

Please note that you need to remove the CF card or take the backup of its recorded data in case of requesting the repair of the main unit that the CF card is installed, since Fujitsu does not guarantee the recorded content during the repair work.

Please also note that the recorded content might be deleted by the process of the diagnostic and the repair work after Fujitsu starts the work even if you already cancel the repair request.

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This chapter explains items to be confirmed before using IP-900 series.

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# 1.1 Main Features

IP-900 series is a video encoder that uses the high compression video encoding technology H.264. It enables real-time streaming of high definition (HD) and standard definition (SD) video through the optical fiber networks like FTTH.

The IP-9x0E can work as an encoder and the IP-9x0D as a decoder. When operating as an encoder, the IP-9x0E encodes input video and audio signals into the H.264 format and distributes the results over an IP network in real-time processing. When operating as a decoder, the IP-9x0D decodes encoded data received over an IP network and outputs the results as audio and video signals. In addition, the IP-9x0E operating as an encoder provides a recorder function (\*1), which allows HD video data to be transmitted over a longer period of time even when the network bandwidth is low.

Also, IP-9x0E supports two types of operation mode. Encoding operation has a real-time transmission mode of stream encoded by each main encoder and sub encoder per one input, and a mode supporting audio stereo 2 channels at main encoder, which is selectable as usage.

Operation Mode	Main Encoder		Sub Encoder	
	Coding	Audio Channel	Coding	Audio Channel
Main H.264/MPEG-4 AVC 1stereo   Sub H.264/MPEG-4 AVC 1stereo	H.264	Stereo 1ch	H.264	Stereo 1ch
Main H.264/MPEG-4 AVC 2stereo	H.264	Stereo 2ch (*)	-	-

#### Table 1-1 Operation Mode

\* In that case, sub encoder function is not available.

## Table 1-2 IP-9x0E Specifications (Main H.264/MPEG-4 AVC 1 Stereo | Sub H.264/MPEG-4 AVC 1 Stereo)

The main HD video and sub HD video functions are enabled when HD option is installed.

	Item	Specification
Main HD	Encoding format	H.264 HP@L4
video	<i>B B B B B B B B B B</i>	H.264 MP@L4
	Input video format	1920 x 1080i (59.94 Hz)
	1	1920 x 1080i (50 Hz)
		1920 x 1080i (60 Hz)
		1920 x 1080i (60 -> 59.94 Hz)
		* 60 Hz is converted at the input interface to 59.94 Hz and encoded/transmitted at
		59.94 Hz.
		$1280 \times 720p (59.94 \text{ Hz})$
		1280 X /20p (50 HZ)
	Bit rate	1920 x 1080: 100 K bps to 27 Mbps
	Dit Taic	$1440 \times 1080$ : 100 Kbps to 27 Mbps
		$960 \times 1080$ : 100 Kbps to 27 Mbps
		1280 x 720° 3 to 27 Mbps
		960 x 720° 2 to 27 Mbps
		640 x 720; 500 Kbps to 27 Mbps
		*Video image might become unstable for a low video-rate, a high frame
		rate, and the short refreshing cycle. If pursuing better video quality at a same
		video rate, we recommend setting a low frame rate, a long refresh cycle.
	GOP	Open / Closed selectable
	Video PES	"1Field/1PES" / "1Frame/1PES" selectable
	Profile selection	High profile / Main profile selectable
	PPS interval	GOP / Picture selectable
	PPS ID	Fixed / Variable selectable
	Encoding control mode	Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP) / Ultra Low Latency (PPPP)
	Pre-Filter	HEAVY / MEDIUM / LIGHT / OFF selectable
	Refresh cycle	Selection can be made in three stages
	Picture mode	Normal / Dynamic texture
	Coded picture buffer	Normal / Double
	Interface	Input: HD-SDI, HDMI (HDCP unsupported)
Main SD	Encoding format	H.264 HP@L3
video		H.264 MP@L3
		H.264 HP@L1.3
		H.264 MP(a)L1.3
	Input video format	720 x 4801 (59.94 Hz)
		/20 x 5/61 (50 Hz)
	Bit rate	720 x 480 (50 04 Hz input): 100 Khas to 10 Mhas
	Dit Tate	720 x 480 (59.94 Hz input): 100 Kbps to 10 Mbps
		352 x 480 (59.94 Hz input): 100 Kbps to 10 Mbps
		352 x 240 (59.94 Hz input): 25 to 1000 Kbps
		/20 x 5 /6 (50 Hz input): 300Kbps to 10 Mbps
		352 x 576 (50 Hz input): 150 Kbps to 10 Mbps
		352 x 288 (50 Hz input): 25 to 1000 Kbps
		*Video image might become unstable for a low video-rate, a high frame
		rate, and the short refreshing cycle. If pursuing better video quality at a same
		video rate, we recommend setting a low frame rate, a long refresh cycle.
	GOP	Open / Closed selectable

"Ultra Low Latency (PPPP)" is enabled when Ultra low latency option is installed.

	Item	Specification
	Video PES	"1Field/1PES" / "1Frame/1PES" selectable
	Profile selection	High profile / Main profile selectable
Main SD	PPS interval	GOP / Picture selectable
video	PPS ID	Fixed / Variable selectable
	Encoding control mode	Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP) / Ultra Low Latency (PPPP) * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 252 x 576, and in pathawailable for others
	Pre-Filter	HEAVY / MEDIUM / LIGHT / OFF selectable * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.
	Refresh cycle	Selection can be made in three stages
	Picture mode	Normal / Dynamic texture
	Coded picture buffer	Normal / Double
	Interfaces	input: SD-SDI, HDMI (HDCP unsupported), and analog video
Sub HD video	Encoding format	H.264 HP@L4 H.264 MP@L4
	Input video format	1920 x 1080i (59.94 Hz)
		1920 x 1080i (50 Hz)
		1920 x 1080i (60 Hz)
		1920 x 1080i (60 -> 59.94 Hz)
		* 60 Hz is converted at the input interface to 59.94 Hz and encoded/transmitted at
		59.94 Hz.
		1280 x 720p (59.94 Hz)
		1280 x 720p (50 Hz)
		* Video input protection buffer OFF/ON can be specified.
	Bit rate	1920 x 1080: 100 Kbps to 27 Mbps
		1440 x 1080: 100 Kbps to 27 Mbps
		960 x 1080: 100 Kbps to 27 Mbps
		1280 x 720: 3 to 27 Mbps
		960 x 720: 2 to 27 Mbps
		640 x 720: 500 Kbps to 27 Mbps
		*Video image might become unstable for a low video-rate, a high frame rate, and the short refreshing cycle. If pursuing better video quality at a same video rate, we recommend acting a low frame rate, a long refresh available
	GOP	Open / Closed selectable
	Video PES	"1Field/1PES" / "1Frame/1PES" selectable
	Profile selection	High profile / Main profile selectable
	PPS interval	GOP / Picture selectable
	PPS ID	Fixed / Variable selectable
	Encoding control mode	Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP)
	Pre-Filter	HEAVY / MEDIUM / LIGHT / OFF selectable
	Refresh cycle	Selection can be made in three stages
	Picture mode	Normal / Dynamic texture
	Coded picture buffer	Normal / Double
	Interfaces	Input: HD-SDI and HDMI (HDCP unsupported)
Sub SD	Encoding format	H.264 HP@L3
video		H.264 MP@L3
		H.264 HP@L1.2
		H.264 MP@L1.2

Downconverter         Letter box / Side cropped / Squeeze           Input video format         1920 x 1080 (i 50 Hz)           1920 x 1080 (i 60 ~ 59.94 Hz)         1920 x 1080 (i 60 ~ 59.94 Hz)           1800 KI is converted at the input interface to 59.94 Hz and encoded/transmitted at 59.94 Hz.         1800 x 720 (i 59.94 Hz)           1280 x 720 (i 59.94 Hz)         1280 x 720 (i 59.94 Hz)         1280 x 720 (i 59.94 Hz)           1280 x 720 (i 59.94 Hz)         1280 x 720 (i 59.94 Hz)         1280 x 720 (i 59.94 Hz)           1280 x 720 (i 59.94 Hz)         1280 x 720 (i 59.94 Hz)         1280 x 720 (i 59.94 Hz)           1280 x 720 (i 59.94 Hz)         120 x 576 (i 50 Hz)         120 x 576 (i 50 Hz)           720 x 576 (i 50 Hz)         120 x 576 (i 50 Hz)         120 x 576 (i 50 Hz)           730 x 28 (i 50 Hz)         120 to 00 Kbps         120 x 576 (i 50 Hz)           746 x 144 (i 50 Hz) input): 25 to 1000 Kbps         120 x 176 (i 10 Hz)         120 x 190 KBps to 10 Mbps           352 x 576 (i 50 Hz)         112 (i 59.94 Hz)         120 x 190 KBps to 10 Mbps         120 x 576 (i 50 Hz)           750 x 157 (i 50 Hz)         176 x 144 (i 50 Hz) input): 25 to 1000 Kbps         176 x 144 (i 50 Hz) input): 50 to 1000 Kbps           176 x 144 (i 50 Hz) input): 50 to 100 Kbps         176 x 144 (i 50 Hz) input): 50 to 1000 Kbps         176 x 144 (i 50 Hz) input): 50 to 1000 Kbps           176 x 144 (i 50 Hz)		Item	Specification
Sub SD video         Input video format         1920 x 1080i (59 94 Hz) 1920 x 1080i (60 ~> 59.94 Hz)           * 60 Hz is converted at the input interface to 59.94 Hz and encoded/transmitted at 59.94 Hz.         1280 x 720p (50 Hz) 720 x 450i (59.94 Hz) 1280 x 720p (59.94 Hz) 720 x 450i (59.94 Hz) 720 x 450i (59.94 Hz) 720 x 450i (59.94 Hz) 720 x 450i (59.94 Hz) 720 x 576i (50 Hz) input): 25 to 1000 Kbps 720 x 576i (50 Hz) input): 25 to 1000 Kbps 735 x 228 (50 Hz) input): 25 to 1000 Kbps 736 x 576i (50 Hz) input): 25 to 1000 Kbps 736 x 757i (50 Hz) input): 25 to 1000 Kbps 736 x 757i (50 Hz) input): 25 to 1000 Kbps 736 x 757i (50 Hz) input): 25 to 1000 Kbps 736 x 757i (50 Hz) input): 25 to 1000 Kbps 736 x 757i (50 Hz) input): 25 to 1000 Kbps 736 x 757i (50 Hz) input): 25 to 1000 Kbps 737 x 75i (50 Hz) input): 25 to 1000 Kbps 736 x 75i (50 Hz) input): 25 to 1000 Kbps 737 x 75i (50 Hz) input): 25 to 1000 Kbps 736 x 75i (50 Hz) input): 25 to 1000 Kbps 737 x 75i (50 Hz) 740 crate, we recommend setting a low frame rate, a long refresh cycle 740 crate, we recommend setting a low frame rate, a long refresh cycle 740 crate, we recommend setting a low frame rate, a long refresh cycle 740 crate and the short refershing cycle. If pursuing better video quality at a same video rate, we recommend setting a low frame rate, a long refresh cycle 740 crate and the short refershing cycle.           Free-Filter         Filed/1PES" / "1Frame/1PES" selectable 740 crate and the short arealized for video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for videor.           Matin audio         Encoding format         MPEG-1 Audio Layer 2 : 128/256/384 Kbps		Downconverter	Letter box / Side cropped / Squeeze
video           video         1920 x 1080 (60 59 94 Hz)           1920 x 1080 (60 - 59 94 Hz)         * 60 Hz is converted at the input interface to 59 94 Hz and encoded/transmitted at 59.94 Hz.           1280 x 720p (59 94 Hz)         1280 x 720p (59 94 Hz)           1280 x 720p (59 94 Hz)         720 x 480 (59.94 Hz)           720 x 480 (59.94 Hz)         720 x 480 (59.94 Hz)           720 x 480 (59.94 Hz)         100 Kbps           352 x 480 (59.94 Hz)         100 Kbps           352 x 240 (59.94 Hz)         100 Kbps           352 x 240 (59.94 Hz)         100 Kbps           176 x 112 (59.94 Hz) input): 25 to 1000 Kbps           70 x 576 (50 Hz)         720 x 576 (50 Hz)           97 50 x 576 (50 Hz)         720 x 576 (50 Hz)           176 x 12 (59.94 Hz)         720 to 100 Kbps           720 x 576 (50 Hz)         720 x 576 (50 Hz)           97 50 x 576 (50 Hz)         700 Kbps           740 x 576 (50 Hz)         710 x 576 (50 Hz)           176 x 144 (50 Hz) input): 25 to 1000 Kbps         720 x 576 (50 Hz)           97 50 x 578 (50 Hz)         710 x 576 (50 Hz)           97 50 x 578 (50 Hz)         710 x 576 (50 Hz)           97 50 x 578 (50 Hz)         710 x 576 (50 Hz)           97 50 x 578 (50 Hz)         710 x 578 (50 Hz)           97 50 x 578 (50 Hz)         710 mz) T587	Sub SD	Input video format	1920 x 1080i (59.94 Hz)
Image: Provide a set of the ison overted at the input interface to 59.94 Hz and encoded/transmitted at 59.94 Hz.           1280 x 720p (59.94 Hz)           1280 x 720p (50.1Hz)           720 x 480 (59.94 Hz)           720 x 576 (50 Hz)           Bit rate         720 x 480 (59.94 Hz) input): 100 Kbps to 10 Mbps           532 x 240 (59.94 Hz) input): 510 K00K kps           720 x 576 (50 Hz)           Bit rate         720 x 576 (50 Hz)           720 x 576 (50 Hz)     <	video		1920 x 1080i (50 Hz)
* 00 Hz         59.94 Hz           1280 x 720p (50 94 Hz)         1280 x 720p (50 94 Hz)           1280 x 720p (50 112)         720 x 480i (59.94 Hz)           720 x 576i (50 Hz)         720 x 480 (59.94 Hz)           720 x 576i (50 Hz)         720 x 480 (59.94 Hz)           720 x 576i (50 Hz)         720 x 576i (50 Hz)           112 (59.94 Hz)         720 x 576i (50 Hz)           126 x 240 (59.94 Hz)         720 x 576 (50 Hz)           126 x 240 (59.94 Hz)         720 x 576 (50 Hz)           126 x 240 (59.94 Hz)         720 x 576 (50 Hz)           126 x 240 (59.94 Hz)         720 x 576 (50 Hz)           126 x 12 (59.94 Hz)         720 x 576 (50 Hz)           126 x 248 (50 Hz)         720 x 576 (50 Hz)           126 x 228 (50 Hz)         720 x 576 (50 Hz)           128 x 576 (50 Hz)         720 x 576 (50 Hz)           128 x 576 (50 Hz)         720 x 576 (50 Hz)           128 x 52 x 528 (50 Hz)         720 x 576 (50 Hz)           128 x 576 (50 Hz)         720 x 576 (50 Hz)           128 x 576 (50 Hz)         720 x 576 (50 Hz)           128 x 576 (50 Hz)         720 x 576 (50 Hz)           128 x 576 (50 Hz)         720 x 576 (50 Hz)           129 x 580 x 50 x 50 x 50 x 50 x 50 x 50 x 5			1920 x 1080i (60 -> 59.94 Hz)
Sp 94 Hz,         1280 x 720p (59 94 Hz)           1280 x 720p (50 Hz)         720 x 480 (59.94 Hz)           720 x 576 (50 Hz)         720 x 480 (59.94 Hz input): 100 Kbps to 10 Mbps           352 x 480 (59.94 Hz input): 100 Kbps to 10 Mbps         352 x 480 (59.94 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps         720 x 576 (50 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps         352 x 288 (50 Hz input): 25 to 1000 Kbps           517 x 12 (59.94 Hz input): 25 to 1000 Kbps         352 x 288 (50 Hz input): 25 to 1000 Kbps           70 x 576 (50 Hz input): 25 to 1000 Kbps         352 x 288 (50 Hz input): 25 to 1000 Kbps           716 x 144 (50 Hz input): 25 to 1000 Kbps         700 x 700 (50 mz input): 300 Kbps           70 x 141 (50 Hz input): 25 to 1000 Kbps         700 x 700 (50 mz input): 100 Kbps           70 x 140 (70 PES)         "TiField/IPES" "TiFrame/IPES" selectable           Profile selection         High profile / Main profile selectable           PPS interval         GOP (P) Foture selectable           PPS interval         GOP / Victure selectable           PPS interval         GOP / Victure selectable           PPS interval         GOP / Victure selectable           Profile selection an be made in three stages.         Pitin Low Latence (PPPP) / Low latency (PPPP) / Low latency (PPPPP)           // Utra Low Latence (PPP) <td></td> <td></td> <td>* 60 Hz is converted at the input interface to 59.94 Hz and encoded/transmitted at</td>			* 60 Hz is converted at the input interface to 59.94 Hz and encoded/transmitted at
I280 x 720p (59 94 Hz)           I280 x 720p (50 Hz)           720 x 480 (59 94 Hz)           720 x 576 (50 Hz)           Bit rate         720 x 480 (59 94 Hz) input): 100 Kbps to 10 Mbps           352 x 480 (59 94 Hz) input): 25 to 1000 Kbps           176 x 112 (59.94 Hz) input): 25 to 1000 Kbps           720 x 576 (50 Hz)           20 x 576 (50 Hz)           21 x 20 x 576 (50 Hz)           22 x 40 (59.94 Hz)           23 x 28 (50 Hz)           23 x 28 (50 Hz)           24 x 40 (50 Hz)           25 x 576 (50 Hz)           26 x 28 (50 Hz)           27 x 576 (50 Hz)           27 x 576 (50 Hz)           27 x 440 (50 Hz)           28 (50 Hz)           28 (50 Hz)           28 (50 Hz)           28 (50 Hz)           29 x 770 (50 Hz)           20 x 720 (50 Hz)           21 75 x 144 (50 Hz)           25 x 576 (50 Hz)           21 75 x 144 (50 Hz)           21 75 x 144 (50 Hz)           20 x 770 (50 Hz)           21 75 x 144 (50 Hz)           22 x 576 (50 Hz)           21 75 x 145 (50 Hz)           21 75 x 145 (50 Hz)           21 75 x 145 (50 Hz)           21 7 76 (50 Hz)			59.94 Hz.
1280 x 720 y 412)           720 x 480i (59 y4 Hz)           720 x 576i (50 Hz)           Bit rate         720 x 480i (59 y4 Hz input): 100 Kbps to 10 Mbps           352 x 480 (59 y4 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps           352 x 288 (50 Hz input): 25 to 1000 Kbps           352 x 576 (50 Hz input): 25 to 1000 Kbps           352 x 576 (50 Hz input): 25 to 1000 Kbps           176 x 112 (59 y4 Hz input): 25 to 1000 Kbps           352 x 576 (50 Hz input): 25 to 1000 Kbps           176 x 144 (50 Hz)           176 x 144 (50 Hz)           176 x 112 (59 y4 Hz)           176 x 112 (59 y4 Hz)           176 x 124 (50 Hz)           176 x 144 (50 Hz)           177 x 142 (50 Hz)           176 x 144 (50 Hz)           177 17 Hz)           177 17 Hz)     <			1280 x 720p (59.94 Hz)
720 x 480 (59.94 Hz)         720 x 576 (50 Hz)         Bit rate       720 x 480 (59.94 Hz input): 100 Kbps to 10 Mbps         352 x 240 (59.94 Hz input): 25 to 1000 Kbps         176 x 112 (59.94 Hz input): 25 to 1000 Kbps         720 x 576 (50 Hz input): 25 to 1000 Kbps         352 x 576 (50 Hz input): 25 to 1000 Kbps         352 x 576 (50 Hz input): 25 to 1000 Kbps         176 x 112 (59.94 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 141 (50 Hz input): 25 to 1000 Kbps         176 x 141 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 141 (50 Hz input): 25 to 1000 Kbps         176 tare locoling format         176 (20 P			1280 x 720p (50 Hz)
Bit rate         720 x 340 (59 94 Hz input): 100 Kbps to 10 Mbps           352 x 240 (59.94 Hz input): 25 to 1000 Kbps         100 Kbps           176 x 112 (59.94 Hz input): 25 to 1000 Kbps         176 x 112 (59.94 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps         720 x 576 (50 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps           176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps           9 Open / Closed selectable         176 x 144 (50 Hz input): 25 to 1000 Kbps           9 Open / Closed selectable         00 Open / Closed selectable           Profile selection         High profile / Main profile selectable           PPS ID         Fixed / Variable selectable           PPS ID         Fixed / Variable selectable           PPS ID         Fixed / Variable selectable           PPS intervaid         GOP / Picture selectable           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video resolution 720 x 480			/20 x 4801 (59.94 Hz) 720 x 576i (50 Hz)
Diritate         720 x 480 (39.94 Hz input): 100 Kbps to 10 Mbps           352 x 480 (59.94 Hz input): 25 to 1000 Kbps         720 x 457 (50 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps         720 x 576 (50 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 150 Kbps to 10 Mbps         352 x 288 (50 Hz input): 25 to 1000 Kbps           720 x 576 (50 Hz input): 25 to 1000 Kbps         176 x 114 (50 Hz input): 25 to 1000 Kbps           740 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 114 (50 Hz input): 25 to 1000 Kbps           750 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 114 (50 Hz input): 25 to 1000 Kbps           770 role selectable         *Video image might become unstable for a low video-rate, a high frame rate, and the short refreshing cycle. If pursaing better video quality at a same video rate, we recommend selectable           Yideo PES         *'IField/IPES'' ("Frame/IPES" selectable           Profile selection         High profile / Variable selectable           PPS ID         Fixed / Variable selectable           PPS ID         Fixed / Variable selectable           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.           Refresh cycle         Selection can be made in three stages.           Picture mode         Normal / Dynamic texture		Rit rate	720 x 5701 (50 HZ)
352 X 480 (39.94 Hz input): 100 Kbps to 10 Mbps         352 X 240 (39.94 Hz input): 25 to 1000 Kbps         176 x 112 (39.94 Hz input): 25 to 1000 Kbps         720 x 576 (50 Hz input): 25 to 1000 Kbps         352 x 288 (50 Hz input): 25 to 1000 Kbps         352 x 288 (50 Hz input): 25 to 1000 Kbps         352 x 288 (50 Hz input): 25 to 1000 Kbps         352 x 288 (50 Hz input): 25 to 1000 Kbps         352 x 288 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         400 rate, we recommed setting a low video-rate, a high frame rate, and the short refreshing cycle. If Pursuing better video quality at a same video rate, we recommed setting a low frame rate, a long refresh cycle         GOP       Open / Closed selectable         Profile selection       High profile / Main profile selectable         PPS ID       Fixed / Variable selectable         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for others.       Refresh cycle         Selection can be made in three stages.       Picture mode         Normal / Dy		Dit late	$720 \times 480 (59.94 \text{ Hz input}): 100 \text{ Kbps to 10 Mbps}$
S22 x 240 (59: 94 Hz input): 25 to 1000 Kbps         176 x 112 (59: 94 Hz input): 25 to 1000 Kbps         720 x 576 (50 Hz input): 150 Kbps to 10 Mbps         352 x 288 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         *Video image might become unstable for a low video-rate, a high frame rate, and the short refreshing cycle. If pursuing better video quality at a same video rate, we recommend setting a low frame rate, a long refresh cycle         GOP       Open / Closed selectable         Video PES       "IField/1PES" "IFrame/1PES" selectable         PPS ID       Fixed / Variable selectable         PPS ID       Fixed / Variable selectable         PPS ID       Fixed / Variable selectable         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576.         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576.         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576.         Picture mode       Normal / Donamic texture         Coded picture buffler       Normal / Donable			352 x 480 (59.94 Hz input): 100 Kbps to 10 Mbps
116 x 112 (59:94 Hz input): 25 to 1000 K8ps         720 x 576 (50 Hz input): 150 Kbps to 10 Mbps         352 x 288 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         *Video image might become unstable for a low video-rate, a high frame rate, and the short refreshing cycle. If pursuing better video quality at a same video rate, we recommend setting a low frame rate, a long refresh cycle         GOP       Open / Closed selectable         Video PES       "Field/IPES" / "IFrame/IPES" selectable         Profile selection       High profile / Main profile selectable         PPS Interval       GOP / Open / Closed selectable         PPS ID       Fixed / Variable selectable         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Selection can be made in three stages.         Picture mode       Normal / Dynamic texture         Coded picture buffler       Normal / Double         Interfaces       Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video         Main audio       Encoding format       MPEG-1 Audio Layer 2			$352 \times 240 (59.94 \text{ Hz input}): 25 \text{ to } 1000 \text{ Kbps}$
7/20 x 576 (50 Hz input): 300Kbps to 10 Mbps         352 x 576 (50 Hz input): 25 to 1000 Kbps         352 x 288 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         *Video image might become unstable for a low video-rate, a high frame rate, and the short refreshing cycle. If pursuing better video quality at a same video rate, we recommend setting a low frame rate, a long refresh cycle         GOP       Open / Closed selectable         Video PES       "1Field/1PES" / "1Frame/1PES" selectable         PPS interval       GOP / Victure selectable         PPS ID       Fixed / Variable selectable         PPS ID       Fixed / Variable selectable         PPS interval       GOP / Victure selectable         PPS interval       Gon / 352 x 576, and is not available for video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Selection can be made in three stages.         Picture mode       Normal / Dynamic texture         Coded picture buffler       Normal / Dynable         Interfaces			1/6 x 112 (59.94 Hz input): 25 to 1000 Kbps
352 x 376 (50 Hz input): 150 Kbps to 10 Mbps         352 x 288 (50 Hz input): 25 to 1000 Kbps         376 x 144 (50 Hz input): 25 to 1000 Kbps         *Video image might become unstable for a low video-rate, a high frame rate, and the short refreshing cycle. If pursuing better video quality at a same video rate, we recommend setting a low frame rate, a long refresh cycle         GOP       Open / Closed selectable         Video PES       "IField/IPES" / "IFrame/IPES" selectable         PPS interval       GOP / Picture selectable         PPS interval       GOP / Victure selectable         PPS ID       Fixed / Variable selectable         Encoding control mode       Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP) / (Ultra Low Latency (PPPP)         * Can be selected when the video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video resolution r20 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for video resolution r20 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video rothers.         Picture mode       Normal / Dynamic texture         Coded picture buffer       Normal / Dynamic texture         Coded picture buffer       Normal / Dynamic texture         Coded picture buffer       Normal / Dynamic texture         Sub audio       En			720 x 576 (50 Hz input): 300Kbps to 10 Mbps
S32 x 288 (50 Hz input): 25 to 1000 Kbps         176 x 144 (50 Hz input): 25 to 1000 Kbps         *Video image might become unstable for a low video-rate, a high frame rate, and the short refreshing cycle. If pursuing better video quality at a same video rate, we recommend setting a low frame rate, a long refresh cycle         GOP       Open / Closed selectable         Video PES       "IField/IPES" / "IFrame/IPES" selectable         PPS interval       GOP / Variable selectable         PPS ID       Fixed / Variable selectable         PPS ID       Fixed / Variable selectable         PPS interval       GOP / Utrue selectable         PPS ID       Fixed / Variable selectable         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Selection can be made in three stages.         Picture mode       Normal / Dynamic texture         Coded picture buffer       Normal / Double         Interfaces       Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video         Main audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         Mamper of channels       2         Interfaces       Input: HD/SD-SDI (embedded)			$352 \times 576 (50 \text{ Hz input})$ : 150 Kbps to 10 Mbps
Interfaces       Input: 12 input: 25 to 1000 KOps         *Video image might become unstable for a low video-rate, a high frame rate, and the short refreshing cycle. If pursuing better video quality at a same video rate, we recommend setting a low frame rate, a long refresh cycle         GOP       Open / Closed selectable         Video PES       "1Field/IPES" / "1Frame/IPES" selectable         Profile selection       High profile / Main profile selectable         PPS ID       Fixed / Variable selectable         Profile selection mode       Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP)         * Can be selected when the video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Selectad when the video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Normal / Dynamic texture         Coded picture buffer       Normal / Dynamic texture         Coded picture buff			$352 \times 288 (50 \text{ Hz input}): 25 \text{ to } 1000 \text{ Kbps}$
Sub and         Protect inlage might become unstable for allow video-rate, and the short refershing cycle. If pursuing better video quality at a same video rate, we recommend setting a low frame rate, a long refresh cycle           GOP         Open / Closed selectable           Video PES         "1Field/IPES" /#1Frame/IPES" selectable           Profile selection         High profile / Main profile selectable           PPS ID         Fixed / Variable selectable           PPS ID         Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP)           / Ultra Low Latency (PPPP)         * Can be selected when the video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576.           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576.           Refresh cycle         Selection can be made in three stages.           Picture mode         Normal / Dynamic texture           Coded picture buffer         Normal / Double           Interfaces         Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video           Main audio         Encoding format         MPEG-1 Audio Layer 2: 128/256/384 Kbps           MPEG-2 AAC (stereo)         Sampling frequency         48 kHz           Bit rate (for 2 channels)         MPEG-1 Audio Layer 2: 128/256/384 Kbps (CBR)           Number of channels         Input			1/6 x 144 (50 Hz input): 25 to 1000 Kbps
Interval         GOP         Open / Closed selectable           Video PES         "1Field/IPES" / "1Frame/IPES" selectable           Profile selection         High profile / Main profile selectable           PPS Interval         GOP / Picture selectable           PS ID         Fixed / Variable selectable           PPS interval         GOP / Utra selectable           Pre-File         HEAVY / MEDIUM / LIGHT / OFF selectable           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576.           Refresh cycle         Selection can be made in three stages.           Picture mode         Normal / Dynamic texture           Coded picture buffer         Normal / Double           Interfaces         Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video           Main audio         Encoding format         MPEG-1 Audio Layer 2: 128/256/384 Kbps (CBR)           MPEG-1 Audio Layer 2: 128/256/384 Kbps (CBR)         MPEG-2 AAC: 64/128/256/384 Kbps (CBR)           Number of channels         Input: HD/SD-SDI (embedded) - Up to 2 channels </td <td></td> <td></td> <td>rate and the short refreshing cycle. If pursuing better video quality at a same</td>			rate and the short refreshing cycle. If pursuing better video quality at a same
GOP         Open / Closed selectable           Video PES         "1Field/1PES" / "1Frame/1PES" selectable           Profile selection         High profile / Main profile selectable           PPS ID         Fixed / Variable selectable           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.           Refresh cycle         Selection can be made in three stages.           Picture mode         Normal / Dynamic texture           Coded picture buffer         Normal / Double           Interfaces         Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video           Main audio         Encoding format         MPEG-1 Audio Layer 2: 128/256/384 Kbps           MPEG-2 AAC         64/128/256 (SBF) (VBR)         56/64/128/256/384 Kbps (CBR)           Number of channels         Input: HD/SD-SDI			video rate we recommend setting a low frame rate a long refresh cycle
Video PES         "IField/IPES" / "IFrame/IPES" selectable           Profile selection         High profile / Main profile selectable           PPS interval         GOP / Picture selectable           PPS ID         Fixed / Variable selectable           PPS ID         Encoding control mode           Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP)           / Ultra Low Latency (PPPP)           * Can be selected when the video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576.           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576.           Refresh cycle         Selection can be made in three stages.           Picture mode         Normal / Dynamic texture           Coded picture buffer         Normal / Double           Interfaces         Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video           MPEG-1 Audio Layer 2 (stereo)         MPEG-1 Audio Layer 2 (stereo)           MPEG-2 AAC (stereo)         Sampling frequency           Sub audio         Encoding format           Number of channels         2           Interfaces         Input: HD/SD-SDI (embedded) - Up to 2 channels           HDMI - Up to 2 channels         Analog (*1): - Up to 2 channels           MDEG-1 Audio Layer		GOP	Open / Closed selectable
Profile selection         High profile / Main profile selectable           PPS interval         GOP / Picture selectable           PPS ID         Fixed / Variable selectable           Encoding control mode         Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP)           / Ultra Low Latency (PPPP)         * Can be selected when the video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576.           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576.           Refresh cycle         Selection can be made in three stages.           Picture mode         Normal / Dynamic texture           Coded picture buffer         Normal / Double           Interfaces         Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video           Main audio         MPEG-1 Audio Layer 2: 128/256/384 Kbps           MeEG-1 Audio Layer 2: 128/256/384 Kbps (CBR)         Selection 2 channels           MPEG-2 AAC:         6/4/128/256/384 Kbps (CBR)           Number of channels         2           Interfaces         Input: HD/SD-SDI (embedded) - Up to 2 channels           HDMI - Up to 2 channels         HDMI - Up to 2 channels           MPEG-2 AAC:         6/64/128/256/384 Kbps (CBR)           Sub audio         Encoding format         MPEG-1 Aud		Video PES	"1Field/1PES" / "1Frame/1PES" selectable
PPS interval         GOP / Picture selectable           PPS ID         Fixed / Variable selectable           Encoding control mode         Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP)		Profile selection	High profile / Main profile selectable
PPS ID         Fixed / Variable selectable           Encoding control mode         Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP)           / Ultra Low Latency (PPPP)         * Can be selected when the video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576.           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576. and is not available for others.           Refresh cycle         Selection can be made in three stages.           Picture mode         Normal / Double           Interfaces         Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video           Main audio         Encoding format           MPEG-1 Audio Layer 2 (stereo)         MPEG-1 Audio Layer 2 (stereo)           MPEG-2 AAC (stereo)         Sampling frequency           Sampling frequency         48 kHz           Bit rate (for 2 channels)         MPEG-1 Audio Layer 2: 128/256/384 Kbps (VBR)           Number of channels         2           Interfaces         Input: HD/SD-SDI (embedded) - Up to 2 channels           MDI - Up to 2 channels         MPEG-1 Audio Layer 2 (stereo)           MPEG-2 AAC: 64/128/256/384 Kbps (CBR)         MPEG-2 AAC (stereo)           Sub audio         Encoding format         MPEG-1 Audio Layer 2 (stereo)           MPEG-2 AAC (st		PPS interval	GOP / Picture selectable
Encoding control mode         Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP)           * Can be selected when the video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576.           Pre-Filter         HEAVY / MEDIUM / LIGHT / OFF selectable           * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.           Refresh cycle         Selection can be made in three stages.           Picture mode         Normal / Dynamic texture           Coded picture buffer         Normal / Double           Interfaces         Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video           Main audio         Encoding format           MPEG-1 Audio Layer 2: 128/256/384 Kbps           MPEG-2 AAC: 64/128/256 Kbps (VBR)           56/64/128/256/384 Kbps (CBR)           Number of channels         2           Interfaces         Input: HD/SD-SDI (embedded) - Up to 2 channels           HDMI - Up to 2 channels         HDMI - Up to 2 channels           Sub audio         Encoding format         MPEG-1 Audio Layer 2 (stereo)           MPEG-2 AAC: 64/128/256/384 Kbps (CBR)         MDIG           Sub audio         Encoding format         MPEG-1 Audio Layer 2 (stereo)           MPEG-2 AAC (stereo)         MPEG-2 AAC (stereo)           Sampling frequency         48 kHz <th></th> <th>PPS ID</th> <th>Fixed / Variable selectable</th>		PPS ID	Fixed / Variable selectable
Additional and the selected when the video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576.         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Selection can be made in three stages.         Picture mode       Normal / Double         Interfaces       Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video         Main audio       Encoding format         MPEG-1 Audio Layer 2 (stereo)       MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels         HDMI - Up to 2 channels       HDMI - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC: 64/128/256/384 Kbps (CBR)       MPEG-2 AAC (stereo)         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       MPEG-2 AAC (stereo)         MPEG-3 AAC (stereo)       MPEG-2 AAC (stereo)         MPEG-2 AAC (stereo)       MPEG-2 AAC (stereo)         MPEG-2 AAC (stereo)       MPEG-2 AAC (stereo)		Encoding control mode	Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP)
* Can be selected when the video resolution is 720 x 480, 720 x 576, 352 x 480, or 352 x 576.         Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Selection can be made in three stages.         Picture mode       Normal / Dynamic texture         Coded picture buffer       Normal / Double         Interfaces       Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video         Main audio       Encoding format         MPEG-1 Audio Layer 2 (stereo)       MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels         HDMI - Up to 2 channels       Analog (*1): - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       MPEG-1 Audio Layer 2 (stereo)         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       MPEG-2 AAC (stereo)         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)			/ Ultra Low Latency (PPPP)
Pre-Filter       HEAVY / MEDIUM / LIGHT / OFF selectable         * This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Selection can be made in three stages.         Picture mode       Normal / Dynamic texture         Coded picture buffer       Normal / Double         Interfaces       Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video         Main audio       Encoding format         MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels         HDMI - Up to 2 channels       Analog (*1): - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       MPEG-3         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-4 AAC (stereo)       MPEG-3         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-4 AAC (stereo)       MPEG-2 AAC (stereo)         Sub audio       Encoding format       MPEG-1 Audio Layer 2: 128/256/384			* Can be selected when the video resolution is $720 \times 480$ , $720 \times 576$ , $352 \times 480$ , or $352 \times 576$
* This selection is available for video resolution 720 x 480, 720 x 576, 352 x 480, or 352 x 576, and is not available for others.         Refresh cycle       Selection can be made in three stages.         Picture mode       Normal / Dynamic texture         Coded picture buffer       Normal / Double         Interfaces       Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video         Main audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels         HDMI - Up to 2 channels       Analog (*1): - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2: 128/256/384 Kbps         Sub audio       Encoding format       MPEG-1 Up to 2 channels         MPEG-1 Audio Layer 2: 128/256/384 Kbps       MPEG-1 Audio Layer 2 (stereo)         MPEG-3 AAC (stereo)       MPEG-1 Audio Layer 2 (stereo)         MPEG-4 AAC (stereo)       MPEG-2 AAC (stereo)         Sub audio       Encoding format       MPEG-1 Audio Layer 2: 128/256/384 Kbps         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC: 64/128/256 Kbps (VBR) <th></th> <th>Pre-Filter</th> <th>HEAVY / MEDIUM / LIGHT / OFF selectable</th>		Pre-Filter	HEAVY / MEDIUM / LIGHT / OFF selectable
Addition of the second secon			* This selection is available for video resolution 720 x 480, 720 x 576, 352 x
Refresh cycleSelection can be made in three stages.Picture modeNormal / Dynamic textureCoded picture bufferNormal / DoubleInterfacesInput: HD/SD-SDI, HDMI (HDCP unsupported), and analog videoMain audioEncoding formatMPEG-1 Audio Layer 2 (stereo)MPEG-2 AAC (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)Number of channels2InterfacesInput: HD/SD-SDI (embedded) - Up to 2 channels HDMI - Up to 2 channels Analog (*1): - Up to 2 channelsSub audioEncoding formatMPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)Sub audioEncoding formatMPEG-1 Audio Layer 2 : 128/256/384 Kbps MPEG-2 AAC (stereo)			480, or 352 x 576, and is not available for others.
Picture mode         Normal / Dynamic texture           Coded picture buffer         Normal / Double           Interfaces         Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video           Main audio         Encoding format         MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)           Sampling frequency         48 kHz           Bit rate (for 2 channels)         MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)           Number of channels         2           Interfaces         Input: HD/SD-SDI (embedded) - Up to 2 channels HDMI - Up to 2 channels           Sub audio         Encoding format           Sub audio         Encoding format           MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)           Sub audio         Encoding format           MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)           MPEG-2 AAC (stereo)           Sub audio         MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)           MPEG-2 AAC (stereo)         MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256/384 Kbps MPEG-2 AAC: 64/128/256/384 Kbps		Refresh cycle	Selection can be made in three stages.
Coded picture buffer         Normal / Double           Interfaces         Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video           Main audio         Encoding format         MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)           Sampling frequency         48 kHz           Bit rate (for 2 channels)         MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)           Number of channels         2           Interfaces         Input: HD/SD-SDI (embedded) - Up to 2 channels HDMI - Up to 2 channels           Sub audio         Encoding format           MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC: 64/128/256/384 Kbps (CBR)           Sub audio         Encoding format           MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)           Sub audio         Encoding format           MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)           MPEG-2 AAC (stereo)           MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)           MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR)           Bit rate (for 2 channels)         MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR)		Picture mode	Normal / Dynamic texture
Interfaces       Input: HD/SD-SDF, HDMF (HDCP unsupported), and analog video         Main audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC:       64/128/256 Kbps (VBR)         56/64/128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels         HDMI - Up to 2 channels       Analog (*1): - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC:       (stereo)         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC:       (stereo)       MPEG-2 AAC (stereo)         Sub audio       Encoding frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC:       64/128/256 Kbps (VBR)         56/64/128/256/384 Kbps       MPEG-2 AAC: 64/128/256 Kbps (VBR)		Coded picture buffer	Normal / Double
Main audioEncoding formatMPEG-1 Audio Layer 2 (stereo)MPEG-2 AAC (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)Number of channels2InterfacesInput: HD/SD-SDI (embedded) - Up to 2 channels HDMI - Up to 2 channels Analog (*1): - Up to 2 channelsSub audioEncoding formatMPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)Sub audioEncoding formatMPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)	Main audia	Interfaces	Input: HD/SD-SDI, HDMI (HDCP unsupported), and analog video
Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels HDMI - Up to 2 channels         Sub audio       Encoding format         MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)         Sub audio       Encoding frequency         48 kHz         Bit rate (for 2 channels)         MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256/384 Kbps MPEG-2 AAC: 64/128/256/384 Kbps MPEG-2 AAC: 64/128/256/384 Kbps	Main audio	Encoding format	MPEG-1 Audio Layer 2 (stereo) $MPEG-2 A A C (stereo)$
Sampling frequency       48 KHZ         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC:       64/128/256 Kbps (VBR)         56/64/128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels         HDMI - Up to 2 channels       Analog (*1): - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC:       64/128/256/384 Kbps (CBR)         56/64/128/256/384 Kbps (CBR)       56/64/128/256/384 Kbps (CBR)		Compline from on on	
Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC:       64/128/256 Kbps (VBR)         56/64/128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels         HDMI - Up to 2 channels       Analog (*1): - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC:       64/128/256 Kbps (VBR)         56/64/128/256/384 Kbps       MPEG-2 AAC:		Sampling frequency	
MPEG-2 AAC: 64/128/256 Kbps (VBR)         56/64/128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels         HDMI - Up to 2 channels       Analog (*1): - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC: 64/128/256 Kbps (VBR)       56/64/128/256/384 Kbps (CBR)		Bit rate (for 2 channels)	MPEG-1 Audio Layer 2: 128/256/384 Kbps
Number of channels       2         Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels         HDMI - Up to 2 channels       HDMI - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       MPEG-2 (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC: 64/128/256 Kbps (VBR)       56/64/128/256/384 Kbps (CBR)			MPEG-2 AAC: 64/128/256 K0ps (VBK) 56/64/128/256/284 Khns (CDD)
Interfaces       Input: HD/SD-SDI (embedded) - Up to 2 channels HDMI - Up to 2 channels Analog (*1): - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)		Number of channels	2
Interfaces       Impair: TB/BB/BB/BB/(Enceded)       Tep to 2 channels         HDMI - Up to 2 channels       Analog (*1): - Up to 2 channels         Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)       MPEG-2 (stereo)         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC:       64/128/256 Kbps (VBR)         56/64/128/256/384 Kbps (CBR)		Interfaces	Input: HD/SD-SDI (embedded) - Up to 2 channels
Analog (*1): - Up to 2 channels         Sub audio       Encoding format         MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC:       64/128/256 Kbps (VBR)         56/64/128/256/384 Kbps (CBR)		interfaces	HDMI - Up to 2 channels
Sub audio       Encoding format       MPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)			Analog (*1): - Up to 2 channels
MPEG-2 AAC (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)	Sub audio	Encoding format	MPEG-1 Audio Layer 2 (stereo)
Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)		č	MPEG-2 AAC (stereo)
Bit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)		Sampling frequency	48 kHz
MPEG-2 AAC: 64/128/256/S84 Kbps 56/64/128/256/S84 Kbps (CBR)		Bit rate (for 2 channels)	MPEG-1 Audio Laver 2: 128/256/384 Khns
56/64/128/256/384 Kbps (CBR)		Bit rate (101 2 channels)	MPFG-2 AAC $\cdot$ 64/128/256 Khns (VRR)
			56/64/128/256/384 Kbps (CBR)

	Item	Specification
	Number of channels	2
Sub audio	Interfaces	Input: HD/SD-SDI (embedded) - Up to 2 channels
		HDMI - Up to 2 channels
		Analog (*1) - Up to 2 channels
Multiplexing	g method	MPEG-2 TS with time stamp, MPEG-2 TS
Error correct	tion	FEC, ARQ, SMPTE2022-1 FEC
Transport pr	otocol	UDP, RTP
Network interface		10 BASE-T/100 BASE-TX (PPPoE built in)
		1 port
Network time setting		SNTP client
Network management		SNMP agent
Data communication		RS-232C data communication
Superimpose	2	Superimpose up to four character string or time indication on input video
Local recording and file transfer		Supported CF(*2) card: 16 GB / 32 GB
		* Enables to record when the Main encoder system rate is less than 14.049 Mbps and
		the sub encoder system rate is less than 1.549 Mbps.
		Enables to record and load video data simultaneously when the system rate is less than 6.049 Mbps.
		*1. ID 000: unhalanced ID 020: halanced

\*1: IP-900: unbalanced, IP-920: balanced.

\*2: Order CF card, separately.

#### Table 1-3 IP-9x0E Specifications (Main H.264/MPEG-4 AVC 2stereo)

	Item	Specification
Main	Encoding format	H.264 HP@L4
HD video		H.264 MP@L4
	Input video format	1920 x 1080i (59.94Hz)
		1920 x 1080i (50Hz)
		1920 x 1080i (60Hz)
		1920 x 1080i (60→59.94Hz)
		* 60 Hz is converted at the input interface to 59.94 Hz and encoded/transmitted at 59.94 Hz.
		1280 x 720p (59.94Hz)
		1280 x 720p (50Hz)
		* Video input protection buffer OFF/ON can be specified.
	Bit rate	1920 x 1080: 100 Kbps to 27 Mbps
		1440 x 1080: 100 Kbps to 27 Mbps
		960 x 1080: 100 Kbps to 27 Mbps
		1280 x 720: 3 to 27 Mbps
		960 x 720: 2 to 27 Mbps
		640 x 720: 500 Kbps to 27 Mbps
		*Video image might become unstable for a low video-rate, a high frame rate,
		and the short refreshing cycle. If pursuing better video quality at a same
	COD	video rate, we recommend setting a low frame rate, a long refresh cycle.
	GOP	Open / Closed selectable
	Video PES	"1Field/1PES" / "1Frame/1PES" selectable
	Profile selection	High profile / Main profile selectable
	PPS interval	GOP / Picture selectable
	PPS ID	Fixed / Variable selectable
	Encoding control mode	Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP) / Ultra Low Latency (PPPP)
	Pre-Filter	HEAVY / MEDIUM / LIGHT / OFF selectable
	Refresh cycle	Selection can be made in three stages.
	Picture mode	Normal / Dynamic texture
	Coded picture buffer	Normal / Double
	Interface	Input: HD-SDI, HDMI (HDCP unsupported)

The main HD video and sub HD video functions are enabled when HD option is installed. "Ultra Low Latency (PPPP)" is enabled when Ultra low latency option is installed.

	Item	Specification
Main	Encoding format	H.264 HP@L3
SD video		H.264 MP@L3
		H.264 HP@L1.3
		H.264 MP@L1.3
	Input video format	720 x 480i (59.94Hz)
		720 x 576i (50Hz)
		* Video input protection buffer OFF/ON can be specified.
	Bit rate	720 x 480 (59.94 Hz input): 100 Kbps to 10 Mbps
		352 x 480 (59.94 Hz input): 100 Kbps to 10 Mbps
		352 x 240 (59.94 Hz input): 25 to 1000 Kbps
		720 x 576 (50 Hz input): 300Kbps to 10 Mbps
		352 x 576 (50 Hz input): 150 Kbps to 10 Mbps
		352 x 288 (50 Hz input): 25 to 1000 Kbps
		*Video image might become unstable for a low video-rate, a high frame rate,
		and the short refreshing cycle. If pursuing better video quality at a same
		video rate, we recommend setting a low frame rate, a long refresh cycle.
	GOP	Open / Closed selectable
	Video PES	"1Field/1PES" / "1Frame/1PES" selectable
	Profile selection	High profile / Main profile selectable
	PPS interval	GOP / Picture selectable
	PPS ID	Fixed / Variable selectable
	Encoding control mode	Standard (IBBP) / Motion (IBP) / Low latency (IPPP) / Low latency (PPPP) /
		Ultra Low Latency (PPPP) * This selection is available for video resolution 720 x 480, 720 x 576, 352 x
		480, or $352 \times 576$ , and is not available for others.
	Pre-Filter	HEAVY / MEDIUM / LIGHT / OFF selectable
		* This selection is available for video resolution 720 x 480, 720 x 576, 352 x
	Defrech erele	480, or 352 x 576, and is not available for others.
	Refresh cycle	Normal / Demonris touture
	Picture mode	
	Coded picture buffer	
<u> </u>		Input: SD-SDI, HDMI (HDCP unsupported), Analog video
Main	Encoding format	MPEG-1 Audio Layer 2 (stereo)
audiol		MPEG-2 AAC (stereo)
	Sampling frequency	
	Bit rate (for 2 channels)	MPEG-1 Audio Layer 2: 128/256/384 Kbps
		MPEG-2 AAC: 64/128/256 Kbps (VBR)
		56/64/128/256/384 Kbps (CBR)
	Number of channels	
	Interface	Input: HD/SD-SDI (embedded) - Up to 2 channels
<u>)(</u> ;		HDMI - Up to 2 channels, analog (*1) - Up to 2 channels
Main	Encoding format	MPEG-1 Audio Layer 2 (stereo)
audio2		MPEG-2 AAC (stereo)
	Sampling frequency	
	Bit rate (for 2 channels)	MPEG-1 Audio Layer 2: 128/256/384 Kbps
		MPEG-2 AAC: 64/128/256 Kbps (VBR)
	Number C.1.1	50/04/128/250/384 K0ps (UBR)
	INUMBER OF Channels	2
N 1.' 1 '		Input: HD/SD-SDI (embedded) - Up to 2channels
Multiplexir	ng method	MPEG-2 18 with time stamp, MPEG-2 18
Error corre	ction	FEC, ARQ, SMPTE2022-1 FEC

Item	Specification
Transport protocol	UDP, RTP
Network interface	10BASE-T / 100BASE-TX (PPPoE built in)
	1 port
Network time setting	SNTP client
Network management	SNMP agent
Data communication	RS-232C data communication
Superimpose	Superimpose up to four character strings or time indication on input video
Local recording and file transfer	Supported CF card(*2): 16 GB / 32 GB
	* Enables to record when the system rate is less than 14.049Mbps.
	than 6.049 Mbps.

\*1: IP-900: unbalanced, IP-920: balanced.

\*2: Order CF card, separately.

#### Table 1-4 IP-900IID/920D Specifications

@Video decoding         Encoding format         H 264 HP@14 H 264 HP@13 H 264 HP@13 H 264 HP@13 H 264 HP@13 H 264 HP@13 H 264 HP@12 H 264 HP@12 H 264 HP@12 H 264 HP@13 H 264 HP@14 H		Item	Specification
decoding     H 264 MP@L4 H 264 HP@L3 H 264 MP@L3 H 264 MP@L3 H 264 MP@L1.2 H 264 MP@L1.2 MPEG-2 MP@ML (Enables to receive IP-700II stream)       Output video format     1920 x 1080 (59 94 Hz) 1920 x 1080 (59 94 Hz) 1920 x 1080 (59 94 Hz) 1280 x 720 (10 Kbps to 17 Mbps 960 x 1080 (100 Kbps to 27 Mbps 960 x 1080 (100 Kbps to 27 Mbps 960 x 1080 (100 Kbps to 27 Mbps 1440 x 1080 : 100 Kbps to 27 Mbps 960 x 1080 : 100 Kbps to 27 Mbps 1280 x 720 : 20 z 7 Mbps 960 x 1080 : 100 Kbps to 10 Mbps 352 x 240 : 25 to 1000 Kbps 352 x 240 : 25 to 1000 Kbps 352 x 240 : 25 to 1000 Kbps 352 x 480 : 100 Kbps to 10 Mbps 352 x 480 : 100 Kbps to 10 Mbps 352 x 240 : 25 to 1000 Kbps 352 x 480 : 100 Kbps to 10 Mbps 352 x 240 : 25 to 1000 Kbps 352 x 25 to 1000 Kbps 350 x 25	@Video	Encoding format	H.264 HP@L4
Image: High of the second se	decoding	e	H.264 MP@L4
Image: Provide and the set of th	-		H.264 HP@L3
H 264 HP@L1.2 H264 HP@L1.2 MPEG-2 MP@ML (Enables to receive IP-700II stream)           Output video format         1920 x 1080 (59 94 Hz) 1920 x 1080 (50 Hz) 1920 x 1080 (50 Hz) 1280 x 720p (59 94 Hz) 1280 x 720p (59 Hz) 220 x 480 (59.94 Hz) 1280 x 720p (25Hz) stream is output by 1280x720p(59 94 Hz). 1800 x 720p (25Hz) stream is output by 1280x720p(59 94 Hz). 1800 x 720p (25Hz) stream is output by 1280x720p(59 94 Hz). 1800 x 720p (25Hz) stream is output by 1280x720p(59 94 Hz). 1800 x 720p (25Hz) stream is output by 1280x720p(59 94 Hz). 1800 x 720 x 1080: 100 Kbps to 27 Mbps 960 x 1080: 100 Kbps to 27 Mbps 1920x 1080: 100 Kbps to 27 Mbps 1280 x 720: 3 to 27 Mbps 960 x 720: 2 to 27 Mbps 960 x 720: 2 to 27 Mbps 960 x 720: 2 to 27 Mbps 960 x 720; 2 to 27 Mbps 1320 x 480: 100 Kbps to 10 Mbps 352 x 240: 2 5 to 1000 Kbps to 10 Mbps 352 x 240: 2 5 to 1000 Kbps 352 x 240: 2 5 to 1000			H.264 MP@L3
H264 MP/@L1.2           MPEG-2Wr@ML (Enables to receive IP-700II stream)           Output video format         1920 x 1080i (50 94 Hz)           1920 x 1080i (60 Hz)         1280 x 720p (50 94 Hz)           1280 x 720p (50 94 Hz)         720 x 576i (50 Hz)           720 x 480i (59.94 Hz)         720 x 576i (50 Hz)           720 x 576i (50 Hz)         ************************************			H.264 HP@L1.2
Upper Video format         1920 x 1080i (59 94 Hz)           1920 x 1080i (50 Hz)         1920 x 1080i (50 Hz)           1280 x 720p (59 94 Hz)         1280 x 720p (50 Hz)           1280 x 720p (59 94 Hz)         1280 x 720p (50 Hz)           720 x 180i (60 Hz)         1280 x 720p (50 Hz)           1280 x 720p (50 Hz)         *1280 x 720p (50 Hz)           *1280 x 720p (29 7Hz) stream is output by 1280x720p (59.94Hz).         *1280x720p (29.97Hz) stream is output by 1920x1080i (59.94Hz).           Bit rate         1920 x 1080 in 06 Kbps to 27 Mbps         940x 1080: 100 Kbps to 27 Mbps           960 x 1080:         100 Kbps to 27 Mbps         960 x 1080: 100 Kbps to 27 Mbps           960 x 1080:         100 Kbps to 27 Mbps         960 x 1080: 100 Kbps to 27 Mbps           960 x 1080:         100 Kbps to 27 Mbps         960 x 720: 3 to 27 Mbps           960 x 1080:         100 Kbps to 10 Mbps         352 x 480: 100 Kbps           352 x 280: 25 to 1000 Kbps         176 x 114: 25 to 100 Mbps         352 x 28: 25 to 100 Kbps           352 x 280: 150 Kbps to 10 Mbps         352 x 28: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps           176 x 144: 25 to 1000 Kbps         176 x 114: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps           176 x 144: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps         176 x 114: 25 to 1000 Kbps           176 x 144:			H.264 MP@L1.2
Output video format         1920 x 1080 (59 94 Hz) 1920 x 1080 (50 Hz) 1280 x 720p (59 94 Hz) 1280 x 720p (59 Hz) 720 x 480 (59 94 Hz) 720 x 480 (59 94 Hz) 720 x 576 (50 Hz) 720 x 576 (50 Hz) 720 x 576 (50 Hz) 720 x 576 (50 Hz) 720 x 756 (50 Hz) 720 x 720p (25 Hz) stream is output by 1280x720p (59 94 Hz). 1280x720p (25 Hz) stream is output by 1280x720p (59 94 Hz). 1280x720p (25 Hz) stream is output by 1280x720p (59 94 Hz). 1280x720p (25 Hz) stream is output by 1280x720p (59 94 Hz). 1280x720p (25 Hz) stream is output by 120x1080 i(59 94 Hz). 1280 x 720 x 1080 · 100 Kbps to 27 Mbps 960 x 1080 · 100 Kbps to 27 Mbps 960 x 720 · 20 z 7 Mbps 960 x 720 · 20 z 7 Mbps 960 x 720 · 50 0 Kbps to 10 Mbps 352 x 480 · 100 Kbps to 10 Mbps 352 x 480 · 100 Kbps to 10 Mbps 352 x 480 · 100 Kbps to 10 Mbps 352 x 240 · 21 to 27 Mbps 720 x 576 · 150 Kbps to 10 Mbps 352 x 240 · 21 to 27 Mbps 720 x 576 · 150 Kbps to 10 Mbps 352 x 240 · 21 to 27 Mbps 720 x 576 · 150 Kbps to 10 Mbps 352 x 240 · 21 to 100 Kbps 720 x 576 · 150 Kbps to 10 Mbps 352 x 240 · 25 to 1000 Kbps 720 x 576 · 150 Kbps to 10 Mbps 352 x 248 · 1000 Kbps 720 x 576 · 150 Kbps to 10 Mbps 352 x 248 · 21 to 1000 Kbps 720 x 576 · 150 Kbps to 10 Mbps 352 x 248 · 21 to 1000 Kbps 720 x 576 · 150 Kbps to 10 Mbps 352 x 248 · 21 to 1000 Kbps 76 x 144 · 25 to 100			MPEG-2 MP@ML (Enables to receive IP-700II stream)
IP20x 10801 (60 Hz)           IP20x 10801 (60 Hz)           IP20x 10801 (60 Hz)           I280 x 720p (59.94 Hz)           720 x 4801 (59.94 Hz)           720 x 4801 (59.94 Hz)           720 x 576i (50 Hz)           relation (50.94 Hz)           720 x 1800 (29.97Hz) stream is output by 1280x720p(59.94Hz).           1280x720p(2397Hz) stream is output by 1280x720p(59.94Hz).           1280x720p(2397Hz) stream is output by 1920x1080i(59.94Hz).           1280x720p(2397Hz) stream is output by 1920x1080i(59.94Hz).           1920x 1080: 100 Kbps to 27 Mbps           960 x 1080: 100 Kbps to 27 Mbps           960 x 1080: 100 Kbps to 27 Mbps           960 x 720: 2 to 27 Mbps           960 x 100 Kbps to 27 Mbps           960 x 100 Kbps to 10 Mbps           352 x 480: 100 Kbps to 10 Mbps           352 x 240: 25 to 1000 Kbps           720 x 480: 100 Kbps to 10 Mbps           352 x 280: 100 Kbps           176 x 142: 25 to 1000 Kbps           176 x 142: 25 to 1000 Kbps           176 x 122: 25 to 1000 Kbps           176 x 122: 25 to 1000 Kbps           176 x 124: 25 to 1000 Kbps		Output video format	$1920 \times 10801 (59.94 \text{ Hz})$
1280 x 720p (59.94 Hz)           1280 x 720p (59.94 Hz)           1280 x 720p (59.94 Hz)           720 x 480i (59.94 Hz)           720 x 576i (50 Hz)           *1280x720p(259.97Hz) stream is output by 1280x720p(59.94Hz).           *1280x720p(259.97Hz) stream is output by 1280x720p(50Hz).           *1920x1080p(29.97Hz) stream is output by 1280x720p(50Hz).           *1920x1080p(29.97Hz) stream is output by 1280x720p(50Hz).           *1920x1080p(29.97Hz) stream is output by 1280x720p(50Hz).           *1920x1080; 100 Kbps to 27 Mbps           960 x 720: 2 to 1000 Kbps           972 x 576: 100Kbps to 10 Mbps           352 x 28: 25 to 1000 Kbps           176 x 112: 25 to 1000 Kbps           176 x 114: 25 to 1000 Kbps           176 x 112: 25 to 1000 Kbps           176 x 128/256/384 Kbps           MpEG-1 Audio Layer 2 (stereo)			$1920 \times 10801 (50 \text{ Hz})$
1280 x 720p (50 Hz)           1280 x 720p (50 Hz)           720 x 480i (59.94 Hz)           720 x 576i (50 Hz)           *1280x720p(25Hz) stream is output by 1280x720p(59.94Hz).           1280x720p(25Hz) stream is output by 1280x720p(59.94Hz).           *1920x1080p(29.97Hz) stream is output by 1280x720p(59.94Hz).           *1920x1080p(29.97Hz) stream is output by 1280x720p(59.94Hz).           Bit rate         1920x 1080: 100 Kbps to 27 Mbps           960 x 1080: 100 Kbps to 27 Mbps           960 x 720: 2 to 27 Mbps           960 x 720: 2 to 27 Mbps           960 x 720: 500 Kbps to 27 Mbps           720 x 480: 100 Kbps to 10 Mbps           352 x 240: 25 to 100 Kbps           720 x 576: 300Kbps to 10 Mbps           352 x 240: 25 to 1000 Kbps           720 x 576: 150 Kbps to 10 Mbps           352 x 288: 25 to 1000 Kbps           176 x 142: 25 to 1000 Kbps           1004 tpit format         1080i (59.94Hz)           Output format         1080i (59.94Hz)           0utput fo			1920 X 10801 (60 HZ)
1200 X 120 (12)           720 X 480i (59.94 Hz)           720 X 576i (50 Hz)           *1280X720p(25)7Hz) stream is output by 1280x720p(59.94Hz).           1280x720p(25)7Hz) stream is output by 1280x720p(59.94Hz).           1280x720p(25)7Hz) stream is output by 1280x720p(59.94Hz).           1920x1080p(22.97Hz) stream is output by 1920x1080i(59.94Hz).           Bit rate         1920x1080p(22.97Hz) stream is output by 1920x1080i(59.94Hz).           1280x720; 720; 730; 30 c7 Mbps           960 x 1080:         100 Kbps to 27 Mbps           960 x 720; 500 Kbps to 10 Mbps           352 x 480:         100 Kbps to 10 Mbps           352 x 480:         100 Kbps to 10 Mbps           352 x 576:         150 Kbps to 10 Mbps           352 x 576:         100 Kbps           176 x 141: 25 to 1000 Kbps           176 x 141: 25 to 1000 Kbps           176 x 142: 250 Kbps           176 x 142: 250 Kbps           176 x 142: 250 Kbps           0			$1280 \times 720 p (59.94 \text{ Hz})$
Value       120 x 576 (50 Hz)         720 x 576 (50 Hz)       *1280x720p(219.97Hz) stream is output by 1280x720p(50.4z).         1280x720p(25Hz) stream is output by 1280x720p(50.4z).       *1280x720p(25Hz) stream is output by 1280x720p(50.4z).         Bit rate       1920 x 1080: 100 Kbps to 27 Mbps         960 x 1080: 100 Kbps to 27 Mbps       960 x 1080: 100 Kbps to 27 Mbps         960 x 720: 2 to 27 Mbps       960 x 720: 2 to 27 Mbps         960 x 720: 2 to 27 Mbps       720 x 480: 100 Kbps to 27 Mbps         970 x 720: 2 to 27 Mbps       564 x 720: 500 Kbps to 27 Mbps         980 x 720: 2 to 27 Mbps       720 x 480: 100 Kbps to 10 Mbps         352 x 480: 100 Kbps to 10 Mbps       352 x 480: 100 Kbps to 10 Mbps         352 x 576: 150 Kbps to 10 Mbps       352 x 576: 150 Kbps to 10 Mbps         352 x 240: 25 to 1000 Kbps       720 x 576: 1000 Kbps         176 x 112: 25 to 1000 Kbps       100 Mbps         352 x 248: 25 to 1000 Kbps       100 Mbps         176 x 112: 25 to 1000 Kbps       1000 Kbps         176 x 112: 25 to 1000 Kbps       100 Mbps         176 x 112: 25 to 1000 Kbps       100 Kbps         176 x 114: 25 to 1000 Kbps       100 Kbps         176 x 114: 25 to 1000 Kbps       100 Kbps         176 x 112: 25 to 1000 Kbps       100 Kbps         176 x 112: 25 to 1000 Kbps       100			$720 \times 480i (59.94 \text{ Hz})$
Pick KONDS       *1280x720p(29):97Hz) stream is output by 1280x720p(59):94Hz).         1280x720p(2):97Hz) stream is output by 1280x720p(50Hz).       *1920x1080p(29):97Hz) stream is output by 1920x1080i(59):94Hz).         Bit rate       1920 x 1080: 100 Kbps to 27 Mbps         1440 x 1080: 100 Kbps to 27 Mbps       960 x 1080: 100 Kbps to 27 Mbps         960 x 720: 2 to 27 Mbps       640 x 720: 2 to 27 Mbps         640 x 720: 2 to 27 Mbps       640 x 720: 2 to 27 Mbps         720 x 480: 100 Kbps to 10 Mbps       352 x 480: 100 Kbps to 10 Mbps         352 x 480: 100 Kbps to 10 Mbps       352 x 576: 300Kbps         352 x 240: 25 to 1000 Kbps       100 Kbps         720 x 576: 300Kbps       10 Mbps         352 x 281: 25 to 1000 Kbps       10 Mbps         352 x 282: 25 to 1000 Kbps       10 Mbps         352 x 282: 25 to 1000 Kbps       176 x 144: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps       176 x 144: 25 to 1000 Kbps         Upconverter       Input format       1080i (59.94Hz)         Output format       1080i (59.94Hz)         N			720 x 576i (50 Hz)
Image: Provide the set of the se			*1280x720p(29.97Hz) stream is output by $1280x720p(59.94Hz)$
#1920x1080p(29.97Hz) stream is output by 1920x1080i(59.94Hz).           Bit rate         1920 x 1080: 100 Kbps to 27 Mbps           960 x 720: 2 to 27 Mbps           960 x 720: 2 to 27 Mbps           960 x 720: 500 Kbps to 27 Mbps           720 x 480: 100 Kbps to 10 Mbps           352 x 480: 100 Kbps to 10 Mbps           352 x 480: 100 Kbps to 10 Mbps           352 x 576: 150 Kbps to 10 Mbps           352 x 576: 150 Kbps to 10 Mbps           352 x 288: 25 to 1000 Kbps           176 x 112: 25 to 1000 Kbps           176 x 112: 25 to 1000 Kbps           176 x 144: 25 to 1000 Kbps           176 x 144: 25 to 1000 Kbps           176 x 144: 25 to 1000 Kbps           Converting method           Pillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)           Audio           decoding           MPEG-1 Audio Layer 2: (128/256/384 Kbps           MPEG-2 AAC (stereo)           Sampling frequency           48 Hz           Bit rate (for 2 channels)           MPEG-2 TS with time stamp, MPEG-2 TS,           MPEG-2 TS with time stamp, MPEG-2 TS,           MPEG-2 TS (IP-700II stream reception) </td <td></td> <td></td> <td>1280x720p(25Hz) stream is output by 1280x720p(50Hz).</td>			1280x720p(25Hz) stream is output by 1280x720p(50Hz).
Bit rate         1920 x 1080: 100 Kbps to 27 Mbps           1440 x 1080: 100 Kbps to 27 Mbps         960 x 1080: 100 Kbps to 27 Mbps           960 x 1080: 100 Kbps to 27 Mbps         960 x 720: 3 to 27 Mbps           960 x 720: 2 to 27 Mbps         960 x 720: 3 to 27 Mbps           960 x 720: 2 to 27 Mbps         960 x 720: 3 to 27 Mbps           960 x 720: 2 to 27 Mbps         960 x 720: 2 to 27 Mbps           960 x 720: 2 to 27 Mbps         960 x 720: 3 to 27 Mbps           720 x 480: 100 Kbps to 10 Mbps         352 x 240: 100 Kbps to 10 Mbps           352 x 240: 25 to 1000 Kbps         352 x 576: 150 Kbps to 10 Mbps           352 x 282: 25 to 1000 Kbps         352 x 282: 25 to 1000 Kbps           176 x 112: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps           176 x 142: 25 to 1000 Kbps         100 Kups           10put format         1080i (59.94Hz)           Converting method         Pillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)           Audio         Encoding format         MPEG-1 Audio Layer 2 (stereo)           Sampling frequency         48 KHz         Bit rate (for 2 channels)           MPEG-2 AAC: 64/128/256/384 Kbps (CBR)         MPEG-2 TS (th-2001 Stream reception)           Ferror correction         FEC, ARQ, SMPTE2022-1 FEC           Threrfaces         Output: HDM1 - Up to 2 channels, Analog (*) - U			*1920x1080p(29.97Hz) stream is output by 1920x1080i(59.94Hz).
Image: set of the		Bit rate	1920 x 1080: 100 Kbps to 27 Mbps
960 x 1080; 100 Kbps to 27 Mbps 1280 x 720; 3 to 27 Mbps 960 x 720; 3 to 27 Mbps 960 x 720; 2 to 27 Mbps 960 x 720; 2 to 27 Mbps 960 x 720; 2 to 27 Mbps 720 x 480; 100 Kbps to 10 Mbps 352 x 480; 100 Kbps to 10 Mbps 352 x 480; 100 Kbps to 10 Mbps 352 x 240; 25 to 1000 Kbps 720 x 576; 300Kbps to 10 Mbps 352 x 250; 25 to 1000 Kbps 352 x 250; 25 to 1000 Kbps 352 x 250; 25 to 1000 Kbps 352 x 250; 25 to 1000 Kbps 176 x 112; 25 to 1000 Kbps 176 x 12; 25 to 1000 Kbps 170 X 12; 25 to 1000 Kbps 170 X 12; 25 to 100 X 2;			1440 x 1080: 100 Kbps to 27 Mbps
Image: style s			960 x 1080: 100 Kbps to 27 Mbps
$\begin{tabular}{ c c c c c c } & 960 x 720: 2 to 27 Mbps \\ & 640 x 720: 500 K bps to 27 Mbps \\ & 640 x 720: 500 K bps to 10 Mbps \\ & 352 x 480: 100 K bps to 10 Mbps \\ & 352 x 480: 100 K bps to 10 Mbps \\ & 352 x 240: 25 to 1000 K bps \\ & 720 x 576: 300 K bps to 10 Mbps \\ & 352 x 2576: 150 K bps to 10 Mbps \\ & 352 x 258: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 112: 25 to 1000 K bps \\ & 176 x 114: 25 to 1000 K bps \\ & 1000 trut: HD/SD-SDI, HDMI (HDCP unsupported) and Analog \\ & 0utput format \\ & 1080i (59.94Hz) \\ & 0utput format \\ & 1080i (59.94Hz) \\ & 0utput format \\ & 1080i (59.94Hz) \\ & 0utput format \\ & MPEG-1 Audio Layer 2 (stereo) \\ & MPEG-2 AAC (stereo) \\ \hline \\ & MPEG-2 AAC (stereo) \\ \hline \\ & Sampling frequency \\ & 48 KHz \\ & Bit rate (for 2 channels) \\ & MPEG-2 AAC: 64/128/256 K bps (VBR) \\ & & 56/64/128/256/384 K bps (CBR) \\ \hline \\ & Multiplexing method \\ & MPEG-2 TS with time stamp, MPEG-2 TS, \\ & MPEG-2 PS (IP-700II stream reception) \\ \hline \\ \hline \\ & Fror correction \\ \hline \\ $			1280 x 720: 3 to 27 Mbps
640 x 720: 500 Kbps to 27 Mbps         720 x 480: 100 Kbps to 10 Mbps         352 x 480: 100 Kbps to 10 Mbps         352 x 240: 25 to 1000 Kbps         720 x 576: 300Kbps to 10 Mbps         352 x 288: 25 to 1000 Kbps         352 x 288: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps         176 x 12: 25 to 1000 Kbps         176 x 12: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps         100 upput format         1080 (59.94Hz)         Output format         1080 (59.94Hz)         Output format         1080 (59.94Hz)         Output format         1080 (59.94Hz)         Output format         MPEG-1 Audio Layer 2 (stereo)         MPEG-2 AAC (stereo)         381 rate (for 2 channels)         MPEG-2 AAC: 64/128/256/384 Kbps         MPEG-2 PS (IP-700H stream reception)         Error correction         Ferror correction         Fee PC, ARQ, SMPTE2022-1 FEC         Transport protocol       UDP, RTP         Reference       PCR, BB, Internal         Network interface       10 BASE-T/100 BASE-TX (PPDE built in), 1 port         Network interface       10 BASE-T/100 BASE-TX (PPDE built in), 1 port			960 x 720: 2 to 27 Mbps
720 x 480: 100 Kbps to 10 Mbps         352 x 480: 100 Kbps to 10 Mbps         352 x 240: 25 to 1000 Kbps         720 x 576: 300Kbps to 10 Mbps         352 x 576: 150 Kbps to 10 Mbps         352 x 288: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps         176 x 12: 25 to 1000 Kbps         176 x 12: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps         100 promat         1080i (59.94Hz)         Output format         1080i (59.94Hz)         Converting method         Pillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)         Audio         decoding         Sampling frequency         48 kHz         Bit rate (for 2 channels)         MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC: 64/128/256 Kbps (VBR)         -       56/64/128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Output: HDMI - Up to 2 channels, Analog (*) - Up to 2 channels         Multiplexing method       MPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 TS, MPEG-2 TS, MPEG-2 TS, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)         Error correction       FEC, ARQ, SMPTE2022-1 FEC <tr< td=""><td></td><td></td><td>640 x 720: 500 Kbps to 27 Mbps</td></tr<>			640 x 720: 500 Kbps to 27 Mbps
352 x 480: 100 Kbps to 10 Mbps         352 x 240: 25 to 1000 Kbps         720 x 576: 300Kbps to 10 Mbps         352 x 280: 25 to 1000 Kbps         720 x 576: 150 Kbps to 10 Mbps         352 x 288: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps         176 x 142: 25 to 1000 Kbps         0utput format         1080i (59.94Hz)         Output format         1080i (59.94Hz)         Output format         1080i (59.94Hz)         Converting method         PHEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps (CBR)         Multiplexing method       MPEG-2 TS (H-700II stream reception)         FEG-2 PS (IP-700II str			720 x 480: 100 Kbps to 10 Mbps
352 x 240: 25 to 1000 Kbps         720 x 576: 300Kbps to 10 Mbps         352 x 288: 25 to 1000 Kbps         352 x 288: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps         176 x 141: 25 to 1000 Kbps         176 x 142: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps         Output format         0utput format         1080i (59.94Hz)         Converting method         Pillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)         Audio         decoding         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC: 64/128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Output: HDMI - Up to 2 channels, Analog (*) - Up to 2 channels         Multiplexing method       MPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 TS, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)         Error correction       FEC, ARQ, SMPTE2022-1 FEC         Transport protocol       UDP, RTP         Reference       PCR, BB, Internal<			352 x 480: 100 Kbps to 10 Mbps
Audio       7.0 x 3/6: 300 Kbps to 10 Mbps         176 x 12: 25 to 1000 Kbps       176 x 112: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps       176 x 144: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps       176 x 144: 25 to 1000 Kbps         Upconverter       Interfaces       Output: HD/SD-SDI, HDMI (HDCP unsupported) and Analog         Upconverter       Input format       1080i (59.94Hz)         Output format       1080i (59.94Hz)         Converting method       Pillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)         Audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         MEG-1 Audio Layer 2: 128/256/384 Kbps       MPEG-2 AAC (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps (VBR)         Number of channels       2         Interfaces       Output: HDMI - Up to 2 channels, Analog (*) - Up to 2 channels         Multiplexing method       MPEG-2 TS (IP-700II stream reception)         Error correction       FEC, ARQ, SMPTE2022-1 FEC         Transport protocol       UDP, RTP         Reference       PCR, BB, Internal         Network interface       10 BASE-T/100 BASE-TX (PPPoE built in), 1 port         Network intersetting       SNMP agent <td< td=""><td></td><td></td><td>352 x 240: 25 to 1000 Kbps</td></td<>			352 x 240: 25 to 1000 Kbps
352 x 376. 100 Kops         352 x 28: 25 to 1000 Kbps         376 x 112: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps         176 x 144: 25 to 1000 Kbps         Interfaces         Output: HD/SD-SDI, HDMI (HDCP unsupported) and Analog         Upconverter         Input format       480i (59.94Hz)         Output format       1080i (59.94Hz)         Output format       1080i (59.94Hz)         Converting method       Pillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)         Audio       Encoding format         decoding       MPEG-1 Audio Layer 2 (stereo)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC: 64/128/256 Kbps (VBR)       56/64/128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Output: HDMI - Up to 2 channels, Analog (*) - Up to 2 channels         Multiplexing method       MPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)         Error correction       FEC, ARQ, SMPTE2022-1 FEC         Transport protocol       UDP, RTP         Reference       PCR, BB, Internal         Network interface       10 BASE-T/100 BASE-TX (PPPoE built in), 1 port         <			720 X 576: 300K DPS to 10 M DPS
bit 2 A 256: 25 to 1000 Kbps         176 x 112: 25 to 1000 Kbps         Interfaces       Output: HD/SD-SDI, HDMI (HDCP unsupported) and Analog         Upconverter       Input format       480i (59.94Hz)         Output format       1080i (59.94Hz)         Converting method       Pillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)         Audio       Encoding format       MPEG-1 Audio Layer 2 (stereo)         Meeding       Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps         MPEG-2 AAC:       64/128/256/384 Kbps (VBR)         Sampling frequency       48 kHz         Bit rate (for 2 channels)       MPEG-1 Audio Layer 2: 128/256/384 Kbps (VBR)         MPEG-2 AAC:       64/128/256/384 Kbps (CBR)         Number of channels       2         Interfaces       Output: HDMI - Up to 2 channels, Analog (*) - Up to 2 channels         Multiplexing method       MPEG-2 PS (IP-700II stream reception)         Error correction       FEC, ARQ, SMPTE2022-1 FEC         Transport protocol       UDP, RTP         Reference       PCR, BB, Internal         Network interface       10 BASE-T/100 BASE-TX (PPPoE built in), 1 port         Network time setting       SNTP client         Network managemen			$352 \times 370$ . 150 K0ps to 10 M0ps $352 \times 288$ : 25 to 1000 Kbps
176 x 142. 25 to 1000 Kbps176 x 144: 25 to 1000 KbpsInterfacesOutput: HD/SD-SDJ, HDMI (HDCP unsupported) and AnalogUpconverterInput format1080i (59.94Hz)Output format1080i (59.94Hz)Converting methodPillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)AudioEncoding formatMPEG-1 Audio Layer 2 (stereo)MPEG-2 AAC (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 KbpsMPEG-2 AAC: 64/128/256 Kbps (VBR)Sofe4/128/256/384 Kbps (CBR)Number of channels2InterfacesMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interfaceNetwork interfaceNetwork interfaceNetwork time settingSNTP clientNetwork interfaceNetwork interfaceSNTP clientNetwork interfaceNetwork interfaceSNTP clientNetwork interfaceNetwork interfaceSNTP clientNetwork interfaceSNTP clientNetwork interfaceSNTP clientNetwork interfaceSNTP clientNetwork interfaceSNTP clientNetwork interfaceSNTP clientNetwork interfa			176 x 112: 25 to 1000 Kbps
InterfacesOutput: HD/SD-SDI, HDMI (HDCP unsupported) and AnalogUpconverterInput format480i (59.94Hz)Output format1080i (59.94Hz)Converting methodPillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)Audio decodingEncoding formatMPEG-1 Audio Layer 2 (stereo)MEG-2 AAC (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 KbpsMPEG-2 AAC:64/128/256 Kbps (VBR)autor of channels2InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication			176 x 144: 25 to 1000 Kbps
Upconverter         Input format         480i (59.94Hz)           Output format         1080i (59.94Hz)           Converting method         Pillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)           Audio         Encoding format         MPEG-1 Audio Layer 2 (stereo)           Mecoding         Sampling frequency         48 kHz           Bit rate (for 2 channels)         MPEG-1 Audio Layer 2: 128/256/384 Kbps           MPEG-2 AAC:         64/128/256/384 Kbps (VBR)           Strate (for 2 channels)         MPEG-2 AAC: 64/128/256/384 Kbps (VBR)           Number of channels         2           Interfaces         Output: HDMI - Up to 2 channels, Analog (*) - Up to 2 channels           Multiplexing method         MPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)           Error correction         FEC, ARQ, SMPTE2022-1 FEC           Transport protocol         UDP, RTP           Reference         PCR, BB, Internal           Network interface         10 BASE-T/100 BASE-TX (PPPoE built in), 1 port           Network time setting         SNTP client           Network management         SNMP agent           Data communication         RS-232C data communication		Interfaces	Output: HD/SD-SDI, HDMI (HDCP unsupported) and Analog
Output format1080i (59.94Hz)Converting methodPillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)Audio decodingEncoding formatMPEG-1 Audio Layer 2 (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)Number of channels2InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication	Upconverter	Input format	480i (59.94Hz)
Converting methodPillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)Audio decodingEncoding formatMPEG-1 Audio Layer 2 (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)Number of channels2InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication		Output format	1080i (59.94Hz)
Audio decodingEncoding formatMPEG-1 Audio Layer 2 (stereo) MPEG-2 AAC (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)Number of channels2InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication		Converting method	Pillarbox (Fill with side panels), Anamorphic (Stretch to wide screen)
decodingMPEG-2 AAC (stereo)Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 KbpsMPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)Number of channels2InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication	Audio	Encoding format	MPEG-1 Audio Layer 2 (stereo)
Sampling frequency48 kHzBit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)Number of channels2InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication	decoding		MPEG-2 AAC (stereo)
Bit rate (for 2 channels)MPEG-1 Audio Layer 2: 128/256/384 Kbps MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)Number of channels2InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication		Sampling frequency	48 kHz
MPEG-2 AAC: 64/128/256 Kbps (VBR) 56/64/128/256/384 Kbps (CBR)Number of channels2InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication		Bit rate (for 2 channels)	MPEG-1 Audio Layer 2: 128/256/384 Kbps
Solution       Solution         Number of channels       2         Interfaces       Output: HDMI - Up to 2 channels, Analog (*) - Up to 2 channels         Multiplexing method       MPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)         Error correction       FEC, ARQ, SMPTE2022-1 FEC         Transport protocol       UDP, RTP         Reference       PCR, BB, Internal         Network interface       10 BASE-T/100 BASE-TX (PPPoE built in), 1 port         Network time setting       SNTP client         Network management       SNMP agent         Data communication       RS-232C data communication			MPEG-2 AAC: 64/128/256 Kbps (VBR)
Number of channels2InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication			56/64/128/256/384 Kbps (CBR)
InterfacesOutput: HDMI - Up to 2 channels, Analog (*) - Up to 2 channelsMultiplexing methodMPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication		Number of channels	
Multiplexing methodMPEG-2 IS with time stamp, MPEG-2 IS, MPEG-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication	<b>N L L L L L L L L L L</b>	Interfaces	Output: HDMI - Up to 2 channels, Analog (*) - Up to 2 channels
Imped-2 PS (IP-700II stream reception)Error correctionFEC, ARQ, SMPTE2022-1 FECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication	Multiplexing method		MPEG-2 TS with time stamp, MPEG-2 TS, MPEG-2 PS (ID 700H stream recention)
Error correctionFEC, ARQ, SMPTE2022-TFECTransport protocolUDP, RTPReferencePCR, BB, InternalNetwork interface10 BASE-T/100 BASE-TX (PPPoE built in), 1 portNetwork time settingSNTP clientNetwork managementSNMP agentData communicationRS-232C data communication	Error correction		MPEG-2 PS (IP-70011 stream reception)
Italisport protocol     ODF, KTF       Reference     PCR, BB, Internal       Network interface     10 BASE-T/100 BASE-TX (PPPoE built in), 1 port       Network time setting     SNTP client       Network management     SNMP agent       Data communication     RS-232C data communication	Enor contection		LIDD DTD
Network interface     10 BASE-T/100 BASE-TX (PPPoE built in), 1 port       Network time setting     SNTP client       Network management     SNMP agent       Data communication     RS-232C data communication	Pafaranaa		DDI, KIT PCB_BB_Internal
Network line setting     SNTP client       Network management     SNMP agent       Data communication     RS-232C data communication	Network interface		10 RASE_T/100 RASE_TX (PPPoE built in) 1 port
Network management     SNMP agent       Data communication     RS-232C data communication	Network time setting		SNTP client
Data communication RS-232C data communication	Network management		SNMP agent
	Data communication		RS-232C data communication

"BB setting" of Reference function is enabled when Reference option is installed.

\* IP-900: unbalanced, IP-920: balanced.

## Typical Application Examples

This section provides system configuration examples.

The basic configuration is for video transfer over point-to-point connections. Using this configuration, a camera is connected to Encoder, and video data is transferred to the decoder over the Internet, and then output to the monitor.



Figure 1-1 Broadcast contents transfer and live coverage

IP-9x0E such as IP-9610 can also be used for SNG video transmission to IP-9610.





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This chapter explains how to install IP-900 series.

2.1	Updating the Software	15
2.2	Equipment Operation	20

## **2.1** Updating the Software

This section explains the procedure for updating the software for the IP-900 series as well as the procedure for applying option license.

The software for the IP-900 series is pre-installed at product shipment. You do not need to install the software before using the IP-900 series. When updating the software to the latest version, use the following procedure.

The latest version can be downloaded from

"http://www.fujitsu.com/global/products/computing/peripheral/video/download/"

#### 2.1.1 Installation Procedure

(1) Access method

Access IP-900 series GUI from the Web browser.

The default IP address of the IP-900 series as it is shipped from the factory is 10.0.0.1. Temporarily disable the proxy setting on your Web browser and then type "http://10.0.0.1" to access the Web page.

#### (2) Installation page

IP-9x0 ENCODER or IP-9x0 DECODER screen appears. Click <u>SOFTWARE MANAGEMENT</u> in the left frame of the Web browser screen. The Software management screen (installation, etc.) appears in the right frame of the Web browser screen.

🖉 IP-900 ENCODER – Windows Internet	Explorer
🚱 🗢 🔊 http://10.0.0.1/	💌 🄿 🗙 🚼 Google 🖉 🔎
🚖 🌈 IP-900 ENCODER	
Japanese	IP-900 ENCODER
COMMON ENCODER RECORDE	R Configuration1: data1 Software: VxxLxxx
COMMON	Software Management
CONFIGURATION  • LOAD CONFIGURATION  • COPY CONFIGURATION  SETTINGS	Software Current software version VxxLxxxCxx
BASIC     TIME ZONE & TIME SERVER     DATA PORT     SNMP	New software Browse.
STATUS REPORT OPERATION & STATUS ALARM LOC	Configuration Configuration file to be restored Browse
<u>PERFORMANCE STATS</u> MAINTENANCE <u>DATE &amp; TIME</u>	BACKUP
SOFTWARE MANAGEMENT     REBOOT	DELETE ALL
	Option Icense key
	All Rights Reserved, Copyright(C) FUJITSU LIMITED 2008-2012

Figure 2-1 Install screen

#### (3) Selecting software

Select installation file field. Select the file of the software to be updated.

(4) Starting installation

Click the **INSTALL** button. The following confirmation dialog box appears. Click the OK button to start installation. The equipment is automatically rebooted after install is completed.



\* If prior version of software for IP-900 series is already installed, you can install it on the maintenance mode. The equipment can be booted as maintenance mode with pushing MNT button, and the settings are initialized. Click the OK button to start the installation process if you confirm that no problems are occurred by the initialization.

#### (5) Verifying the startup

Display the IP-900 series setup screen from the Web browser, and verify that the new software has been installed and started.

#### ▲ CAUTION

Do not power off or press the MNT button during installation. Otherwise, you may prevent IP-900 series from starting.

Do not access another Web page during installation. Otherwise, you may lose information on the progress

The CF card is formatted when upgrading from before V02L002 to after V02L010. Please back up necessary data of the CF card before it upgrades.

#### 2.1.2 Installing an Option License

You can upgrade functions by purchasing option licenses and installing it using IP-900 series Web GUI.

#### (1) Applying for an installation key

If you have purchased an option license separately from the IP-900 series, you need to apply for an installation key to enable the function upgrade.

To apply for an installation key, enter the necessary information in the application form "IP900Series\_LicenseRequestSheet.txt," which is on official website, and send the form by e-mail to fj-ss\_nw\_ipinskey@dl.jp.fujitsu.com.

When sending the file, you must specify the device serial number of the IP-900 series on which you want to install the upgrade function. You can obtain the device serial number from the label attached to the bottom of the IP-900 series or from the device serial number field on the [Common] - [Operation & Status] page of the IP-900 series on Web GUI.



Figure 2-2 Label at the bottom of the IP-900E (e.g.)

#### Chapter 2 Installation & Operation

🖉 IP-900 ENCODER - Windows Interne	t Explorer		
		🔽 🐓 🗙 🚼 Google	
Japanese	IP-900 ENCO	DER	
COMMON ENCODER RECORD	ER	Conf	iguration1: data1 Software: VxxLxxx
COMMON	<b>Operation &amp; Status</b>		Auto update: none 🗸
CONFIGURATION			
<ul> <li>LOAD CONFIGURATION</li> </ul>	Item	Status	
<u>COPY CONFIGURATION</u>	Serial number	00003	
SETTINGS	LAN IP address(IPv4)	Static IP / 10.0.0.1	
<u>BASIC</u>	LAN subnetmask(IPv4)	255.0.0.0	
<u>TIME ZONE &amp; TIME SERVER</u>	Default gateway address(IPv4)	0.0.0.0	
DATA PORT	LAN IP address(IPv6)	Link-local / fe80::200:eff:fedf:fe91	
• <u>SNMP</u>	Default gateway address(IPv6)	:	
STATUS REPORT	LAN Mac address	00.00.0E.DF.FE.91	
<ul> <li>OPERATION &amp; STATUS</li> </ul>	LAN link	Connected / 100Base-TX Half Duplex	
ALARM	Time server		
• LOG	Data port		
PERFORMANCE STATS	SNMP		
MAINTENANCE	Component temperature	28deg.C	
DATE & TIME     SOFTWARE MANAGEMENT     REBOOT		All Rights Reserved, Copyrig	ht(C) FUJITSU LIMITED 2008-2012

Figure 2-3 Operation & Status (Serial number of the unit) (e.g.)

(2) Entering the option license key

Enter the installation license key you have obtained with the application procedure.

Connect to the IP-900 series using a Web browser, and then click [Install] in the left frame of the Web page. The right frame displays the installation page (for installation and related operations). In the option license field, enter the installation key obtained in Step (1) above.

🖉 IP-900 ENCODER – Windows Internet	Explorer
💽 🗢 🖉 http://10.0.0.1/	🖌 🛃 Google 🖉 🖓
🔶 🏉 IP-900 ENCODER	
Japanese	IP-900 ENCODER
COMMON ENCODER RECORDE	R Configuration1: data1 Software: VxxLxxx
COMMON	Software Management
CONFIGURATION <ul> <li>LOAD CONFIGURATION</li> </ul>	New software Browse_
<u>COPY CONFIGURATION</u> SETTINGS     BASIC	INSTALL
<u>DASIC</u> <u>TIME ZONE &amp; TIME SERVER</u> <u>DATA PORT</u> <u>SNMP</u>	Configuration Browse_
STATUS REPORT  OPERATION & STATUS  ALARM	RESTORE
LOG     PERFORMANCE STATS	DELETE ALL
MAINTENANCE  • DATE & TIME	
SOFTWARE MANAGEMENT     REBOOT	Option Option license key
	INSTALL
	Installed option HD option
	All Rights Reserved, Copyright(C) FUJITSU LIMITED 2008-2012

**Figure 2-4 Option License Installation** 

(3) Starting installation

Click the **INSTALL** button. The confirmation dialog box shown above appears. Click OK button to start installation.

#### **▲** CAUTION

Do not turn off the power or press the MNT button during installation. Otherwise, you may make the IP-900 series fail to start.

Do not access another Web page during installation. Otherwise, you may lose the installation progress information.

## 2.2 Equipment Operation

This section explains how to operate IP-900 series software.

The Software can be operated through the Web GUI or the front panel.

#### 2.2.1 Operation through Web GUI

All IP-900 series settings and status information can be checked on the Web GUI. Refer to Chapter 3 "Web Operation," for more information.

#### 2.2.2 Notes

#### In the case of failing to get IP address automatically

When IP-900 series starts, the LAN port:

(1) Cannot access to DHCP server

(2) Attempts, but fails to set up a PPPoE connection.

If the conditions of (1) and (2) above are matched with your situation, all 0s (zero) are displayed and the process of getting IP address is repeated.

Take appropriate corrective action such as reviewing the settings on the DHCP and PPPoE servers or the IP address setting on IP-900 series. (Refer to Section 5.1, "Troubleshooting.")

#### Forcibly changing to the fixed IP address from DHCP, PPPoE

Start the IP-900 series by turning on the power with pressing the MNT button (for about 10 seconds) until the RDY LED lamp starts blinking in orange. The equipment is temporarily started up with the IP address and subnet mask of factory default values (LAN port : IP address:10.0.0.1, Subnet mask: 255.0.0.0).

Use this method to make the IP-900 series initial settings from a PC (\*).

\* When running the IP-900 series product with the default IP address, set up it after disconnecting from your network.

After configuring the settings to match with your network, connect the product to your network. If the product is connected to your network with factory default values, unexpected problems may occur on your network.

If you started the product with pressing the MNT button, set the IP address and subnet mask of the PC as follows:

- LAN port IP address: 10.aaa.bbb.ccc

(aaa and bbb can be any number from 0 to 255 and ccc can be any number from 2 to 255. Note, however, that the resulting address must be other than 10.255.255.255.)

- LAN port subnet mask: 255.0.0.0

#### ◆Turn off the equipment over PPPoE

If you turn off the power of IP-900 series over PPPoE, the IP-900 series may take extra time to establish the next connection by the network conditions. Follow procedures below to prevent taking time by turning off the power of IP-900 series. In case of turning off the equipment, follow the PPPoE termination procedure.

Hold down the MNT button for three seconds. When the software finishes terminating processes, the product is ready for power-off and the RDY LED goes off.

After verifying that the RDY LED is off, turn the power switch to the "O" position. When the PWR LED is off, the power is turned off.



This chapter explains how to operate each function from Web GUI.

3.1	Starting Up	23
3.2	Common Menu	26
3.3	Encoder	74
3.4	Recorder	121
3.5	Decoder	129

Note) For information on the IP-9x0E, refer to Section 3.1 "Starting Up," Section 3.2 "Common Menu," Section 3.3 "Encoder," and Section 3.4 "Recorder." For information on the IP-900IID/920D, refer to Section 3.1 "Starting Up," Section 3.2 "Common Menu," and Section 3.5 "Decoder."

# 3.1 Starting Up

#### 3.1.1 Login

By default, the network password shown below is invalid (not displayed).

Connect to 10.0.	0.1 ? 🔀
	G
<u>U</u> ser name:	
<u>P</u> assword:	
	Remember my password
	OK Cancel

Specify the user name and password to enable the network password function by following the instructions in Section 3.2.4, "Basic."

Select [COMMON], [ENCODER], [DECODER] and [RECORDER] to display these menus from the upper part of the Web GUI.

The supported Web browsers are Internet Explorer, Safari, Firefox, and Google Chrome.

Browsers whose operation has been confirmed

PC : Internet Explorer 8, 9, 10, 11 Safari 5 Firefox 5, 7, 10, 28, 35, 38 Google Chrome 40, 45 Smartphone : Android browser 4.4 Safari 8.1 Google Chrome 34

	,D + →	IP-900 ENCODER	×	- □ <b>×</b>
Japanese	IP-900	ENCODER	2	
COMMON ENCODER RECORD	ER			Configuration1: data1 Software: V02L040
COMMON	Basic			
CONFIGURATION <ul> <li>LOAD CONFIGURATION</li> <li>COPY CONFIGURATION</li> </ul>	Function setting Operation mode	Main H.264/MPE	G-4 AVC 1stereo   St	ub H.264/MPEG-4 AVC 1stereo 🗸
SETTINGS  BASIC  TIME ZONE & TIME SERVER  DATA PORT	Ethernet common settings Ethernet type MTU size	AUTO 1454 Byte (12	<b>V</b> 280-1500)	
• <u>SNMP</u>	-IPv4 network settings			
OPERATION & STATUS     ALARM     LOG	IP address mode IP address Subnetmask	ODHCP 10.0.0.1 255.0.00	⊖ PPPoE	• Static IP
PERFORMANCE STATS MAINTENANCE     DATE & TIME     SOFTWARE MANAGEMENT	Default gateway address User ID for PPPoE Password for PPPoE	0.0.0.0	("0.0.0.0" when u	nused.) (Limit 64 characters) (Limit 64 characters)
REBOOT	APPLY CANCEL			
			All Rights Res	erved, Copyright(C) FUJITSU LIMITED 2008-2015

Figure 3-1 Screen for IP-900 series ENCODER Settings

(-) (2) http://10.0.0.1	Ω -  →	IP-900 DECODER	×		- □ ×
Japanese	IP-900	DECODER			
COMMON DECODER				Configuration1: data1 S	oftware: V02L040
COMMON	Basic				
CONFIGURATION  LOAD CONFIGURATION  COPY CONFIGURATION	Function setting Operation mode	Normal 🗸			^
SETTINGS    BASIC   TIME ZONE & TIME SERVER	Ethernet common settings Ethernet type	AUTO	~		
DATA PORT     SNMP STATUS REPORT	MTU size IPv4 network settings	1454 Byte (128	80-1500)		
OPERATION & STATUS     ALARM     LOG	IP address mode IP address	ODHCP	⊖ PPP₀E	Static IP	
PERFORMANCE STATS MAINTENANCE	Default gateway address User ID for PPPoE	0.0.0.0	("0.0.0.0" when un	used.) (Limit 64 characters	0
DATE & TIME     SOFTWARE MANAGEMENT	Password for PPPoE			(Limit 64 characters	»
REBOOT	APPLY CANCEL				
			All Rights Rese	erved, Copyright(C) FUJITSU LI	MITED 2008-2015

Figure 3-2 Screen for IP-900 series DECODER Settings

#### 3.1.2 Remarks

You may not be able to access the screen for a while when you turn on the power or reboot. Please wait for around 1 min. after booting.

3.2

## Common Menu

#### 3.2.1 Configuration Data

In IP-900 series terminology, the set of parameters required for operation is called "configuration data." IP-900 series has a data storage area in which up to 10 sets of configuration data can be stored. The stored data can be used by switching easily among these sets of configuration data.

For example, it is useful in switching between encoder and decoder, changing resolution or bit rates or switching the network interfaces including PPPoE, DHCP, static IP, etc.

You can use the procedures explained in Section <u>3.2.2 Load Configuration Data</u> and <u>3.2.3 Copy</u> <u>Configuration Data</u> to register the configuration data easily.

The parameters are listed in <u>Table 3-1 Parameters Preprogrammed in Configuration Data</u> and 10 sets can be stored independently as configuration data. Refer to the respective sections shown in the reference column in table below for details.

Category	Name	Group Name	Reference
COMMON	BASIC	Function setting Ethernet common setting IPv4 network settings IPv6 network settings Other settings	<u>3.2.4 Basic</u>
	TIME ZONE & TIME SERVER	Time zone setting Time server settings	3.2.5 Time Zone & Time Server
	DATA PORT	Operation settings Port number settings RS-232C settings	<u>3.2.6 Data Port</u>
	SNMP	Operation settings	3.2.7 SNMP
ENCODER	SETTINGS	AV input settings (Video)AV input settings (Audio)Output interface settings(Main encoder IP)Output interface settings(Main encoder IP port)Output interface settings(Sub encoder IP)Output interface settings(Sub encoder IP)Output interface settings(Sub encoder IP port)Main encoder settings(Sub encoder IP port)Main encoder settings(Encode)Sub encoder settings(Encode)Sub encoder settingsSub encoder settings(Encode)Sub encoder settingsSub encoder settings(Encode)Sub encoder settingsSub encoder settingsSub encoder settings(PID)	3.3.1 Setting (Encoder)

Table 3-1 Parameters Preprogrammed in Configuration Data

Category	Name	Group Name	Reference
ENCODER	ENCODER	Main/Sub Report settings	<b>3.3.2 Encoder Address Report</b>
	ADDRESS	Main/Sub Destination	
	REPORT	settings	
	SUPERIMPOSE	Superimpose information (1	3.3.3 Superimpose
		to 4) of Main encoder	
		Superimpose information (1	
		to 4) of Sub encoder	
RECORDER	SETTINGS	Recorder settings	3.4.1 Setting (Recorder)
DECODER	SETTINGS	Input interface settings	3.5.1 Setting (decoder)
		(Decoder ethernet)	
		Input interface settings	
		(From Server)	
		Input interface settings	
		(Decoder ethernet port)	
		AV output settings (Video)	
		AV output settings (Audio)	* Displayed only for IP-920E/D
		Decoder settings (Decode)	
		Decoder settings (PID)	
	REFERENCE	Operation settings	3.5.2 Reference Clock
	SETTINGS		(GENLOCK)

#### 3.2.2 Load Configuration Data

Click LOAD CONFIGURATION in the left frame of the Web screen to display the screen below in

the right frame.



Figure 3-3 Load Configuration screen

### IP-900 ENCODER PC site

Load configuration					
Data	Data1 ~				
Name	data1				
	SELECT	CANCEL			

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### Registering configuration data

Select data numbers 1 to 10 from the pull down menu in "Configuration data" field.



Load Configuration

Figure 3-5 Selecting Configuration Data

Assign the selected data a name using up to 16 alphanumeric characters in the Configuration name field, and click the SELECT button. The dialog box shown below appears. Click the OK button to change the registration number.

\*) Reboot is required only when the operation mode is changed between encoder and decoder after loading configuration.



Confirm that the configuration data number in the upper right red zone on the Basic setting screen is changed to the previously selected number.



Update the parameters listed in <u>Table 3-1 Parameters Preprogrammed in Configuration</u> <u>Data</u> using the following respective screens, and then click OK or <u>APPLY</u> button to update and register the configuration data.



Figure 3-6 Parameters, of which 10 Sets are handled as Configuration Data



Figure 3-7 Configuration Data (10 independent sets)

### Using configuration data

Select (from 1 to 10) the data number you want to use from the configuration data field by referring to the corresponding name in the Configuration name field.

Click the SELECT button. When the following dialog box appears, click OK button. The registration number of configuration data can be updated by IP-900 series.

\*) Reboot is required only when the operation mode is changed between encoder and decoder after loading configuration.



Confirm that the configuration data number in the upper right red zone on the Basic setting screen has been changed to the previously selected number.

		and the second se
Comments of the second	Configuration1: data1 Software: VxxLxxx	
······		

	Item	Description	Parameter
Load configuration	Configuration data	<in case="" of="" or="" registering="" updating=""> Ten types of configuration data registered in advance can be switched, updated and registered for each. <in case="" of="" using=""></in></in>	- Data numbers 1 to 10
		Ten types of configuration data registered in advance can be switched.	
	Configuration name	<in case="" of="" or="" registering="" updating=""> Arbitrary name can be specified for each data.</in>	- Arbitrary name (using 16 alphanumeric characters)
		<in case="" of="" using=""> The specified name can be used for switching configuration data.</in>	

|--|

# 3.2.3 Copy Configuration Data

Maximum ten types of configuration data which selected in "LOAD CONFIGURATION" can be copied each other. The registered data's parameter can be used for other configuration settings.

For example, the parameter can be used for creating updated configuration data using registered configuration data.

Click <u>COPY CONFIGURATION</u> in the left frame of the Web GUI to display the screen below in the right frame. Set up the required settings by referring to <u>Table 3-3 Copy Configuration Setting Items</u>.

P-900 ENCODER - Windows Internet	t Explorer		
🚱 🗢 🙋 http://10.0.0.1/		🗾 🛃 🔀 Google	
🚖 🌈 IP-900 ENCODER			
Japanese	IP-90	0 ENCODER	
COMMON ENCODER RECORD	ER		Configuration1: data1 Software: VxxLxxx
COMMON	Copy Configuration	1	
CONFIGURATION		n	A
LOAD CONFIGURATION	Configuration data	Data1	
<u>COPY CONFIGURATION</u>		Data	
BASIC	- Copy to-		
TIME ZONE & TIME SERVER		Name(Limit 16 characters)	
DATA PORT	Configuration data1	🗌 data1	
• <u>SNMP</u>	Configuration data2	🔲 data2	
STATUS REPORT	Configuration data3	🗖 daia3	
OPERATION & STATUS     ALARN	Configuration data4	aia4	
• ALANN	Configuration data5	data5	
PERFORMANCE STATS	Configuration data6	data6	
MAINTENANCE	Configuration data7	data7	
DATE & TIME	Configuration data8	data8	
SOFTWARE MANAGEMENT	Configuration data9	data9	
REBOOT	Configuration data10	dabi10	
			_
			×
	COPY CANCEL		
		All Rights Reserv	red, Copyright(C) FUJITSU LIMITED 2008-2012

Figure 3-8 Copy Configuration screen

After completing the settings, click the <u>COPY</u> button. The message below appears.

Click OK to apply the settings.



### Table 3-3 Copy Configuration Setting Items

	Item	Description	Parameter
Select source configuration	Configuration data	Select one of the ten types of configuration data that have already been registered to copy the data.	- Data numbers 1 to 10
Copy to	Configuration data 1-10	Select a configuration data of copying destination. Multiple configuration data can be selected, but the configuration data of origination and the configuration data which is currently in use cannot be selected.	- Radio buttons
	Configuration name	Arbitrary name can be specified for each configuration data.	- Arbitrary name (using 16 alphanumeric characters)

## 3.2.4 Basic

\* Basic comprises a group of setting items, of which 10 sets can be registered independently by selecting data numbers as in <u>3.2.1 Configuration Data</u>.

You can set or change the settings of the parameters related to the network connection of IP-900 series or the operation mode in which it should operate after turning on the power. Set up the required settings by referring to **Table 3-4 Basic Setting Items**.

### **IMPORTANT**

If you operate IP-900 series with the default IP address, disconnect it from your network. Connect it to the setting PC over a hub or directly through a UTP cable. Set it up to meet with the requirements for your network using PC and connect it to the network. If you connect it to your network with the default IP address, an unexpected failure may occur in your network.

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Japanese	19-90	UENCODE	ĸ		
COMMON ENCODER RECORD	DER			Configuration1: data1 Softw	are: VxxLxxx
COMMON	Basic				
CONFIGURATION	- Function setting				_
LOAD CONFIGURATION     COPY CONFIGURATION	Operation mode	Main H.264/MPE	G-4 AVC 1stereo   Sub H.2	64/MPEG-4 AVC 1stereo 👻	
SETTINGS	- Ethernet common setting	ş			
TIME ZONE & TIME SERVER	Ethernet type	AUTO	~		=
DATA PORT	MTU size	1454 Byte (1	280-1500)		
<u>SNMP</u> STATUS REDORT	– IPv4 network settings–				
OPERATION & STATUS	IP address mode	O DHCP	○ PPP₀E	<ul> <li>Static IP</li> </ul>	
• ALARM	IP address	10.0.0.1			
• <u>LOG</u>	Subnetmask	255.0.0.0			
PERFORMANCE STATS	Default gateway address	0.0.0.0	("0.0.0.0" when unused	d.)	
MAINTENANCE	User ID for PPPoE			(Limit 64 characters)	
DATE & TIME     SOFTWARE MANAGEMENT	Password for PPPoE			(Limit 64 characters)	
REBOOT	- IPv6 network settings-				
	IP address mode	<ul> <li>Stateless</li> </ul>	<ul> <li>Static IP</li> </ul>		
	IP address			("::" when unused.)	
	Prefix	64		(3-128)	~
		l			
	APPLY CANCEL				
			All Rights	Reserved, Copyright(C) FUJITSU LIMITE	D 2008-2012

Figure 3-9 Basic settings screen

After completing the settings, click APPLY button. The following message appears.



### Table 3-4 Basic Setting Items

	Item	Description	Parameter
Function	Operation mode	Select the operation mode of	- Main H.264/MPEG-4 AVC 1stereo
setting	*for Encoder	encoder and sub encoder.	Sub H.264/MPEG-4 AVC 1stereo
e			(Default)
			- Main H.264/MPEG-4 AVC 2stereo
	Operation mode	Select the operation mode of	- Normal (Fixed)
	*for Decoder	decoder.	
Ethernet	Ethernet type	Select the Ethernet type.	- AUTO (default)
common			- 100Base-TX Full
			- 100Base-TX Half
settings			- 10Base-T Full
			- 10Base-T Half
	MTU size	Specify in bytes the maximum	1280 to 1500 bytes
		size of IP packets to be sent to	(Default: 1454)
		the LAN.	* For PPPoE, specify 1454 (recommended).
IPv4 network	IP address mode	Specify how to get IPv4	- DHCP
settings		address	- PPPoE
8-			- Static IP (Default)
	IP address	Specify the IPv4 address when	IPv4 address other than the following:
		"Static IP" is set for [IP address	224.0.0.0 to 239.255.255.255 (Class D)
		mode].	240.0.0 to 255.255.255.255 (Class E)
			0.0.00, 12/.0.00 to 12/.255.255.255
	Calmat marth		(Default: 10.0.0.1)
	Subnet mask	Specify the IPv4 subnet mask	Subnet mask other than the following:
		when Static IP is set for [IP	255.255.255.254,
		address mode].	(Default: 255.0.0.0)
	Default Cotoway	Specify the default actoryou	(Default, 255.0.0.0)
	address	address of IPv4 when "Static	224.0.0.0 to 220.255.255.255 (Class D)
	auuress	IP" is set for IIP address model	240.000  to  255.255.255  (Class D)
		If is set for [If address mode].	127 0 0 0 to 127 255 255 255
			(Default: None (represented as 0.0.0.0))
	User ID for	Specify the user ID when	64 en-size alphanumeric characters
	PPPoE	"PPPoE" is set for [IP address	(Default: Blank)
		mode].	(Demain, Dimin)
	Password for	Specify the password when	64 en-size alphanumeric characters
	PPPoE	"PPPoE" is set for [IP address	(Default: Blank)
		model.	· · · · · · · · · · · · · · · · · · ·

	Item	Description	Parameter
IPv6 network settings	IP address mode	Specify the IPv6 address acquisition method.	- Stateless - Static IP (default)
	IP address	Specify the IPv6 address when "Static IP" is set for [IP address mode].	Global unicast IP address 2xxx:xxxx::xxxx to 3xxx:xxxx::xxxx (Default: ::)
	Prefix	Specify the prefix of the IPv6 address when "Static IP" is set for [IP address mode].	3 to 128 (Default: 64)
	Default gateway address	Specify the default gateway address when "Static IP" is set for [IP address mode].	Global unicast address 2xxx:xxxx::xxxx to 3xxx:xxxx::xxxx (Default: ::)
Other settings	User authentication	Specify whether to enable user authentication for accessing the Web screen.	- Enable - Disable (Default)
	User ID	Specify the user name for authentication.	16 alphanumeric characters (Default: Blank)
	Password	Specify the password for authentication.	16 alphanumeric characters (Default: Blank)
	WEB server title	Specify the character strings to be displayed on the title bar of the Web screen. This title is used to identify the Web screen with the equipment name.	The specified string must be not exceeded 64 single bytes. (Default: blank)

Note) If booting is worked in combination with the Cancel key (refer to IP-900 series User's Guide), the IP address and subnet mask on both LAN and CONSOLE ports are temporarily reset to the defaults (LAN IPv4 address 10.0.0.1, subnet mask 255.0.0.0, IPv6 address :: and prefix: 64). If it becomes unclear what an IP address is, connect the equipment with the defaults and use the setup menu to confirm the IP address and subnet mask. The password restriction is also disabled for this case. Hold down the MNT button until the RDY LED starts blinking in orange. The equipment reboots, but the specified IP address and subnet mask are restored in the equipment.

### Operation Modes

Main H.264/MPEG-4 AVC 1stereo   Sub H.264/MPEG-4 AVC 1stereo	
Main encoder and sub encoder encode video by H.264/MPEG-4 AVC.	
Audio encoding supports stereo 1 channel.	
Main H.264/MPEG-4 AVC 2stereo	
Main encoder encodes video by H.264/MPEG-4 AVC.	
Audio encoding supports stereo 2channels.	
Sub encoder is not usable.	

\* Encoder and Recorder settings are initialized when operation mode is changed.

# 3.2.5 Time Zone & Time Server

\* Time Zone & Time Server is a group of setting items, of which 10 sets can be registered independently by selecting data numbers as in <u>3.2.1 Configuration Data</u>.

Set the time zone and time server at the location where IP-900 series is installed. Click <u>TIME ZONE</u> <u>& TIME SERVER</u> in the left frame of the Web screen. The Time Zone & Time Server screen appears in the right frame. Make settings according to the operation mode by referring to <u>Table 3-5 Time</u> <u>Zone Setting Item</u> and <u>Table 3.6 Time Server Setting Items.</u>

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🚖 🏉 IP-900 ENCODER					
Jananese	IP-900	ENCODER			
ENCODER RECORDE	R			Configuration1: data1 Softw	are: VxxLxxx
COMMON	Time Zone & Time S	erver			
CONFIGURATION	Time zone settings				
COPY CONFIGURATION	Time zone	281:Asia/Tokyo		~	
SETTINGS	UTC offset	0 hours 🗸 🗸			
• BASIC	Time server settings				
<u>IIME ZONE &amp; IIME SERVER</u> DATA PORT	Auto synchronization	○ Enable	<ul> <li>Disable</li> </ul>		
• <u>SNMP</u>	Synchronization interval	45 min (1-65535)			
STATUS REPORT	IP version	IPv4 🗸			≡
OPERATION & STATUS     ALARM	Time server IP address	0.0.0.0			
• LOG					
PERFORMANCE STATS					
MAINTENANCE					
SOFTWARE MANAGEMENT					
REBOOT					
					~
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Figure 3-10 Time Zone & Time Server Settings screen

After completing the settings, click APPLY button. The message below appears. Click OK to apply the settings. \*Reboot is not required.



Table 3-5 Time Zone Setting Items

Item	Description	Parameter
Time zone	Select the time zone at the IP-900 series installation site.	(Default: Asia/Tokyo)
UTC offset	Specify the time difference from Coordinated Universal Time (UTC) when "UTC offset" is selected for [Time zone].	(Default: 0 Hours)

### Table 3-6 Time Server Setting Items

Item	Description	Parameter
Auto	Specify whether to automatically	- Disable (Default)
synchronization	synchronize with the time server.	- Enable
Synchronization	Specify in minutes the interval in	1 to 65535 minutes
interval	which synchronization with the time	(Default: 45)
	server is performed.	
IP version	Set the IP address version.	- IPv4 (Default)
		- IPv6
Server IP address	Set the IP address of the time server.	Other than 0.0.0.0
		(Default: 0.0.0.0)
		* You cannot specify a multicast
		address.

# 3.2.6 Data Port

\* Data Port is a group of setting items, of which 10 sets can be registered independently by selecting data number as in <u>3.2.1 Configuration Data</u>.

This setup is performed to enable data communication with another device on the IP network by connecting the external device through the RS-232C port (D-sub 9-pin) on front panel of IP-900 series.

Click <u>DATA PORT</u> of the left frame in the Web GUI and Data Port screen appears in the right frame, where you can set parameters for data communication with another device via the IP network. Make the required settings by referring to <u>Table 3-7 Data Port Setting Items</u> and <u>Table 3-8 Operations</u> <u>Modes</u>.

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Japanese	IP-90				
COMMON ENCODED DECOD				Conformation 1, data 1	S-Omeran Van I
ENCODER RECORD	JER			Configuration1: data1	Software: VXXLXXX
COMMON	Data Port				
CONFIGURATION	Operation settings				
COPY CONFIGURATION	Data port	<ul> <li>Enable</li> </ul>	Oisable		
SETTINGS	Operation mode	TCP server mode(Bidi	rectional) 🗸 🗸		
• BASIC	IP version	IPv4 🗸			
<u>TIME ZONE &amp; TIME SERVER</u>	Destination IP address	0.0.0.0			
DATA PORT	Port number settings				
• SNMP	- rorr number settings-	Local part		Destination part	
OPERATION & STATUS	Server mode	6000 (1024-64000)	<==	Destination port	
ALARM	Client mode	0 (0,1024-64000)	>	6000 (1024-64000)	
• <u>LOG</u>					
PERFORMANCE STATS	-RS-232C settings-				
MAINTENANCE	Timeout	20 ms (20-200)			
DATE & TIME     SOFTWARE MANAGEMENT	Delimiter code 1	(0-ff,Blank)			
• <u>SOFTWARE MANAGEMENT</u>	Delimiter code 2	(0-ff,Blank)			
REBOOT	Baud rate	9600bps 🗸			
	Bit length	0 7 bits	8 bits		
	Parity	None	⊖ Odd	○ Even	
	Stop bits	⊚ 1 bit	$\bigcirc$ 2 bits		~
	APPLY CANCEL				
			All Rig	hts Reserved, Copyright(C) FUJITSU LI	MITED 2008-2012

Figure 3-11 Data Port Settings screen

After completing the settings, click the APPLY button. The message below appears. Click OK to apply the settings. \*Reboot is not required.



	Item	Description	Parameter
Operation	Data port	Specify whether to use data port	- Enable
settings		communication.	- Disable (Default)
	Operation mode	Specify the operation mode of data	- TCP server mode(Bidirectional)
		port communication.	(Default)
			- TCP server mode(Receiving only)
			- TCP client mode(Bidirectional)
			- TCP client mode(Modem)
			*"IPv4" is the fixed value for [IP version]
			when TCP client mode is set.
	IP version	Set the IP address version	- IPv4 (Default)
			- IPv6
	Destination IP	Specify the IP address of the data	- IPv4 (Default)
	address	communication destination when	- IPv6
		"TCP client mode (bidirectional)" is	
		set for [Test mode].	
		Specify the IP address of the data	Other than 0.0.0.0
		communication destination when	(Default: 0.0.0.0)
		"TCP client mode (bidirectional)" is	
		set for [Test mode].	
Port number	Server mode	Specify the port number of the own	1024 to 64000
settings		device when "TCP server mode	(Default: 6000)
		(bidirectional)" is set for [Test mode].	
	Client mode	Specify the port number of the own	0 or 1024 to 64000
		device when "TCP client mode	(Default: 0)
		(bidirectional)" is set for [Test mode].	* A port number from 1024 to 4096 is
			automatically selected when "0" is set.
		Specify the port number of the	1024 to 64000
		destination device when "TCP client	(Default: 6000)
		mode (bidirectional)" is set for [Test	
		mode].	
RS-232C	Timeout	Specify as [ms] for [Timeout] in	20 to 200ms (Default: 20)
settings		[RS-232C Settings] section.	* The duration to detect a time-out is
			defined as "the set value rounded down
			by a multiple of '20[ms]'" + "RS-232C
			polling interval of the device (20[ms])".
			e.g.)
			In case of setting '60';
			(60' + '20' = 80  [ms])
			In case of setting '50';
			'40' + '20' = 60  [ms]

Table 3-7 Data Port Setting Items

.

	Item	Description	Parameter
RS-232C settings	Delimiter code 1	Specify [Delimiter code 1] in [RS-232C Settings] section.	Blank or hexadecimal values from 00 to ff (Default: Blank) * A blank field means that no value is specified.
	Delimiter code 2	Specify [Delimiter code 2] in [RS-232C Settings] section.	Blank or hexadecimal values from 00 to ff (Default: Blank) * Blank means no values are specified.
	Baud rate	Specify the RS-232C communication speed by selecting from pull down menu.	1200/2400/4800/9600 (Default) /19200/38400 bps
	Bit length	Select the RS-232C character size.	7 bits or 8 bits (Default)
	Parity	Select whether to use RS-232C parity.	None (Default), Odd or Even
	Stop bits	Select the length of RS-232C stop bits.	1 bit (Default) or 2 bits
	Flow control	Select whether to set RS-232C flow control.	None (Default), RS or CS
	DTR signal	In case of setting as "TCP client	- Enable (Default)
	monitoring	mode(modem)" for [Operation mode],	- Disable
		this item is enabled to set whether to	(*1)
		monitor DTR of RS-232C control	
		signals.	

\*1: "DTR signal monitoring"

- In case of setting as "Disable", ignores DTR signal and always set as ON. The escape code is enabled and the data port connection is disconnected by AT command (ATH0) after switching to the escape mode.

- In case of setting as "Enable", the data port connection is disconnected when the DTR signal is set as OFF (default). When the DTR signal is turned ON, it is switched to the command mode that allows AT command. When signal is OFF, AT command is discarded when received. Also, the escape code is disabled. Therefore, line disconnection is performed when the DTR signal is set as OFF.

	Operation mode	Description
(1)	TCP server	Bidirectional data communication is performed between the data port and
	mode(Bidirectional)	another device connected via the IP network. IP-900 series waits, at the
		specified port number, for connection from the destination device. (IP address
		setting is not required.)
(2)	TCP server mode(Receiving	Data received from another device connected via the IP network is output to
	only)	the data port. Data received from the data port is not sent to the destination
		device. IP-900 series waits, at the specified port number, for connection from
		the destination device. (IP address setting is not required.)
(3)	TCP client	Bidirectional data communication is performed between the data port and
	mode(Bidirectional)	another device connected via the IP network. IP-900 series sets up a
		connection through the specified port to the device with the specified IP
		address.
(4)	TCP client mode(Modem)	Bidirectional data communication is performed between the data port and the
		other device connected via the IP network. Destination IP address sets up a
		connection to the device of IP address notified by AT command from DTE
		connected via RS-232C. Also, decoder switches stream receiving address to
		the same IP address after connecting.
		When the operation mode is set other than "TCP client mode modem", AT
		command is handled same as the normal data.

Table 3-8 Operation Modes

Note) Following combinations of modes are available for data communication among IP-900 series:

(1) <-> (3), (4)(2) <-> (3), (4)

**IP-900 Series** 

Item	Command	Contents	Note
1	Dn	Connected with the destination device for data port connection. IPv4 address of the connecting destination device is specified for n. The numbers other than 0 to 9 are ignored. <example> ATD192.168.001.001 Connects the device of 192.168.1.1 for data port connection. • When connecting with the destination device, "CONNECT" is responded and the CD signal is set to ON. • When connection with the destination device cannot be made after a certain period of time (about 50 secs), "NO CARRIER" is responded and the command is terminated.</example>	<ul> <li>Valid in case of the command mode</li> <li>3 digits + 3 digits + 3 digits + 3 digits (12 digits in total) are specified for IPv4 address. "ERROR is responded to non-12 digits (0 is not omissible).</li> <li><example></example></li> <li>"ATD010-000-000-001<cr>",</cr></li> <li>"ATD010.000.000.001<cr>"</cr></li> <li>Specifies IPv4 unicast address of units other than yours for IPv4 address. "ERROR" is responded to the other addresses.</li> <li>Decoder connects data port to the device of specified IPv4 address and makes streaming request.</li> <li>Encoder connects data port to the device of specified 4 address.</li> <li>When receiving data from DTE before</li> <li>"CONNECT" is responded, connection is canceled, "NO CARRIER" is responded and the command is terminated.</li> </ul>
2	Hn	The data port connection is disconnected and he CD signal is turned OFF. Only n=0 is valid.	• Valid in case of the escape mode
3	On	Switched from the escape mode during transmission. Only n=0 is valid.	• Valid in case of the escape mode
4	+++	Switched to the escape mode during transmission.	<ul> <li>Please input "+" for 3 consecutive times within one second when inputting.</li> <li>If the other characters are input within one second before and after inputting "+++", it does not change to escape mode.</li> <li>If "Enable" is set for "DTR signal surveillance", the escape code is disabled and it does not switch to the escape mode.</li> </ul>

Table 3-9 AT Command Supported by IP-900 Series

Note) AT command format

• Available AT command format on IP-900 Series is given as follows:

AT+<command>++<CR> (<CR> can also be <CR+LF>)

- AT command begins with AT and ends with CR code (or CR code + LF code).
- AT command's <command>+<parameter> are 32 letters (ASCII) at the maximum.
- AT command can specify only 1 command per a line.
- AT command allows only capital or small letters and combination of them are unusable. (Example: ATD192.168.001.001 → usable, atD192.168.001.001 → unusable)

No	Result code	Contents	Note
1	OK	Command was terminated normally	
2	CONNECT	Data port connection with the destination device was made	Transmission speed is not displayed (ATX0 equivalent)
3	NO CARRIER	Line was disconnected (carrier was not detected/was lost during transmission)	
4	ERROR	Command error (unacceptable command was executed)	

## Table 3-10 Messages Responded by IP-900 Series

Note) Result format

• The result format responded by IP-900 Series is as follows:

 $<\!CR\!\!>\!\!+\!\!<\!\!LF\!\!>\!\!+\!\!<\!\!result\ code\!\!>\!\!+\!\!<\!\!CR\!\!>\!\!+\!\!<\!\!LF\!\!>$ 

• Result code respond characters (ATV1 equivalent)

## 3.2.7 SNMP

\* SNMP is a group of setting items, of which 10 sets can be registered independently by selecting data numbers as in <u>3.2.1 Configuration Data</u>.

Click <u>SNMP</u> of the left frame in the Web GUI and SNMP screen appears in the right frame, where you can set parameters for SNMP with the counterpart device over IP network. Make the required settings by referring to <u>Table 3-11 SNMP Setting Items</u>.

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🔶 🌈 IP-900 ENCODER						
Japanese		IP-900 EN	CODEF	2		
COMMON ENCODER RECORD	ER			-	Configuration1: data1 Soft	vare: VxxLxxx
					Compliation. Galar borr	The Tallana
COMMON	SNMP					
CONFIGURATION	Operation settin	ngs				_
<u>COPY CONFIGURATION</u>	SNMP agent	○ Enable		⊙ Disable		
SETTINGS  • <u>BASIC</u>	Manager1	SNMPv1 V	Community IP address		(Limit 16 characters)	
<u>TIME ZONE &amp; TIME SERVER</u> <u>DATA PORT</u>	Manager2	SNMPv1	Community		(Limit 16 characters)	
• <u>SNMP</u> STATUS REPORT	Manager3	SNMPv1	Community		(Limit 16 characters)	
<u>OPERATION &amp; STATUS</u> <u>ALARM</u> <u>LOG</u>	Manager4	IPv4 v SNMPv1 v	IP address Community IP address		(Limit 16 characters)	
<u>PERFORMANCE STATS</u> MAINTENANCE DATE & TIME	Manager5	SNMPv1	Community		(Limit 16 character3)	
SOFTWARE MANAGEMENT	Manageró	SNMPv1 V	Community IP address		(Limit 16 characters)	
	Manager7	SNMPv1 V IPv4 V	Community IP address		(Limit 16 character2)	
	Manager8	SNMPv1	Community		(Limit 16 characters)	~
	APPLY	ANCEL				
				All Rights Re	served, Copyright(C) FUJITSU LIMIT	ED 2008-2012

Figure 3-12 SNMP Settings screen

After completing the settings, click the APPLY button. The message below appears. Click OK to apply the settings. \* Reboot is not required.



#### **IP-900 Series**

### ■ MIB file

To download the MIB (Management Information Base) file, click the **DOWNLOAD** button.

Item		tem	Description	Parameter
SNMP age	ent		Specify whether to enable SNMP agent.	- Disable (Default)
				- Enable
Manager	#1	SNMP version	Specify the SNMP version of SNMP	- SNMPv1 (Default)
to 10			manager.	- SNMPv2c
		Community	Specify the community name to accept	Alphanumeric 16 characters
			the SNMP request from the SNMP	(Default: Blank)
			manager.	
		IP version	Specify the IP version of the IP address	- IPv4 (Default)
			of SNMP manager.	- IPv6
		IP address	Specify the IP address of SNMP	An IP address other than
			manager.	0.0.0.0
			(Max. 10 managers can be registered.)	(Default: Blank)
				* A blank field means that no
				value is specified.
				* You cannot specify a
				multicast address.

# Table 3-11 SNMP Setting Items

# 3.2.8 Operation & Status (Common)

Click <u>OPERATION & STATUS</u> in the left frame of the Web screen. The Operation & Status screen appears in the right frame, where you can check the status of equipment operation such as the state of LAN operation. Refer to <u>Table 3-12 Operation & Status Display Items</u> for details.

Selecting {3 sec, 5 sec, or 10 sec} from [Auto update] enables automatic updating of the performance data in specified time intervals. Select {none} from [Auto update] to disable automatic updating.

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🚖 🌈 IP-900 ENCODER			
Japanese	IP-900 ENCO	DER	
COMMON ENCODER RECORD	ER	Cont	figuration1: data1 Software: VxxLxxx
COMMON	Operation & Status		Auto update: 🛛 none 🛛 🗸
CONFIGURATION			
LOAD CONFIGURATION	Item	Status	
<u>COPY CONFIGURATION</u>	Serial number	00003	
SETTINGS	LAN IP address(IPv4)	Static IP / 10.0.0.1	
<u>BASIC</u>	LAN subnetmask(IPv4)	255.0.0.0	
<u>TIME ZONE &amp; TIME SERVER</u>	Default gateway address(IPv4)	0.0.0.0	
DATA PORT	LAN IP address(IPv6)	Link-local / fe80::200:eff:fedf:fe91	
• <u>SNMP</u>	Default gateway address(IPv6)		
STATUS REPORT	LAN Mac address	00.00.0E.DF.FE.91	
OPERATION & STATUS	LAN link	Connected / 100Base-TX Half Duplex	
• ALARM	Time server		
• LOG	Data port		
PERFORMANCE STATS	SNMP		
• TERI ORMANCE STATS	Component temperature	28deg.C	
MAINTENANCE			
SOFTWARE MANACEMENT			
<u>SOFTWARE MANAGEMENT</u>			
REBOOT			
		A11 Rights Reserved, Copyrig	ht(C) FUJITSU LIMITED 2008-2012

Figure 3-13 Operation & Status screen

Item	Display
Serial number	Displays the serial number
LAN IP address (IPv4)	{DHCP/PPPoE/Static IP}
	Displays the IPv4 address acquisition mode.
	[xxx.xxx.xxx (IPv4)]
	Displays the IPv4 address.
	xxx.xxx.xxx: IPv4 address
LAN subnetmask (IPv4)	XXX.XXX.XXX
	Displays the IPv4 subnet mask.
	xxx.xxx.xxx: Subnet mask
Default gateway address (IPv4)	XXX.XXX.XXX
	Displays the default gateway address of IPv4.
	xxx.xxx.xxx: Default gateway address
LAN IP address (IPv6)	Link-Local/[xxxx:xxx: :xxxx(IPv6)]
	Displays the IPv6 link-local address.
	xxxx:xxxx: :xxxx: Link-Local address
	{Stateless/Static IP}
	Displays the IPv6 address acquisition method.
	* If the IPv6 address acquisition method is "Stateless," up to four sets of global
	unicast address/prefix are displayed according to the address acquisition
	status.
	[yyyy:yyyy: : (IPv6)]
	Displays the IPV6 global unicast address.
	yyyyyyyyyyyy Giodal unicast address
	[ZZZ] Divelous the profine of the IDer( clobel unicest address
	Displays the prefix of the IPvo global unicast address.
Default gateway address (IPy6)	
Default gateway address (II vo)	Displays the default gateway address of IPv6
	vyvyy vyv Oefault gateway address
	* If the IPv6 address acquisition method is "Stateless" up to four default
	gateway addresses are displayed according to the address acquisition status
LAN Mac address	Displays the MAC address.
LAN link	{Connected / Disconnected}
	Displays the LINK status.
	(100Dasa TV Full Duplay / 100Dasa TV Half Duplay / 10Dasa T Full
	{100Dase-1A Full Duplex / 100Dase-1A fiall Duplex / 10Dase-1 Full Dupley / 10Dase T Half Dupley}
	Displays the LAN interface operation status
Time server	Normal / Fault / Synchronization failure/}
	Displays the status of synchronization with the specified time server

# Table 3-12 Operation & Status Display Items

Item	Display	
Data port	{Normal / Normal (Command mode) / Normal (Escape mode) / Normal (DSR OFF) / Fault /}	
	Displays the communication status of data port communication.	
	{TCP server mode / TCP server mode (Receiving only) / TCP client mode /	
	TCP client mode (Modem)}	
	Displays the operation mode of data port communication.	
	{IP address}	
	Displays the IP address of the destination device for data port	
	communication.	
	- TCP server mode / TCP server mode (receiving only)	
	Displays the IP address of the destination device when data port	
	communication is established.	
(Displays 0.0.0.0 when no communication is set up.)	(Displays 0.0.0.0 when no communication is set up.)	
	- TCP client mode	
Displays the IP address of the destination devi communication.	Displays the IP address of the destination device for data port	
	communication.	
	- TCP client mode (Modem)	
	Displays the IP address of the destination device specified by AT command.	
	{Port number}	
	Displays the port number of the destination device for data port	
	communication.	
	- TCP server mode / TCP server mode (receiving only)	
	Displays the port number of the destination device when data port	
	communication is established.	
	- TCP client mode	
	Displays the port number of the destination device for data port	
	communication.	
	- TCP client mode (Modem)	
	Displays the port number of the destination device only when data port	
	communication is established.	
SNMP	{Normal /}	
	Display the status of the SNMP agent.	
Component temperature	Displays the internal temperature (°C) of the equipment.	

Note) {A/B} indicates that either A or B is displayed.

# 3.2.9 Alarm

Click <u>ALARM</u> of the left frame in the Web screen and the Alarm screen appears in the right frame, where you can check the alarm list. Refer to <u>Table 3-13 Alarm List</u> for details.

Select {3 sec, 5 sec, or 10 sec} from [Auto update] to enable automatic update of the performance data in specified time intervals. Select {none} from [Auto update] to disable automatic updating.



Figure 3-14 Alarm Settings screen

Code	Name	Description	Details (The part after the * mark is not displayed.)
I001	SDI input down	HD/SD-SDI input signal is not detected	-
I002	HDMI input down	HDMI input signal is not detected	-
1003	Analog video input down	Analog video input signal is not detected	-
I006	Reference clock input down (*8)	External reference clock input signal is	-
		not detected	
I011	Video synchronization error	Video synchronization error is occurred	-
I016	Reference clock synchronization failure (*8)	Synchronization failure with reference clock is occurred	-
I021	Input data error (*1)	Count-up is occurred in the performance	#xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
		statistics error counter	* 64-bit hexadecimal number. For the meaning of each bit, refer to Table 3-14, "Bit Formats for Input Data Errors."
E001	Power error (*2)	Power failure is occurred	#1 * Power failure on CNT board
			#2 * Power failure on COD board
E003	Temperature error (*3)	Extreme temperature is detected	#1 TEMP1=t1 TEMP2=t2 FAN=xxxRPS
		(shutdown processing started)	#2 TEMP1=t1 TEMP2=t2 FAN=xxxRPS
			* Details are as follows:
			#1/#2: Number of the temperature sensors that is detected a
			temperature error
			t1. Temperature indicated by temperature sensor 1 t2: Temperature indicated by temperature sensor 2
			xxx: FAN rotational speed
F004	FlashROM error (*2)	Internal FlashROM access error	/dev/mtd0 to 15
LUUI		occurred	* Displays the occurrence range of access error.
E00A	FlashROM check sum error (*2)	Configuration data error detected in	software
		internal FlashROM	bundle software
			configuration
			configuration#1~#10
			option
			* Displays the range of check sum errors.
E010	FAN error (*4)	FAN error (low speed) is occurred	xxxRPS * xxx: FAN rotational speed

### **IP-900 Series**

Code	Name	Description	Details (The part after the * mark is not displayed.)
E013	Temperature warning (*4)	Temperature warning (alarm only) is	#1 TEMP1=t1 TEMP2=t2 FAN=xxxRPS
		detected	#2 TEMP1=t1 TEMP2=t2 FAN=xxxRPS
			* Details are as follows:
			#1/#2: Number of the temperature sensors that is detected a
			temperature warning.
			t1: Temperature indicated by temperature sensor 1
			t2: Temperature indicated by temperature sensor 2
			xxx: FAN rotational speed
E082	CODEC1 error	Main CODEC LSI error is detected	Blank, #1 * Displays the occurrence location of CODEC1 error.
E083	CODEC2 error	Sub CODEC LSI error is detected	-
E084	CF card access error (*6)	CF card access failure is detected	-
E085	CF card power error (*6)	Overcurrent to CF card is detected	-
E08B	SUB CPU1 error (*5)	SUB CPU1 error is detected	-
E08C	SUB CPU2 error (*5)	SUB CPU2 error is detected	-
E08E	Clock error (*2)	Clock error or interruption is detected	#1 to #4 * Indicates the location where a clock error is
			occurred.
E08F	Memory error (*2)	SDRAM memory check error is detected	#1 to #7 * Indicates the location where a memory error is
			occurred.
E093	Buffer overflow (*7)	Buffer overflow is occurred	#1, #2 * Indicates the location where a buffer overflow is
			occurred.

\*1: The DEC LED blinks while this alarm is active. The LED is turned off for 10 seconds after the error is restored.

Refer to 3. 2. 11 Performance Statistics for the details of the statistical information counter regarding the alarm.

\*2: After this error is occurred, the ALM LED remains on. The device is required to reboot to turn off the ALM LED.

\*3: If an extreme temperature is detected, all LEDs except LINK/ACT, 10/100 are on. The device is required to reboot to turn off the LEDs.

\*4: The ALM LED blinks while this alarm is active. The LED is turned off when the alarm cause is restored.

\*5: After this error is occurred, retry for restoration is the next step. If the retry for restoration is unsuccessful, the ALM LED remains on. The device is required to reboot to turn off the ALM LED.

\*6: After this error is occurred, the ALM LED remains to blink.

\*7: The ALM LED blinks while this alarm is active. The LED is turned off when the alarm cause is restored.

In case that the settings exceeds the capacity of the IP network, please reconfigure them to meet with the network requirement.

\*8: DEC LED blinks while reference error has been occurred. The LED is turned off after reference errors are restored.

Bit	63	62	61	60	59 - 0
Туре		Deco	ler		Undefined
Interface	IP	IP	IP	IP	
Performance stats	Number of reloading TS stream	Number of discontinu ous PCR	Number of video decoding errors	Number of audio decoding errors	Undefined

# Table 3-14 Input Data Error Bit Format

# 3.2.10 Log

Click <u>LOG</u> of the left frame in the Web screen and Log information appears in the right frame, where you can check the alarm log. Refer to <u>Table 3-15 Log Type</u> for details.

If you click the DELETE ALL LOGS button, the alarm log is detected completely.

\* Up to 100 log items per page can be saved to up to 10 pages (1,000 log items in total). Log items exceeding 1,000 items are overwritten beginning with the chronologically oldest items.

🖉 IP-900 ENCODER - Windows Internet	Explorer		
		🚽 👉 🗙 🚼 Google	
😭 🌈 IP-900 ENCODER			
Japanese	IP-900 ENCODER		
COMMON ENCODER RECORDE	R		Configuration1: data1 Software: VxxLxxx
COMMON ENCODER RECORDS CONFIGURATION • LOAD CONFIGURATION • COPY CONFIGURATION SETTINGS • BASIC • TIME ZONE & TIME SERVER • DATA PORT • DATA PORT • SIMP STATUS REPORT • OPERATION & STATUS • ALARM • LOG • PERFORMANCE STATS MAINTENANCE • DATE & TIME • SOFTWARE MANAGEMENT	DELETE ALL LOGS page : 1 (Display in descending time order.) No. Time Code Name Details		Configuration : data1 Software: VxxLxxx
REBOOT			
		All Rights Reserved, C	copyright(C) FUJITSU LIMITED 2008-2012

Figure 3-15 Log information screen

Code	Name	Description	Details (The part after the * mark is not displayed.)
0001	Boot (Power ON)	Normal start with the switch	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version yyyy: Configuration name
0002	Boot (Reset)	Normal start after reboot the equipment	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version yyyy: Configuration name
0004	Boot (Initial maintenance)	Normal start using the bundled firmware	-
0005	Boot (Maintenance)	Normal start in maintenance mode	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version
0006	Software update	Software is updated	yyyy: configuration name         VxxLxxxCxx -> VyyLyyyCyy         * Displays the new and old software versions.         VxxLxxxCxx: Old software version         VyyLyyyCyy: New software version
0007	Boot (Restart) (*1)	Restart because of CPU failure	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version yyyy: Configuration name
0008	Boot (Others) (*1)	Restart because of software failure	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version yyyy: Configuration name
0009	Shutdown	Shutdown with MNT button	-
000A	RTC initialization	RTC battery backup discharged electricity	-
000B	CF card initialization	CF card is formatted	-

## Table 3-15 Log Type

### **IP-900 Series**

Configuration update

Basic settings update

000C

000D

-

-

Configuration data is updated

Basic settings are updated

Code	Name	Description	Details (The part after the * mark is not displayed.)
000E	Configuration data change	Configuration data is changed	xxxx -> yyyy * Displays the old and new configuration names. xxxx: Old configuration name yyyy: New configuration name
000F	Configuration data initialization	Configuration data is initialized	-
0010	Option update	Option is installed	HD etc.
0020	Device reset	Reset the individual device	#11 * CODEC1 #21 * CODEC2 #12 * CODEC1(Audio stereo-2ch)
0030	Protect file recording start	Start the protected file recording	Network / DI / Network & DI * Displays the protect file recording start trigger
0031	Protect file recording stop	Stop the protected file recording	Trigger restoration / Timer expired / Full Date & Time change / Setting change / Others * Displays the protect file recording stop trigger
0032	Protect file release	Release the protected file	Timer expired / User * Displays the protect file release trigger
L001	Link error (LAN)	Link disconnection at a LAN port is occurred	-
*L001	Link error restoration (LAN)	Restored from link disconnection at a LAN port	10BaseT_HD/10BaseT_FD/100BaseTX_HD/100Base TX_FD * Displays the operating status of the LAN interface
L006	Time server synchronization failure	Time synchronization with the time server is failed	-
*L006	Time server synchronization success	Time synchronization with the time server is successful	-
L009	DHCP connection failure(*5)	DHCP server is disconnected	-
*L009	DHCP connection success(*5)	Connected to the DHCP server	xxx.xxx.xxx.xxx/yy,zzz.zzz.zzz * Displays the IPv4 address acquired from the DHCP server. xxx.xxx.xxx.i IPv4 address yy: Subnet mask bit count zzz.zzz.zzz.zzz: Gateway address

**IP-900 Series** 

Code	Name	Description	Details (The part after the * mark is not displayed.)	
L00A	PPPoE connection failure(*5)	PPPoE server is disconnected	-	
*L00A	PPPoE connection success(*5)	Connected to the PPPoE server	xxx.xxx.xxx/yy,zzz.zzz.zzz * Displays the IPv4 address acquired from the PPPoE server. xxx.xxx.xxx.xxx: IPv4 address yy: Subnet mask bit count zzz.zzz.zzz.zzz; Gateway address	
LOOE	DHCP connection update	IP address update is occurred during DHCP connection	xxx.xxx.xxx1/y1,zzz.zzz.zz1 -> xxx.xxx.xxx2/y2,zzz.zzz.zz2 * Displays the old and new IPv4 addresses acquired from the DHCP server. xxx.xxx.xxx1: Old IPv4 address y1: Old subnet mask bit count zzz.zzz.zzz1: Old gateway address xxx.xxx.xxx.xx2: New IPv4 address y2: New subnet mask bit count zzz.zzz.zz2. Zz2: New gateway address	
L00F	PPPoE connection update	IP address update is occurred during PPPoE connection	<pre>xxx.xxx.xxx.xx1/y1,zzz.zzz.zzz.zz1 -&gt; xxx.xxx.xxx.xx2/y2,zzz.zzz.zz2 * Displays the old and new IPv4 addresses acquired from the PPPoE server. xxx.xxx.xx1: Old IPv4 address y1: Old subnet mask bit count zzz.zzz.zzz.zz1: Old gateway address xxx.xxx.xxx.xx2: New IPv4 address y2: New subnet mask bit count zzz.zzz.zz2: New gateway address</pre>	
L010	Stateless address connection failure (*5)	IPv6 stateless address connection is failed	-	
*L010	Stateless address connection success(*5)	IPv6 stateless address is successfully connected	xxxx:xxxx::xxxx/yy * Displays the IPv6 address acquired from the router. xxxx:xxxx: :xxxx: IPv6 address yy: Subnet prefix length	

Code	Name	Description	Details (The part after the * mark is not displayed.)
L011	Stateless address update	IPv6 stateless address update is occurred	xxxx:xxxx::xxx1/y1 -> xxxx:xxxx::xxx2/y2 * Displays the old and new IPv6 addresses acquired from the router. xxxx:xxxx::xxx1: Old IPv6 address y1: Old subnet prefix length xxxx:xxxx::xxx2: New IPv6 address y2: New subnet prefix length
I001	SDI input down	HD/SD-SDI input signal is not detected	-
*I001	SDI input restoration	Normal HD/SD-SDI input	-
I002	HDMI input down	HDMI input signal is not detected	-
*I002	HDMI input restoration	Normal HDMI input	-
I003	Analog video input down	Analog video input signal is not detected	-
*I003	Analog video input restoration	Normal analog video input	-
1006	Reference clock input down (*9)	Input signal of external reference is not detected	-
*I006	Reference clock input restoration(*9)	Normal input of external reference	-
I011	Video synchronization error	Video input PLL synchronization error is occurred	
*I011	Video synchronization error restoration	Restored from video input PLL synchronization error	
I016	Reference clock synchronization failure (*9)	Synchronization failure with reference clock is occurred	-
*I016	Reference clock synchronization failure restoration (*9)	Synchronization failure with reference input is restored	-
I021	Input data error (*2)	Count-up is occurred in the performance data error counter	<ul><li>#xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</li></ul>
*I021	Input data error restoration (*2)	Restored from count-up of the performance data error counter	-
E001	Power error (*3)	Power error is occurred	<ul><li>#1 * Power error on CNT board</li><li>#2 * Power error on COD board</li></ul>

Code	Name	Description	Details (The part after the * mark is not displayed.)
E003	Temperature error (*4)	Extreme temperature (shutdown processing started) is detected	* Details are as follows: #1/#2: Number of the temperature sensor that is detected a temperature error t1: Temperature indicated by temperature sensor 1 t2: Temperature indicated by temperature sensor 2 xxx: FAN rotational speed
E004	FlashROM error (*3)	Internal FlashROM access error is occurred	/dev/mtd0 to 15 * Displays the range of access error.
E00A	FlashROM check sum error (*3)	Configuration data error is detected in internal FlashROM       Software         bundle software       configuration         configuration       configuration         bundle software       configuration         configuration       configuration#1~#10         * Displays the range of check sum errors.	
E010	FAN error (*5)	FAN error (low speed) is occurred	xxxRPS * xxx: FAN rotational speed
*E010	FAN error restoration (*5)	FAN speed is restored	xxxRPS * xxx: FAN rotational speed
E013	Temperature warning (*5)	Temperature warning (alarm only) is detected	<ul> <li>#1 TEMP1=t1 TEMP2=t2 FAN=xxxRPS</li> <li>#2 TEMP1=t1 TEMP2=t2 FAN=xxxRPS</li> <li>* Details are as follows:</li> <li>#1/#2: Number of the temperature sensors that is detected a temperature warning.</li> <li>t1: Temperature indicated by temperature sensor 1</li> <li>t2: Temperature indicated by temperature sensor 2</li> <li>xxx: FAN rotational speed</li> </ul>
*E013	Temperature warning restoration (*5)	Restored from temperature warning	<ul> <li>#1 TEMP1=t1 TEMP2=t2 FAN=xxxRPS</li> <li>#2 TEMP1=t1 TEMP2=t2 FAN=xxxRPS</li> <li>* Details are as follows:</li> <li>#1/#2 : Number of the temperature sensors that is detected a temperature warning restoration.</li> <li>t1: Temperature indicated by temperature sensor 1</li> <li>t2: Temperature indicated by temperature sensor 2</li> <li>xxx: FAN rotational speed</li> </ul>
E082	CODEC1 error	Main HD CODEC LSI error is detected	Blank, #1 * Displays the location of CODEC1 error.

**IP-900 Series** 

Code	Name	Description	Details (The part after the * mark is not displayed.)
E083	CODEC2 error	Sub CODEC LSI error is detected	-
E084	CF card access error (*7)	CF card access failure is detected	-
E085	CF card power error (*7)	Overcurrent to CF card is detected	-
E08B	SUB CPU1 error (*6)	SUB CPU1 error is detected	-
*E08B	SUB CPU1 error restoration (*6)	Restored from SUB CPU1 error	-
E08C	SUB CPU2 error (*6)	SUB CPU2 error is detected	-
*E08C	SUB CPU2 error restoration (*6)	Restored from SUB CPU2 error	-
E08E	Clock error (*3)	Clock error or interruption is detected	#1 to #4
			* Indicates the location where a clock error has
			occurred.
E08F	Memory error (*3)	SDRAM memory check error is detected	#1 to #7
			* Indicates the location where a memory error has
			occurred.
E093	Buffer overflow (*8)	Buffer overflow is occurred	#1, #2
			* Indicates the location where a buffer overflow has
			occurred.
*E093	Buffer overflow restoration (*8)	Restored from buffer overflow	#1, #2
			* Indicates the location of buffer overflow restoration.

- \*1: The ALM LED is on while this alarm is active. The LED is turned off when the error is restored.
- \*2: The DEC LED blinks while this alarm is active. The LED is turned off for 10 seconds after the error is restored. Refer to 3. 2. 11 Performance Statistics for the details of the performance data counter regarding the alarm.
- \*3: After this error is occurred, the ALM LED remains on. The device is required to reboot to turn off the ALM LED.
- \*4: If temperature warning is detected, all LEDs except LINK/ACT, 10/100 are on. The device is required to reboot to turn off the LEDs.
- \*5: The ALM LED blinks while this alarm is active. The LED is turned off when the alarm cause is restored.
- \*6: After this error is occurred, retry for restoration is the next step. If the retry for restoration is unsuccessful, the ALM LED remains on. The device is required to reboot to turn off the ALM LED.
- \*7: After this error is occurred, the ALM LED remains to blink.
- \*8: The ALM LED blinks while this alarm is active. The LED is turned off when the alarm cause is restored.
- In case that the settings exceeds the capacity of the IP network, please reconfigure them to meet with the network requirement.
- \*9: DEC LED blinks while reference error has been occurred. The LED is turned off after reference errors are restored.

# 

If an alarm occurs, the Fujitsu maintenance engineer may ask you to collect not only alarm log information but also detailed log information about the inside of the device. Save the detailed log information to a personal computer by click the [GET LOG] button, and then hand it over to the maintenance engineer.

# 3.2.11 Performance Stats

Click <u>PERFORMANCE STATS</u> of the left frame in the Web GUI and the Performance Stats screen appears in the right frame. Select the port from {Main Encoder (Ethernet), Sub Encoder, Decoder (Ethernet), Data Port} and the interval from {All, Hour, Day, Week or Month} and then click to check the various types of performance data shown in <u>Table 3-16 Performance Stats Items</u>.

Select {3sec, 5sec, or 10sec} from [Auto update] enables automatic updating of the performance data in specified time intervals. Select {none} from [Auto update] to disable automatic updating.

Click the DELETE ALL PERFORMANCE DATA button to delete all performance data.

P-900 ENCODER - Windows Internet	Explorer			
💽 🗢 🖉 http://10.0.0.1/			🚽 🛃 🗙 🚼 Google	
🚖 🌈 IP-900 ENCODER				
Japanaca	ID Q		5	
Japanese	19-3			
COMMON ENCODER RECORDE	R			Configuration1: data1 Software: VxxLxxx
COMMON	Performance Stat	ts		Auto update: 🛛 none 🛛 🖌
CONFIGURATION <ul> <li>LOAD CONFIGURATION</li> </ul>	DELETE ALL PERFORMAN	NCE DATA		
<u>COPY CONFIGURATION</u>	Port	Main encoder 🛛 👻		
SETTINGS BASIC	Interval unit	All 🗸	DISPLAY	
TIME ZONE & TIME SERVER	8-1	17 2007/08/22/14/20:20		
DATA PORT	Selected time 2007/08/25/ 10:08:-	47 - 2007/08/23/ 14:29:20	Counter	
• <u>SNMP</u>	Number of data pa	ackets sent	0	
STATUS REPORT	Number of FEC pa	ackets sent	0	
OPERATION & STATUS     ALARM	Number of ARQ req	uest received	0	
• LOG	Number of ARQ pa	ackets resent	0	
PERFORMANCE STATS				
MAINTENANCE				
DATE & TIME     CONTINUE NUMBER VANAGENTENT				
SOFTWARE MANAGEMENT				
REBOOT				
			All Rights Reserv	ed, Copyright(C) FUJITSU LIMITED 2008-2012

Figure 3-16 Performance Stats screen (Main Encoder)

🖉 IP-900 ENCODER - Windows Internet	Explorer		
		<u>▼</u> 5 × §	Google
🔶 🌈 IP-900 ENCODER			
Japanese	IP-900 E	NCODER	
COMMON ENCODER RECORDI	R		Configuration1: data1 Software: VxxLxxx
COMMON	Performance Stats		Auto update: none 💌
CONFIGURATION <ul> <li>LOAD CONFIGURATION</li> </ul>	DELETE ALL PERFORMANCE DATA	λ	
<u>COPY CONFIGURATION</u> SETTINGS	Port Sub enco	ider 💌	SPLAY
BASIC     TIME ZONE & TIME SERVER	Selected time 2007/08/23/ 10:08:47 - 2007/0	8/23/ 14:29:20	
• <u>DATA PORT</u> • <u>SNMP</u>	Item Number of data packets sent	Counter 0	
OPERATION & STATUS     ALARM	Number of FEC packets sent Number of ARQ request receive	0 ed 0	
• LOG	Number of ARQ packets reserved	t 0	
MAINTENANCE			
<u>SOFTWARE MANAGEMENT</u>			
REBOOT			
		A11 R:	ghts Reserved, Copyright(C) FUJITSU LIMITED 2008-2012

Figure 3-17 Performance Stats screen (Sub Encoder)
🖉 IP-900 DECODER - Windows Internet	: Explorer		
💽 🗢 🙋 http://10.0.0.1/		🗾 😽 🗙 🚼 Google	<b>Q</b>
2 P-900 DECODER			
Japanese	IP-900 DECOD	ER	
COMMON DECODER			Configuration1: data1 Software: VxxLxxx
COMMON	Performance Stats		Auto update: 🛛 none 🛛 🖌
CONFIGURATION <ul> <li>LOAD CONFIGURATION</li> </ul>	DELETE ALL PERFORMANCE DATA		
<u>COPY CONFIGURATION</u>	Port Decoder	•	
SETTINGS  • BASIC	Interval unit All	DISPLAY	
<u>TIME ZONE &amp; TIME SERVER</u>	Selected time 2007/08/23/ 10:08:47 - 2007/08/23/ 14:29:20		^
DATA PORT	Item	Counter	
• <u>SNMP</u>	Number of data packets received	0	
STATUS REPORT	Number of data packets recovered	0	
OPERATION & STATUS	Number of data packets lost	0	
• <u>ALARIN</u> • LOG	Number of FEC packets received	0	
• LOG	Number of ARQ packets received	0	
PERFORMANCE STATS	Number of data packets recovered by FEC	0	
DATE & TIME	Number of ARQ request sent	0	Ξ.
SOFTWARE MANAGEMENT	Number of data packets recovered by ARQ	0	
	Number of data loss exceeding concealment time	0	
REBOOT	Number of reloading TS stream	0	
	Number of discontinuous PCR	0	
	Number of jitter control buffer exceeded capacity	0	
	Number of video decoding errors	0	
	Number of audio PES format mismatch	0	
	Number of audio decoding errors	0	•
		A11 Rights Reserved	, Copyright(C) FUJITSU LIMITED 2008-2012

Figure 3-18 Performance Stats screen (Decoder)

P-900 ENCODER - Windows Internet	Explorer			
💽 🗢 🖉 http://10.0.0.1/			🗾 🐓 🗙 🚼 Google	
🔶 🌈 IP-900 ENCODER				
Japanese	19-900	DENCODER		
COMMON ENCODER RECORDE	R			Configuration1: data1 Software: VxxLxxx
COMMON	Performance Stats			Auto update: none 💌
CONFIGURATION <ul> <li>LOAD CONFIGURATION</li> </ul>	DELETE ALL PERFORMANCE	DATA		
<u>COPY CONFIGURATION</u>	Port Dat	a port 💌		
SETTINGS	Interval unit All	*	DISPLAY	
TIME ZONE & TIME SERVER	Salastad time 2007/09/22/ 10:09:47	2007/08/22/ 14-20-20		
DATA PORT	Item	2007/08/23/14.29.20	Counter	
• <u>SNMP</u>	Number of data received in byt	e on RS-232C	0	
STATUS REPORT	Number of data sent in byte	on RS-232C	0	
ALARM	Number of data received in byte	e on LAN port	0	
• <u>LOG</u>	Number of data sent in byte of	on LAN port	0	
PERFORMANCE STATS				
MAINTENANCE				
DATE & TIME     SOFTWARE MANAGEMENT				
REBOOT				
			All Rights Reserved	, Copyright(C) FUJITSU LIMITED 2008-2012

Figure 3-19 Performance Stats screen (Data port)

Port	Item	Description	Display
Main Encoder (Ethernet)	Number of data packets sent	Displays the number of audio and video data packets sent.	{} The counter restarts counting from 0 after it expires.
* Displayed only for	Number of FEC packets sent	Displays the number of FEC/SMPTE2022-1 FEC packets sent.	{} The counter restarts counting from 0 after it expires.
encoder	Number of ARQ request received	Displays the number of ARQ requests received.	{} The counter restarts counting from 0 after it expires.
	Number of ARQ packets resent	Displays the number of ARQ packets resent.	{} The counter restarts counting from 0 after it expires.
Sub Encoder * Displayed	Number of data packets sent	Displays the number of audio and video data packets sent.	{} The counter restarts counting from 0 after it expires.
only for encoder (*2)	Number of FEC packets sent	Displays the number of FEC/SMPTE2022-1 FEC packets sent.	{} The counter restarts counting from 0 after it expires.
	Number of ARQ request received	Displays the number of ARQ requests received.	{} The counter restarts counting from 0 after it expires.
	Number of ARQ packets resent	Displays the number of ARQ packets resent.	{} The counter restarts counting from 0 after it expires.
Decoder (Ethernet)	Number of data packets received	Displays the number of audio and video data packets received.	{} The counter restarts counting from 0 after it expires.
* Displayed only for decoder	Number of data packets recovered	Displays the number of media packets recovered by the FEC/SMPTE2022-1 FEC/ARQ error correction function.	{} The counter restarts counting from 0 after it expires.
	Number of data packets lost	Displays the number of data packets that were abandoned on the network and could not be received. * This includes the number of media packet recovered by the FEC/SMPTE2022-1 FEC/ARQ error correction function.	{} The counter restarts counting from 0 after it expires.
	Number of FEC packets received	Displays the number of FEC/SMPTE2022-1 FEC packets sent.	{} The counter restarts counting from 0 after it expires.
	Number of ARQ packets received	Displays the number of data packets received by ARQ.	{} The counter restarts counting from 0 after it expires.
	Number of data packets recovered by FEC	Displays the number of packets recovered with the FEC/SMPTE2022-1 FEC method.	{} The counter restarts counting from 0 after it expires.
	Number of ARQ request sent	Displays the number of ARQ request packets sent when a packet was lost.	{} The counter restarts counting from 0 after it expires.
	Number of data packets recovered by ARQ	Displays the number of data packets recovered by ARQ.	{} The counter restarts counting from 0 after it expires.

Table 3-16	Performance	Stats	Items
------------	-------------	-------	-------

Port	Item	Description	Display
	Number of data	3.5.1 Setting (Decoder)	{}
	loss exceeding	Displays the number of displaying	The counter restarts counting from 0 after it
	concealment time	"blue" or "gray" image not	expires.
		the setting value of [Dealect	
		non-receiving recognition time	
Decoder	Number of	Displays the number of reloading	{}
(Ethernet)	reloading TS	TS stream without restoring	The counter restarts counting from 0 after it
(200000)	stream	packets because of many packets	expires.
* Displayed		lost.	1
only for		* In the following situation, the	
decoder		number is counted.	
		<u>3.5.1 Setting (Decoder)</u>	
		- [ARQ operation] is performed.	
		- when the number of data packets	
		- [ARO operation] is not	
		performed.	
		- When the number of data packets	
		lost is 24 packets or more.	
	Number of	Displays the number of	{}
	discontinuous PCR	discontinuous PCR values detected	The counter restarts counting from 0 after it
	(*1)	during decoding.	expires.
	Number of jitter	Displays the number of video skip	{}
	control buffer	or repeat that occurs when the	The counter restarts counting from 0 after it
	exceeded capacity	itter of the reception packets	explices.
		* It can be lowered by increasing	
		"Jitter control buffer" in "3.5.1	
		Setting (Decoder)".	
		* Its counter may increase even if	
		there is no network jitter when the	
		decoder receives the stream which	
		video resolution is set to 352x288	
		or lower, or which video frame rate	
		"3 3 1 Setting (Encoder)" or	
		which is generated by Fujitsu	
		IP-700II.	
	Number of video	Displays the number of video	{}
	decoding errors	decoding errors detected during	The counter restarts counting from 0 after it
	(*1)	decoding.	expires.
	Number of audio	Displays the number of times that	{}
	PES format	an audio PES packet that the	The counter restarts counting from 0 after it
	mismatch	decoder does not regard as being	expires.
		This is counted specifically in the	
		following cases	
		•For MPEG-1 Laver 2/MPEG-2	
		AAC	
		-During reception of an audio	
		stream that is not 1PES/1AAU.	
	Number of audio	Displays the number of audio	{}
	decoding errors	decoding errors detected during	The counter restarts counting from 0 after it
Determent	(*1) Normhan a Cilata	Dimbor the number of late 1.	expires.
Data port	number of data	Displays the number of data bytes	{} The counter restarts counting from 0 after it
	RS-232C	port.	expires.

Port	Item	Description	Display
	Number of data	Displays the number of data bytes	{}
	sent in byte on	sent to the RS-232C port.	The counter restarts counting from 0 after it
	RS-232C	_	expires.
	Number of data	Displays the number of data bytes	{}
	received in byte on	received through the LAN port.	The counter restarts counting from 0 after it
	LAN port		expires.
	Number of data	Displays the number of data bytes	{}
	sent in byte on	sent to the LAN port.	The counter restarts counting from 0 after it
	LAN port		expires.

Note) Each counter consisted of 32 bits can be counted up to 4294967295.

\*1: In case the count-up is made in this counter, DEC LED blinks for 10 seconds, I021 (Input data error) is saved as the log information.

\*2: Not displayed in case "Main H.264/MPEG-4 AVC 2stereo" is set for [Operation mode].

# 3.2.12 Date & Time

Two types of setting modes are available. In one mode, you can enter arbitrary date and time data. In another mode, you can instruct the system to synchronize with the time server on the network.

Click <u>DATE & TIME</u> of the left frame in the Web GUI and the Date & Time screen appears in the right frame, where you can set the date and time of the clock built in IP-900 series.

Click the <u>APPLY PC TIME</u> button to set the date and time of the PC. Click the <u>MANUAL UPDATE</u> button after entering an arbitrary date and time sets the specified date and time.

Click the <u>SYNCHRONIZE WITH TIME SERVER</u> button to promptly adjust the time with the time server specified in Section 3.2.5, "Time Zone & Time Server." This function is enabled only when "Enable" is specified for Auto Synchronization.

\* Any date and time between 00:00:00 on January 1, 1980 and 23:59:59 on December 31, 2030 can be specified.



Figure 3-20 Date & Time screen

# 3.2.13 Software Management

Click SOFTWARE MANAGEMENT of the left frame in the Web GUI and the Software Management screen appears in the right frame, where you can install software or restore, save or delete configuration data.

🖉 IP-900 ENCODER – Windows Internet	Explorer		
		🗾 🗲 🗙 🚼 Goo	gle 🖉 🗸
🔶 🏉 IP-900 ENCODER			
Japanese	IP-900 I	ENCODER	
COMMON ENCODER RECORDE	R		Configuration1: data1 Software: VxxLxx
COMMON	Software Management	t	
CONFIGURATION  • LOAD CONFIGURATION  • COPY CONFIGURATION	Software Current software version	VxxLxxxCxx	<b>^</b>
SETTINGS  • <u>BASIC</u>	New software		Browse_
<u>TIME ZONE &amp; TIME SERVER</u> <u>DATA PORT</u> <u>SNMP</u>	INSTALL		
STATUS REPORT  OPERATION & STATUS	Configuration Configuration file to be restored		Browse_
ALANM     LOG     PERFORMANCE STATS	RESTORE		
MAINTENANCE  • <u>DATE &amp; TIME</u>	BACKUP		
SOFTWARE MANAGEMENT     REBOOT	DELETE ALL		
	Option		
	INSTALL	-  -  -	~
		A11 Rights Re	sserved, Copyright(C) FUJITSU LIMITED 2008-2013

Figure 3-21 Software Management screen

■ Software

Specify the new file to be installed, click the **INSTALL** button to start installing the software. The latest version can be downloaded from

"http://www.fujitsu.com/global/products/computing/peripheral/video/download/"

## Configuration

 $\times$  Configuration Restoration

Specify the file containing all configuration data and then click the **RESTORE** button to restore all the configuration data, which was saved previously, to IP-900 series.

× Configuration Backup

All the configuration data currently stored in IP-900 series can be backed up to the PC by click the BACKUP button.

 $\times$  Deletion of the configuration data

All the configuration data currently stored in IP-900 series can be initialized by click the DELETE ALL button. This operation also resets information including the IP address to the state before shipment from the factory

### Option

Enter the license key and click the **INSTALL** button to start installing the option.

OSS license

To download the terms and conditions file for OSS (Open Source Software), click the **DOWNLOAD** button.

	Item	Description
Software	Current software version	Displays the software version.
		V L C is displayed immediately after shipment from the
		factory.
	New software	Specify the full path of the file to be installed. The Browse
		button can also be used to select the file.
Configuration	Configuration file to be	To restore all the configuration data, specify the full path of the
	restored	file. The Browse button can also be used to select the file.
	RESTORE	Use this button to restore all the configuration data.
		This button is enabled when a file name is specified in the
		"Configuration file to be restored" field.
	BACKUP	Use this button to back up all the configuration data from the
		IP-900 series to the PC.
	DELETE ALL	Use this button to delete all the configuration data from the
		IP-900 series.
		This operation resets all the configuration data to the default.
Option	Option license key	Enter the license key obtained when the optional license was
	purchased.	
	Installed option	Names of installed options are displayed.

# Table 3-17 Software Management Items

# **▲** CAUTION

If all the configuration data is changed (restored or deleted), the IP address, subnet mask, and gateway may be changed. Note that this may cause an unexpected problem in your network.

Do not turn power off or press the MNT button while all the configuration data is being changed (being restored or deleted). Otherwise, you may prevent IP-900 series from starting.

If you access another Web screen while all the configuration data is being changed (being restored or deleted), you may lose information on the progress of the changing.

# 3.2.14 Reboot

Click **REBOOT** button in the left frame of the Web screen. The dialog box shown below appears for confirmation. Click the OK button to reboot.

Microsof	ft Internet Explorer	X
2	Are you sure you want to rel	boot?
	OK Cancel	

3.3

# Encoder

# 3.3.1 Setting (Encoder)

\* Settings is a group of setting items, of which 10 sets can be registered independently by selecting data numbers as in <u>3.2.1 Configuration Data</u>.

Set parameters related to encoding. Make the required settings by referring to <u>Table 3-18</u> <u>Encoder Setting Items</u> and <u>Table 3-19 Main encoder/Sub encoder System Bit Rate Setting</u> <u>Range</u>

The same screen is displayed for <u>SETTINGS</u>, <u><AV input settings> Video</u>, <u>Audio</u>, <u><Output interface</u> <u>settings> Main encoder and Sub encoder ethernet</u>, <u><Main encoder settings> Encode</u>, <u>PID</u>, and <u><Sub</u> <u>encoder settings> Encode</u>, <u>PID</u> which are located in the frame on the left side of the Web screen. By click on the tab for each, the settings screen for each is displayed at the top of the frame on the right side.

🖉 IP-900 ENCODER – Windows Internet	Explorer				
		<b>- -</b>	🗙 🚼 Google		<mark>.</mark>
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Japanese	IP-900 EN	CODER			
COMMON ENCODER RECORDE	R			Configuration1: da	tal Software: VxxLxxx
ENCODER • <u>settings</u>	Settings	n Ethernet bit rate (max streams:1) (max 5.5284Mbps ×1	stem bit rate (12.000Mbps) 4.7792Mbps	Ethernet bit rate (max streams:1) 5.0200Mbps ×1	System bit rate (max:12.000Mbps) 4.7792Mbps
<av input="" settings=""> <ul> <li>Video</li> </ul></av>	AV input settings(Video)				
<ul> <li>Audio</li> <li>&lt; Output interface settings&gt;     <li>Main encoder ethernet     <li>Sub encoder settings&gt;</li> <li>Encode</li> <li>PID</li> <li>Sub encoder settings&gt;     <li>Encode     <li>PID</li> <li>ENCODER ADDRESS REPORT     <li>Main encoder     <li>Sub encoder     <li>Sub encoder     <li>Sub encoder     <li>Sub encoder     <li>Main encoder     <li>Sub encoder     <li>Main encoder     <li>Main encoder     <li>Main encoder     <li>Main encoder     </li> </li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></ul>	Video input port Video resolution Video format Analog video setup Analog video AGC Display when no video input signal Buffer for video input AV input settings(Audio) Audio input port Audio input channel	<ul> <li>SDI</li> <li>SD</li> <li>480i ▼ / 59.94</li> <li>Enable</li> <li>Enable</li> <li>Color bar</li> <li>Enable</li> <li>SDI ▼</li> <li>Channel1 ▼</li> </ul>	<ul> <li>HDMI</li> <li>HD</li> <li>Disable</li> <li>Disable</li> <li>Gray</li> <li>Disable</li> </ul>	○ Analog ○ Black	
Sub-encoder <u>OPERATION &amp; STATUS</u> <u>REBOOT</u>	Output interface settings(Main en IP version Streaming mode Acceptable stream number	IPv4 V Multicast	V		

Figure 3-22 Settings Screen (Encoder)

After completing the settings, click the APPLY button. The message below appears. Click OK to apply the settings. \* Reboot is not required.

Microsoft Internet Explorer				
2	Do you want to save Configuration 1 "data1" and apply the new settings?			
	OK Cancel			

\* About [Operation Mode]

MODE1: in case of setting "Main H.264/MPEG-4 AVC 1stereo | Sub H.264/MPEG-4 AVC 1stereo" for [Operation mode].

MODE2: in case of setting "Main H.264/MPEG-4 AVC 2stereo" for [Operation mode].

×: Enable —: Disable

\* Please refer to 3.2.6 Data Port" for the detail of [Operation mode].

Item		Description	Parameter	Operation mode	
				MODE	MODE
				1	2
Cpu Utilizatio	on	Displays the CPU utilization for IP streaming. The CPU utilization increases in accordance with the Ethernet rate of the main encoder and sub encoder. No settings can be made that will cause the CPU utilization to exceed 100%.	You cannot specify this item.	×	×
Main SD/HD	Ethernet bit rate	Displays in units of bps the Ethernet bit rate for the main encoder that is currently set.	You cannot specify this item.	×	×
	System bit rate	Displays in units of bps the system bit rate for the main encoder that is currently set.	You cannot specify this item.	×	×
Sub SD/HD	Ethernet bit rate	Displays in units of bps the Ethernet bit rate for the sub encoder that is currently set.	You cannot specify this item.	×	-
	System bit rate	Displays in units of bps the system bit rate for the sub encoder that is currently set.	You cannot specify this item.	×	-
AV input settings (Video)	Video input port	Specify the interface for video signal input. * HDMI input does not support HDCP. Signals encrypted for the purpose of copyright protection cannot be input.	- SDI (Default) - HDMI - Analog	×	×

# Table 3-18 Encoder Setting Items

Item		Description	Parameter	Operation mode	
		read the second s		MODE	MODE
				1	2
AV input settings (Video)	Video resolution	Specify the input resolution of the video signal. * The contents that can be set depend on the [Video input port] setting. * To specify HD, the HD software option needs to have been installed.	- SD (Default) - HD	×	×
	Video format	Specify the input format of the video signal.	Refer to <u>Table 3-21 Video</u> Format (Main Encoder) for set value.	×	×
	Analog video setup	* If "Analog" is specified for [Video input port], specify the setup level of the analog video input signal.	- Enable: 7.5 IRE - Disable (Default): Same as the pedestal level	×	×
	Analog video AGC	* If "Analog" is specified for [Video input port], specify whether to enable automatic gain control of the analog video input signal.	- Enable (Default) - Disable	×	×
	Display when no video input signal	Specify the fixed image to be sent when the video input is interrupted.	- Color bars (Default) - Gray - Black	×	×
	Buffer for video input	Specify whether to enable the protection buffer for video signal input. * If "Enable" is specified, a delay of up to 1 frame is caused, but video input error resistance is improved.	- Enable (Default) - Disable	×	×
AV input settings (Audio)	Audio input port	Specify the input format of the audio signal.	Refer to <u>Table 3-32 Audio</u> Input Port (Main Encoder) for set value.	×	×
(Audio)	Audio1 input channel	Specify the AES channels for Audio1 of the main encoder only when "SDI" is specified for [Audio input port]. * The input channel specified for [Audio input channel] is also specified for Audio of the sub encoder.	Channel1 to Channel8 (Default: Channel1)	×	×
	Audio2 input channel	Specify the AES channels for Audio2 of the main encoder only when "SDI" is specified for [Audio input port].	Channel1 to Channel8 (Default: Channel2)	-	×
	Input level (*)	Specify the audio input level only when "Analog" is specified for [Audio input port]	-20dBm (Max. 0dBm) 0dBm (Max. 20dBm) (Default) * This function is applicable only for IP-920.	×	×

Item		Description	Parameter	Operation mode	
		1		MODE 1	MODE 2
Output interface settings (Main encoder ethernet)	IP version	Specify the IP version of the IP stream for streaming.	- IPv4 (Default) - IPv6	×	×
	Streaming mode	Specify the streaming method for the IP interface.	<ul> <li>Multicast (Default)</li> <li>Unicast (simplex) : Specifying streaming destination</li> <li>Unicast : Accepting streaming request</li> </ul>	×	×
A st S d a	Acceptable stream number	Specify the number of possible streams. * The contents that can be set depend on the [System bit rate] setting. * If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode], only "1" can be specified.	1 to 4 (System rate is to 5.750 Mbps) 1 to 3 (System rate is 5.751 to 7.666 Mbps) 1 to 2 (System rate is 7.667 to 11.500 Mbps) 1 (System rate is 11.501 Mbps or higher) (Default: 1)	×	×
	Streaming destination IP address	If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode], specify the destination IP address of the streaming IP stream.	IP address (Default: 230.11.3.1) Setting the following values is inhibited: [IPv4] 240.0.0.0 to 255.255.255.255 (Class E) 0.0.0.0, 127.0.0.0 to 127.255.255.255 [IPv6] 0::0	×	×
	TTL	Set IP packet TTL value	1 to 255 (Default: 128)	×	×
	ARP auto update	If "Unicast (simplex)" is specified for [Streaming mode], specify whether to send ARP at regular intervals to check the communication with the streaming destination.	- Enable (Default) - Disable	×	×
	ID control for unicast	If "Unicast" is specified for [Streaming mode], specify whether to check the ID for confirming the validity of a unicast stream request.	<ul> <li>Enable</li> <li>Disable (Default)</li> <li>* If "Enable" is selected, the Unicast ID of the encoder and that of the decoder must be in agreement to perform streaming.</li> </ul>	×	×
	Unicast ID	If "Enable" is selected for [ID control for unicast], specify the ID to be used for confirming the validity of a unicast streaming request.	0000~ffff in Hexadecimal	×	×
	FEC	Specify whether to generate FEC packets.	- Enable (Default) - Disable	×	×

Item		Description	Parameter	Operation mode	
		Ĩ		MODE	MODE
				1	2
Output interface	FEC interval	Set the insertion interval for generating an FEC packet.	4 to 24 (Default: 10)	×	×
settings (Main encoder ethernet)	ARQ	If "Unicast" is specified for [Streaming mode], specify whether to enable the ARQ error correction method.	- Enable - Disable (Default)	×	×
,	TOS	Set IP packet TOS value.	00~ff in Hexadecimal (Default: 0)	×	×
	Protocol	If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode] and "Disable" is selected for [FEC], specify the IP transport protocol.	<ul> <li>UDP</li> <li>RTP (Default)</li> <li>* If "UDP" is selected,</li> <li>"Standard TS" is fixedly</li> <li>selected for [Stream format].</li> </ul>	×	×
	Stream format	If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode], "Disable" is selected for [FEC], and "RTP" is specified for [Protocol], specify the stream format.	<ul> <li>Standard TS</li> <li>Time stamped TS (Default)</li> </ul>	×	×
	SMPTE2022 FEC	If "Standard TS" is selected for [Stream format], specify whether to generate SMPTE2022-1 FEC packets.	- Enable - Disable (Default)	×	×
	SMPTE2022 Matrix	If "Enable" is selected for [SMPTE2022 FEC], specify the generation matrix values for FEC packets.	A value of [4 to 20] x [4 to 20] can be set. (Default: 10 x 10) * N x N values that exceed 100 cannot be set.	×	×
Output interface settings (Main	Streaming port	Specify the own device port number used for sending streams.	0, 1024 to 64000 (Default: 0) * If 0 is set, a port number between 64100 and 65000 is automatically selected.	×	×
encoder ethernet port)		Specify the port number of the destination device used for sending streams.	1024 to 64000 (Default: 5000)	×	×
	Unicast request port	Specify the port number of the own device used for receiving a unicast streaming request.	1024 to 64000 (Default: 9900)	×	×
	ARQ control port	Displays the port number of the own device used for controlling ARQ.	You cannot specify this item. * This item is automatically set according to the [Streaming port] setting.	×	×
	SMPTE2022 FEC port	Displays the port number of the own device used for sending SMPTE2022-1 FEC.	You cannot specify this item. * This item is automatically set according to the [Streaming port] setting.	×	×
Output interface settings (Sub encoder ethernet)	IP version	Specify the IP version of the IP stream for streaming.	- IPv4 (default) - IPv6	×	_

Item		Description	Parameter	Operation mode	
		I. I		MODE	MODE
				1	2
Output interface settings (Sub encoder ethernet)	Streaming mode	Specify the streaming method for the IP interface.	<ul> <li>Multicast (Default)</li> <li>Unicast (simplex) : Specifying streaming destination</li> <li>Unicast : Accepting streaming request</li> </ul>	×	-
	Acceptable stream number	Specify the number of possible streams. * The contents that can be set depend on the [System bit rate] setting. * If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode], only "1" can be specified.	1 to 4 (System rate is to 5.750 Mbps) 1 to 3 (System rate is 5.751 to 7.666 Mbps) 1 to 2 (System rate is 7.667 to 11.500 Mbps) 1 (System rate is 11.501 Mbps or higher)	×	-
			(Default: 1)		
	Streaming destination IP address	If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode], specify the destination IP address of the streaming IP stream.	IP address (Default: 230.11.3.1) Setting the following values is inhibited: [IPv4] 240.0.0.0 to 255.255.255.255 (Class E) 0.0.0.0, 127.0.0.0 to 127.255.255.255 [IPv6] 0::0	×	-
	TTL	Set IP packet TTL value.	1 to 255 (Default: 128)	×	-
	ARP auto update	If "Unicast (simplex)" is specified for [Streaming mode], specify whether to send ARP at regular intervals to check the communication with the streaming destination.	<ul><li>Enable (Default)</li><li>Disable</li></ul>	×	-
	ID control for unicast	If "Unicast" is specified for [Streaming mode], specify whether to check the ID for confirming the validity of a unicast stream request.	<ul> <li>Enable</li> <li>Disable (Default)</li> <li>* If "Enable" is selected, the Unicast ID of the encoder and that of the decoder must be in agreement to perform streaming.</li> </ul>	×	-
	Unicast ID	If "Enable" is selected for [ID control for unicast], specify the ID to be used for confirming the validity of a unicast streaming request.	0000~ffff in Hexadecimal (Default: 0000)	×	-
	FEC	Specify whether to generate FEC packets.	- Enable (Default) - Disable	×	-
	FEC interval	Set the insertion interval for generating an FEC packet.	4 to 24 (Default: 10)	×	-

Item		Description	Parameter	Operation mode	
				MODE 1	MODE 2
	ARQ	If "Unicast" is specified for [Streaming mode], specify whether to enable the ARQ error correction method.	- Enable - Disable (Default)	×	-
Output interface	TOS	Set IP packet TOS value.	00~ff in Hexadecimal (Default: 0)	×	-
settings (Sub encoder ethernet)	Protocol	If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode] and "Disable" is selected for [FEC], specify the IP transport protocol.	- UDP - RTP (Default) * If "UDP" is selected, "Standard TS" is fixedly selected for [Stream format].	×	-
	Stream format	If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode], "Disable" is selected for [FEC], and "RTP" is specified for [Protocol], specify the stream format.	<ul> <li>Standard TS</li> <li>Time stamped TS (Default)</li> </ul>	×	-
	SMPTE2022 FEC	If "Standard TS" is selected for [Stream format], specify whether to generate SMPTE2022-1 FEC packets.	- Enable - Disable (Default)	×	-
	SMPTE2022 Matrix	If "Enable" is selected for [SMPTE2022 FEC], specify the generation matrix values for FEC packets.	A value of [4 to 20] x [4 to 20] can be set. (Default: 10 x 10) * N x N values that exceed 100 cannot be set.	×	-
Output interface settings (Sub	Streaming port	Specify the own device port number used for sending streams.	0, 1024 to 64000 (Default: 0) * If 0 is set, a port number between 64100 and 65000 is automatically selected.	×	-
encoder ethernet port)		Specify the port number of the destination device used for sending streams.	1024 to 64000 (Default: 5010)	×	-
	Unicast request port	Specify the port number of the own device used for receiving a unicast streaming request.	1024 to 64000 (Default: 9910)	×	-
	ARQ control port	Displays the port number of the own device used for controlling ARQ.	You cannot specify this item. * This item is automatically set according to the [Streaming port] setting.	×	-
	SMPTE2022 FEC port	Displays the port number of the own device used for sending SMPTE2022-1 FEC.	You cannot specify this item. * This item is automatically set according to the [Streaming port] setting.	×	-
Main encoder settings (Encode)	Encoding operation	Specify whether to start encoding operation after the device is started or after the main encoder settings are changed.	- Enable - Disable (Default)	×	×
	Bit rate mode	Specify how the bit rate is specified.	<ul><li>- Video bit rate (Default)</li><li>- System bit rate</li></ul>	×	×

Item		Description	Parameter	Operati	on mode
		- ···· · · · · · ·		MODE	MODE
				1	2
	System bit rate - HD -	If "HD" is specified for [Video resolution] and "System bit rate" is specified for [Bit rate mode], specify the system bit rate of the stream to be distributed	Refer to <u>Table 3-19 Main</u> <u>encoder/Sub encoder System</u> <u>Bit Rate Setting Range</u> for set value.	×	×
Main encoder settings	Video resolution - HD -	If "HD" is specified for [Video resolution], specify the resolution of the video to be encoded.	Refer to <u>Table 3-22 Video</u> <u>Resolution (Main Encoder)</u> for set value.	×	×
(Encode)	Video frame rate - HD -	If "HD" is specified for [Video resolution], specify the frame rate of the video to be encoded. *Please select one of "29.97fps", "25fps" or "30fps" which is conformed to input video format. In case of using low bit rate with keeping video resolution, please select one of options except "29.97fps", "25fps" and "30fps". Please note that in this case, video image may become unsmoothed because interlaced video is thinned down and encoded.	Refer to <u>Table 3-23 Video</u> <u>Frame Rate (Main Encoder)</u> for set value.	×	×
	Encoding control mode - HD -	If "HD" is specified for [Video resolution], specify the control mode for video encoding.	<ul> <li>Quality (IBBP) (Default)</li> <li>Motion (IBP)</li> <li>Low Latency (PPPP)</li> <li>Low Latency (IPPP)</li> <li>Ultra Low Latency (PPPP)</li> </ul>	×	×
	GOP - HD -	If "HD" is specified for [Video resolution], specify the GOP.	Refer to <b>Table 3-25 GOP</b> ( <b>Main Encoder</b> ) for set value.	×	×
	Video bit rate - HD -	If "HD" is specified for [Video resolution] and "Video bit rate" is specified for [Bit rate mode], specify the video bit rate.	Refer to <u>Table 3-26 Video Bit</u> <u>Rate (Main Encoder)</u> for set value.	×	×
	Bit rate mode - HD -	If "HD" is specified for [Video resolution], specify the bit rate mode of the video to be encoded.	- CBR (Default)	×	×
	Video PES - HD -	If "HD" is specified for [Video resolution], specify the PES structure of video encoding.	Refer to <u>Table 3-28 Video</u> <u>PES (Main Encoder)</u> for set value.	×	×
	Profile - HD -	If "HD" is specified for [Video resolution], specify the profile of the video encoding mode.	- High profile (Default) - Main profile	×	×
	PPS interval - HD -	If "HD" is specified for [Video resolution], specify the PPS interval for video encoding.	- GOP (Default) - Picture	×	×
	PPS ID - HD -	If "HD" is specified for [Video resolution], specify the PPS ID mode for video encoding.	- Fixed (Default) - Variable	×	×
	Pre-Filter - HD -	If "HD" is specified for [Video resolution], specify the strength of the pre-filter.	- OFF (Default) - LIGHT - MEDIUM - HEAVY	×	×

Item		Description	Parameter	Operati	on mode
item		Description	i didiletei	MODE	MODE
				1	2
	Refresh cycle	If "HD" is specified for [Video	Refer to Table 3-30 Refresh	×	×
	- HD -	resolution] specify the refresh	Cycle (Main Encoder) for set		
	- 110 -	cycle	value		
		* The longer the refresh cycle is set the	value.		
		more video quality improves: however.			
		it takes longer to restore from video			
		error by receive data error on the			
		decoder.			
	Audio1 format	If "HD" is specified for [Video	- MPEG-1 Layer2 (Default)	×	×
	- HD -	resolution], specify the audio1	- MPEG-2 AAC		
		encoding format.	- None		
	Audio1 bit rate	If "HD" is specified for [Video	Refer to Table 3-33 Audio Bit	×	×
	- HD -	resolution], specify the audio1 bit	Rate, Audio Bit Rate Mode		
		rate.	(Main Encoder) for set value.		
Main	Audio1 bit rate	If "HD" is specified for [Video	Refer to Table 3-33 Audio Bit	×	×
encoder	mode	resolution], specify the audio1 bit	Rate, Audio Bit Rate Mode		
settings	- HD -	rate mode to encode.	(Main Encoder) for set value.		
(Encode)					
	Audio1 language	If "HD" is specified for [Input	Blank or 3 single-byte	×	×
	code	resolution] specify the Audio1	characters (Default: Blank)		
	- HD -	language code in three-letter code			
	IID	of ISO 620.2			
		01150 037-2.			
		* Refer to <u>Table 3-20 Main ISO 639-2</u>			
		Language Code for the main language			
		code.			
	Audio2 format	If "HD" is specified for [Input	- MPEG-1 Layer2 (Default)	-	×
	- HD -	resolution], specify the audio2	- MPEG-2 AAC		
		encoding format.	- None		
	Audio2 bit rate	If "HD" is specified for [Input	Refer to Table 3-33 Audio Bit	-	×
	- HD -	resolution], specify the audio2 bit	Rate, Audio Bit Rate Mode		
		rate.	(Main Encoder) for set value.		
	Audio2 bit rate	If "HD" is specified for [Input	Refer to Table 3-33 Audio Bit	_	×
	mode	resolution] specify the audio? bit	Pate Audio Bit Date Mode		
	UD	resolution], specify the audio2 bit	Main Encoder) for set volve		
	- HD -		(Main Encoder) for set value.		~
	Audio2 language	If "HD" is specified for [Input	Blank or 3 single-byte	-	^
	code	resolution], specify the audio2	characters (Default: Blank)		
	- HD -	language code in three-letter code			
		of ISO 639-2.			
		* Refer to Table 3-20 Main ISO 639-2			
		Language Code for the main language			
		code.			
	Picture mode	If "HD" is specified for [Video	Refer to Table 3-31 Picture	×	×
	- HD -	resolution], specify the Picture	Mode, Coded Picture Buffer		
		mode in encoding.	(Main Encoder) for set value.		
		* Specify "Normal" in case of ordinary			
		video or "Dynamic texture" in case of			
		irregularly-changing video like wave			
		on the surface of water.			

Item		Description	Parameter	Operati	on mode
item		Description	i urumeter	MODE 1	MODE 2
	Coded picture buffer - HD -	If "HD" is specified for [Video resolution], specify the Coded picture buffer amount in encoding. * Specify "Normal" to minimize video latency at the normal video quality or "Double" to improve video quality even if video latency increases.	Refer to <u>Table 3-31 Picture</u> <u>Mode, Coded Picture Buffer</u> ( <u>Main Encoder</u> ) for set value.	×	×
	System bit rate - SD -	If "SD" is specified for [Video resolution] and "System bit rate" is specified for [Bit rate mode], specify the system bit rate of the stream to be distributed.	Refer to <u>Table 3-19 Main</u> <u>encoder/Sub encoder System</u> <u>Bit Rate Setting Range</u> for set value.	×	×
	Video resolution - SD -	If "SD" is specified for [Video resolution], specify the resolution of the video to be encoded.	Refer to <u>Table 3-22 Video</u> <u>Resolution (Main Encoder)</u> for set value.	×	×
Main encoder settings (Encode)	Video frame rate - SD -	If "SD" is specified for [Video resolution], specify the frame rate of the video to be encoded. * In case of "720x480i/352x480i " at Video resolution, please select "29.97fps" which is conformed to input video format. In case of using low bit rate with keeping video resolution, please select one of options except "29.97fps". Please note that in this case, video image may become unsmoothed because interlaced video is thinned down and encoded.	Refer to <u>Table 3-23 Video</u> <u>Frame Rate (Main Encoder)</u> for set value.	×	×
	Encoding control mode - SD -	If "SD" is specified for [Video resolution], specify the control mode for video encoding.	Refer to <b>Table 3-24 Encoding</b> <b>Control Mode (Main</b> <b>Encoder)</b> for set value.	×	×
	GOP - SD -	If "SD" is specified for [Video resolution], specify the GOP.	Refer to <b>Table 3-25 GOP</b> (Main Encoder) for set value.	×	×
	Video bit rate - SD -	If "SD" is specified for [Video resolution] and "Video bit rate" is specified for [Bit rate mode], specify the video bit rate. * Displays the bit rate assigned to video if "System bit rate" is specified for [Bit rate mode]. You cannot specify this item.	Refer to <u>Table 3-26 Video Bit</u> <u>Rate (Main Encoder)</u> for set value.	×	×
	Bit rate mode - SD -	If "SD" is specified for [Video resolution], specify the bit rate mode of the video to be encoded.	Refer to <b>Table 3-27 Bit Rate</b> <b>Mode (Main Encoder)</b> for set value.	×	×
	Video PES - SD -	If "SD" is specified for [Video resolution], specify the PES structure of video encoding.	Refer to <b>Table 3-28 Video</b> <b>PES (Main Encoder)</b> for set value.	×	×
	Profile - SD -	If "SD" is specified for [Video resolution], specify the profile of the video encoding mode.	- High profile (Default) - Main profile	×	×

Item		Description	Parameter	Operation mode		
		2 comption		MODE	MODE	
				1	2	
	PPS interval	If "SD" is specified for [Video	- GOP (Default)	×	×	
	- SD -	resolution], specify the PPS	- Picture			
		interval for video encoding.				
	PPS ID	If "SD" is specified for [Video	- Fixed (Default)	×	×	
	- SD -	resolution], specify the PPS ID	- Variable			
	D D'1	mode for video encoding.				
	Pre-Filter	If "SD" is specified for [Video	Refer to Table 3-29 Pre-Filter	×	×	
	- 5D -	the pre-filter	(Wram Encouer) for set value.			
	Refresh cycle	If "SD" is specified for [Video	Refer to Table 3-30 Refresh	×	×	
	- SD -	resolution], specify the refresh	Cycle (Main Encoder) for set			
	~ _	cycle.	value.			
		* The longer the refresh cycle is set, the				
		more video quality improves; however,				
		it takes longer to restore from video				
		error by receive data error on the				
		decoder.				
	Audio1 format	If "SD" is specified for [Video	- MPEG-1 Layer2 (Default)	×	×	
	- SD -	resolution], specify the audio l	- MPEG-2 AAC			
	A 1' 1 1 '	encoding format.			~	
	Audio1 bit rate	If SD is specified for [video resolution] specify the audio1 bit	Refer to <u>lable 3-33</u> Audio Bit	×	^	
	- 5D -	rate	<u>Kate, Audio Bit Kate Mode</u> (Main Encoder) for set value			
	Audio1 bit rate	If "SD" is specified for [Video	Refer to Table 3-33 Audio Bit	×	×	
	mode	resolution] specify the audio1 bit	Rate, Audio Bit Rate Mode	~		
	- SD -	rate mode to encode.	(Main Encoder) for set value.			
Main	Audio1 language	If "SD" is specified for [Input	Blank or 3 single-byte	×	×	
encoder	code	resolution], specify the audio 1	characters (Default: Blank)			
settings	- SD -	language code in three-letter code	, , , , , , , , , , , , , , , , , , ,			
(Encode)	~-	of ISO 639-2				
		* Refer to Table 3-20 Main ISO 639-2				
		Language Code for the main language				
		code.				
	Audio2 format	If "SD" is specified for [Input	- MPEG-1 Layer2 (Default)	-	×	
	- SD -	resolution], specify the audio2	- MPEG-2 AAC			
		encoding format.	- None			
	Audio2 bit rate	If "SD" is specified for [Input	Refer to Table 3-33 Audio Bit	-	×	
	- SD -	resolution], specify the audio2 bit	Rate, Audio Bit Rate Mode			
		rate.	(Main Encoder) for set value.			
	Audio2 bit rate	If "SD" is specified for [Input	Refer to Table 3-33 Audio Bit	-	×	
	mode	resolution], specify the audio2 bit	Rate. Audio Bit Rate Mode			
	- SD -	rate mode to encode.	(Main Encoder) for set value.			
	Audio2 language	If "SD" is specified for [Input	Blank or 3 single-byte	-	×	
	code	resolution], specify the audio2	characters (Default: Blank)			
	- SD -	language code in three-letter code	· · · · · · · · · · · · · · · · · · ·			
		of ISO 639-2				
		* Refer to Table 3-20 Main ISO 639-2				
		Language Code for the main language				
		code				
			1	1	1	

Item		Description	Parameter	Operation mode	
		I		MODE	MODE
				1	2
	Picture mode - SD -	If "SD" is specified for [Video resolution], specify the Picture mode in encoding. * Specify "Normal" in case of ordinary video or "Dynamic texture" in case of irregularly-changing video like wave on the surface of water	Refer to <u>Table 3-31 Picture</u> <u>Mode, Coded Picture Buffer</u> ( <u>Main Encoder</u> ) for set value.	×	×
	Coded picture buffer - SD -	If "SD" is specified for [Video resolution], specify the Coded picture buffer amount in encoding. * Specify "Normal" to minimize video latency at the normal video quality or "Double" to improve video quality even if video latency increases.	Refer to <u>Table 3-31 Picture</u> <u>Mode, Coded Picture Buffer</u> ( <u>Main Encoder</u> ) for set value.	×	×
	Padded data pattern	Specify the padded data pattern used in video encoding data. * If "IP satellite mode" is specified, video encoding data is padded with NULL packets. Therefore, the percentage of NULL packets in a distributed stream increases.	- Normal (Default) - IP satellite mode	×	×
Main encoder	NIT	Set whether to create NIT packets.	- Enable - Disable (Default)	×	×
settings (PID)	Carrier ID for NIT	Set whether to create carrier ID (NIT) when "Enable" is selected for [NIT].	- Enable - Disable (Default)	×	×
Main encoder	SDT	Set whether to create SDT packets.	- Enable - Disable (Default)	×	×
settings (PID)	Network name	[Network name] can be enabled to specify when "Enable" is set for [NIT].	Blank or 20 single-byte characters (Default: Blank)	×	×
	Original network ID	[Original network ID] can be enabled to specify when "Enable" is selected for [NIT] or [SDT].	0~ffff in hexadecimal (Default: 0)	×	×
	Transport stream ID	[Transport stream ID] can be enabled to specify when "Enable" is selected for [NIT] or [SDT].	0~ffff in hexadecimal (Default: 0)	×	×
	Program number/Service ID	Specify the program number or service ID.	1 to ffff in hexadecimal (Default: 1)	×	×
	Service type	[Service type] can be enabled to specify when "Enable" is selected for [NIT] or [SDT].	0~ff in hexadecimal (Default: 0)	×	×
	Service provider name	[Service provider name] can be enabled to specify when "Enable" is selected for [SDT].	Blank or 16 single-byte characters (Default: Blank)	×	×
	Service name	[Service name] can be enabled to specify when "Enable" is selected for [SDT].	Blank or 16 single-byte characters (Default: Blank)	×	×

Item		Description	Parameter	Operation mode	
		- ···· · · · · ·		MODE	MODE
				1	2
	Encoder	[Encoder manufacturer] is shown	FUJ	×	×
	manufacturer	when "Enable" is selected for	Fixed		
		[Carrier ID for NIT].			
		*Cannot be specified, display only.			
	Encoder serial	[Encoder serial number] is shown	MAC address of the unit	×	×
	number	when "Enable" is selected for	Fixed		
		[Carrier ID for NIT].			
		*Cannot be specified, display only.			
	Carrier identifier	[Carrier identifier] can be enabled	Blank or 5 single-byte	×	×
		to specify when "Enable" is	characters		
		selected for [Carrier ID for NIT].	(Default:)		
	Telephone	[Telephone number] can be enabled	Blank or 17 single-byte	×	×
	number	to specify when "Enable" is	characters		
		selected for [Carrier ID for NIT].	(Default: +00(0)0000000000_)		
	Longitude	[Longitude] can be enabled to	Blank or 9 single-byte	×	×
		specify as "+" for eastward and	characters		
		"-" for westward when "Enable" is	+000.000~±180.000		
		selected for [Carrier ID for NIT].	(Default: +000.0000)		
	Latitude	[Latitude] can be enabled to specify	Blank or 8 single-byte	×	×
		as "+" for north and "-" for south	characters (+00.000~±90.000)		
		when "Enable" is selected for	(Default: +00.0000)		
		[Carrier ID for NIT].			
	User information	[User information] can be enabled	Blank or 15 single-byte	×	×
		to specify when "Enable" is	characters		
		selected for [Carrier ID for NI1].	(Default:)		~
	NIT PID	[NIT PID] is shown when "Enable"		×	×
		is selected for [NII].	Fixed		
Main		*Cannot be specified, display only.	11		~
Main	SDIPID	[SDI PID] IS SNOWN WHEN "Enable" is selected for [NIT]	11 Fixed	×	^
settings		*Cannot be specified display only	Fixed		
(PID)	PMT PID	Specify the PID of the PMT	1 to 1ffe in hevadecimal	×	×
(IID)		speerly the FID of the FWIT.	(Default: 100)		
	Video PID	Specify the PID of Video.	1 to 1ffe in hexadecimal	×	×
		1 5	(Default: 1011)		
	Audio1 PID	Specify the PID of Audio.	1 to 1 ffe in hexadecimal	×	×
			(Default: 1100)		
	Audio2 PID	Specify the PID of Audio.	1 to 1ffe in hexadecimal	-	×
			(Default: 1101)		
	PCR PID	Specify the PID of the PCR.	1 to 1fff in hexadecimal	×	×
	DOL		(Default: 1001)		
	PSI insertion	If "HD" is specified for [Video	100 to 1000 msec	×	×
	interval	resolution, specify the interval at	(Default: 100)		
	- HD -	which to insert the PA1 and PM1.	* Settable in units of 100 msec		~
	PSI insertion	It SD' is specified for [Video	100  to  1000  msec	×	X
	Interval	resolution, specify the interval at	(Default: 100)		
	- SD -	which to insert the PA1 and PM1.	· Settable in units of 100 msec		~
		resolution specify the interval at	(Default: 100)	X	Ŷ
	- 110 -	which to insert the PCP			
		which to most the I CK.	1	1	1

Item		Description	Parameter	Operation mode	
		I. I		MODE	MODE
				1	2
	PCR interval	If "SD" is specified for [Video	30 to 1000 msec	×	×
	- SD -	resolution], specify the interval at	(Default: 100)		
		which to insert the PCR.			
Sub encoder	Encoding	Specify whether to start encoding	- Enable	×	-
settings	operation	operation after the device is started	- Disable (Default)		
(Encode)		or after the sub encoder settings are			
		changed.			
	Downconverter	If "HD" is specified for [Video	Refer to Table 3-34	×	-
		resolution] and a setting other than	<u>Downconverter (Sub</u>		
		"1080i/60" is specified for [Video	Encoder) for set value.		
		format], specify the conversion			
		mode used for down-converting			
	Dit rata mada	HD video to SD video.	Video hit rate (Default)	×	
	Dit late mode	specified	- System bit rate	~	_
	System bit rate	If "HD" is specified for [Video	Refer to Table 3-19 Main	×	-
	- HD -	resolution] "None" is specified for	encoder/Sub encoder		
		[Downconverter], and "System bit	System Bit Rate Setting		
		rate" is specified for [Bit rate	Range		
		mode], specify the system bit rate	for set value.		
		of the stream to be distributed.			
	Video resolution	If "HD" is specified for [Video	Refer to Table 3-35 Video	×	-
	- HD -	resolution] and "None" is specified	Resolution (Sub Encoder) for		
		for [Downconverter], specify the	set value.		
		resolution of the video to be			
		encoded.			
Sub encoder	Video frame rate	If "HD" is specified for [Video	Refer to Table 3-36 Video	×	-
settings	- HD -	resolution] and "None" is specified	Frame Rate (Sub Encoder)		
(Encode)		for [Downconverter], specify the	for set value.		
× ,		frame rate of the video to be			
		encoded.			
		* Please select one of			
		29.97fps", "25fps" or "30fps"			
		which is conformed to input			
		low bit rate with keeping video			
		resolution please select one of			
		ontions except "29 97fps"			
		"25fps" and "30fps". Please			
		note that in this case, video			
		image may become			
		unsmoothed because			
		interlaced video is thinned			
		down and encoded.			
	Encoding control	If "HD" is specified for [Video	- Quality (IBBP) (Default)	×	-
	mode	resolution] and "None" is specified	- Motion (IBP)		
	- HD -	for [Downconverter], specify the	- Low Latency (PPPP)		
		control mode for video encoding.	- Low Latency (IPPP)		
	GOP	If "HD" is specified for Widee	- Ultra LOW Latency (PPPP)	¥	_
		resolution specify the GOP	Fneeder) for set value	^	_
	- 110 -	resolution, speeny the OOL	Encouci j for set value.		

Item		Description	Parameter	Operation mode		
		Description		MODE	MODE	
				1	2	
	Video bit rate	If "HD" is specified for [Video	Refer to Table 3-39 Video Bit	×	-	
	- HD -	resolution], "None" is specified for	Rate (Sub Encoder) for set			
		[Downconverter], and "Video bit	value.			
		rate" is specified for [Bit rate				
		mode], specify the video bit rate.				
		* Displays the bit rate assigned to video				
		if "System bit rate" is specified for [Bit				
		rate mode]. You cannot specify this				
		item.				
	Bit rate mode	If "HD" is specified for [Video	- CBR (Default)	×	-	
	- HD -	resolution] and "None" is specified				
		for [Downconverter], specify the				
		video bit rate mode.				
	Video PES	If "HD" is specified for [Video	Refer to Table 3-41 Video	×	-	
	- HD -	resolution] and "None" is specified	PES (Sub Encoder) for set			
		for [Downconverter], specify the	value.			
		PES structure of video encoding.				
	Profile	If "HD" is specified for [Video	- High profile (Default)	×	-	
	- HD -	resolution] and "None" is specified	- Main profile			
		for [Downconverter], specify the	-			
		profile of the video encoding mode.				
	PPS interval	If "HD" is specified for [Video	- GOP (Default)	×	-	
	- HD -	resolution] and "None" is specified	- Picture			
		for [Downconverter], specify the				
		PPS interval for video encoding.				
	PPS ID	If "HD" is specified for [Video	- Fixed (Default)	×	-	
	- HD -	resolution] and "None" is specified	- Variable			
		for [Downconverter], specify the				
	Dro Filtor	If "UD" is aposified for [Video	OFF (Defeult)	~		
		resolution and "None" is specified	- OFF (Delault)	^	-	
	- HD -	for [Downconverter] specify the				
		strength of the pre-filter				
0.1 1	D C 1 1	If "ID" is gravified for [Video		~		
Sub encoder	Refresh cycle	II HD is specified for [video	Refer to <u>Table 3-43 Refresh</u>	~	-	
settings	- HD -	for [Downconverter] specify the	Cycle (Sub Encoder) for set			
(Encode)		refresh cycle	value.			
		* The longer the refresh cycle is set the				
		more video quality improves: however				
		it takes longer to restore from video				
		error by receive data error on the				
		decoder.				
	Audio format	If "HD" is specified for [Video	- MPEG-1 Layer2 (Default)	×	-	
	- HD -	resolution] and "None" is specified	- MPEG-2 AAC			
		for [Downconverter], specify the	- None			
		audio encoding format.				
	Audio bit rate	If "HD" is specified for [Video	Refer to Table 3-45 Audio Bit	×	-	
	- HD -	resolution] and "None" is specified	Rate, Audio Bit Rate Mode			
		for [Downconverter], specify the	(Sub Encoder) for set value.			
		audio bit rate.				

Item		Description	Parameter	Operation mode		
		Description		MODE	MODE	
				1	2	
	Audio bit rate mode - HD -	If "HD" is specified for [Video resolution] and "None" is specified for [Downconverter], specify the audio bit rate mode to encode.	Refer to <u>Table 3-45 Audio Bit</u> <u>Rate, Audio Bit Rate Mode</u> (Sub Encoder) for set value.	×	-	
	Audio language code - HD -	If "HD" is specified for [Input resolution], specify the code in three-letter code of ISO 639-2. * Refer to <u>Table 3-20 Main ISO 639-2</u> <u>Language Code</u> for the main language code.	Blank or 3 single byte character (Default: Blank)	×	-	
	Picture mode - HD -	If "HD" is specified for [Video resolution] and "None" is specified for [Downconverter], specify the Picture mode in encoding. * Specify "Normal" in case of ordinary video or "Dynamic texture" in case of irregularly-changing video like wave on the surface of water.	Refer to <u>Table 3-44 Picture</u> <u>Mode, Coded Picture Buffer</u> (Sub Encoder) for set value.	×	-	
	Coded picture buffer - HD -	If "HD" is specified for [Video resolution] and "None" is specified for [Downconverter], specify the Coded picture buffer amount in encoding. * Specify "Normal" to minimize video latency at the normal video quality or "Double" to improve video quality even if video latency increases.	Refer to <u>Table 3-44 Picture</u> <u>Mode, Coded Picture Buffer</u> ( <u>Sub Encoder</u> ) for set value.	×	-	
	System bit rate - SD -	If "SD" is specified for [Video resolution], "Letter box" or "Side cropped" is specified for [Downconverter], and "System bit rate" is specified for [Bit rate mode], specify the system bit rate of the stream to be distributed.	Refer to <u>Table 3-19 Main</u> <u>encoder/Sub encoder</u> <u>System Bit Rate Setting</u> <u>Range</u> for set value.	×	_	
Sub encoder settings (Encode)	Video resolution - SD -	If "SD" is specified for [Video resolution] and "Letter box" or "Side cropped" is specified for [Downconverter], specify the resolution of the video to be encoded.	Refer to <u>Table 3-35 Video</u> <u>Resolution (Sub Encoder)</u> for set value.	×	-	

Item		Description	Parameter	Operation mode		
				MODE 1	MODE 2	
	Video frame rate - SD -	If "SD" is specified for [Video resolution] and "Letter box" or "Side cropped" is specified for [Downconverter], specify the frame rate of the video to be encoded. * In case of "720x480i/352x480i " at Video resolution, please select "29.97fps" which is conformed to input video format. In case of using low bit rate with keeping video resolution, please select one of options except "29.97fps". Please note that in this case, video image may become unsmoothed because interlaced video is thinned down and encoded	Refer to <u>Table 3-36 Video</u> <u>Frame Rate (Sub Encoder)</u> for set value.	×	-	
	Encoding control mode - SD -	If "SD" is specified for [Video resolution] and "Letter box" or "Side cropped" is specified for [Downconverter], specify the control mode for video encoding.	Refer to <u>Table 3-37 Encoding</u> <u>Control Mode (Sub Encoder)</u> for set value.	×	-	
	GOP - SD -	If "SD" is specified for [Video resolution], specify the GOP.	Refer to <b>Table 3-38 GOP (Sub Encoder)</b> for set value.	×	-	
	Video bit rate - SD -	If "SD" is specified for [Video resolution] or "Letter box" or "Side cropped" is specified for [Downconverter], and "Video bit rate" is specified for [Bit rate mode], specify video bit rate. * Displays the bit rate assigned to video if "System bit rate" is specified for [Bit rate mode]. You cannot specify this item.	Refer to <u>Table 3-39 Video Bit</u> <u>Rate (Sub Encoder)</u> for set value.	×	-	
	Bit rate mode - SD -	If "SD" is specified for [Video resolution] or "Letter box" or "Side cropped" is specified for [Downconverter], specify the video bit rate mode.	Refer to <u>Table 3-40 Bit Rate</u> <u>Mode (Sub Encoder)</u> for set value.	×	-	
	Video PES - SD -	If "SD" is specified for [Video resolution] and "Letter box" or "Side cropped" is specified for [Downconverter], specify the PES structure of video encoding.	Refer to <b>Table 3-41 Video</b> <b>PES (Sub Encoder)</b> for set value.	×	-	
	Profile - SD -	If "SD" is specified for [Video resolution] or "Letter box" or "Side cropped" is specified for [Downconverter], specify the profile of the video encoding mode.	- High profile (Default) - Main profile	×	-	
	PPS interval - SD -	If "SD" is specified for [Video resolution] and "Letter box" or "Side cropped" is specified for [Downconverter], specify the PPS interval for video encoding.	- GOP (Default) - Picture	×	-	

Item		Description	Parameter	Operation mode		
item		Description	i ulumotor	MODE	MODE	
				1	2	
	PPS ID	If "SD" is specified for [Video	Fixed (Default)	×	_	
	- SD -	resolution] and "Letter box" or	- Fixed (Default)			
	- 50 -	"Side cropped" is specified for	- variable			
		[Downconverter] specify the PPS				
		ID mode for video encoding				
Sub encoder	Pre-Filter	If "SD" is specified for [Video	Refer to Table 3-42 Pre-Filter	×	_	
settings	- SD -	resolution] or "Letter box" or "Side	(Sub Encoder) for set value			
(Encode)	50	cropped" is specified for	(Bub Encouci ) for set value.			
(Lincode)		[Downconverter] specify the				
		strength of the pre-filter				
	Refresh cycle	If "SD" is specified for [Video	Refer to Table 3-43 Refresh	×	_	
	- SD -	resolution] or "Letter boy" or "Side	Cycle (Sub Encoder) for set			
	- 50 -	cropped" is specified for	value			
		[Downconverter] specify the	value.			
		refresh cycle				
		* The longer the refresh cycle is set the				
		more video quality improves: however				
		it takes longer to restore from video				
		error by receive data error on the				
		decoder				
	Audio format	If "SD" is specified for [Video	Encoding format	×	-	
	- SD -	resolution] or "Letter box" or "Side	- MPEG-1 Laver2 (Default)			
	50	cropped" is specified for	- MPEG-2 AAC			
		[Downconverter] specify the audio	- None			
		encoding mode	1.010			
	Audio bit rate	If "SD" is specified for [Video	Refer to Table 3-45 Audio Bit	×	-	
	- SD -	resolution] or "Letter box" or "Side	Rate, Audio Bit Rate Mode			
	52	cropped" is specified for	(Sub Encoder) for set value			
		[Downconverter] specify the audio	(Bus Breduct) for See value.			
		bit rate				
	Audio bit rate	If "SD" is specified for [Video	Refer to Table 3-45 Audio Bit	×	-	
	mode	resolution] or "Letter box"/"Side	Rate, Audio Bit Rate Mode			
	- SD -	cropped" is specified for	(Sub Encoder) for set value.			
		[Downconverter], specify the audio	·			
		bit rate mode to encode.				
	Audio language	If "SD" is specified for [Input	Blank or 3 single-byte	×	-	
	code	resolution], specify the code in	characters			
	- SD -	three-letter code of ISO 639-2.	(Default: Blank)			
		* Refer to Table 3-20 Main ISO 639-2				
		Language Code for the main language				
		code.				
	Picture mode	If "SD" is specified for [Video	Refer to Table 3-44 Picture	×	-	
	- SD -	resolution] or "Letter box"/"Side	Mode, Coded Picture Buffer			
		cropped" is specified for	(Sub Encoder) for set value.			
		[Downconverter], specify the audio				
		adjustment mode in encoding.				
		* Specify "Normal" in case of ordinary				
		video or "Dynamic texture" in case of				
		irregularly-changing video like wave				
		on the surface of water.				

Item		Description	Parameter	Operation mode			
		Description		MODE	MODE		
				1	2		
Sub encoder settings (Encode)	Coded picture buffer - SD -	If "SD" is specified for [Video resolution] or "Letter box"/"Side cropped" is specified for	Refer to <u>Table 3-44 Picture</u> <u>Mode, Coded Picture Buffer</u> (Sub Encoder) for set value	×	-		
()		[Downconverter], specify the Coded picture buffer amount in encoding. * Specify "Normal" to minimize video latency at the normal video quality or "Double" to improve video quality					
	Padded data	even if video latency increases.	- Normal (Default)	×	_		
	pattern	used in video encoding data. * If "IP satellite mode" is specified, video encoding data is padded with MPEG2-TS NULL packets. Therefore, the percentage of NULL packets in a distributed stream increases.	- IP satellite mode				
Sub Encoder     NIT     Set whether to create the set of the set		Set whether to create NIT packets.	- Enable - Disable (Default)	×	-		
(PID)	Carrier ID for NIT	Set whether to create carrier ID (NIT) when "Enable" is selected for [NIT].	- Enable - Disable (Default)	×	-		
	SDT	Set whether to create SDT packets Enable - Disable (Default)			-		
	Network name	[Network name] can be enabled to specify when "Enable" is set for [NIT].	Blank or 20 single-byte characters (Default: Blank)	×	-		
	Original network ID	[Original network ID] can be enabled to specify when "Enable" is selected for [NIT] or [SDT].	0~ffff in hexadecimal (Default: 0)	×	-		
	Transport stream ID	[Transport stream ID] can be enabled to specify when "Enable" is selected for [NIT] or [SDT].	0~ffff in hexadecimal (Default: 0)	×	-		
	Program number/Service ID	Specify the program number or service ID.	1 to ffff in hexadecimal (Default: 1)	×	-		
	Service type	[Service type] can be enabled to specify when "Enable" is selected for [NIT] or [SDT].	0~ff in hexadecimal (Default: 0)	×	-		
	Service provider name	[Service provider name] can be enabled to specify when "Enable" is selected for [SDT].	Blank or 16 single-byte characters (Default: Blank)	×	-		
	Service name	[Service name] can be enabled to specify when "Enable" is selected for [SDT].	Blank or 16 single-byte characters (Default: Blank)	×	-		
	Encoder manufacturer	[Encoder manufacturer] is shown when "Enable" is selected for [Carrier ID for NIT]. *Cannot be specified, display only.	FUJ_ Fixed	×	_		

Item		Description	Parameter	Operation mode		
		r r		MODE	MODE	
				1	2	
	Encoder serial	[Encoder serial number] is shown	MAC address of the unit	×	-	
	number	when "Enable" is selected for	Fixed			
		[Carrier ID for NIT].				
		*Cannot be specified, display only.				
	Carrier identifier	[Carrier identifier] can be enabled	Blank or 5 single-byte	×	-	
		to specify when "Enable" is	characters			
		selected for [Carrier ID for NIT].	(Default: )			
	Telephone	[Telephone number] can be enabled	Blank or 17 single-byte	×	-	
	number	to specify when "Enable" is	characters			
		selected for [Carrier ID for NIT].	(Default: +00(0)0000000000_)			
Sub Encoder	Longitude	[Longitude] can be enabled to	Blank or 9 single-byte	×	-	
Settings	0	specify as "+" for eastward and	characters			
(PID)		"-" for westward when "Enable" is	+000.000~±180.000			
		selected for [Carrier ID for NIT].	(Default: +000.0000)			
	Latitude	[Latitude] can be enabled to specify	Blank or 8 single-byte	×	-	
		as "+" for north and "-" for south	characters (+00.000~±90.000)			
		when "Enable" is selected for	(Default: +00.0000)			
		[Carrier ID for NIT].				
	User information	[User information] can be enabled	Blank or 15 single-byte	×	-	
		to specify when "Enable" is	characters			
		selected for [Carrier ID for NIT].	(Default:)			
	NIT PID	[NIT PID] is shown when "Enable"	10	×	-	
		is selected for [NIT].	Fixed			
		*Cannot be specified, display only.				
	SDT PID	[SDT PID] is shown when	11	×	-	
		"Enable" is selected for [NIT].	Fixed			
		*Cannot be specified, display only.				
	PMT PID	Specify the PID of the PMT.	1 to 1ffe in Hexadecimal	×	-	
			(Default: 100)			
	Video PID	Specify the PID of Video.	1 to 1ffe in Hexadecimal	×	-	
			(Default: 1011)			
	Audio PID	Specify the PID of Audio.	1 to 1ffe in Hexadecimal	×	-	
			(Default: 1100)			
	PCR PID	Specify the PID of the PCR.	I to Ifff in Hexadecimal (Default: 1001)	×	-	
	PSI insertion	If "HD" is specified for [Video	100 to 1000 msec	×	-	
	interval	resolution] and "None" is specified	(Default: 100)			
	- HD -	for [Downconverter], specify the	* Settable in units of 100 msec.			
		interval at which to insert the PAT				
		and PMT.				
	PSI insertion	If "SD" is specified for [Video	100 to 1000 msec	×	-	
	interval	resolution] or "Letter box"/"Side	(Default: 100)			
	- SD -	cropped" is specified for	* Settable in units of 100 msec.			
		[Downconverter], specify the				
		interval at which to insert the PAT				
		and PMT.				
	PCR interval	If "HD" is specified for [Video	30 to 1000 msec	×	-	
	- HD -	resolution] and "None" is specified	(Default: 100)			
		for [Downconverter], specify the				
		interval at which to insert the PCR.				

Item		Description	Parameter	Operati	on mode
				MODE	MODE
				1	2
Sub Encoder	PCR interval	If "SD" is specified for [Video	30 to 1000 msec	×	-
Settings	- SD -	resolution] or "Letter box"/"Side	(Default: 100)		
(PID)		cropped" is specified for			
		[Downconverter], specify the			
		interval at which to insert the PCR.			

Main Encode	r/Sub-encoder	
Video	Video frame rate	System bit rate setting range
Resolution		
1920×1080	30fps	Up to30.000 Mbps (can be set in 1 Kbps increment)
1280×720	29.9/tps/25tps	The system hit rate patting with the sides hit rate survey (2) to 27 Mbs.
		The system bit rate setting with the video bit rate range of 3 to 27 Mops is
		Chauleu. You cannot set the system bit rate range with the video bit rate range of lower
		than 3 Mhns
		When the system bit rate is set with the video bit rate of higher than 27 Mbps, the
		video bit rate
		is fixed to 27 Mbps.
1440×1080	30fps	Up to30.000 Mbps (can be set in 1 Kbps increment)
960×720	29.97fps/25fps	
		The system bit rate setting with the video bit rate range of 2 to 27 Mbps is
		enabled.
		You cannot set the system bit rate range with the video bit rate range of lower
		than 2 Mops. When the system hit rate is get with the widee hit rate of higher than $27$ Mbrg, the
		video bit rate
		is fixed to 27 Mbps
960×1080	30fps	Up to 30,000 Mbps (can be set in 1 Kbps increment)
640×720	29.97fps/25fps	
	1 1	The system bit rate setting with the video bit rate range of 0.5 to 27 Mbps is
		enabled.
		You cannot set the system bit rate range with the video bit rate range of lower
		than 0.5 Mbps.
		When the system bit rate is set with the video bit rate of higher than 27 Mbps, the
		video bit rate
1020×1080	14.085 fps	Is lixed to 27 Mbps.
1920×1080	9 99fns	op to 7.000 wops (can be set in 7 kops increment)
960×1080	4.995fps	The system bit rate setting with the video bit rate range of 0.1 to 5 Mbps is
200/1000	1.998fps	enabled.
	0.999fps	You cannot set the system bit rate range with the video bit rate range of lower
	0.4995fps	than 0.1 Mbps.
		When the system bit rate is set with the video bit rate of higher than 5 Mbps, the
		video bit rate
720 400	20.076 /256	is fixed to 5 Mbps.
720×480	29.9/fps/25fps	Up to 12.000 Mbps (can be set in 1 Kbps increment)
/20×5/6		The system hit rate setting with the video hit rate range of 0.3 to 10 Mbps is
		enabled
		You cannot set the system bit rate range with the video bit rate range of lower
		than 0.3 Mbps.
		When the system bit rate is set with the video bit rate of higher than 10 Mbps, the
		video bit rate
		is fixed to 10 Mbps.
352×480 352×576	29.97fps/25fps	Up to12.000 Mbps (can be set in 1 Kbps increment)
		The system bit rate setting with the video bit rate range of 0.15 to 10 Mbps is enabled.
		You cannot set the system bit rate range with the video bit rate range of lower
		than 0.15 Mbps.
		When the system bit rate is set with the video bit rate of higher than 10 Mbps, the
		video bit rate
		is fixed to 10 Mbps.

# Table 3-19 Main encoder/Sub encoder System Bit Rate Setting Range

720×480	14.985fps	Up to 7.000 Mbps (can be set in 1 Kbps increment)
352×480	9.99fps	
	4.995fps	The system bit rate setting with the video bit rate range of 0.1 to 5 Mbps is
	1.998fps	enabled.
	0.999fps	You cannot set the system bit rate range with the video bit rate range of lower
	0.4995fps	than 0.1 Mbps.
		When the system bit rate is set with the video bit rate of higher than 5 Mbps, the
		video bit rate
		is fixed to 5 Mbps.
352×240	14.985fps/12.5fps	Up to 3000 Kbps (can be set in 1 Kbps increment)
352×288	9.99fps/8.333fps	
	7.493fps/6.25fps	The system bit rate setting with the video bit rate range of 25 to 1000 Kbps is
	4.995fps/4.167fps	enabled.
	2.997fps/2.5fps	You cannot set the system bit rate range with the video bit rate range of lower
	1.998fps/1.667fps	than 25 Kbps.
	0.999fps/1fps	When the system bit rate is set with the video bit rate of higher than 1000 Kbps,
		the video bit rate is fixed to 1000 Kbps.
176x112	14.985fps/12.5fps	Up to 3000 Kbps (can be set in 1Kbps increment)
176x144	9.99fps/8.333fps	
*Only	7.493fps/6.25fps	The system bit rate setting with the video bit rate range of 25 to 1000 Kbps is
Sub-encoder	4.995fps/4.167fps	enabled.
	2.997fps/2.5fps	You cannot set the system bit rate range with the video bit rate range of lower
	1.998fps/1.667fps	than 25 Kbps.
	0.999fps/1fps	When the system bit rate is set with the video bit rate of higher than 1000 Kbps,
		the video bit rate is fixed to 1000 Kbps.

Language	Three-letter code
Danish	dan
Dutch	dut/nld (*1)
English	eng
Finnish	fin
French	fre/fra (*1)
German	ger/deu (*1)
Italian	ita
Norwegian	nor
Portuguese	por
Spanish	spa
None	blank

Table 3-20 Main ISO 639-2 Language Code

\*1: Two codes are allocated for one language.

Setting condition of Encoder setting items are shown below.

			Video format									
Video input port	Input resolution	1080i/59.94	1080i/50	1080i/60	1080i/60(->59.94) (*1)	720p/59.94	720p/50	480i/59.94	576i/50			
	SD							×	×			
301	HD	×	×	×	×	×	×					
HDMI	SD							×	×			
(*2)	HD	×	×	×	×	×	×					
Analog	SD							×	×			

# Table 3-21 Video Format (Main Encoder)

\*1: Transmit video by converting input signal from 60 Hz to 59.94 Hz.

\*2: In case of HDMI input, HDCP is not supported. Encrypted signals cannot be input for copyright protection

# Table 3-22 Video Resolution (Main Encoder)

	Video resolution											
Video format	1920x 1080	1440x 1080	960x 1080	1280x 720	960x720	640x720	720x480	352x480	352x240	720x576	352x576	352x288
1080i/59.94	×	×	×									
1080i/50	×	×	×									
1080i/60	×	×	×									
1080i/60 (->59.94)	×	×	×									
720p/59.94				×	×	×						
720p/50				×	×	×						
480i/59.94							×	×	×			
576i/50										×	×	×

	Video frame rate (fps)																			
Video resolution	29.97	25	30	59.94	50	14.985	9.99	7.493	4.995	2.997	1.998	0.999	0.4995	12.5	8.333	6.25	4.167	2.5	1.667	1
1920x1080	×	×	×			×	×		×		×	×	×							
1440x1080	×	×	×			×	×		×		×	×	×							
960x1080	×	×	×			×	×		×		×	×	×							
1280x720				×	×															
960x720				×	×															
640x720				×	×															
720x480	×					×	×		×		×	×	×							
352x480	×					×	×		×		×	×	×							
352x240						×	×	×	×	×	×	×								
720x576		×																		
352x576		×																		
352x288														×	×	×	×	×	×	×

# Table 3-23 Video Frame Rate (Main Encoder)

# Table 3-24 Encoding Control Mode (Main Encoder)

-		Encoding control mode							
Video resolution	Video frame rate (fps)	IBBP	IBP	IPPP	PPPP				
1020-1020	30/29.97/25	×	×	×	×				
192021060	Enable			×					
1440-1090	30/29.97/25	×	×	×	×				
1440X1060	Enable			×					
060v1090	30/29.97/25	×	×	×	×				
90021000	Enable			×					
1280x720		×	×	×	×				
960x720		×	×	×	×				
640x720		×	×	×	×				
720-490	29.97/25	×	×	×	×				
7208400	Enable			×					
352×480	29.97/25	×	×	×	×				
332,400	Enable			×					
252,240	7.493	×		×					
3328240	Enable			×					
720x576		×	×	×	×				
352x576		×	×	×	×				
352,288	6.25	×		×					
3327200	Enable			×					

**IP-900 Series** 

# Table 3-25 GOP (Main Encoder)

	GOP					
Encoding control mode	Open	Closed				
IBBP	×	×				
IBP	×	×				
IPPP	×	×				
PPPP						

# Table 3-26 Video Bit Rate (Main Encoder)

		Video bit rate											
Video resolution	Video frame rate (fps)	25/40/45/50/96 /128/160/192 /256/384/512 /768/1000 Kbps	100 Kbps	150 Kbps	200 Kbps	300/400 Kbps	500 Kbps	1 Mbps	1.3 Mbps	2 Mbps	3/4/5 Mbps	6/7/8/9/10 Mbps	11/12/14 /16/18/20/ 27 Mbps
1020×1080	30/29.97/25										×	×	×
192021060	Enable		×		×	×	×	×		×	×		
1440×1080	30/29.97/25									×	×	×	×
1440×1000	Enable		×		×	×	×	×		×	×		
060v1080	30/29.97/25						×	×		×	×	×	×
30001000	Enable		×		×	×	×	×		×	×		
1280x720											×	×	×
960x720										×	×	×	×
640x720							×	×		×	×	×	×
720×480	29.97/25					×	×	×	×	×	×	×	
720,400	Enable		×		×	×	×	×		×	×		
352×480	29.97/25			×	×	×	×	×	×	×	×	×	
3323400	Enable		×	×	×	×	×	×	×	×	×		
352x240		×											
720x576						×	×	×	×	×	×	×	
352x576				×	×	×	×	×	×	×	×	×	
352x288		×											
		•	/	<u>,                                    </u>									
------------------	---------------------------	-----------------------	----------	--									
			Bit rate	mode									
Video resolution	Video frame rate (fps)	Encoding control mode	CBR	VBR									
1920x1080			×										
1440x1080			×										
960x1080			×										
1280x720			×										
960x720			×										
640x720			×										
720x480			×										
352x480			×										
	7 403	IBBP		×									
352x240	1.495	IPPP	×										
	Enable		×										
720x576			×										
352x576			×										
	6.25	IBBP		×									
352x288	0.25	IPPP	×										
	Enable		×										

		Video PES	
Video resolution	Encoding control mode	1Field/1PES	1Frame/1PES
1020/1090	IBBP	×	×
1920x1080	Enable	×	
1110×1080	IBBP	×	×
1440x1080	Enable	×	
960x1080	IBBP	×	×
	Enable	×	
1280x720			×
960x720			×
640x720			×
720×480	IBBP	×	×
7202480	Enable	×	
352×480	IBBP	×	×
332,480	Enable	×	
352x240			×
720x576	IBBP	×	×
120,010	Enable	×	
352×576	IBBP	×	×
552,570	Enable	×	
352x288			×

Table 3-29	Pre-Filter	(Main	Encoder)
		(	=

		Pre-Filter									
Video resolution	OFF	LIGHT	MEDIUM	HEAVY							
1920x1080	×	×	×	×							
1440x1080	×	×	×	×							
960x1080	×	×	×	×							
1280x720	×	×	×	×							
960x720	×	×	×	×							
640x720	×	×	×	×							
720x480	×	×	×	×							
352x480	×	×	×	×							
352x240	×										
720x576	×	×	×	×							
352x576	×	×	×	×							
352x288	×										

Video Resolution	Frame Rate	Encoding control mode	Refresh cycle (frame)	
		IBBP	15/30/60	
	00.07	IBP	14/28/56	
	29.97	IPPP	15/30/60	
		PPPP	34/68/134	
		IBBP	12/24/48	
	05	IBP	12/24/48	
	25	IPPP	12/24/48	
		PPPP	34/68/134	
1920x1080		IBBP	30/60/120	
1440x1080		IBP	14/28/56	
960x1080	30	IPPP	15/30/60	
		DDDD	34/68/134	
	1/ 085	IDDD	15/30/60	
	0.00	IPPP	10/20/40	
	9.99	IPPP	F(10/20/40	
	4.995	IPPP	5/10/20	
	1.996	IPPP	2/4/0	
	0.999	IPPP	1/2/4	
	0.4995	IPPP	1/2/4	
		IBBP	30/60/120	
	59,94	IBP	28/56/112	
1280x720		IPPP	30/60/120	
960x720		PPPP	90/180/360	
640x720		IBBP	24/48/96	
0.000 20	50	IBP	24/48/96	
	50	IPPP	24/48/96	
		PPPP	90/180/360	
		IBBP	15/30/60	
	29.97	IBP	14/28/56	
		IPPP	15/30/60	
		PPPP	30/60/120	
720x480	14.985	IPPP	15/30/60	
352x480	9.99	IPPP	10/20/40	
	4.995	IPPP	5/10/20	
	1.998	IPPP	2/4/8	
	0.999	IPPP	1/2/4	
	0.4995	IPPP	1/2/4	
		IBBP	12/24/48	
720x576	07	IBP	12/24/48	
352x576	25	IPPP	12/24/48	
		PPPP	36/72/144	
	14.985	IPPP	7/15/30	
	9.99	IPPP	5/10/20	
		IBBP	6/15/30	
	7.493	IPPP	7/15/30	
352x240	4 995	IPPP	5/10/20	
	2 997	IPPP	3/6/12	
	1 998	IPPP	4/8/16	
	0 999	IPPP	2/4/8	
	12 5	IPPP	6/12/24	
	8 333	IPPP	<u> </u>	
	0.000	IRRD	6/12/24	
	6.25		6/12/24	
352x288	1 167		<u>0/12/24</u> //9/16	
	95. 10/		2/5/10	
	2.0		2/5/10	
	1.007		2/5/10	
	1	IPPP	2/5/10	

Table 3-30 Refresh Cycle (Main Encoder)

		Pictu	ire mode	Coded picture buffer		
Video resolution	Encoding control mode	Normal	Dynamic texture	Standard	Double	
	IBBP	×	×	×	×	
1920x1080	IBP	×	×	×	×	
	Enable	×		×		
	IBBP	×	×	×	×	
1440x1080	IBP	×	×	×	×	
	Enable	×		×		
	IBBP	×	×	×	×	
960x1080	IBP	×	×	×	×	
	Enable	×		×		
	IBBP	×	×	×	×	
1280x720	IBP	×	×	×	×	
12000120	Enable	×		×		
	IBBP	×	×	×	×	
960x720	IBP	×	×	×	×	
	Enable	×		×		
960x720 640x720 720x480	IBBP	×	×	×	×	
	IBP	×	×	×	×	
	Enable	×		×		
	IBBP	×	×	×	×	
720x480	IBP	×	×	×	×	
	Enable	×		×		
	IBBP	×	×	×	×	
352x480	IBP	×	×	×	×	
	Enable	×		×		
352x240		×		×	×	
	IBBP	×	×	×	×	
720x576	IBP	×	×	×	×	
120,310	Enable	×		×		
	IBBP	×	×	×	×	
352x576	IBP	×	×	×	×	
	Enable	×		×		
352x288		×		×	×	

 Table 3-31 Picture Mode, Coded Picture Buffer (Main Encoder)

# Table 3-32 Audio Input Port (Main Encoder)

		Audio input po	rt
Video input port	SDI	HDMI	Analog
SDI	×		×
HDMI		×	×
Analog			×

#### Table 3-33 Audio Bit Rate, Audio Bit Rate Mode (Main Encoder)

_	Audio bit rate (Kbps) / Audio bit rate mode									
Audio format	56/CBR	/CBR 64/CBR 64/VBR 128/CBR 128/VBR 256/CBR 256/VBR								
MPEG-1 Layer2				×		×		×		
MPEG-2 AAC	×	×	×	×	×	×	×	×		

		Downconverter	
Video format	Letter box	Side cropped	Squeeze
1080i/59.94	×	×	×
1080i/50	×	×	×
1080i/60			
1080i/60 (->59.94)	×	×	
720p/59.94	×	×	
720p/50	×	×	
480i/59.94			
576i/50			

## Table 3-34 Downconverter (Sub Encoder)

## Table 3-35 Video Resolution (Sub Encoder)

_								Video r	esolution						
Video format	Downconverter	1920 x1080	1440 x1080	960 x1080	1280 x720	960x720	640x720	720x480	352x480	352x240	176x112	720x576	352x576	352x288	176x144
10901/50 04	None	×	×	×											
10001/39.94	Enable							×	×	×	×				
10801/50	None	×	×	×											
1000//30	Enable											×	×	×	×
1080i/60		×	×	×											
1080i/60	None	×	×	×											
(->59.94)	Enable							×	×	×	×				
720p/50.04	None				×	×	×								
720p/59.94	Enable							×	×	×	×				
720p/50	None				×	×	×								
720p/50	Enable											×	×	×	×
480i/59.94								×	×	×	×				
576i/50												×	×	×	×

									V	ideo fram	e rate (fp	s)								
Video resolution	29.97	25	30	59.94	50	14.985	9.99	7.493	4.995	2.997	1.998	0.999	0.4995	12.5	8.333	6.25	4.167	2.5	1.667	1
1920x1080	×	×	×			×		×	×		×	×	×							
1440x1080	×	×	×			×		×	×		×	×	×							
960x1080	×	×	×			×		×	×		×	×	×							
1280x720				×	×															
960x720				×	×															
640x720				×	×															
720x480	×					×		×	×		×	×	×							
352x480	×					×		×	×		×	×	×							
352x240						×	×	×	×	×	×	×								
176x112						×	×	×	×	×	×	×								
720x576		×																		
352x576		×																		
352x288														×	×	×	×	×	×	×
176x144														×	×	×	×	×	×	×

## Table 3-36 Video Frame Rate (Sub Encoder)

Tab	ole 3-37 Enco	ding Cont	rol Mode (S	ub Encode	r)				
			Encoding control mode						
Video resolution	Video frame rate (fps)	IBBP	IBP	IPPP	PPPP				
1020-1090	30/29.97/25	×	×	×	×				
192021000	Enable			×					
1440×1080	30/29.97/25	×	×	×	×				
1440X1080	Enable			×					
060v1080	30/29.97/25	×	×	×	×				
900×1000	Enable			×					
1280x720		×	×	×	×				
960x720		×	×	×	×				
640x720		×	×	×	×				
720-490	29.97/25	×	×	×	×				
7208400	Enable			×					
252,490	29.97/25	×	×	×	×				
30ZX40U	Enable			×					
2522240	7.493	×		×					
3328240	Enable			×					
176x112				×					
720x576		×	×	×	×				
352x576		×	×	×	×				
252,000	6.25	×		×					
3328200	Enable			×					
176x144				×					

# Table 3-37 Encoding Control Mode (Sub Encoder)

# Table 3-38 GOP (Sub Encoder)

_	GOP				
Encoding control mode	Open	Closed			
IBBP	×	×			
IBP	×	×			
IPPP	×	×			
PPPP					

							Video	bit rate					
Video resolution	Video frame rate (fps)	25/40/45/50/ 96/128/160/ 192/256/384/ 512/768/100 0 Kbps	100 Kbps	150 Kbps	200 Kbps	300/400 Kbps	500 Kbps	1 Mbps	1.3 Mbps	2 Mbps	3/4/5 Mbps	6/7/8/9/10 Mbps	11/12/14/16 /18/20/27 Mbps
1020×1080	30/29.97/25										×	×	×
1920×1000	Enable		×		×	×	×	×		×	×		
1440×1080	30/29.97/25									×	×	×	×
1440X1000	Enable		×		×	×	×	×		×	×		
060×1090	30/29.97/25						×	×		×	×	×	×
90021080	Enable		×		×	×	×	×		×	×		
1280x720											×	×	×
960x720										×	×	×	×
640x720							×	×		×	×	×	×
720-490	29.97/25					×	×	×	×	×	×	×	
7208400	Enable		×	×	×	×	×	×	×	×	×		
252,400	29.97/25			×		×	×	×	×	×	×	×	
332,460	Enable		×	×	×	×	×	×	×	×	×		
352x240		×											
176x112		×											
720x576						×	×	×	×	×	×	×	
352x576				×		×	×	×	×	×	×	×	
352x288		×											
176x144		×											

# Table 3-39 Video Bit Rate (Sub Encoder)

			Bit rate	mode
Video resolution	Video frame rate (fps)	Encoding control mode	CBR	VBR
1920x1080			×	
1440x1080			×	
960x1080			×	
1280x720			×	
960x720			×	
640x720			×	
720x480			×	
352x480			×	
	7 403	IBBP		×
352x240	7.495	IPPP	×	
	Enable		x x x x x x x x x x x x x x x x x x x	
176x112			×	
720x576			×	
352x576			×	
	6.25	IBBP		×
352x288	0.25	IPPP	×	
	Enable		×	
176x144			×	

Table 3-40 Bit Rate Mode (Sub Encoder)

Table 3-41	Video PES (	(Sub Encoder)
------------	-------------	---------------

		Vide	o PES
Video resolution	Encoding control mode	1Field/1PES	1Frame/1PES
1020-1090	IBBP	×	×
192021060	Enable	×	Video PES           ield/1PES         1Frame/1PES           ×         ×
1440×1080	IBBP	×	×
1440X1000	Enable	×	
960v1080	IBBP	×	×
30071000	Enable	×	
1280x720			×
960x720			×
640x720			×
720×480	IBBP	×	×
7208400	Enable	×	× × × × × × × × × × × × × × × × × × ×
352v/180	IBBP	×	×
5527400	Enable	x         x           x         x           x         x           x         x           x         x           x         x           x         x	
352x240			×
176x112			×
720×576	IBBP	×	×
120,010	Enable	×	
2527576	IBBP	×	×
552,570	Enable	×	
352x288			×
176x144			×

		Pre	-Filter	
Video resolution	OFF	LIGHT	MEDIUM	HEAVY
1920x1080	×	×	×	×
1440x1080	×	×	×	×
960x1080	×	×	×	×
1280x720	×	×	×	×
960x720	×	×	×	×
640x720	×	×	×	×
720x480	×	×	×	×
352x480	×	×	×	×
352x240	×			
176x112	×			
720x576	×	×	×	×
352x576	×	×	×	×
352x288	×			
176x144	×			

# Table 3-42 Pre-Filter (Sub Encoder)

la	ble 3-43 Refresh	Cycle (Sub End	coder)
Video Resolution	Frame Rate	Encoding control mode	Refresh cycle (frame
		IBBP	15/30/60
		IBP	14/28/56
	29.97	IPPP	15/30/60
		PPPP	34/68/134
		IBBP	12/24/48
		IBP	12/24/48
	25	IPPP	12/24/48
		PPPP	34/68/134
1920x1080		IBBP	15/30/60
1440x1080		IBP	14/28/56
960x1080	30	IPPP	15/30/60
		PDDD	34/68/134
	14 985	IDDD	15/30/60
	9.90	IDDD	10/20/40
	4 995	IDDD	5/10/20
	4.995		2/4/9
	1.998		2/4/0
	0.999		1/2/4
	0.4995		20/60/120
			30/60/120
	59.94		20/50/112
1280x720		IPPP	30/60/120
960x720		PPPP	90/180/360
640x720		IBBP	24/48/96
	50	IBP	24/48/96
		IPPP	24/48/96
		РРРР	90/180/360
		IBBP	15/30/60
	29.97	IBP	14/28/56
		IPPP	15/30/60
		РРРР	30/60/120
720x480	14.985	IPPP	15/30/60
352x480	9.99	IPPP	10/20/40
	4.995	IPPP	5/10/20
	1.998	IPPP	2/4/8
	0.999	IPPP	1/2/4
	0.4995	IPPP	1/2/4
		IBBP	12/24/48
720x576	25	IBP	12/24/48
352x576	20	IPPP	12/24/48
		PPPP	36/72/144
	14.985	IBBP	7/15/30
	9.99	IPPP	5/10/20
	7 402	IBBP	6/15/30
3534340	1.490	IPPP	7/15/30
JJZXZ4U	4.995	IPPP	5/10/20
	2.997	IPPP	3/6/12
	1.998	IPPP	4/8/16
	0.999	IPPP	2/4/8
	12.5	IBBP	6/12/24
	8.333	IPPP	4/8/16
	0.05	IBBP	6/12/24
050 000	6.25	IPPP	6/12/24
352x288	4.167	IPPP	4/8/16
	2.5	IPPP	2/5/10
	1 667	IPPP	2/5/10
	1	IPPP	2/5/10
	14 985	IPPP	7/15/30
	9.99	IPPP	5/10/20
	7 493	IPPP	7/15/30
	1.400	1000	5/10/20
176x112	4 995	1666	: 1/ 11// 211
176x112	4.995 2 997	IPPP	3/6/12
176x112	4.995 2.997 1.998	IPPP IPPP IPPP	3/6/12 4/8/16

Table 3-43 Refresh Cycle (Sub Encoder)

Video Resolution	Frame Rate	Encoding control mode	Refresh cycle (frame)
	12.5	IPPP	6/12/24
	8.333	IPPP	4/8/16
	6.25	IPPP	6/12/24
176x144	4.167	IPPP	4/8/16
	2.5	IPPP	2/5/10
	1.667	IPPP	4/8/16
	1	IPPP	2/5/10

## Table 3-44 Picture Mode, Coded Picture Buffer (Sub Encoder)

		Picture mode		Coded pict	ure buffer
Video resolution	Encoding control mode	Normal	Dynamic texture	Standard	Double
	IBBP	×	×	×	×
1920x1080	IBP	×	×	×	×
	Enable	×		×	
	IBBP	×	×	×	×
1440x1080	IBP	×	×	×	×
	Enable	×		×	
	IBBP	×	×	×	×
960x1080	IBP	×	×	×	×
	Enable	×		×	
	IBBP	×	×	×	×
1280x720	IBP	×	×	×	×
	Enable	×		×	
	IBBP	×	×	×	×
960x720	IBP	×	×	×	×
	Enable	×		×	
	IBBP	×	×	×	×
640x720	IBP	×	×	×	×
	Enable	×		×	
	IBBP	×	×	×	×
720x480	IBP	×	×	×	×
	Enable	×		×	
	IBBP	×	×	×	×
352x480	IBP	×	×	×	×
	Enable	×		×	
352x240	-	×		×	×
176x112	-	×		×	×
	IBBP	×	×	×	×
720x576	IBP	×	×	×	×
	Enable	×		×	
	IBBP	×	×	×	×
352x576	IBP	×	×	×	×
	Enable	×		×	
352x288	-	×		×	×
176x144	-	×		×	×

		Audio bit rate (Kops) / Audio bit rate mode									
Audio format	56/CBR	64/CBR	64/VBR	128/CBR	128/VBR	256/CBR	256/VBR	384/CBR			
MPEG-1 Layer2				×		×		×			
MPEG-2 AAC	×	×	×	×	×	×	×	×			

# Table 3-45 Audio Bit Rate, Audio Bit Rate Mode (Sub Encoder)

# **▲** CAUTION

Enables to record when the Main encoder system rate is less than 14.049 Mbps and the sub encoder system rate is less than 1.549 Mbps.

If [Stream format] of Output interface settings (Main encoder ethernet) described in Section 3.3.1,"Setting (Encoder)," is "Standard TS," recording cannot be performed.

# 3.3.2 Encoder Address Report

\* This function is enabled only when the device operation mode is encoder mode.

\* Encoder address report is a group of setting items, of which 10 sets can be registered independently by selecting data numbers as in <u>3.2.1 Configuration Data</u>.

To dynamically obtain an IP address using DHCP or PPPoE, the IP address needs to be known. If the report destination is specified in advance, the obtained IP address is reported to the specified destination. IP-900 series decoder or a PC running a certain type of software (\*1) is normally specified as the report destination. If the decoder is specified in advance as the report destination, you can specify an encoder from the Web screen to request streaming. (Refer to Section 3.5.2 for information about decoder setting and operation.)

The same screen is displayed for <u>Encoder Address Report</u>, <u>Main Encoder</u>, and <u>Sub Encoder</u>, which are located in the frame on the left side of the Web screen. By click on the tab for each, the Encoder Address Report screen for each is displayed at the top of the frame on the right side.

Make the required settings by referring to Table 3-46 Setting Items for Encoder Address Report.

🖉 IP-900 ENCODER - Windows Internet	Explorer				
💽 🗢 🖻 http://10.0.0.1/			🚽 🐓 🗙 🚼 Google		1
🔶 🌈 IP-900 ENCODER					
Jananese			R		
ENCODER			IN		
COMMON ENCODER RECORDE	R			Configuration1: data1 Software: V	xxLxxx
ENCODER	Encoder Ad	dress Report			
<u>SETTINGS</u>	– Main encoder 1	eport settings			^
<av input="" settings=""> • Video</av>	Encoder name		(Limit 16 characters)		
• Audio	Local port	0 (0,1024-64000)			
Cutput interface settings>     Main encoder ethernet     Sub encoder ethernet	– Main encoder d	lestination settings			
<main encoder="" settings=""></main>		IP version IP address		Destination port(1024-64000)	=
<ul> <li>Encode</li> <li>PID</li> </ul>	Destination1	IPv4			
<sub encoder="" settings=""></sub>	Destination2	IPv4 🗸			
<ul> <li>Encode</li> <li>PID</li> </ul>	Destination3	IPv4 💌			
ENCODER ADDRESS REPORT	Destination4	IPv4			
<ul> <li>Main encoder</li> <li>Sub encoder</li> </ul>	Destination5	IPv4			
<u>SUPERIMPOSE</u>	Destination6	IPv4			
<ul> <li>Main encoder</li> <li>Sub encoder</li> </ul>	Destination7	IPv4 💌			
OPERATION & STATUS	Destination8	IPv4 💌			
	Destination9	IPv4 🗸			
REBOOT	Destination10	IPv4 💌			
	- Sub encoder re	nort settings			_
	Encoder nome	r	d1 (12)		~
	APPLY	CANCEL			
			All Rights Reserved	l, Copyright(C) FUJITSU LIMITED 200	8-2012

Figure 3-23 Encoder Address Report screen

After completing the settings, click the APPLY button. The message below appears. Click OK to apply the settings. \* Reboot is not required.



## Table 3-46 Setting Items for Encoder Address Report

	Item		Description	Value
Main encoder report settings	Encoder name		Specify an arbitrary name used to identify the encoder.	Up to 16 characters
	Local por	rt	Specify the own device port number used to send an encoder address message.	0 or 1024 to 64000 (Default: 0) * If 0 is specified, one of the port numbers from 64100 to 65000 is automatically selected.
Main encoder destination settings	Destinat ion 1 to 10	IP version	Specify the IP version of the IP address of the destination device to which the encoder report is to be sent.	- IPv4 (default) - IPv6
		IP address	Specify the IP address of the destination device to which the encoder report is to be sent.	Other than 0.0.0.0 (Default: Blank) * A blank field means that no value is specified. * A multicast address cannot be set.
		Destination port	Specify the port number of the destination device to which the encoder report is to be sent.	- Blank or 1024 to 64000 (Default: Blank) * A blank field means that no value is specified.
Sub encoder report settings	Encoder	name	Specify an arbitrary name used to identify the encoder.	Up to 16 characters
(*1)	Local por	rt	Specify the own device port number used to send an encoder address message.	0 or 1024 to 64000 (Default: 0) * If 0 is specified, one of the port numbers from 64100 to 65000 is automatically selected.
Sub encoder destination settings	Destinat ion 1 to 10	IP version	Specify the IP address of the destination device to which the encoder report is to be	- IPv4 (Default) - IPv6
(*1)		IP address	sent.	Other than 0.0.0.0 (Default: Blank) * A blank field means that no value is specified. * A multicast address cannot be set.
		port	the destination device to which the encoder report is to be sent.	<ul> <li>Blank of 1024 to 64000</li> <li>(Default: Blank)</li> <li>* A blank field means that no value is specified.</li> </ul>

\*1: Not displayed in case "Main H.264/MPEG-4 AVC 2stereo" is set for [Operation mode].

# ▲ CAUTION

The device does not send the encoder address report when the following condition applies: [IP version] of Output interface settings (Main encoder ethernet) described in Section 3.3.1, "Setting (Encoder)," and [IP version] of Main encoder destination settings described in Section 3.3.2, "Encoder Address Report," do not match. (The same thing can be said regarding the sub encoder.)

The device does not send the encoder address report when the following condition applies: "Unicast (simplex)" is selected for [Streaming mode] of Output interface settings (Main encoder ethernet) described in Section 3.3.1, "Setting (Encoder)," and [Streaming destination IP address] of Output interface settings (Main encoder ethernet) described in Section 3.3.1, "Setting (Encoder)," and [IP address] of Main encoder destination settings described in Section 3.3.2, "Encoder Address Report," do not match. (The same thing can be said regarding the sub encoder.)

## 3.3.3 Superimpose

# \* 10 sets of settings can be configured independently by selecting appropriate configuration data as explained in Section 3.2.1, "Configuration Data."

The superimpose function superimposes a character string (consisting of up to 24 en-size or 48 en-size characters) or a time indication (year, month, day, hour, minute, and second) on the encoded image. You can specify up to four types of string superimpositions (or one type of time superimposition) on the main and sub encoders.

The same screen is displayed for <u>Superimpose</u>, <u>Main encoder</u>, and <u>Sub-encoder</u>, which are located in the left frame on the Web screen. Click the tab for each to bring the superimposition information screen to the top of the right frame. Specify the necessary information by referring to <u>Table 3-47 Main</u> <u>Encoder/Sub Encoder Superimpose Settings</u>

🌈 IP-900 ENCODER - Windows Internet	Explorer				
😋 🕞 🗢 🙋 http://10.0.0.1/			- + ×	🚼 Google 🖉	- (
🚖 🌈 IP-900 ENCODER					
					_
Japanese	IP-900	ENCODER			
COMMON ENCODER RECORDER	1			Configuration1: data1 Software: Vxx	Lxxx
ENCODER	Superimpose				
<u>SETTINGS</u>	Main encoder superimposel	settings			^
<av input="" settings=""> • Video</av>	Superimpose	○ Enable	<li>O Disable</li>		
• Audio	Horizontal position	60 <b>(0-1919)</b>			=
<output interface="" settings=""> <ul> <li>Main encoder ethernet</li> </ul></output>	Vertical position	20 (0-1079)			
• Sub encoder ethernet	Font size	SD:32/HD:64	$\sim$		
<main encoder="" settings=""> <ul> <li>Encode</li> </ul></main>	Font color	White	$\sim$		
• PID	Effects	Fill color	$\sim$		
<sub encoder="" settings=""> • Encode</sub>	Background color	Black	$\sim$	_	
PID     ENCODER ADDRESS REPORT	Character string			(Limit 48 characters)	
<u>ENCODER ADDRESS REPORT</u> Main encoder     Sub-acceder	Main encoder superimpose2 settings				
SUPERIMPOSE	Superimpose	○ Enable	<ol> <li>Disable</li> </ol>		
• Main encoder	Horizontal position	60 (0-1919)			
Sub encoder     OPER ATION & STATUS	Vertical position	80 <b>(0-1079)</b>			
	Font size	SD:32/HD:64	$\sim$		
REBOOT	Font color	White	~		
	Effects	Fill color	$\sim$		
	Background color	Black	~	_	~
	APPLY CANCEL				
			A111	Rights Reserved, Copyright(C) FUJITSU LIMITED 2008-	2012

Figure 3-24 Superimpose screen

After completing the setting, click the APPLY button. The message below appears. Click OK to apply the settings. \* Reboot is not required.



# Table 3-47 Main Encoder/Sub Encoder Superimpose Settings

\_

	Item	Description	Value
Main/Sub encoder superimpose settings	Superimpose setting	Specify whether to enable character superimposition by using the superimpose function to display the characters.	Enable Disable (Default)
1 to 4 (*2)	Horizontal position	Specify the number of pixels from the left end of the screen to indicate the horizontal position from where the specified character string starts to be superimposed.	0 to 1919 (*1)
	Vertical position	Specify the number of lines from the top end of the screen to indicate the vertical position from where the specified character string starts to be superimposed.	0 to 1079 (*1)
	Font size	Specify the font size of character strings to be superimposed.	<ul> <li>SD:32/HD:64</li> <li>Displays characters in a size of: 32×32 dots if the input resolution is SD 64×64 dots if the input resolution is HD</li> <li>SD:48/HD:96</li> <li>Displays characters in a size of: 48×48 dots if the input resolution is SD 96×96 dots if the input resolution is HD</li> </ul>
	Font color	Specify the font color of character strings to be superimposed.	- White (Default) - Black - Red - Blue - Green
	Effects	Specify the background of character strings to be superimposed.	- Filled (Default) - Shaded - Bordered
	Background color	Specify the background color of character strings to be superimposed.	<ul> <li>Black (Default)</li> <li>Translucent black</li> <li>White</li> <li>Translucent white</li> <li>Transparent</li> </ul>
	Time * Only available for superimpose 4 settings	Specify whether to superimpose time.	- Enable - Disable (Default)

#### Chapter 3 Web Operation

	Item	Description	Value
Main/Sub encoder superimpose settings 1 to 4 (*2)	Character string	Specify the character strings to be superimposed.	A character string that consists of 48 single-byte characters or 24 double-byte characters.

\*1: The display area varies depending on the monitor that outputs the image.

\*2: In case "Main H.264/MPEG-4 AVC 2stereo" is set for [Operation mode], sub encoder superimpose settings are not displayed.

# 3.3.4 Operation & Status (Encoder)

\* This function is enabled only when the device operation mode is encoder mode.

Click <u>OPERATION & STATUS</u> in the left frame of the Web screen. The Operation & Status screen appears in the right frame.

From this screen, you can check encoder operation information such as on encoding and video input. Selecting {3sec, 5sec, or 10sec} from [Auto update] enables automatic updating of the Operation & Status information in specified time intervals. Selecting {none} from [Auto update] disables the automatic updating.

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2 1P-900 ENCODER			
<u>Japanese</u>	IP-900 ENCODE	R	
COMMON ENCODER RECORDER	2		Configuration1: data1 Software: VxxLxxx
ENCODER	Operation & Status		Auto update: none 💌
<u>SETTINGS</u>		<b>0</b> 1-1-1-	
<av input="" settings=""></av>	Item Main ancodar	Status	
<ul> <li>Audio</li> </ul>	Sub encoder	Stopped	
<output interface="" settings=""></output>	Video input	No input signal	
<ul> <li>Main encoder ethernet</li> <li>Sub encoder ethernet</li> </ul>	-		
<main encoder="" settings=""></main>			
Encode     PID			
<sub encoder="" settings=""></sub>			
<ul> <li>Encode</li> </ul>			
ENCODER ADDRESS REPORT			
Main encoder			
Sub encoder			
<u>SUPERIMPOSE</u> Main encoder			
<ul> <li>Sub encoder</li> </ul>			
OPERATION & STATUS			
REBOOT			
	Main encoder: START STOP Sub encoder: STA	RT STOP	
		All Rights Reserved,	Copyright(C) FUJITSU LIMITED 2008-2012

Figure 3-25 Operation & Status (Encoder) screen

You can control encoding and streaming. When the status is "Stopped," click the START button starts encoding. To stop encoding, click the STOP button.

Item	Display
Main encoder	{Operating / Stopped}
	Displays the operation status as the result of setting in the Settings screen or the
	operation of the encoding START or STOP button.
	Number of possible streams: N
	Destination IP address: Port number {Normal / Fault}
	N=1 If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode], the
	value is fixed to "1".
	1-4 If "Unicast" is specified for [Streaming mode], a value from "1" to "4" is
	displayed. The number of possible streams depends on the [System bit rate] and
	[Acceptable stream number] settings.
	Displays whether an error occurred for each streaming destination IP address.
Sub encoder	{Operating / Stopped}
(*1)	Displays the operation status as the result of setting in the Settings screen or the
	operation of the encoding START or STOP button.
	Number of possible streams: N
	<b>Destination IP address: Port number {Normal / Fault}</b>
	N=1 If "Multicast" or "Unicast (simplex)" is specified for [Streaming mode], the
	value is fixed to "1".
	1-4 If "Unicast" is specified for [Streaming mode], a value from "1" to "4" is
	displayed. The number of possible streams depends on the [System bit rate] and
	[Acceptable stream number] settings.
	Displays whether an error occurred for each streaming destination IP address.
Video input	{Normal / Fault / No video signal}
	Displays the input state of the video signal.

#### Table 3-48 Encoder Operation & Status Display Items

Note)  $\{A/B\}$  indicates that either A or B is displayed.

\*1: Not displayed in case "Main H.264/MPEG-4 AVC 2stereo" is set for [Operation mode].

Enables to record when the Main encoder system rate is less than 14.049 Mbps and the sub encoder system rate is less than 1.549 Mbps.

If [Stream format] of Output interface settings (Main encoder ethernet) described in Section 3.3.1, "Setting (Encoder)," is "Standard TS," recording cannot be performed.

# 3.4 Recorder

An optional CF card is required for this function.

# 3.4.1 Setting (Recorder)

\* Settings is a group of setting items, of which 10 sets can be registered independently by selecting data numbers as in <u>3.2.1 Configuration Data</u>.

Set parameters related to recording. Make the required settings by referring to <u>Table 3-49 Recorder</u>. Set the date and time of the clock built in IP-900 series.

The recorder records encoded streams when the main encoder operates. Recording cannot be performed for some system bit rates because of performance limitations.

"Network down" and "Relay input", etc. can be recorded in the trigger as protected file. After the trigger is restored, protected file can be downloaded.

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😭 🌈 IP-900 ENCODER		
T	IB-00	
Japanese	17-30	0 ENCODER
COMMON ENCODER REC	ORDER	Configuration1: data1 Software: VxxLxxx
RECORDER	Settings	
<u>SETTINGS</u>	Recorder settings	E
PILE LIST     OPERATION & STATUS	Recording operation	C Enable © Disable
	Recording mode	Overwrite 💌
REBOOT	Protect trigger	Network & Relay contact monitoring
	Network : IP version	IPv4
	Network : IP address	0.0.0.0
	Relay contact : IP version	IPv4
	Relay contact : SNMP IP address	0.0.0.0
	Relay contact : SNMP Community	public (Limit 16 characters)
	Relay contact : SNMP OID	1.3.6.1.4.1.20440.4.2.1.1.1.2 (Limit 64 characters)
	Protect trigger monitoring cycle	30 sec cycle 4 times (1-59cycles, 1-10times)
	Time of Recording protected file	0 hr 0 min (0hr0min-24hr59min, 0hr0min when record until full)
	Prerecord time	130 sec (0-3600)
	Time of Releasing protected file	0 hr 0 min later (0hr0min-336hr59min, 0hr0min when no release)
	APPLY CANCEL	
		All Rights Reserved, Copyright(C) FUJITSU LIMITED 2008-2013

Figure 3-26 Setting (Recorder) screen

After completing the settings, click the button. The message below appears. Click OK to apply the settings. \* Reboot is not required.

Microso	ft Internet Explorer 🛛 🔀
2	Do you want to save Configuration 1 "data1" and apply the new settings?
	OK Cancel

# Table 3-49 Recorder Setting Items

	Item	Description	Parameter
Recorder settings	Recording operation	Specify whether to perform recording operation upon start of the device.	- Enable - Disable (Default)
	Recording mode	Select the recording mode.	<ul> <li>Record until full</li> <li>Overwrite (Default)</li> <li>Record until start position</li> <li>Overwrite except protected file</li> <li>Record until full after protect trigger</li> </ul>
	Protect trigger	Specify the trigger to protect the local recording data when "Recording mode" is set for [Overwrite except protected file] or [Record until full after protect trigger].	<ul> <li>Network monitoring by ping</li> <li>Relay contact monitoring by SNMP</li> <li>Network &amp; Relay contact monitoring</li> <li>Number of Main encoder streaming</li> <li>Number of Main &amp; Sub encoder streaming</li> </ul>
	Network : IP version	Specify the IP address version of the monitoring device by ping.	- IPv4 (Default) - IPv6
	Network : IP address	Specify the IP address of the monitoring device by ping.	Other than 0.0.0.0 (Default: 0.0.0.0) * You cannot specify a multicast address.
	Relay contact : IP version	Specify the IP address version of the monitoring device by snmp.	- IPv4 (Default)
	Relay contact : SNMP IP address	Specify the IP address of the monitoring device by snmp.	Other than 0.0.0.0 (Default: 0.0.0.0) * You cannot specify a multicast address.
	Relay contact : SNMP Community	Specify the community name to access to the monitoring device by snmp.	Alphanumeric 16 characters (Default: Blank)

#### Chapter 3 Web Operation

Recorder settings	Relay contact : SNMP	Specify the object identifier to	64 characters
	OID	access to the monitoring device	(Default:
		by snmp. (*1)	1.3.6.1.4.1.23441.1.1.3.1.0)
	Protect trigger	Specify the polling time to	1 to 59 sec cycle, 1 to 10 times
	monitoring cycle	check the trigger.	(Default 30sec cycles, 4times)
			* when the same state continues
	Time of Recording	Specify the recording time as a	0 hr 0 min to 24 hr 59 min
	protected file (*2)	protected file from the trigger	* 0hr0min when record until full
		detection when "Recording	
		mode" is set for [Record until	
		full after protect trigger].	
	Prerecord time (*2)	Specify the time for creating	0 to 3600 sec
		protected files by seconds	
		backward from the trigger	
		detection.	
	Time of Releasing	Specify the time from the	0 hr 0 min to 336 hr 59 min
	protected file (*2)	trigger detection to the release	* 0hr0min when no release
		of protected file.	

\*1 : SNMP MIB interface for Relay input signal information. SYNTAX : OCTET STRING

STRING : "0" is No input signal, "1" is Exist input signal. Only the first string.

\*2 : There is a time lag of a few minutes from a few seconds depending on the System rate of the main encoder and the refresh cycle.

# 

Recorded data is destroyed if the device power is turned off during recording. Be sure to stop recording before turning off the device power.

If the device is started with an unused CF card or previous CF card (V02L002) inserted, the CF card is formatted unconditionally. Please back up necessary data of the CF card before software upgrades.

If [Stream format] of Output interface settings (Main encoder ethernet) described in Section 3.3.1, "Setting (Encoder)," is "Standard TS," recording cannot be performed.

The maximum system bit rate when the streaming and recording are activated simultaneously is limited up to "main encoder system rate is 14.049 Mbps", "sub encoder system rate is 1.549 Mbps"

The maximum system bit rate when the recording and record data downloading are activated simultaneously is limited up to "main encoder system rate is 6.049 Mbps".

#### Chapter 3 Web Operation

Example : In the case of setting parameters as follows CF card capacity in 120 minutes



**IP-900 Series** 

# 3.4.2 File List

#### \* This function is enabled only when the device operation mode is encoder mode.

Click <u>FILE LIST</u> in the left frame of the Web screen. The Data List screen appears in the right frame. In this screen, you can check the file list or download files.

Protected file becomes "Protect" the left of the list, and is displayed at the head. "Time of Releasing protected file" is displayed.

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Prove Preserve Prove	DEDED					
COMMON ENCODER KECC	JKDEK				Configuration1: data1 Softw	are: VxxLxxx
RECORDER	File L	ist				
<u>SETTINGS</u> FILE LIST		Start time	Time length	System bit rate	Time of Releasing protected file	<u>^</u>
OPERATION & STATUS	© Protect	2013-06-04 09:44:32	02:00:00	4.8Mbps	2013-06-04 21:44:32	
REBOOT	0	2013-06-04 11:46:20	00:37:54	4.8Mbps		
	0	2013-06-04 12:44:51	00:01:22	4.8Mbps		
	UP Downlo Start time Acquisitio DOWN	DATE DELET ad 2013 (year onTime 02 hours LOAD	E FIRST FILE r) 06 (month) 00 min 00	DELETE ALL FILES	RELEASE PROTECTED FILE (hh) 44 (mm) 32 (ss)	
				A11 F	lights Reserved, Copyright(C) FUJITSU LIMITE	D 2008-2013

Figure 3-27 File List screen

#### Chapter 3 Web Operation

Click the UPDATE button updates the list.

To download a file, check the relevant check column at the left end of the list and confirm that the start time and acquisition time are automatically set in the Download field, and then click the DOWNLOAD button.

Click the DELETE FIRST FILE button deletes the first file in the list. Click the DELETE ALL FILES button deletes all files.

Click the \_\_\_\_\_\_ RELEASE PROTECTED FILE \_\_\_\_\_\_ button to release the protected file.

Recorded data can be downloaded by specifying any time range within the range indicated for each file in the list. Note, however, that data with the specified time range spanning two or more files cannot be downloaded.

Data is downloaded with a file name in the following format:

yyyymmddhhmmssHHMMSS.mpg <Description> yyyy = Year mm = Month dd = Day hh = Hour mm = Minute ss = Second HH = Hours (acquisition duration specified in hours) MM = Minutes (acquisition duration specified in minutes) SS = Seconds (acquisition duration specified in seconds from 0 to 59)

Note) The time for which data can be recorded depends on the system bit rate and the capacity of the CF card.

# ▲ CAUTION

The following dialog box appears in case that the file download size exceeds 4GB. Some of browsers may not be able to download it.

Microsoft Internet Explorer			
?	The size of the file downloaded exceeds 4GB. Some of browsers may not be able to download it. Do you want to continue?		
	OK キャンセル		

File deletion works only when recording is stop. The protected file cannot delete.

The maximum system bit rate when the recording and record data downloading are activated simultaneously is limited up to "main encoder system rate is 6.049 Mbps".

#### 3.4.3 Operation & Status (Recorder) \* This function is enabled only when the device operation mode is encoder mode.

Operation & Status related to recording are displayed.

Select {3sec, 5sec, or 10sec} from [Auto update] to enable automatic update of the Operation & Status information in specified time intervals. Select {none} from [Auto update] to disable automatic updating.

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💽 🗢 🖉 http://10.0.0.1		🔻 😽 🗙 🚼 Google	
Japanese	IP-900 ENCODE	ER	
COMMON ENCODER RECO	DRDER	Configuration1: data	1 Software: VxxLxxx
RECORDER	<b>Operation &amp; Status</b>	Auto updat	e: none 💌
SETTINGS			
FILE LIST	Item	Status	
OPERATION & STATUS	Recording mode	Overwrite	
	Recorder	Stopped	
REBOOT	Media	Unequipped	
	Media size	30.0GB(Now setting:12hr30min)	
	Network	Normal	
	Relay contact	Normal:No contact signal	
	Recorder: START STOP		
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Figure 3-28 Operation & Status (Recorder)

You can control the recording operation. When the recording operation is "Stopped," click the START button starts recording. To stop recording, click the STOP button.

Item	Display
	{Recording until full / Overwrite / Record until start position / Overwrite except
Recording mode	protected file / Record until full after protect trigger /}
	Displays the recording mode selected in the Settings screen.
	{Recording / Stopped}
Recorder	Displays the operation status caused by the setting in the Settings screen or by the
	operation of the recording START or STOP button.
	{Equipped: Normal / Equipped: Fault / Equipped: Media Full /Unequipped}
Media	Displays whether an error related to recording to the CF card occurred or that a CF card
	is not mounted in the device.
	{XX.XGB(Now setting:YYhrYYmin) /}
Media size	Displays the size of the CF card used for the recording in megabytes and the storage
	time in the CF card in the current settings.
Notwork	{Normal / Fault /}
INCLWOIK	Displays the network status.
Palay contact	{Normal: No contact signal / Normal: Exist contact signal / Fault /}
Ketay contact	Displays the status of the relay contact.

#### Table 3-50 Recorder Operation & Status Display Items

Note) {A/B} indicates that either A or B is displayed.

limited up to "main encoder system rate is 14.049 Mbps", "sub encoder system rate is 1.549 Mbps".

If [Stream format] of Output interface settings (Main encoder ethernet) described in Section 3.3.1, "Setting (Encoder)," is "Standard TS," recording cannot be performed.

# **3.5** Decoder

# 3.5.1 Setting (Decoder)

\* Settings is a group of setting items, of which 10 sets can be registered independently by selecting data numbers as in <u>3.2.1 Configuration Data</u>.

Set parameters related to stream receiving. Make the required settings by referring to

#### Table 3-51 Decoder Setting Items.

The same screen is displayed for <u>SETTINGS</u>, <u><Input interface settings> Decoder ethernet</u>, <u><AV</u> <u>output settings> Video and Audio (only IP-900D)</u> and <u><Decoder settings> Decode</u> which are located in the left frame on the Web screen. Click the tab for each brings the setup screen to the top of the right frame.

\* No selections of Output interface are available on Decoder. Video/Audio can be output to all of the interfaces. Analog output for receiving HD streams is turned to the selected screen (Blue or Gray) in "Display when no data receiving" of "AV output settings" (Video)" section.

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<u>Japanese</u>	IP-90	00 DECODER						
COMMON DECODER				Configuration1: data1 S	oftware: VxxLxxx			
DECODER	Settings							
<u>SETTINGS</u>	input internete settings(Decou	ier einernei porij						
<input interface="" settings=""/>		Local port		Destination port				
• Decoder ethernet	Streaming port	5000 (1024-64000)	<==					
o Video	Unicast request port	0 (0,1024-64000)	==>	9900 (1024-64000)				
<decoder settings=""></decoder>	Encoder address report port	5100 (1024-64000)	<==					
o Decode o PID	AV output settings(Video)							
<u>REFERENCE CLOCK</u>	Output format at startup	480i 🖌 / 59.94	~					
ENCODER SELECTION	Analog video setup	○ Enable	<ol> <li>Disable</li> </ol>					
OPERATION & STATUS	Upconverter	None	*		_			
REBOOT	Concealment time	10 s (5-600)			=			
	Display when no data receiving	⊙ Blue	🔘 Gray					
	Decoder settings(Decode)							
	Decoding operation	○ Enable	<ol> <li>Disable</li> </ol>					
	Error concealment	⊙ Enable	🔿 Disable					
	Jitter control buffer	150 ms (1-150)						
		• •						
	Ultra low latency	○ Enable	<ol> <li>Disable</li> </ol>		*			
	APPLY CANGEL							
			A	All Rights Reserved, Copyright(C) FUJITSU LIM	ITED 2008-2012			
IP-920 Settings S	creen /							
			0.0 17	(M. 20 JP.)				
Output level	⊖ -20dBm	(IVIAX. UdBm)	⊙∪dBn	n(Max. 20dBm)				
	Figure 3-29 Setting (Decoder) screen							

After completing the settings, click the APPLY button. The message below appears. Click OK to apply the settings. \* Reboot is not required.



Table 3-51 Decoder Setting Items

	Item	Description	Parameter
Input interface settings (Decoder ethernet)	IP version	Specify the IP version for IP streaming.	- IPv4 (Default) - IPv6
	Streaming mode	Specify the type of broadcasting for IP streaming.	- Multicast (Default) - Unicast
	Streaming origination IP address	If "Unicast" is specified for [Streaming mode], specify the IP address of the streaming origination device. If "Multicast" is specified for [Streaming mode], specify the multicast address for streaming.	IP address (Default: 230.11.3.1) Setting the following values is inhibited: [IPv4] 240.0.0.0 to 255.255.255.255 (Class E) 0.0.0.0, 127.0.0.0 to 127.255.255.255 [IPv6] 0::0
	IGMP version	If "IPv4" is specified for [IP version] and "Multicast" is specified for [Streaming mode], specify the IGMP version of the IGMP to be used for the group management of IPv4 multicast.	- Version 2 (Default) - Version 3
	IGMPv3 source IP address	If "Version 3" is set for [IGMP Version], specify the IPv4 address of the IPv4 multicast origination device that accepts receiving.	Other than 0.0.0.0 (Default: 0.0.0.0) * You cannot specify a multicast address.
	MLD version	If "IPv6" is specified for [IP version] and "Multicast" is specified for [Streaming mode], specify the MLD version of the MLD to be used for the group management of IPv6 multicast.	- Version 1 (Default) - Version 2
	MLDv2 source IP address	If "Version 2" is set for [MLD Version], specify the IPv6 address of the IPv6 multicast origination device that accepts receiving.	IPv6 address that is not the following: ffxx:xxxx::xxxx (multicast address) (Default: "::") * If this address does not match the origination IPv6 address of IPv6 multicast, streams cannot be received.
	Unicast request cycle	Specify the cycle at which the unicast stream request is sent.	- 3 to 30 seconds (Default: 30 seconds)

	Item	Description	Parameter
Input interface	ID control for	If "Unicast" is specified for	- Enable
settings	unicast	[Streaming mode], specify whether	- Disable (Default)
(Decoder		to report the ID for confirming the	* If "Enable" is selected, the unicast ID of the
ethernet)		validity of the unicast stream	encoder and that of the decoder must be in
		request.	agreement to receive streams.
	Unicast ID	If "Enable" is selected for [ID	Hexadecimal number between 0000 and
		control for unicast], specify the ID to	1111
		be used for confirming the validity	
	100	of a unicast streaming request.	<b>D</b> 11
	ARQ	If "Enable" is selected for [ID	- Enable
		control for unicast], specify a valid	- Disable (Default)
	ADO hufforing	ID value.	0 to 2000 mg
	time	A BO retransmitted neeket	(Default:  200  ms)
	ume	* This will increase the delay by the	(Default. 500 fils)
		time specified here	
		time specifica here.	
	SMPTE2022 FEC	Specify whether to receive	- Enable
		SMPTE2022-1 FEC packets to	- Disable (Default)
		activate the SMPTE2022-1 FEC	
		error correction method.	
Input interface	ARQ	When receiving streaming from	- Enable
settings		Fujitsu server (FutureyeII, etc),	- Disable (Default)
(From Server)		specify whether to enable the ARQ	
		error correction method.	
	ARQ buffering	When receiving streaming from	0 to 2000ms
	time	Fujitsu server (FutureyeII, etc),	(Default: 300 ms)
		specify the wait time in msec for an	
		ARQ retransmitted packet.	
		* This will increase the delay by the	
Input interface	Streaming port	time specified here.	1024 to 64000
settings	Streaming port	used to receive streams	(Default: 5000)
(Decoder	Unicast request	Specify the streaming request	0  or  10240  to  64000  (Default: 0)
ethernet port)	nort	source port number (own device) in	* If 0 is specified one of the port numbers
<b>,</b>	Poit	unicast streaming mode.	from 32768 to 61000 is automatically
		······································	selected.
		Specify the streaming request	1024 to 64000 (Default: 9900)
		destination port number in unicast	
		streaming mode.	
	Encoder address	Specify the own device port number	1024 to 64000 (Default: 5100)
	report port	used to receive an encoder address	
		report.	
	SMPTE2022 FEC	Displays the port number of the	You cannot specify this item.
	port	own device used for receiving	* This item is automatically set according to
		SMPTE2022-1 FEC.	the [Streaming port] setting.
	ARQ control port	Displays the port number of the	Y ou cannot specify this item.
		ABO	the [Streaming port] setting
AV output	Output format at	ANQ. Specify the format of the video	1080j/50 04
settings(video)	startun	output signal to be used after the	- 10801/59.54 - 1080j/50
settings(video)	suurup	device is started or after the decoder	- 1080i/60
		settings are changed	- 720p/59 94
		* When any stream has been received a	- 720p/50
		setting conforming to the input format	- 480i/59.94 (Default)
		of the encoder is used.	- 576i/50

#### Chapter 3 Web Operation

	Item	Description	Parameter
AV output	Analog video setup	Specify the setup level of the analog	- Enable: 7.5 IRE
settings(video)	<b>C</b> 1	video output signal.	- Disable (Default): Same as the pedestal
		1 -	level
	Upconverter	Select whether to work as	- None (Default)
		Upconverter.	- 480i/59.94 -> 1080i/59.94 (Pillar box)
			- 480i/59.94 -> 1080i/59.94
			(Anamorphic)
			- 480i/59.94 -> 1080i/59.94 (Aspect
			ratio)
			*In case of '480i/59.94 -> 1080i/59.94
			(Aspect ratio)', upconverter mode is
			automatically selected based on the
			aspect ratio information in the stream
			'squeeze' the video is unconverted by
			'Anamorphic' Otherwise, it is
			unconverted by 'Pillar boy'
	720n->1080i	Specify whether to convert to 1080i	
	Convert	when 720p stream is received	- Disable (Default)
			- Enable
	Concealment time	Specify the time it takes until the	- 5 to 6000 seconds
		not been received.	(Default. 10 seconds)
	Display when no	Specify the video signal to be output	- Blue (Default)
	data receiving	when no packets are received.	- Gray
AV output	Output level	Specify the audio output level.	20dBm (Max. 0dBm)
settings			- 0dBm (Max. 20dBm) (Default)
(Audio)			
*Displayed only			
Decoder	Decoding	Specify whether to enable receiving	- Enable
settings	operation	and decoding streaming video upon	- Disable (Default)
(Decode)	•F	starting.	
	Error concealment	Specify whether to enable the freeze	- Enable (Default)
		control that prevents block noise in	- Disable
		the event of packet loss.	
		* This setting is not enabled when	
		"Ultra Low Latency (PPPP)" is	
		selected and received the stream.	
	Jitter control buffer	Specify the buffering time for	- 1 to 150 ms
		absorption of LAN network jitter.	(Default: 150 ms)
		* This will increase the delay by the	
		distortion anusad by natural jittar	
		* The video may be distorted if network	
		itter is generated for longer than the	
		specified buffer time.	
	Ultra low latency	Select whether to recognize "Ultra	- Enable
	5	low latency" stream automatically.	- Disable (Default)
		* In case of being selected	
		"Enable", "Ultra low latency"	* This function is enabled after installing
		stream can be automatically	"Ultra Low Latency" option.
		recognized and work as a decoder	
		both normal and "Ultra low	
		latency" mode.	
		In case of being selected "Disable",	
		the Decoder works as normal mode.	

	Item	Description	Parameter
Decoder	PID mode	Specify the method of selecting the	- AUTO (Default)
settings (PID)		program to be received.	- Manual
settings (1 ID)		* You can select from the following:	
		automatically obtain a PMT PID;	
		specify a program number or service ID	
		to select a PID; specify a PMT PID; or	
		individually specify a video/audio PID.	
	PMT PID	Receiving PMT PID can be enabled	1 to 1ffe in hexadecimal
		to set when "Manual" is selected	(Default: 100)
	for [PID mode].		
Video PID Specify the PID of Video to be		1 to 1fff in hexadecimal	
received, only when "Manual" is		(Default: 1011)	
		specified for [PID mode].	* If 1fff is set, video is not received.
	Audio PID	Specify the PID of Audio to be	1 to 1fff in hexadecimal
		received, only when "Manual" is	(Default: 1100)
		specified for [PID mode].	* If 1 fff is set, audio is not received.
		Audio of designated ID can be	
		output to channel 1 of SDI and	
		HDMI.	
	PCR PID Specify a PID of the PCR to be 1		1 to 1fff in hexadecimal
		received, only when "Manual" is	(Default: 1001)
		specified for [PID mode].	

# 3.5.2 Reference Clock (GENLOCK)

\* Reference Clock Settings is a group of setting items, of which 10 sets can be registered independently by selecting data numbers as in <u>3.2.1 Configuration Data</u>.

Set parameters related to external clock synchronization. Make the required settings by referring to **Table 3-52 Reference Clock Setting Items**,

🖉 IP-920 DECODER - Windows Int	ernet Explorer		
🔆 🗢 🖉 http://10.0.0.1/		🚽 🐓 🗙 🚷 Google	<b>P</b> -
🚖 🌈 IP-920 DECODER			
Japanese	IP	-920 DECODER	
COMMON DECODER		Configuration1: data1 Software	e: VxxLxxx
DECODER	<b>Reference</b> Clock		
<u>SETTINGS</u>	Operation settings		
<input interface="" settings=""/> o Decoder ethernet	Reference clock	PCR Y	
<av output="" settings=""></av>	Phase adjustment	0 ns (-300000-300000)	
o Video o Audio			
<decoder settings=""></decoder>			
o PID			
<u>REFERENCE CLOCK</u> ENCODER SELECTION			
OPERATION & STATUS			
REBOOT			
			$\sim$
	APPLY CANCEL		
		All Rights Reserved, Copyright(C) FUJITSU LIMITED :	2008-2012

Figure 3-30 Reference Clock screen

After completing the settings, click the "APPLY" button. The message below appears. Click the OK button to apply the settings. \* Reboot is not required.



#### Table 3-52 Reference Clock Setting Items

	Item	Description	Parameter
Operation	Reference clock	Specify the type of external	- PCR (Default)
settings	setting	clock synchronization signal.	- Internal
			- BB
		* If "PCR" is set, it	* BB can be enabled to select after adding
		synchronizes with the line and	"Reference" option.
		if "Internal" is set, it	
		synchronizes with the internal	
		oscillator.	
	Phase adjustment	Adjusting phase can be set by	Default: 0ns
	-	"ns" when "BB" is selected	-300000~300000 ns
		for [Reference clock].	



Do not input other signals except BB for reference input.

# 3.5.3 Encoder Selection

\* This function is enabled only when the device operation mode is decoder mode.

Click <u>ENCODER SELECTION</u> in the left frame of the Web screen. The Encoder Selection screen appears in the right frame.

This screen displays the status and IP address of the encoder ready to perform streaming. Specifying the encoder distributing a stream starts receiving the stream. Specify in advance the IP address of the decoder in the encoder as the destination. Refer to Section 3.3.2 for encoder setting. <u>Table 3-20 Main</u> <u>ISO 639-2 Language Code</u> lists the display items.

🖉 IP-900 DECODER - Windows Int	ernet Explorer				
💽 🗢 🙋 http://10.0.0.1/			🗾 🛃 🗙 🚼	Google	<b>₽</b> -
🚖 <i></i> 🏉 IP-900 DECODER					
Jananese		IP-900 DECO	FR		
DECODER		II -SOU DECCI			
COMMON DECODER				Configuratio	nl: datal Software: VxxLxxx
DECODER	Encoder Selecti	on			
<u>SETTINGS</u> <input interface="" settings=""/> <ul> <li>Decoder atherest</li> </ul>	Encoder name	Destination IP address	Unicast request port	Streaming status	<
<av output="" settings=""></av>		IP multicast address	Streaming port		
<decoder settings=""></decoder>					
o Decode o PID					
<u>REFERENCE CLOCK</u>					
OPERATION & STATUS					
REBOOT					
					×
	APPLY CANCE	EL			
			All Righ	ts Reserved, Copyright(C) F	UJITSU LIMITED 2008-2012

Figure 3-31 Encoder Selection screen
The message below is displayed when the APPLY button is clicked after selecting the radio button for the encoder you want to select. Click OK to send a streaming request to the selected encoder. \* Reboot is not required.



Item	Display		
Della Detter	Specify the encoder you want to select.		
Kadio Button	If one is currently selected, "Selected" is displayed.		
Encoder name	Displays the name assigned to the encoder.		
Origination IP address	Displays the IP address of the encoder.		
ID we blive of a data and	Displays the multicast address for streaming when the encoder is		
IP multicast address	performing multicast streaming.		
Unicast request port	Displays the Unicast request port number defined in the encoder.		
	Displays the port number for receiving used by the decoder when the		
Streaming port	encoder is performing multicast streaming or unicast (simplex)		
	streaming.		
	{Streaming / Number of possible streams: x / Stopped}		
Streaming status	Displays the streaming status of the encoder.		
	Number of possible streams for encoder		

# Table 3-53 Encoder Selection Items

Note)  $\{A / B\}$  indicates that either A or B is displayed.

# 3.5.4 Operation & Status (Decoder)

\* This function is enabled only when the device operation mode is decoder mode.

Click <u>OPERATION & STATUS</u> in the left frame of the Web screen. The Operation & Status screen appears in the right frame.

Operation & Status information related to the decoder, including the stream receiving status, can be checked.

Selecting {3sec, 5sec, or 10sec} from [Auto update] enables automatic updating of the Operation & Status information in specified time intervals. Selecting {none} from [Auto update] disables the automatic updating.

🖉 IP-900 DECODER - Windows Ir	nternet Explorer		
		🔽 🐓 🗙 🚼 Google	P -
Japanese	IP-900 DECC	DER	
COMMON DECODER		(	onfiguration 1: data1 Software: VvvI vvv
COMMON			oningulation i. datar Software. Vaalaas
DECODER	<b>Operation &amp; Status</b>		Auto update: 🛛 none 🛛 🖌
<u>SETTINGS</u>			
<input interface="" settings=""/>	Item	Status	<u>^</u>
<ul> <li>Decoder ethernet</li> </ul>	Decoding operation	STOP	
<av output="" settings=""></av>	Input interface	IPv4	
o Video	Video encoding mode		
<decoder settings=""></decoder>	Video output format	/	
o Decode	System bit rate		
• REFERENCE CLOCK	Decoding frame rate		
ENCODER SELECTION	Video resolution		=
	Video bit rate		
• OPERATION & STATUS	Audio		
REBOOT	Streaming origination IP address	230.11.3.1	
	Streaming port	5000	
	Unicast request port		
	ARQ	STOP	
	Network name		
	Original network ID		
	Transport stream ID		
	Program number/service ID		
	Service type		
	Service provider name		
	Service name		
	Encoder manufacturer		×
	DECODER: START STOP		
		All Rights Proceed Con	wight(C) FUITSULLINGTED 2008 2012
1		All Rights Reserved, Cop	yngm(c) POJIISC EIMITED 2008-2012

Figure 3-32 Operation & status (Decoder) screen

You can control starting and stopping of the receiving and decoding operation. When the decoding operation is "Stopped," click the START button to start decoding. To stop decoding, click the STOP button.

Table 3-54	Decoder	Operation	& Status	<b>Display Items</b>
------------	---------	-----------	----------	----------------------

Item	Display
	{Normal (Receiving) / Normal (No stream receiving) / Stopped}
Decoding operation	Displays the decoder's operation status as a result of settings in the Setting screen or operation
	of the START/STOP button for receiving streaming.
Input interface	{IPv4 / IPv6}
Input Interface	Displays the IP version of received streams.
Defense en innet	{Fault / No input signal / Normal /}
Reference input	Operating status of reference input is shown.
	[H.264/MPEG-4 AVC / MPEG-2 (MODE=XXX) / MPEG-2 / ]
Video encoding mode	Displays the video encoding mode of received streams.
	XXX: Fujitsu MPEG-2 PS mode number
Video output mode	{1080i/59.94 / 1080i/50 / 1080i/60 / 720p/59.94 / 720p/50 / 480i/59.94 / 576i/50}
video output mode	Displays the video output format information.
System bit rate	{ Mbps / Kbps /}
System on fute	Displays the system bit rate of received streams.
	29.97fps / 25fps / 30fps / 59.94fps / 50fps / 14.985fps / 12.5fps / 9.99fps / 8.333fps /
Decoding frame rate	7.493fps / 6.25fps / 4.995fps / 4.167fps / 2.997fps / 2.5fps / 1.998fps / 1.667fps / 0.999fps /
8	1fps / 0.4995fps /}
	Displays the frame rate of received streams.
Video resolution	[1920×1080/1440×1080/960×1080/1280×720/960×720/640×720/720×480/720×576] [252×490/252×576/252×240/252×299/176×112/176×144/]]
video resolution	/ 352×480 / 352×576 / 352×240 / 352×288 / 1/6×112 / 1/6×144 /}
	( Mbrs/ Kbrs/ )
Video bit rate	{ MDps/KDps/} Displays the video hit rate of received streams
	SYXX / VV Khns/777. /}
	XXX' { <b>MPEG-1</b> Laver? / <b>MPEG-2 AAC</b> / Transnarent}
	Displays the audio encoding format of received streams
Audio	YY - {Khns}
/ tudio	Displays the audio bit rate of received streams.
	777·{ <b>777</b> }
	Displays the language code of received stream
	[XXX,XXX,XXX,XXX /]
Streaming origination IP	Displays the IP address of the streaming origination device.
address	XXX.XXX.XXXX: IP address
	{XXXXX}
Streaming port	Own device port number used to receive streams.
	XXX: Port number
	{XXXXX /}
Unicast request port	Streaming request source port number in unicast streaming mode
	XXXX: Port number
	{Operating (RTT=XXXmsec) / Stopped /}
ARQ	Displays the ARQ operation status. During operation, the Round Trip Time is also displayed.
	XXX: Round Trip Time
Network name	{XXXXXXXXXXXXXXXXXXXXXX/}
Network name	Displays Network name.
Original network ID	{XXXX/}
	Displays Original network ID.
Transport stream ID	{XXXX/}
	Displays Transport stream ID.
Dragrom number/	{XXXX /}
	Displays the received program number/service ID.
Service ID	XXXX: Displays the program number/service ID in hexadecimal
	{ <b>XX</b> /}
Service type	Displays Sarvice type
~ 1	

#### Chapter 3 Web Operation

Service provider name	{XXXXXXXXXXXXXXXX/}			
Service provider name	Displays Service provider name.			
Samiaa nama	{XXXXXXXXXXXXXXXX/}			
Service name	Displays Service name.			
Encodor monufacturor	{XXXXX/}			
	Displays Encoder manufacturer.			
Encodor corial number	{XXXXXXXXXXX/}			
Encodel senai number	Displays Encoder serial number.			
Corrier identifier	{XXXXX/}			
Carrier identifier	Displays Carrier ID.			
Talanhana numbar	{XXXXXXXXXXXXXXXXXXXXX/}			
relephone number	Displays Telephone number.			
Lanaituda	{XXXXXXXXX/}			
Longitude	Displays Longitude.			
Latituda	{XXXXXXXX/}			
Latitude	Displays Latitude.			
Lagr information	{XXXXXXXXXXXXXXXX/}			
	Displays User information.			
	{XXXX /}			
PMT PID	Displays the PID of received program map table.			
	XXXX: displays the PMT PID in hexadecimal.			
	{XXXX /}			
Video PID	Displays the PID of received video.			
	XXXX: displays the Video PID in hexadecimal.			
	{XXXX /}			
Audio PID	Displays the PID of received video.			
	XXXX: displays the Audio PID in hexadecimal.			
	{XXXX/}			
PCR PID	Displays the PID of received PCR.			
	XXXX: displays the PCR PID in hexadecimal.			
Note) {A / B}	Note) $\{A   B\}$ indicates that either A or B is displayed.			



This chapter explains how to respond in case audio/video is not output or an alarm LED goes on.

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# Troubleshooting

If you think your IP-900 series is malfunctioning, follow the corresponding corrective action in the table below, according to the applicable conditions.

If a problem persists, contact the Fujitsu Service Center.

# **WARNING**

Electric shock

Contact your system administrator before checking the voltage of a power outlet. Otherwise, an electric shock may occur.

Classification	Symptom	Check	Corrective action
Power / Starting up	Power cannot be	Is the power cable connected?	Make sure that the power cable is properly connected to the outlet.
5 Y Y	turned on.	Is the outlet voltage normal?	Measure the voltage with a tester to confirm that the voltage is normal. If another device is connected to the same outlet, check the operation of the device.
Hardware	The ALM LED is on.	IP-900 series is faulty.	Contact to CE in Fujitsu Service Center. CE may ask the alarm code for checking your status. Check each alarm code using log information screen of Web GUI before you contact to us.
	The ALM LED is	Settings/ Performances of the equipment and each error is shown.	Check alarm code using log information screen of Web GUI. The countermeasures are shown.
	blinking	E013 Temperature warning	<ul> <li>Check whether the condition is satisfied with "IP-900 Series User's Guide 2.1 Installation Conditions" or not.</li> <li>Do you secure certain space for air supply and exhaust opening?</li> <li>Is ambient temperature within the condition? In case of having problems in the conditions above, reboot the equipment after excluding all problems. In case of not having any problems, contact to Fujitsu CE because the equipment might be failed.</li> </ul>
		E084 CF card access error E085 CF card power error	CF card or this equipment might be abnormal. In case that you have the spare CF card, please check whether the problem is recovered after replacing the failed card to the spare. Contact CE in Fujitsu Service Center in case that you do not have the spare or the problem is not recovered even after the replacement.

# **Table 4-1 Check Items and Corrective Action**

Classification	Symptom	Check	Corrective action
Hardware	The ALM	L009 DHCP connection	IP address mode setting is not proper.
	LED is	failure	After rebooting this equipment with the default
	blinking	L00A PPPoE connection	IP address set before shipment from the factory,
	C C	failure	connect to the Web and confirm these alarm
			codes.
			- L009 DHCP connection failure
			Check DHCP-related setting and DHCP server
			setting/operation of this device are correct
			- I 00A PPPoF connection failure
			Check PPPoE-related setting and PPPoE server
			(carrier side) operation of this device are correct
		Is the ambient temperature of	Adjust the temperature conditions so that the
	The LEDs excluding	IP-900 series higher than that	ambient temperature of IP-900 series meets the
		in the specifications?	specifications.
	LINK/ACT	Is there any shielding	
	are on.	material in the installation area?	Remove the shielding material.
Operation	Commands	Is the RDY LED blinking?	The hardware system is operating while the RDY
	via a LAN cannot be		LED is blinking. Wait until the LED remains on.
	used (the	Are the LINK LEDs on	If they are not, the UTP cable is not connected.
	setup menu	IP-900 series and hub on?	Check the UTP cable.
	cannot be	Issue a PING command to the	If not:
	displayed).	IP address of IP-900 series.	- Check the TCP/IP settings (to check whether the net mask and gateway address are valid) on the
		Does it respond?	client PC.
			- Start IP-900 series with the default IP address
			and check the IP address by referring to Section
			persists, check the operation on the network
			side.
		Are the browser used and its	- Make sure that IE6.0 SP2 or a later version is
		settings valid?	used.
			operation.

Classification	Symptom	Check	Corrective action
Video	No video is	Is the monitor turned on?	Check the monitor power and operation.
	output	Is IP-900 series turned on?	Confirm that the PWR-LED is on.
	(black	Is IP-900 series correctly	Check the connection between the IP-900 series
	screen)	connected to the monitor?	and monitor.
	Blue/gray	Has decoding started?	Refer to Section 3.5.3, "Operation & Status
	screen is		(Decoder)," and confirm that "Normal
	output.		(Receiving)" is displayed for "Decoding."
		Is the setup normal?	Check the streaming address and port number settings.
		Is "Operating" displayed for	Confirm that the streaming source device is
		"Encoding" on the streaming	distributing streams. In the case of IP-900
		source device?	encoder, refer to Section 3.3.4, "Operation &
			Status (Encoder)" and confirm that "Operating" is
			displayed for "Encoding."
			In the case of Unicast, confirm that the number of
			possible streams of encoder is observed.
	Only color	Is the video input of the	In the case of IP-900 encoder, if video input is not
	bars are	source device normal?	received, the encoder outputs color bars or gray
	displayed.		view according to the setting of "Display when no
			Charles i las input <sup>10</sup> on the AV input setup page.
		Is the conversion of a content	The UDML signal protected by UDCP
		like DVD input to HDMI	(High handwidth Digital Conv Protoction system)
		interface?	(High-balldwidth Dighal Copy Protection system)
		Interface?	point of the copy right protection
			Check video input
	Receiving	Is a receiving error present?	Check the number of data packets received
	video		(decoder information) according to Section
	sometime		3.2.11. "Performance Statistics."
	stops or		Display the Performance Summary frame several
	video image		times. If the number of data packets lost is
	is unstable.		counted up, the network load may be high or there
			may be a problem with the setting. Consult your
			network administrator.
		Is a low video rate, a high frame	Video image might become unstable for a low
		rate, and the short refresh cycle?	video-rate, a high frame rate, and the short
			refreshing cycle. It is a limit of the encoding and is
			not trouble.
		Le the MTU size to a small?	Please set a low frame rate, a long refresh cycle.
Andia	No cound ic	Is the MTU size too small?	Ose the size recommended for the network used.
Audio	No sound is	Is IP-900 series correctly	Check the connection between ID 000 series and
	generateu.	is IP-900 series confectly	check the connection between IP-900 series and
		Is the volume of the speaker	Check the volume of the speaker
		used too low?	check the volume of the speaker.
		Is an alarm generated on the	If an alarm is generated, refer to the operating
		streaming source device?	manual of the streaming source device
		Is the streaming source device	Check the connection of the audio cable
		correctly connected to the	cheek the connection of the audio cable.
		audio source?	
	Noise is	Disconnect the audio output	If noise does not disappear even after the cable is
	generated.	cable from IP-900 series.	disconnected, check the audio cable and audio
		Does it eliminate the noise?	output equipment.

Classification	Symptom	Check	Corrective action
Audio	Noise is generated.	Is a receiving error present?	Check the number of data packets received (decoder information) according to Section 3.2.11, "Performance Statistics." Display the Performance Statistics frame several times. If the number of data packets lost is counted up, the network load may be high or there may be a problem with the setting. Consult your network administrator.
Data	Data communicati on is disabled.	Is the port setting normal? Is the port setting consistent with the destination device?	Check the setting according to Section 3.2.6, "Data Port."
		Is the operation mode consistent with the destination device?	Check the setting according to Section 3.2.6, "Data Port."
		Is the RS-232C setting consistent with the data input/output device?	Check the setting according to Section 3.2.6, "Data Port."
		Is the data input/output device operating normally?	Check the operation of the data input/output device.
Preparation	Software cannot be installed.	Are IP-900 series IP address, subnet mask and gateway address properly set?	Start IP-900 series with the default IP address according to Section 2.2, "Equipment Operation," and check the IP address. If the problem persists, check the operating status on the network side.
		Is the file specification valid? Is the license key entered correctly?	If the message "Installation was denied (incorrect file or license) Please try again here" is displayed, the file specification is invalid or the license key is entered incorrectly.

# 4.2

# Alarm LED Goes On

This section explains corrective action to be taken if an alarm LED (ALM or INDWN) goes on. The appropriate corrective action depends on the alarm code displayed. Refer to the table below for this information.

For information on how to check the alarm log, refer to Section 3.2.10 "Log".

# **Table 4-2 Alarm Codes and Corrective Action**

Code	Corrective action
Lxxx	Check the network and partner device. If an error cannot be identified, contact your system administrator.
Exxx	Turn off the device and then turn it on again. If the device is still operating abnormally after being powered on again, contact your maintenance personnel. Then, he/she may ask the alarm code.
Ixxx	This indicates a loss of video input. Check the video output device and video cable connected to the video input terminal.

xxx: Indicates three alphanumeric characters. Refer to Table 4-3, "Alarm Code List," for details.

		Table 4-5 Alarin Coue List	
Code	Name	Description	Details (The part after the * mark is not displayed.)
0001	Boot (Power ON)	Normal start with the switch	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version yyyy: Configuration name
0002	Boot (Reset)	Normal start after reboot the equipment	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version yyyy: Configuration name
0004	Boot (Initial maintenance)	Normal start using the bundled firmware	-
0005	Boot (Maintenance)	Normal start in maintenance mode	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version yyyy: Configuration name
0006	Software update	Software is updated	VxxLxxxCxx -> VyyLyyyCyy * Displays the new and old software versions. VxxLxxxCxx: Old software version VyyLyyyCyy: New software version
0007	Boot (Restart) (*1)	Restart because of CPU failure	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version yyyy: Configuration name
0008	Boot (Others) (*1)	Restart because of software failure	VxxLxxxCxx yyyy * Displays the software version and configuration name. VxxLxxxCxx: Software version yyyy: Configuration name
0009	Shutdown	Shutdown with MNT button	-
000A	RTC initialization	RTC battery backup discharged electricity	-
000B	CF card initialization	CF card is formatted	-
000C	Configuration update	Configuration data is updated	
000D	Basic settings update	Basic settings are updated	-

# Table 4-3 Alarm Code List

Code	Name	Description	Details (The part after the * mark is not displayed.)
000E	Configuration data change	Configuration data is changed	xxxx -> yyyy * Displays the old and new configuration names. xxxx: Old configuration name yyyy: New configuration name
000F	Configuration data initialization	Configuration data is initialized	-
0010	Option update	Option is installed	HD etc.
0020	Device reset	Reset the individual device.	#11 * CODEC1 #21 * CODEC2 #12 * CODEC1(Audio stereo-2ch)
0030	Protect file recording start	Start the protected file recording	Network / DI / Network & DI * Displays the protect file recording start trigger
0031	Protect file recording stop	Stop the protected file recording	Trigger restoration / Timer expired / Full Date & Time change / Setting change / Others * Displays the protect file recording stop trigger
0032	Protect file release	Release the protected file	Timer expired / User * Displays the protect file release trigger
L001	Link error (LAN)	Link error at a LAN port is occurred	-
*L001	Link error restoration	Restored from link error at a LAN port	10BaseT_HD/10BaseT_FD/100BaseTX_HD/100Base TX_FD * Displays the operating status of the LAN interface
L006	Time server synchronization failure	Time synchronization with the time server is failed	-
*L006	Time server synchronization success	Time synchronization with the time server is successful	-
L009	DHCP connection failure(*5)	DHCP server is disconnected	-
*L009	DHCP connection success(*5)	Connected to the DHCP server	xxx.xxx.xxx/yy,zzz.zzz.zzz * Displays the IPv4 address acquired from the DHCP server. xxx.xxx.xxx: IPv4 address yy: Subnet mask bit count zzz.zzz.zzz.zzz: Gateway address
L00A	PPPoE connection failure(*5)	PPPoE server is disconnected	-

**IP-900 Series** 

Code	Name	Description	Details (The part after the * mark is not displayed.)
*L00A	PPPoE connection success(*5)	Connected to the PPPoE server	xxx.xxx.xxx/yy,zzz.zzz.zzz * Displays the IPv4 address acquired from the PPPoE server. xxx.xxx.xxx.iPv4 address yy: Subnet mask bit count zzz.zzz.zzz.zzz; Gateway address
LOOE	DHCP connection update	IP address update is occurred during DHCP connection	<ul> <li>xxx.xxx.xxx1/y1,zzz.zzz.zz1 -&gt;</li> <li>xxx.xxx.xxx.xx2/y2,zzz.zzz.zz2</li> <li>* Displays the old and new IPv4 addresses acquired from the DHCP server.</li> <li>xxx.xxx.xxx.xx1: Old IPv4 address</li> <li>y1: Old subnet mask bit count</li> <li>zzz.zzz.zz1: Old gateway address</li> <li>xxx.xxx.xxx.xx2: New IPv4 address</li> <li>y2: New subnet mask bit count</li> <li>zzz.zzz.zz2: New gateway address</li> </ul>
L00F	PPPoE connection update	IP address update is occurred during PPPoE connection	<pre>xxx.xxx.xxx.xx1/y1,zzz.zzz.zzz1 -&gt; xxx.xxx.xxx.xx2/y2,zzz.zzz.zzz2 * Displays the old and new IPv4 addresses acquired from the PPPoE server. xxx.xxx.xx1: Old IPv4 address y1: Old subnet mask bit count zzz.zzz.zzz.zz1: Old gateway address xxx.xxx.xxx.xx2: New IPv4 address y2: New subnet mask bit count zzz.zzz.zz2.zz2: New gateway address</pre>
L010	Stateless address connection failure (*5)	IPv6 stateless address connection is failed	-
*L010	Stateless address connection success(*5)	IPv6 stateless address connection is successful	xxxx:xxxx::xxxx/yy * Displays the IPv6 address acquired from the router. xxxx:xxxx: :xxxx: IPv6 address yy: Subnet prefix length

Code	Name	Description	Details (The part after the * mark is not displayed.)
L011	Stateless address update	IPv6 stateless address update is occurred	xxxx:xxxx::xxx1/y1 -> xxxx:xxxx2/y2 * Displays the old and new IPv6 addresses acquired from the router. xxxx:xxxx::xxx1: Old IPv6 address y1: Old subnet prefix length xxxx:xxxx::xxx2: New IPv6 address y2: New subnet prefix length
I001	SDI input down	HD/SD-SDI input signal is not detected	-
*I001	SDI input restoration	Normal HD/SD-SDI input	-
1002	HDMI input down	HDMI input signal is not detected	-
*I002	HDMI input restoration	Normal HDMI input	-
1003	Analog input down	Analog video input signal is not detected	-
*1003	Analog input restoration	Normal analog video input	-
1006	Reference clock input down	External reference clock input signal is not detected	
*1006	Reference clock input restoration	Normal external reference input	
I011	Video synchronization error	Video input PLL synchronization error is occurred	
*I011	Video synchronization error restoration	Restored from video input PLL synchronization error	
I016	Reference clock synchronization failure	Synchronization failure with reference clock input is occurred	
*I016	Reference clock synchronization failure restoration	Restored from synchronization failure with reference clock input	
I021	Input data error (*2)	Count-up is occurred in the performance data error counter	<ul> <li>#xxxxxxxxxxxxxxxx</li> <li>* 64-bit hexadecimal number. For the meaning of each bit, refer to Table 3-12, "Input data error bit format".</li> </ul>
*I021	Input data error restoration (*2)	Restored from count-up of the performance data error counter	-
E001	Power error (*3)	Power error is occurred	<ul><li>#1 * Power error on CNT board</li><li>#2 * Power error on COD board</li></ul>

Code	Name	Description	Details (The part after the * mark is not displayed.)
E003	Temperature error (*4)	Extreme temperature (shutdown processing started) is occurred	* Details are as follows: #1/#2: Number of the temperature sensors that is detected a temperature error t1: Temperature indicated by temperature sensor 1 t2: Temperature indicated by temperature sensor 2 xxx: FAN rotational speed
E004	FlashROM error (*3)	Internal FlashROM access error is occurred	/dev/mtd0 to 15 * Displays the range of access error.
E00A	FlashROM check sum error (*3)	Configuration data error detected in internal FlashROM	Software bundle software configuration configuration#1~#10 * Displays the range of check sum errors.
E010	FAN error (*5)	FAN error (low speed) is occurred	xxxRPS * xxx: FAN rotational speed
*E010	FAN error restoration (*5)	FAN speed is restored	xxxRPS * xxx: FAN rotational speed
E013	Temperature warning (*5)	Temperature warning (alarm only) is detected	<ul> <li>#1 TEMP1=t1 TEMP2=t2 FAN=xxxRPS</li> <li>#2 TEMP1=t1 TEMP2=t2 FAN=xxxRPS</li> <li>* Details are as follows:</li> <li>#1/#2: Number of the temperature sensor that is detected a temperature warning.</li> <li>t1: Temperature indicated by temperature sensor 1</li> <li>t2: Temperature indicated by temperature sensor 2</li> <li>xxx: FAN rotational speed</li> </ul>
*E013	Temperature warning restoration (*5)	Restored from temperature warning	<ul> <li>#1 TEMP1=t1 TEMP2=t2 FAN=xxxRPS</li> <li>#2 TEMP1=t1 TEMP2=t2 FAN=xxxRPS</li> <li>* Details are as follows:</li> <li>#1/#2 : Number of the temperature sensor that is detected a temperature warning restoration.</li> <li>t1: Temperature indicated by temperature sensor 1</li> <li>t2: Temperature indicated by temperature sensor 2</li> <li>xxx: FAN rotational speed</li> </ul>
E082	CODEC1 error	Main HD CODEC LSI error is detected	Blank, #1 * Displays the location of CODEC1 error.

Code	Name	Description	Details (The part after the * mark is not displayed.)
E083	CODEC2 error	Sub CODEC LSI error is detected	-
E084	CF card access error (*7)	CF card access failure is detected	-
E085	CF card power error (*7)	Overcurrent to CF card is detected	-
E08B	SUB CPU1 error (*6)	SUB CPU1 error is detected	-
*E08B	SUB CPU1 error restoration (*6)	Restored from SUB CPU1 error	-
E08C	SUB CPU2 error (*6)	SUB CPU2 error is detected	-
*E08C	SUB CPU2 error restoration (*6)	Restored from SUB CPU2 error	-
E08E	Clock error (*3)	Clock error or interruption is detected	#1 to #4 * Indicates the location where a clock error has
			occurred.
E08F	Memory error (*3)	SDRAM memory check error is detected	#1 to #7 * Indicates the location where a memory error
			has occurred.
E093	Buffer overflow (*8)	Buffer overflow is occurred	#1, #2 * Indicates the location where a buffer overflow
			has occurred.
*E093	Buffer overflow restoration (*8)	Restored from buffer overflow	#1, #2 * Indicates the location of buffer overflow
			restoration.

- \*1: ALM LED is on while this alarm is active. The LED is turned off when the error is restored.
- \*2: IN DWN LED blinks while this alarm is active. The LED is turned off for 10 seconds after the error is restored. Refer to 3. 2. 11 Performance Statistics for the details of the performance data counter regarding the alarm.
- \*3: After this error is occurred, the ALM LED remains on. The device is required to reboot to turn off the ALM LED.
- \*4: If temperature warning is detected, all LEDs except LINK/ACT, 10/100 are on. The device is required to reboot to turn off the LEDs.
- \*5: ALM LED blinks while this alarm is active. The LED is turned off when the alarm cause is restored.
- \*6: After this error is occurred, retry for restoration is the next step. If the retry for restoration is unsuccessful, the ALM LED remains on. The device is required to reboot to turn off the ALM LED.
- \*7: After this error is occurred, the ALM LED remains to blink.
- \*8: ALM LED blinks while this alarm is active. The LED is turned off when the alarm cause is restored.

In case that the settings exceeds the capacity of the IP network, please reconfigure them to meet with the network requirement.

\*9: DEC LED blinks when reference error is occurred. The LED is turned off after restoring from reference error.

The following table summarizes the LED display detail.

LED	Description
PWR	Goes on when the device is powered on.
RDY	Blinks in green when the device ready for operation and stays on when the device runs in operation state. This LED also blinks in orange when the device is ready for maintenance mode, which can be entered by turning on the power while holding down the MNT button, and stays on in orange when the device runs in maintenance mode.
IN DWN	Remains off during normal operation, and goes on in orange when input signals are interrupted.
ALM	Alarm LED, which blinks or goes on when a device alarm occurs. For conditions of whether it blinks or goes on, refer to Table 4-3, "Alarm Code List."
DEC	Goes on in green during decoding. This LED is turned off when decoding is not being operated. It blinks in green when reference error is occurred. (*1) It blinks for 10 seconds also when the statistics input error counter is incremented.
OPT	Lights in green when HD option is installed. (*2)

# Table 4-4 Alarm LED Detail

\*1: Only for IP-900IID/920D.

\*2: Only for IP-9x0E.



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# Glossary

#### AES/EBU

AES (Audio Engineering Society) and EBU (European Broadcasting Union) standardized for the professional digital audio I/O (IEC-60958 TYPE-1.) It was applied to ANSI (American National Standard Institute) too.

# Alarm Log

A record of errors occurred on devices and communication lines.

#### Anamorphic

One of up-converting method from 4:3 screen size ratio (aspect ratio) SD video source to 16:9 screen size ratio HD video. Anamorphic stretches video source horizontally to fit 16:9 screen size ratio and this also makes image stretch. Squeezed video can be displayed as it was by using anamorphic.

### **Ancillary Data**

Transmitted kinds of data located in the blanking area of digital video interface (e.g., audio data and time code data.)

#### **ARP (Address Resolution Protocol)**

A protocol that is used to acquire the MAC address of the transmission destination of Ethernet frames. This protocol uses an IP address to acquire the MAC address. If the MAC address of the transmission destination of IP packets is unknown, an ARP packet requesting the MAC address is broadcast. The MAC address is acquired using the response to this request.

### **ARQ (Automatic Repeat Request)**

An error correcting method that error packet will be re-transmitted automatically when packet error is detected at the receiver (Decoder.) IP-9500/IP-900 series products have the real-time high error-control ability, equipped with the original "FEC + ARQ hybrid method."

# BISS (Basic Interoperable Scrambling System)

A scrambling system formulated by the EBU in May 2002. This system has 3 modes: MODE 0, MODE 1 and MODE E. In MODE 1, a 12-character (48-bit) session word is used for encryption and decryption. In MODE E, a 16-character (64-bit) encrypted session word and 14-character (56-bit) injected ID are used for encryption and decryption. In MODE 0, encryption is not used.

### **BB (Black Burst)**

Sync signal of black level's video signal which is used to be synchronize

### **BNC (Bayonet Neill Concelman)**

One of the coaxial cable connecters which have the 75ohms impedance. It uses the lock called Bayonet Lock and is very easy and compact to use. It is used for the test gear and the digital audio because it supports up to 4GHz high frequency.

#### Browser

A generic name for programs that support a user who wants to fetch a desired option from a number of options. Using a browser, the user can trace links on the World Wide Web to access such multimedia information as text, audio, and video by the simple selection of items with a mouse or other pointing device.

#### **Carrier Frequency**

Radio wave output frequency of a modulator card. Low-frequency transmission data is overlaid on a high-frequency signal during modulation, and this high-frequency signal is called a carrier wave. The frequency of a carrier wave is called the carrier frequency.

#### CAT (Conditional Access Table)

An information table to support the limited receiving.

#### CC (Closed Captioning)

Data for broadcast captioning. It is multiplexed at ancillary data area, virtual or horizontal blanking area of video signal, in HD/SD-SHI signal.

### CF Card

A memory card of CompactFlash that is used as storage for recorded data in IP-9500/IP-900 series products.

#### Chroma Format

Representation of the ratio of the brightness component (Y) and 2 color-difference components (Pb and Pr) expressed for an image. The 2 formats generally used are 4:2:2 and 4:2:0.

#### **CPB (Coded Picture Buffer)**

Buffering encoded data inputted to decoder. The CPB size affects video latency and video quality having an opposing relation. The video quality improves because encoding quantity per picture can be increased when CPB buffer is set large; however, the latency increases due to a large buffer capacity.

### CSC4:2:2 (4:2:2 Chroma Scalable Coding)

4:2:2 encoding system unique to the IP-9500 series. In this system, the encoder applies bandwidth splitting to the color-difference signal of an input 4:2:2 video stream and generates two video streams: a 4:2:0 video stream and a 0:0:2 video stream. The 4:2:0 video stream includes a brightness signal and low-frequency color-difference signal. The 0:0:2 video stream includes only a high-frequency color-difference signal. Then, the encoder encodes two video streams. The IP-9500e decoder decodes these streams and two video combines the low-frequency and high-frequency color-difference signals to output the 4:2:2 video stream. Since a conventional 4:2:0 decoder can decode and output the 4:2:0 stream included in a CSC422 stream, the CSC422 encoding system achieves scalability between 4:2:2 video and 4:2:0 video.

#### Downconverter

Converting from HD-SDI signal to SD-SDI signal. 3 modes are available: Squeeze, Side cropped, and Letter box.

#### DVB-ASI (Digital Video Broadcasting - Asynchronous Serial Interface)

Standard interface in DVB (Digital Video Broadcasting: European Digital Broadcasting standardization organization) and used in MPEG CODEC most commonly. It is the asynchronous serial interface and standardized in ETSI 101 891.

# DVB-S (Digital Video Broadcasting - Satellite)

Standard interface for satellite broadcasting formulated by the DVB (European standardization body for digital broadcasting.)

### DVB-S2 (Digital Video Broadcasting - Satellite - Second Generation)

Successor standard to DVB-S. DVB-S2 adopts more efficient error correction encoding and multi-value modulation with 16 values or more, ensuring an increased transmission capacity. It supports various data formats in addition to MPEG-2 TS. This enables flexible operation because the modulation method, encoding rate, and roll-off rate can be changed.

### Dynamic Texture

A method to describe change of texture pattern that changes over time like a waving water area. Mainly used in computer graphics technology; in case of IP-900 series Dynamic Texture means picture mode for irregularly-changing video like wave on the surface of water.

#### Appendixes

#### Embedded Audio

A method to embed AES/EBU digital audio signal into the blank area of SDI (Serial Digital Interface) signal.

#### **Encrypted Session Word**

16-character (64-bit) word specified by the user in BISS MODE E. A session word is derived from the specified encrypted session word (and injected ID.) Then, encryption or decryption in BISS MODE E is performed.

#### Ethernet

The protocol that has been standardized by the IEEE 802.3 Committee, defining the physical and link layers of a LAN. Typical Ethernet connections use twisted pair cables, such as 10BASE-T or 100BASE-TX, and switching hubs.

#### **Factory Shipment Firmware**

Firmware that is installed at a factory before shipping and has the minimum function like the installer, and so on.

#### FEC (Forward Error Correction)

A method that the sender transmits redundant packet to the receiver for error correction in addition to the sending packet. It enables the receiver to correct errors without the need to request the sender for retransmission.

#### **Flow Control**

The procedure for controlling the flow of data between two devices. Its purpose is to prevent data from being lost when a device buffer becomes full.

#### GATEWAY

A node that connects network systems that use different protocols. A gateway basically converts one protocol into another to support operation between two networks. In a looser sense, gateway sometimes means a machine that transfers information between any two networks.

#### GOLD CODE SEQ N

An index number that generates the initial values used to generate the Gold code, which is used for physical layer scrambling processing in the DVB-S2 standard.

### **GOP (Group Of Pictures)**

The smallest of the structural units composing a movie. A GOP consists of 3 types of frames: I frame, P frame, and B frame.

#### HDCP (High-bandwidth Digital Content Protection system)

One of the copy protection technologies for the illegal content copy between the video player and the video display.

# HD-SDI (High Definition television - Serial Digital Interface)

HD-SDI is the serial digital interface to transmit HD (High Definition) video signal, which transmission rate is 1.485 Gbps. It can transmit multiplexing HD video signal, PCM audio signal and data signal like time stamp.

#### HDMI (High Definition Multimedia Interface)

One of the multimedia interfaces integrated the audio, video and control and communicate each other.

#### H.264

One of the video compression coding systems standardized in ITU (International Telecommunication Union) in May, 2003. It is also standardized as a part of MPEG-4 (MPEG-4 part 10 Advanced Video Coding) in ISO (International Organization for Standard.) Therefore, it is commonly called H.264/MPEG-4 AVC or H.264/AVC, showing both of parties.

This technology is used for the various applications from the low bit rate and low resolution like the mobile TV to the high bit rate, high resolution like HDTV. It is improved that the data capacity is half comparing MPEG-2 used wide spread.

# HTTP (Hyper Text Transfer Protocol)

The protocol is for transferring files and other data over a Web server and a browser.

# HUB

A concentrator required to use 10Base-T or 100Base-TX as a local area network (LAN) standard. Twisted-pair cables are used to connect hubs. A high-speed hub conforms to 100Base-TX. A switching hub has switching functions.

# IBBP/IBP/IPPP/PPPP

Video encoding structure with using I, P, and B frame.

- I frame: Intra frame. Frame encoded by using internal video information.
- P frame: Prediction Picture frame. Frame encoded by using correlation with previous frame.
- B frame: Bi-directional Inter frame. Frame encoded by using previous and next coming I frame or P frame.

### IF-band

A part of a very high frequency band (VHF band: 30 to 300 MHz.) The IF-band is selected only when an IF-band modulator card is used for operation.

### IGMPv2

Protocol defined in RFC2236 for receiving IPv4 multicast datagram. IGMPv2 includes functions for participating in and leaving from IPv4 multicast group and so on.

# IGMPv3

Protocol defined in RFC3376. In addition to IGMPv2 function, information sources filtering function that can be specified to receive multicast datagram transmitted from dedicated IPv4 address has been added.

# **Injected ID**

14-character (56-bit) ID specified by the user in BISS MODE E. A session word is derived from the specified injected ID and encrypted session word. Then, encryption or decryption in BISS MODE E is performed.

# **IP (Internet Protocol)**

A protocol used for transferring packets between host computers anywhere on the Internet. The identifiers used to identify the destinations and senders for packet transfer are called IP addresses. An IP address is a 32-bit value that can identify a network and a host on the network. Each host that communicates on the Internet must be assigned a unique IP address.

# **IP Satellite Mode**

A function used in transmission using IP satellite connection. It distributes streams that inhibit the bit stuffing function of the HDLC procedure, which is used in IP satellite connection (This function inserts 0 after five 1's in a row.)

# IPv6

IP protocol that is the successor to IPv4, which is currently the dominant IP protocol version on the Internet. The network address length is extended from 32 bits in IPv4 to 128 bits to solve the address space exhaustion problem that is worsening with the growth in use of the Internet. IPv6 also provides stateless address auto-configuration that allows an IPv6 address to be automatically generated based on the information from the router and the MAC address of the IP-900 series.

### **IP Address**

A numeric identifier that identifies a node (e.g., a computer) operating under TCP/IP. An IP address is a 32-bit value divided into four 8-bit segments separated by dots (e.g., 200.10.101.1).

# **IP Multicast**

TCP/IP term that refers to a technology by which the same data is transmitted to many destinations at the same time. An address class, called Class D, is used for multicasting. The first four bits (1110) of a Class D address specify multicasting, and the remaining 28 bits specify a multicast group.

### LAN (Local Area Network)

A data communication system that covers a limited area of about 6 miles (10 kilometers) and provides transmission speeds in the mid to high range.

# L-band

The name of the frequency band from 0.5 to 1.5 GHz, according to the classification of microwave frequencies by IEEE. The L-band belongs to the ultra-high frequency band (UHF band: 03 to 3 GHz.) The L-band is selected only when an L-band modulator card is used for operation.

# LCD (Liquid Crystal Display)

A display device utilizing liquid crystal cells. It works by having 2 sheets of a polarizing material with liquid crystal in between, when an electrical current is applied to the liquid crystal molecules they become scattered allowing light to pass through. LCD itself does not produce luminescence and uses reflected light in the light and fluorescent (backlight) in the dark. There are 2 main types: simple matrix LCD such as STN and DSTN, and active matrix LCD such as TFT.

# LED (Light-Emitting Diode)

The IP-9500/IP-900 series has power LED and alarm LED lamps. The power LED lamp lights in green to indicate that the power is on. The alarm LED lamp lights in red to indicate that an alarm has occurred.

### Letter Box

One of down-converting method from 16:9 screen size ratio (aspect ratio) HD video source to 4:3 screen size ratio SD video. The resulting image has black bars at both upper/down parts of the video.

### MLD v1 (Multicast Listener Discovery version 1)

A protocol that has been defined by RFC2710. It is used to detect a multicast listener that receives an IPv6 multicast datagram.

# MLD v2 (Multicast Listener Discovery version 2)

A protocol that has been defined by RFC3810. In addition to the MLD v1 supporting function, it has an information source filtering function, which enables the specification for receiving only the packets sent from specific origination IPv6 addresses (or IPv6 addresses that are not specific origination IPv6 addresses).

# MPEG-4

Video data compression method that is a part of the MPEG standard. MPEG-4 was designed to distribute video images of low picture quality (due to a high compression ratio) over slow communication lines (e.g., cellular phone and telephone lines.) MPEG-4 was also designed to transmit video together with audio at about 64 kilobits per second.

### NIT (Network Information Table)

Physical network information for sending streams is stored in this table.

# NTSC (National Television Standards Committee)

The standard for analog television systems established by a US standardization body.

NTSC images are made of 29.97 interlaced frames per second, each of which is composed of 525 scan lines in total.

# Original network ID

ID for identifying a transport stream. Each transport stream is identified by the combination of an original network ID and a transport stream ID.

# PAL (Phase Alternating Line)

The standard for analog color television broadcasting developed in Germany. PAL images are made of 25 interlaced frames per second, each of which is composed of 625 scan lines in total.

### PAT (Program Association Table)

Table included TS (Transport Stream) and the list in PMT PID. The PID of PMT is 0.

#### PES (Packetized Elementary Stream)

A packetized method provided by MPEG2 System. Encoded video or audio bit streams are called "Elementary Stream." These streams are packetized by standard and are called "PES."

#### PID

A packet identifier which has the 13 bits information, included in TS packet.

#### Pilot Mode

A mode adopted in the DVB-S2 standard to improve synchronization characteristics at a low C/N ratio. This device has a setting for specifying whether to insert the pilot signal for synchronized playback into physical layer frames.

### Ping

A command supported by operating systems such as UNIX and Windows that are used in a TCP/IP network to determine whether IP packets can reach or have reached a communication destination.

#### Pillar box

One of up-converting method from 4:3 screen size ratio (aspect ratio) SD video source to 16:9 screen size ratio HD video. Pillar box adds black pillar blank at both side to fit 16:9 screen size ratio video.

### PMT (Program Map Table)

ID table which identifies audio, video, and so on.

# PPPoE (Point to Point Protocol over Ethernet)

PPPoE is a specification for connecting the users on an Ethernet to the Internet. PPPoE supports authentication and enables a point-to-point connection to be established in the normally multipoint architecture of Ethernet.

#### **PPS (Picture Parameter Set)**

A header in NAL (Network Abstraction Layer) of H.264/AVC, which information on the whole picture encoding is described.

#### **Private PES**

Packetized elementary stream standardized by MPEG2 System that user can use arbitrarily for data transmission.

### **Pre-Filter**

Filter that works before encoding video signal for an improvement of video quality with violent movement at low encoding rate.

### Profile

This defines various encoding formats used for compressing the image. Profile can be changed depending on the use of the compressed image.

### Program Number/Service ID

ID for identifying a channel (service) provided by a broadcasting company. By specifying a program number/service ID, you can select an arbitrary transport stream from multiple transport streams.

### **Pro-MPEG FEC**

Please refer to SMPTE2022-1 FEC.

### Proxy

A computer network service that allows clients to make indirect network connections to other network services.

### **PS (Program Stream)**

An MPEG-2 method for multiplexing video, audio, and data, the PS method is used for transmission and storage in an error-free environment.

#### **PSI (Program Specific Information)**

This is the information which program each ES in TS packet belongs (e.g., PAT, PMT, and CAT.)

### QPSK, 8PSK (Quadrature Phase Shift Keying, 8 Phase Shift Keying)

PSK is a modulation system that expresses information using a combination of multiple carrier waves with a phase shift between them. The system that uses 4 waves with phase-shifts separated by an angle of 90 degrees is called QPSK. Each modulated signal (one symbol) can transmit two bits of data. The system that uses eight waves with phase-shifts separated by an angle of 45 degrees is called 8PSK. Each modulated signal (one symbol) can transmit three bits of data.

#### **Refresh Cycle**

Frame cycle between I frames for Quality (IBBP) and Motion (IBP) of Encoding control mode. Frame cycle of updating one screen image by using intra-slice for Low Latency (PPPP) and Ultra Low Latency (PPPP) of Encoding control mode.

### **Roll-off Factor**

Another name for roll-off rate. The factor for the processing of spectrum forming for transmission data is called the roll-off factor. The purpose of the processing is to increase the frequency usage rate while suppressing interference in the carrier. Generally, a larger factor increases interference in the carrier but also increases resistance to selective phasing.

#### RS-232C

Interface standard that was mainly established by the Electronics Industry Association (EIA) for communication between data terminal and data communications equipment.

### **RF (Radio Frequency)**

High frequency-wireless-electric signal for satellite broadcast output by a modulator card.

### RTP

Abbreviation of real-time transport protocol. This transport protocol is for transferring the image data or the voice data in real time.

# SD-SDI (Standard Definition television - Serial Digital Interface)

Standard definition digital video interface standardized in SMPTE259M.

#### SDT (Service Description Table)

Detail descriptions such as service name of the system and service providers are stored in this table.

# Session Word

12-character (48-bit) word specified by the user in BISS MODE 1. The specified session word is used for encryption or decryption in BISS MODE 1.

#### Side Cropped

One of down-converting method from 16:9 screen size ratio (aspect ratio) HD video source to 4:3 screen size ratio SD video. The resulting image has both left and right sides cropped.

#### SMPTE2022-1 FEC

SMPTE2022-1 FEC (formerly Pro-MPEG FEC) specifies 2-dimensional FEC (Forward Error Correction) method that is standardized by SMPTE. This method generate and send 2-dimensional (columns x rows) redundant packets in order to correct packet errors over the network.

# SNMP v1 (Simple Network Management Protocol version 1)

Communication protocol defined by RFC1065, RFC1066, and RFC1213 for monitoring and controlling network devices. The protocol defines a framework for network management protocols and other protocols. This framework is used for SNMP v2c, SNMP v3, etc.

# SNMP v2c (Simple Network Management Protocol version 2c)

Communication protocol defined by RFC1901 and RFC1908 for monitoring and controlling network devices. The protocol enables communications using v2, which has higher communication security and performance, on a community basis similar to communications using v1.

#### Spectrum

Specified spectrum sense for the IP-9500 series can be "Normal" or "Inverted." Select the setting according to local configuration of your wireless devices and transponders.

#### Squeeze

One of down-converting method from 16:9 screen size ratio (aspect ratio) HD video source to 4:3 screen size ratio SD video. Because this method makes 16:9 screen size ratio video compress horizontally to convert 4:9 screen size ratio video, object can be displayed vertically long. Squeezed video can be displayed as it was by using anamorphic up-converting method.

### Symbol Rate

Symbol transmission speed defined by the number of symbols sent to the transmission line per second. The unit of measurement is symbol/s.

### Synchronization between Decoders

A function that makes output video between 2 decoders get into synchronization. Set the reference setting of one decoder "Enable(Master)", another "Enable(Slave)". The master decoder outputs Black Burst signal for synchronization between decoders from ANALOG VIDEO out terminal. Connecting this signal with GENLOCK in terminal of the slave decoder allows output video between decoders to get into synchronization.

### System rate

Data amount per second of the encoding data including up to MPEG2 system. The data for the network packet or FEC packet is not included.

#### Subnet Mask

Mask value that is used to obtain the network address of a subnet from an IP address. The subnet address is obtained when the IP address is ANDed with the subnet mask.

### **TCP (Transmission Control Protocol)**

Abbreviation of Transmission Control Protocol, the protocol required for direct connection to the Internet. In the OSI reference model, TCP corresponds to the transport layer and IP corresponds to the network layer. TCP has been a global standard protocol that is supported by major operating systems, including UNIX, OS/2, and Windows.

# **TOS (Type Of Service)**

Type of service that can be added within IP packets. It is used for controlling the order of priority of packets in the router etc.

### Tri-sync

Sync signal used for High Definition TV. There is a feature of not generating the phase gap even if sync signal shrinks by the signal attenuation.

### **TS (Transport Stream)**

Abbreviation of Transport Stream, which is an MPEG-2 systems for multiplexing video, audio, and data. A stream consists of packets, each of which has a fixed length of 188 bytes. The TS method is used for transmission in an environment such as ATM communication or digital broadcasting where errors can occur.

### **TSC (Transport Scrambling Control)**

A field in MPEG-2 TS header information, which indicates the scrambling mode of a stream. The TSC of a stream that is encrypted with the BISS method is defined as 2.

#### Appendixes

#### TTL (Time To Live)

Abbreviation of Time To Live, which indicates the survival time of a packet on a network. If a packet sent to a network happens to enter a loop because of a setting error on a router, it will not survive forever, but will be discarded when the specified survival time is reached.

#### TTS (Time stamped Transport Stream)

192byte packet consist of basic 188byte MPEG TS and 4byte-timestamp counted by 27MHz clock.

#### **UDP (User Datagram Protocol)**

Abbreviation of User Datagram Protocol. UDP is a TCP/IP transaction protocol used for specific applications such as remote network management and naming service access.

#### Unicast

Communication with a station at a single address (that is, most general one-to-one communication.)

#### Upconverter

It is to convert from SD to HD signal with enlarging the signal resolution.

#### **USB (Universal Serial Bus)**

One of the serial bus standards for connecting peripheral devices to a PC. The first USB1.0 was developed in 1996. Today, USB2.0 provides greater enhancement in transfer speed and load reduction, which made it spread rapidly and became the most commonly used standard for PC environment.

#### **UTP Cable**

UTP is an abbreviation of unshielded twisted pair. A UTP cable is an unshielded pair of wires twisted together, and is used for Ethernet cabling and other purposes.

#### UTC (Coordinated Universal Time)

International standard time. The UTC is calculated based on the time measured by an atomic clock, which uses the second in the SI unit system as a reference value, making adjustments that insert leap seconds to compensate for the time difference from Greenwich Mean Time (GMT.)

#### Video User Data

Data area standardized by H.264 video encoding method that user can use arbitrarily for data transmission.

#### VITC (Vertical Interval Time Code)

Time code signal embedded in the vertical blanking area of video sync signal.

#### 10BASE-T

LAN that uses unshielded twisted-pair (UTP) cables and complies with the IEEE 802.3 standard. 10Base-T connection is made simple by using a concentrator called a hub without any special cabling work required. For this reason, 10Base-T is the most widely used form. The maximum cable length is 100 meters.

#### 100BASE-TX

One of the 100Base LAN standards (also called Fast Ethernet.) 100Base-TX supports transfer rates of 100 megabits per second. Other 100Base standards are 100Base-T4 and 100Base-FX. 100Base-TX differs from the other 100Base standards in the type of cable used (UTP cable.) It also uses RJ-45 connectors, which are similar to the modular jacks used for telephones.

#### 1000BASE-T

One of the Gigabit Ethernet standards which have the maximum 1Gbps speed. It was standardized as IEEE802.3ab in 1999. This is the standard that uses the UTP cable of the category 5 (CAT5) or the enhanced category 5 (CAT5e) and uses all of 4 pairs signal wires. The maximum cable length is 1000 meters and the network topology is the star type.

#### 16APSK (16 Amplitude Phase Shift Keying)

APSK is a modulation system that expresses information using a combination of multiple carrier waves with different phases and amplitude values. Each modulated signal (one symbol) can transmit four bits of data.

#### 4:2:0

One of the video formats. In this format, the numbers of pixels for the color-difference components (Pb and Pr) are half the number of pixels for the brightness component (Y) in the horizontal and vertical directions.

### 4:2:2

One of the video formats. In this format, the numbers of pixels for the color-difference components (Pb and Pr) are half the number of pixels for the brightness component (Y) in only the horizontal direction.

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IP-900 Series SOFTWARE V02 User's Guide

Edition 15 June 2018

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