FUJITSU

IP-900E
IP-900D
IP-900IID
Hardware User's Guide

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USING IP-900E/IP-900D/IP-900IID series SAFELY

Handling of This Manual

The manual contains important information regarding the safe use of IP-900E/IP-900D/IP-900IID. Read it thoroughly before operating this device. Make sure that users of this equipment read and understand thoroughly all safety precautions contained in the manual. Keep this manual in a safe and convenient location for quick reference.
Fujitsu makes every effort to prevent users and bystanders from injury and to prevent property damage. To ensure no harm to you and bystanders, and to prevent damage to this equipment itself, be sure to use this equipment in accordance with instructions in the manual.

The following notice is for USA users only.
IP-900E/IP-900D/IP-900IID has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.

This manual includes technology controlled under the Foreign Exchange and Foreign Trade Control Law of Japan. The manual or a portion thereof must not be exported (or re-exported) without authorization from the appropriate governmental authorities in accordance with the above law.

IP-900E/IP-900D/IP-900IID is designed and manufactured for use in standard applications such as office work, personal devices, and household appliances. The product is not intended for special uses (such as nuclear-reactor control in atomic energy facilities, aeronautic and space systems, air traffic control, operation control in mass transit systems, medical devices for life support, and missile firing controls in weapons facilities) where particularly high reliability requirements exist, where the pertinent levels of safety are not guaranteed, or where a failure or operational error could threaten a life or cause physical injury (hereafter referred to as "mission-critical" use). Customers considering use of this product for mission-critical applications must have safety-assurance measures in place beforehand. Moreover, they are requested to consult our sales representative before embarking on such specialized use.

Copying of and disassembly, decompilation and other forms of reverse engineering of any program included with this device is prohibited.
Windows, Internet Explorer are registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
HDMI, HDMI Logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

HIGH-DEFINITION MULTIMEDIA INTERFACE

IMPORTANT NOTE TO USERS

READ THE ENTIRE MANUAL CAREFULLY BEFORE USING THIS PRODUCT. INCORRECT USE OF THE PRODUCT MAY RESULT IN INJURY OR DAMAGE TO USERS, BYSTANDERS OR PROPERTY.

While FUJITSU has sought to ensure the accuracy of all information in this manual, FUJITSU assumes no liability to any party for any damage caused by any error or omission contained in this manual, its updates or supplements, whether such errors or omissions result from negligence, accident, or any other cause. In addition, FUJITSU assumes no liability with respect to the application or use of any product or system in accordance with descriptions or instructions contained herein; including any liability for incidental or consequential damages arising therefrom.
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FUJITSU reserves the right to make changes to any products described herein without further notice and without obligation.

PREFACE

Thank you for purchasing the IP-900E/IP-900D/IP-900IID.

IP-900E/IP-900D/IP-900IID are the video transmission unit with the H.264 encoding technology which performs the high compression ratio, and transmits the SD (Standard Definition) /HD (High Definition) video and audio signals in real time through even the optical IP network like FTTH. (*1) IP-900E has functions that encodes SD/HD video signals from a SD/HD camera or similar device and distributes it across the network in real-time. IP-900D/IP-900IID has functions that decode the encoded SD/HD video signal data received via the network and displays it on a monitor or other device.

This manual is intended for system designers and system managers who use IP-900E/IP-900D. Readers are assumed to have a basic knowledge of networks and video distribution.

Figures and tables are described by using IP-900E as a sample. Functions which are not supported by IP-900D/IP-900IID are described at each part of functions separately.

*1: IP-900E supports only SD video. By adding optional software, IP-900E will be upgraded to support HD video.

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Product operating environment

- Designed for use in real-time audio/video transmission systems and in the transmission system of monitoring systems, IP-900E/IP-900D/IP-900IID is intended for indoor use.

Note:
The contents of this manual are subject to change without notice.

ORGANIZATION AND CONTENTS OF THIS MANUAL

The manual consists of five chapters, an appendix, a glossary and an index.
Read Chapters 1 and 2 first for information on installing and connecting this equipment. Read Chapter 3 for operating instructions, and Chapter 4 and subsequent chapters can be read as required.

Chapter 1 Preparations

This chapter describes the checks that are required before the start of IP-900E/IP-900D/IP-900IID operation.

Chapter 2 Installation and Connection

This chapter describes conditions for IP-900E/IP-900D/IP-900IID installation and explains how to connect it to peripheral this equipments.

Chapter 3 Operating Instructions

This chapter explains how to power on/off, set up and operate this equipment.

Chapter 4 Connection Cable Specifications

This chapter contains a classification of how work is implemented, cable connection system diagrams and cable connector details.

Chapter 5 Troubleshooting

This chapter describes actions to be taken if this equipment does not operate normally or if an alarm LED turns on.

Appendix

The appendix contains views of this equipment and its basic specifications. Installation work and on-site adjustment preparations are also covered in this section.

Glossary

The glossary defines the technical terms used in this manual.

Index

The index lists keywords and corresponding pages on which the words appear, so necessary items can be looked up immediately.

WARNING INDICATIONS

This manual uses warning indications to warn of conditions in order to prevent serious injury and property damage. Warning indications consist of warning markings of specific levels and warning messages. The warning markings are shown below along with their definitions.

⚠WARNING

⚠ WARNING indicates a situation that could lead to serious injury or loss of life if procedures are not followed correctly.

⚠CAUTION

⚠ CAUTION indicates a situation that could lead to minor or moderate injury and/or damage to this equipment itself if procedures are not followed correctly.

Warning indications within text

Warning markings are followed by warning messages. Every warning marking is centered on a line. Left and right indents are set for warning messages to differentiate them from ordinary text. Furthermore, the lines immediately before and after warning indications are left blank.

(Example)

⚠WARNING

Possibility of electric shock, fire and damage to this equipment
Always observe the precautions given below.
This indicates a hazardous situation that could lead to electric shock, fire or damage to this equipment.

- Always connect the power cord to a power receptacle for a standard two-prong plug with ground.
- Connect this equipment to the power receptacle with a capacity of 1A or more. When using a power extension cable, be sure that the total power consumption of all devices connected to the cable does not exceed the rated capacity of the cable. If a power receptacle with a low capacity or capacity below the rated value is used, the power receptacle, extension cable or power distribution wiring may overheat and start a fire.

Important warning indications are summarized below in “Safety Precautions.”

SAFETY PRECAUTIONS

List of important warnings

The table below contains a list of important warning indications.

⚠WARNING	Indicates a situation that could lead to serious injury or loss of life if procedures are not followed correctly.

Work type	Warning
Normal use	Possibility of electric shock and fire If an excessive heat, smoke, an abnormal odor or an unusual noise is coming from this equipment, immediately set its power switch to OFF and remove the power cord plug from the power receptacle. Then, contact a Fujitsu Service Center. This indicates a hazardous situation that could lead to fire and electric shock. Possibility of electric shock and fire If foreign matter (e.g., water, bits of metal, fluid) gets inside this equipment, immediately set its power switch to OFF and remove the power cord plug from the power receptacle. Then, contact a Fujitsu Service Center. This indicates a hazardous situation that could lead to fire and electric shock. Possibility of electric shock and fire If this equipment has been dropped or otherwise damaged, immediately set its power switch to OFF and remove the power cord plug from the power receptacle. Then, contact a Fujitsu Service Center. This indicates a hazardous situation that could lead to electric shock. Possibility of electric shock and fire To keep foreign matter out, ensure that drink containers and metal objects are not placed on or near this equipment. The presence of foreign matter such as water inside this equipment creates a hazardous situation that could lead to electric shock. Possibility of electric shock and fire Ensure that no liquid is splashed on this equipment, making it wet. The presence of foreign matter such as water inside this equipment creates a hazardous situation that could lead to fire and electric shock. Possibility of electric shock and fire Ensure that the power cord does not become damaged, and avoid tampering with it. If the power cord has a heavy object is placed on it, pulled at, bent, or becomes entangled, it could be damaged as a result. Also, the power cord could be damaged if subjected to heat, creating a hazardous situation that could lead to fire and electric shock. Possibility of electric shock Because this device contains a hazardous voltage section, never open the cover. Only a service engineer must open the cover. This warning indicates a hazardous situation that could lead to electric shock.

Work type	Warning
Installation	Possibility of electric shock and fire Do not install this equipment in the following places because using it there may cause a fire or electric shock: • Extremely dusty or dirty place • Wet or humid location • Hot location, such as a place where this equipment is exposed to direct sunlight or is near heating equipment • Near products (e.g., speakers) that generate a strong magnetic field • Location where the temperature is too hot or cold • In an environment with sharp temperature fluctuations • Area with poor ventilation • Near a fire Possibility of electric shock, fire, and damage to this equipment Always observe the precautions given below. This indicates a hazardous situation that could lead to electric shock, fire and damage to this equipment. • Always connect the power plug to a power receptacle for a standard two-prong plug with ground. • Connect this equipment to a power receptacle with a capacity of 1 A or more. When using a power extension cable, be sure that the total current consumption of all devices connected to the cable does not exceed the rated capacity of the cable. If a power receptacle with a low capacity or capacity below the rated value is used, the power receptacle, extension cable or power wiring may overheat and start a fire.

Work type	Warning
Installation and relocation	Possibility of serious injury and damage to this equipment Do not install this equipment in places where it is exposed to shock and strong vibrations, on an incline or in unstable locations. This indicates a hazardous situation that could lead to serious injury or damage to this equipment. Possibility of serious injury and damage to this equipment When relocating this equipment, observe the following precautions to protect against serious injury and damage to this equipment: • Set the power switch to OFF, and disconnect all connected cables. Take care to avoid getting your feet entangled in the cables. • To prevent serious personal injury when moving this equipment, take special care to pay attention to your surroundings.
Clean	Possibility of fire, serious injury and damage to this equipment When cleaning this equipment, observe the following precautions to protect against fire, serious injury and damage to this equipment: • When cleaning this equipment, please do not use cleaning spray that is including combustible material. Also, please do not use it around this equipment. • When cleaning this equipment, please wipe off with the cloth squeezing water (or neutral detergent thinned by water). • When wiping off, please be careful not to put water into this equipment from switches or the spaces.

LABEL

The warning label shown below is affixed to this equipment.

- Never remove the label.
- Be sure to check the label at the bottom of this device before coming to the power supply.
- The following label is intended for users of this equipments.

MODEL IP-900E 0.38A-0.20A 100V-240V～
PART NO. TA23742-B5XX 1 ϕ 50/60Hz
0.038kVA-0.048kVA 2.3kg

T 認証番号 D08-0454001 12345 01A 08-10 00001

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

FUJITSU LIMITED MADE IN JAPAN

c UL us LISTED I.T.E. 1K91 E136004 CE

CAN ICES-3 (A) / NMB-3 (A)

Manufacture
Fujitsu Limited
Address: 1-1, Kamikodanaka 4-Chome, Nakahara-Ku, Kawasaki 211-8588, Japan

Authorised representative
Fujitsu Services Limited
Address: 22 Baker Street, London, W1U 3BW, United Kingdom

Support service center
Tel : (02)3787-6044

KTL. XXXXXXX-XXXXXX
인증번호 : FKL-IP-900(A)

인증받은 사람의 상호
: Fujitsu Korea Limited

Label:IP-900E

MODEL IP-900D 0.33A-0.17A 100V-240V～
PART NO. TA23742-B6XX 1 ϕ 50/60Hz
0.033kVA-0.041kVA 2.3kg

T 認証番号 D08-0454001 12345 01A 08-10 00001

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

FUJITSU LIMITED MADE IN JAPAN

c UL us LISTED I.T.E. 1K91 E136004 CE

CAN ICES-3 (A) / NMB-3 (A)

Manufacture
Fujitsu Limited
Address: 1-1, Kamikodanaka 4-Chome, Nakahara-Ku, Kawasaki 211-8588, Japan

Authorised representative
Fujitsu Services Limited
Address: 22 Baker Street, London, W1U 3BW, United Kingdom

Support service center
Tel : (02)3787-6044

KTL. XXXXXXX-XXXXXX
인증번호 : FKL-IP-900(A)

인증받은 사람의 상호
: Fujitsu Korea Limited

Label:IP-900D

MODEL IP-900IID 0.35A-0.18A 100V-240V～
PART NO. TA23742-B6XX 1 ϕ 50/60Hz
0.035kVA-0.045kVA 2.3kg

T 認証番号 D08-0454001 12345 01A 10-08 00001

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

FUJITSU LIMITED MADE IN JAPAN

c UL us LISTED I.T.E. 1K91 E136004 CE

CAN ICES-3 (A) / NMB-3 (A)

Manufacture
Fujitsu Limited
Address: 1-1, Kamikodanaka 4-Chome, Nakahara-Ku, Kawasaki 211-8588, Japan

Authorised representative
Fujitsu Services Limited
Address: 22 Baker Street, London, W1U 3BW, United Kingdom

Support service center
Tel : (02)3787-6044

KTL. XXXXXXX-XXXXXX
인증번호 : FKL-IP-900(A)

인증받은 사람의 상호
: Fujitsu Korea Limited

Label:IP-900IID

PRODUCT HANDLING PRECAUTIONS

⚠WARNING

Maintenance

Do not try to repair this equipment yourself. Contact a Fujitsu Service Center.

⚠CAUTION

Read this manual thoroughly before attempting to operate this equipment.
If you have any questions, contact a Fujitsu Service Center.

If a problem occurs, contact a Fujitsu Service Center.
The Fujitsu Service Center will ask you to describe the problem, the lamp display status of alarm LEDs and other details. Check the system for this information.

Connectable devices

Only devices that conform to this equipment interface specifications (Refer to Appendix 2.3, "Device Specifications") can be connected. Otherwise, if incompatible devices are connected, the result may be personal injury and property damage.

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

Disposal

To dispose of this equipment, contact a Fujitsu Service Center, or request a specialist to take care its disposal.

Modification and restoration

Do not use any device that has been modified or rebuilt with refurbished used parts. Otherwise, you may result in personal injury and property damage.

CONTENTS

CHAPTER 1
PREPARATIONS

This chapter describes the checks that are required before the start of IP-900E/IP-900D/IP-900IID operation.

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1.1 Main Features

IP-900E/IP-900D/IP-900IID are the video transmission unit with the H.264 encoding technology which performs the high compression ratio, and transmits the SD (Standard Definition) /HD (High Definition) video and audio signals in real time through even the optical IP network like FTTH.

IP-900E has functions that encodes SD/HD video signals from a SD/HD camera or similar device and distributes it across the network in real-time. IP-900D/IP-900IID has functions that decode the encoded SD/HD video signal data received via the network and displays it on a monitor or other device.

Main Features

Item	Specifications			IP-900E	IP-900D	IP-900IID
Video input	HD-SDI / SD-SDI	1ch	[BNC]	X *1	—	—
	HDMI 1.2a (*4)	1ch	[HDMI]	X *1	—	—
	Analog Composite	1ch	[BNC]NTSC/PAL	X	—	—
Video output(*2)	HD-SDI / SD-SDI	1ch	[BNC]	—	—	X
	HDMI 1.2a (*4)	1ch	[HDMI]	—	X	X
	Analog Composite(*3)	1ch	[BNC] NTSC/PAL	—	X	X
Audio input	HD/SD-SDI embedded	2ch	[BNC], 1 stereo pairs	X	—	—
	HDMI 1.2a (*4)	2ch	[HDMI]	X	—	—
	Analog unbalanced	2ch	[RCA], 1 stereo pair	X	—	—
Audio output(*2)	HD/SD-SDI embedded	2ch	[BNC], 1 stereo pairs	—	—	X
	HDMI 1.2a (*4)	2ch	[HDMI]	—	X	X
	Analog unbalanced	2ch	[RCA], 1 stereo pair	—	X	X
Network	LAN	1ch	[RJ45], 10BASE-T / 100BASE-TX	X	X	X
Data input/output	RS-232C	1ch	[D-sub9-pin], male connector	X	X	X
CF CARD slot	CF CARD	1	Data storage application	X	—	—
Installation conditions	Indoor: On a desk, mounted in a rack			X		
Dimensions	W: 210 H: 42 D: 300 (mm) Note: Excluding protrusions (i.e., not including feet)			X		
Cooling system	Forced air cooling			X		
Power supply	100-240VAC			X		
Weight	Maximum 2.3kg			X		
Power consumption	38VA or less @ 100VAC			X		
Temperature Humidity	-10 to 55°C (No low temperature startup: -10 to -1°C) 20 to 90%RH (No condensing)			X		

*1: IP-900E supports only SD video. By adding optional software, IP-900E will be upgraded to support HD video.

*2: IP-900D/900IID(Decoder) can output decoded video/audio signals from all video/audio output interfaces.

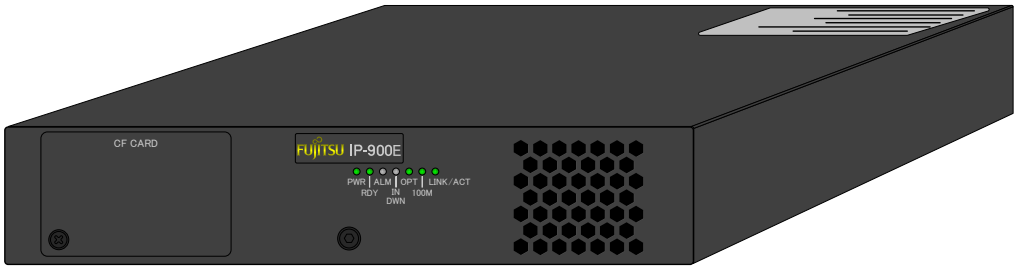
*3: In case of HD video transmission, IP-900D/900IID cannot output video signal from “Analog composite” video interface.

*4: DVI isn't supported.

1.2 Components

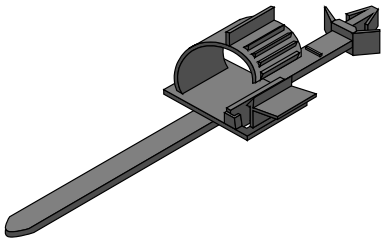
The IP-900E/IP-900D/IP-900IID product package consists of the following components. Attachments for all series consist of same contents.

- **IP-900E/IP-900D/IP-900IID: 1 pc (cables separate order)**

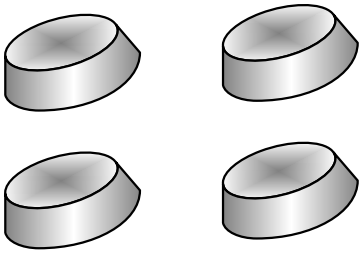


- **Safety manual: 1pc**

- **Holder of power supply cable: 1 pc**

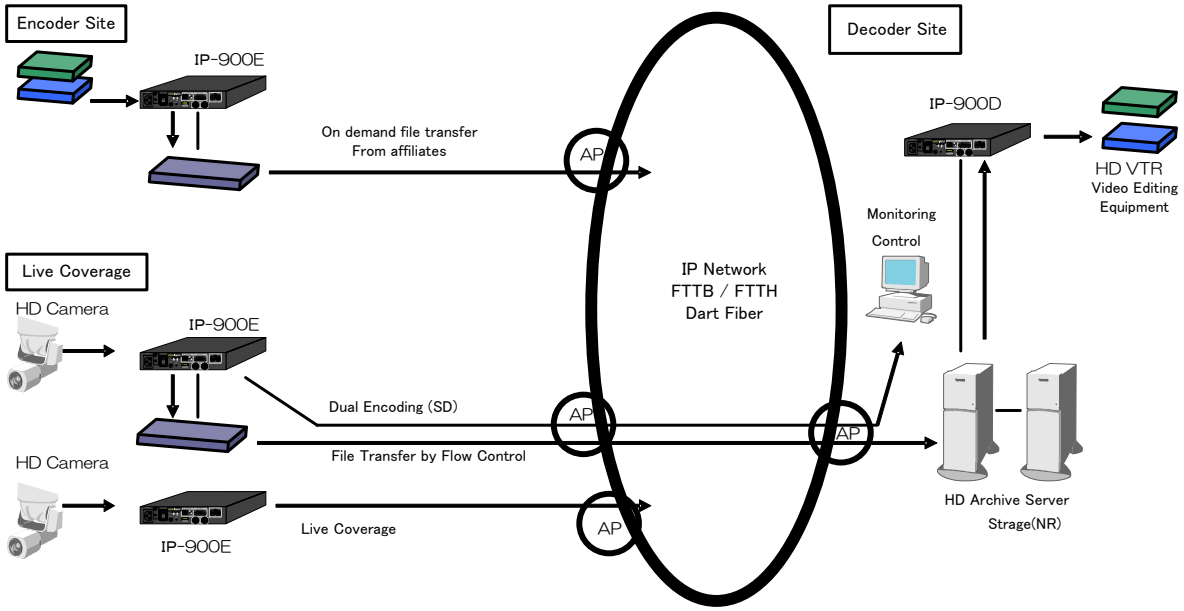


- **Feet: 4 pcs**



1.3 Basic Application Examples

Examples (system configuration) of use of IP-900E/IP-900D/IP-900IID are shown below.



1.4 Part Names

This section gives the name and describes the function of individual parts of IP-900E/IP-900D/IP-900IID.

The diagrams below show the layout of parts on the outside of this equipment, and the table below lists the name and describes the function of individual parts.

- IP-900E

Figure Front panel

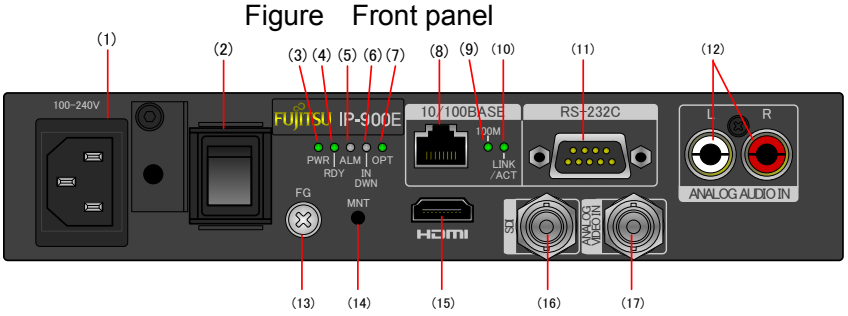
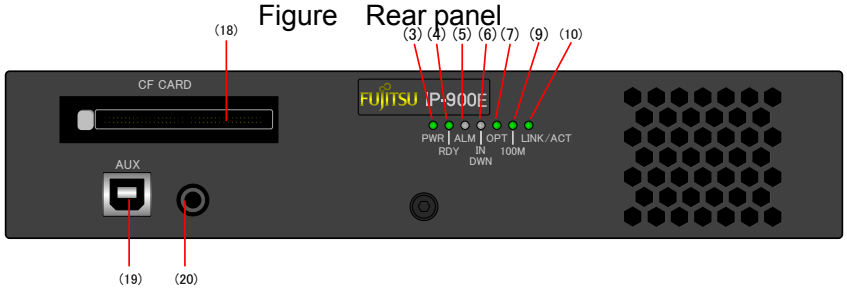


Figure Rear panel



Part names

No.	Name	Description
(1)	Power inlet connector (INPUT 100-240VAC)	Can be connected to a 100-240VAC commercial power supply by using power card with a standard two-prong plug with ground. See Section 2.2.2, “Connection to a Power Source,” for an explanation on using this connector. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(2)	Power button	Turns this equipment on and off.
(3)	Power LED (PWR)	Turns on when this equipment is powered on.
(4)	Status LED (RDY)	Turn on when IP-900E power is on. For more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.
(5)	Alarm LED (ALM)	Turns on when IP-900E operation is abnormal. For more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.
(6)	AV input status LED (INDWN)	Audio/Video input setting status indicator and LED that indicates the input off status during input setting. For more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.
(7)	Option LED (OPT)	Turn on when option license is installed. For more information, see Software guide.
(8)	LAN port (10/100BASE)	Ethernet 10BASE-T/100BASE-TX communication port. See Section 2.4, “Connection to a Network,” for an explanation on using this port. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(9)	Speed LED (100M)	Indicates the status of LAN port. For more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.
(10)	Status LED (LINK/ACT)	Indicates the speed of LAN port. For more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.

No.	Names	Description
(11)	RS-232C port (RS-232C)	RS-232C data communication port. See Section 2.5, “Connection to an RS-232C Device,” for an explanation on using this pin. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(12)	Audio input (ANALOG AUDIO IN) (L), (R)	Unbalanced audio input terminal. See Section 2.3, “Audio and Video Device Connections,” for an explanation on using this terminal. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(13)	FG terminal (FG)	Use for an FG connection to this equipment. See Section 2.2.1, “Connection to ground,” for an explanation on using this terminal.
(14)	Maintenance mode switch (MNT)	IP-900E start mode selector switch. when the IP-900E is powered on with this switch held down, it starts in initial start mode. See section 3.3, “Special Use of MNT Button,” for an explanation on using this switch.
(15)	HDMI input (HDMI)	Digital HDMI video input terminal. 50Ω unbalanced. See Section 2.3, “Audio and Video Device Connections,” for an explanation on using this terminal. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(16)	SDI video input (SDI)	Digital HD-SDI video input terminal. 75Ω unbalanced. See Section 2.3, “Audio and Video Device Connections,” for an explanation on using this terminal. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(17)	Video input (ANALOG VIDEO IN)	Analog video input terminal. 75Ω unbalanced. See section 2.3, “Audio and Video Device Connections,” for an explanation on using this terminal. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(18)	CF CARD slot	Slot in which a CompactFlash@ card is inserted.
(19)	AUX port (AUX)	Auxiliary port.
(20)	Test port	Factory test port.

- IP-900D/IP-900IID (Figures is described by using IP-900IID as a sample.)

Figure Front panel

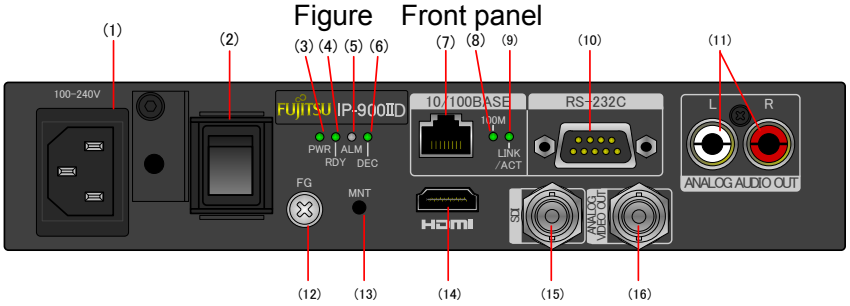
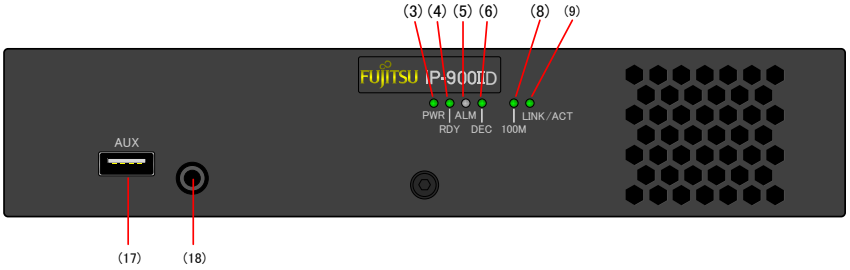


Figure Rear panel



Part names

No.	Name	Description
(1)	Power inlet connector (INPUT 100-240VAC)	Can be connected to a 100-240VAC commercial power supply by using power card with a standard two-prong plug with ground. See Section 2.2.2, “Connection to a Power Source,” for an explanation on using this connector. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(2)	Power button	Turns this equipment on and off.
(3)	Power LED (PWR)	Turns on when this equipment is powered on.
(4)	Status LED (RDY)	Turn on when IP-900D/IP-900IID power is on. For more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.
(5)	Alarm LED (ALM)	Turns on when IP-900D/IP-900IID operation is abnormal. For more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.
(6)	Decoder LED (DEC)	Turn on when IP-900D/IP-900IID is decoding then stream. for more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.
(7)	LAN port (10/100BASE)	Ethernet 10BASE-T/100BASE-TX communication port. See Section 2.4, “Connection to a Network,” for an explanation on using this port. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(8)	Speed LED (100M)	Indicates the status of LAN port. For more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.
(9)	Status LED (LINK/ACT)	Indicates the speed of LAN port. For more information, see Table 5.3, “Details of LED Indications,” in Section 5.2.
(10)	RS-232C port (RS-232C)	RS-232C data communication port. See Section 2.5, “Connection to an RS-232C Device,” for an explanation on using this pin. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(11)	Audio output (ANALOG AUDIO OUT) (L), (R)	Unbalanced audio output terminal. See Section 2.3, “Audio and Video Device Connections,” for an explanation on using this terminal. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(12)	FG terminal (FG)	Use for an FG connection to this equipment. See Section 2.2.1, “Connection to ground,” for an explanation on using this terminal.

No.	Names	Description
(13)	Maintenance mode switch (MNT)	IP-900E start mode selector switch. when the IP-900E is powered on with this switch held down, it starts in initial start mode. See section 3.3, “Special Use of MNT Button,” for an explanation on using this switch.
(14)	HDMI output (HDMI)	Digital HDMI video output terminal. 50Ω unbalanced. See Section 2.3, “Audio and Video Device Connections,” for an explanation on using this terminal. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(15)	SDI video output (SDI)	Digital HD-SDI video output terminal. 75Ω unbalanced. See Section 2.3, “Audio and Video Device Connections,” for an explanation on using this terminal. See Section 4.2, “Cable and Connector Details,” for cable connection information. There is no SDI video output interface for the IP-900D.
(16)	Video output (ANALOG VIDEO OUT)	Analog video output terminal. 75Ω unbalanced. See section 2.3, “Audio and Video Device Connections,” for an explanation on using this terminal. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(17)	AUX port (AUX)	Auxiliary port.
(18)	Test port	Factory test port.

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CHAPTER 2

INSTALLATION AND CONNECTION

This chapter describes conditions for IP-900E/IP-900D/IP-900IID installation and explains how to connect it to peripheral devices.
Figures described in this chapter are used IP-900E as a sample.

⚠ CAUTION

Possibility of serious injury

The power cord and other cables connected to IP-900E/IP-900D/IP-900IID may become entangled with someone walking close to them, possibly leading to serious injury and property damage. Clamp the cables to the rack or floor.

2.1 Installation Conditions

This section describes the installation environment, space and air supply and exhaust of the equipment.

2.1.1 Environment conditions

Please use this equipment in the air supply and ambient temperature which is not exceeded 55 degrees C. If the condition above is observed, you may install plural equipment as piling on a shelf. In case of using this equipment under unsupported conditions, the equipment cannot be supported by Fujitsu and it might be the cause of failure and shortening the product life remarkably.

Use this Equipment in the environment which airborne dust is under 0.15mg/m3. (In case of being over 0.15mg/m3, use dust-proofing rack.) In addition, clean up around this equipment because remarkably amount of dust is the cause of equipment errors and failures if it is attached to the equipment.

Use this Equipment in the environment which gaseous contamination is under “IEC 60721-3-3 Class 3C1”.(Refer to “Appendix 2.2 Environment Specifications - Gaseous contamination”).

2.1.2 Installation environment

1. 19” rack mounting

Mount this equipment to 19” rack of EIA standard using the 19” rack mounting kit. We have 2 types of mounting kits; 1 unit per 1 U and 2 units per 1U.

(19” rack mounting kit is an optional product.)

If you would like to mount different way from the descriptions in this document, please consult Fujitsu Service Center or your system administrator.

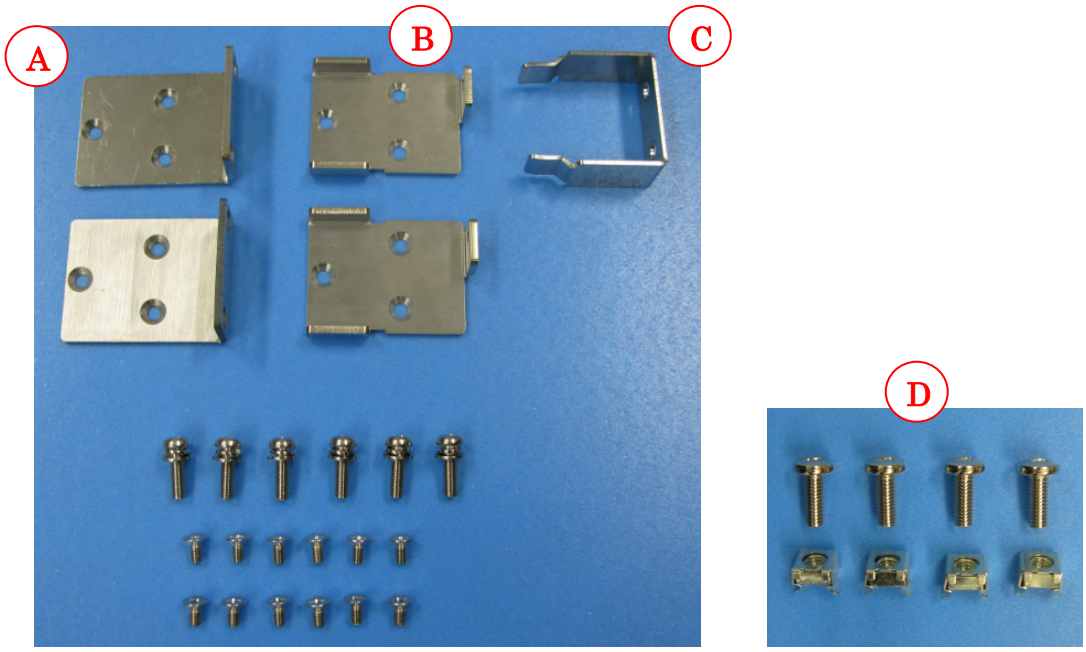
5 types of rack mounting kit are available. (Type A1, A2, B1, B2 and C2)

⚠ CAUTION

Use attached mounting kit and screws for installing equipment. Fix the equipment tightly with the attached rack using attached screws. In case of loosening the screws or not being fixed tightly with the equipment, it may be a cause of serious accident.

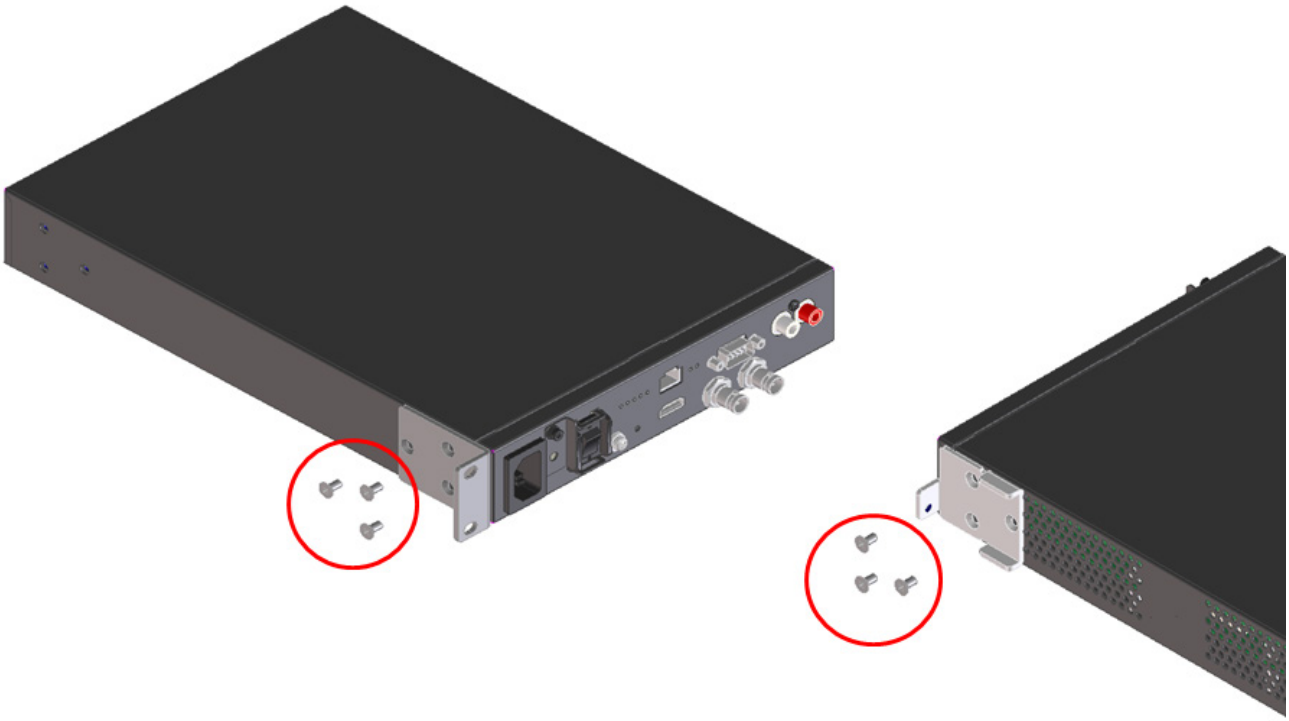
- Two IP-900 per 1U (Type C2)

(1) Check contents of the rack mounting kit.

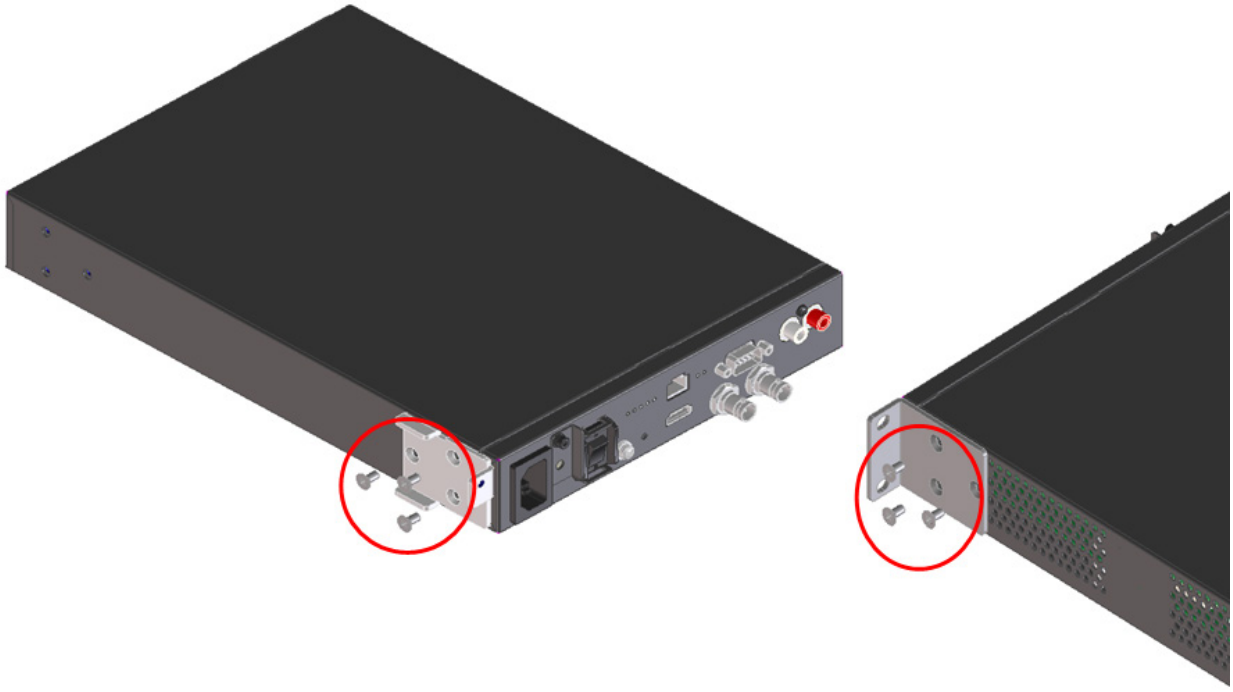


(2) Check all cables disconnected.

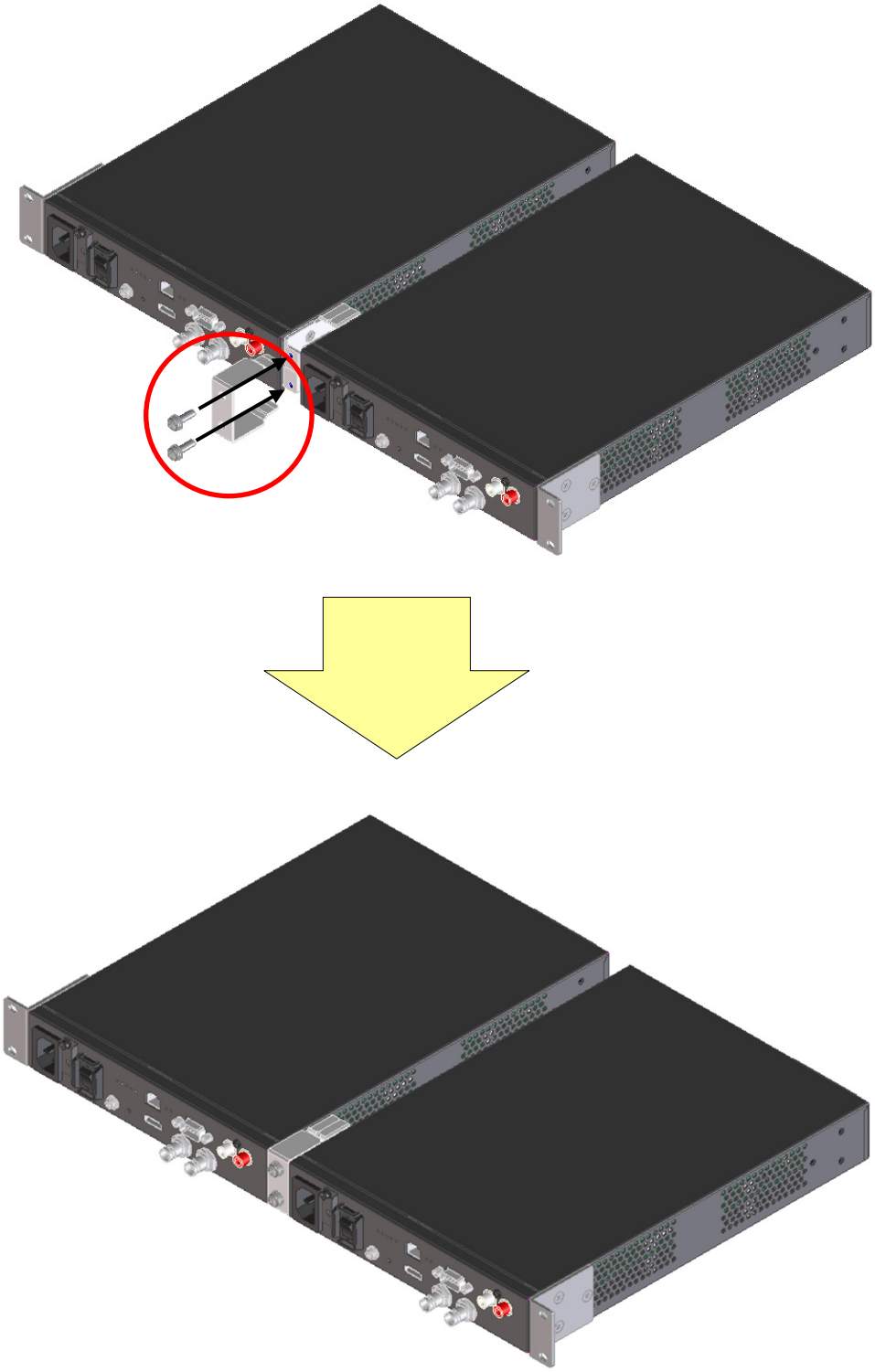
(3) Connect the first device with the rack mounting kit “A” and “B” on IP-900 using six same screws (M4).



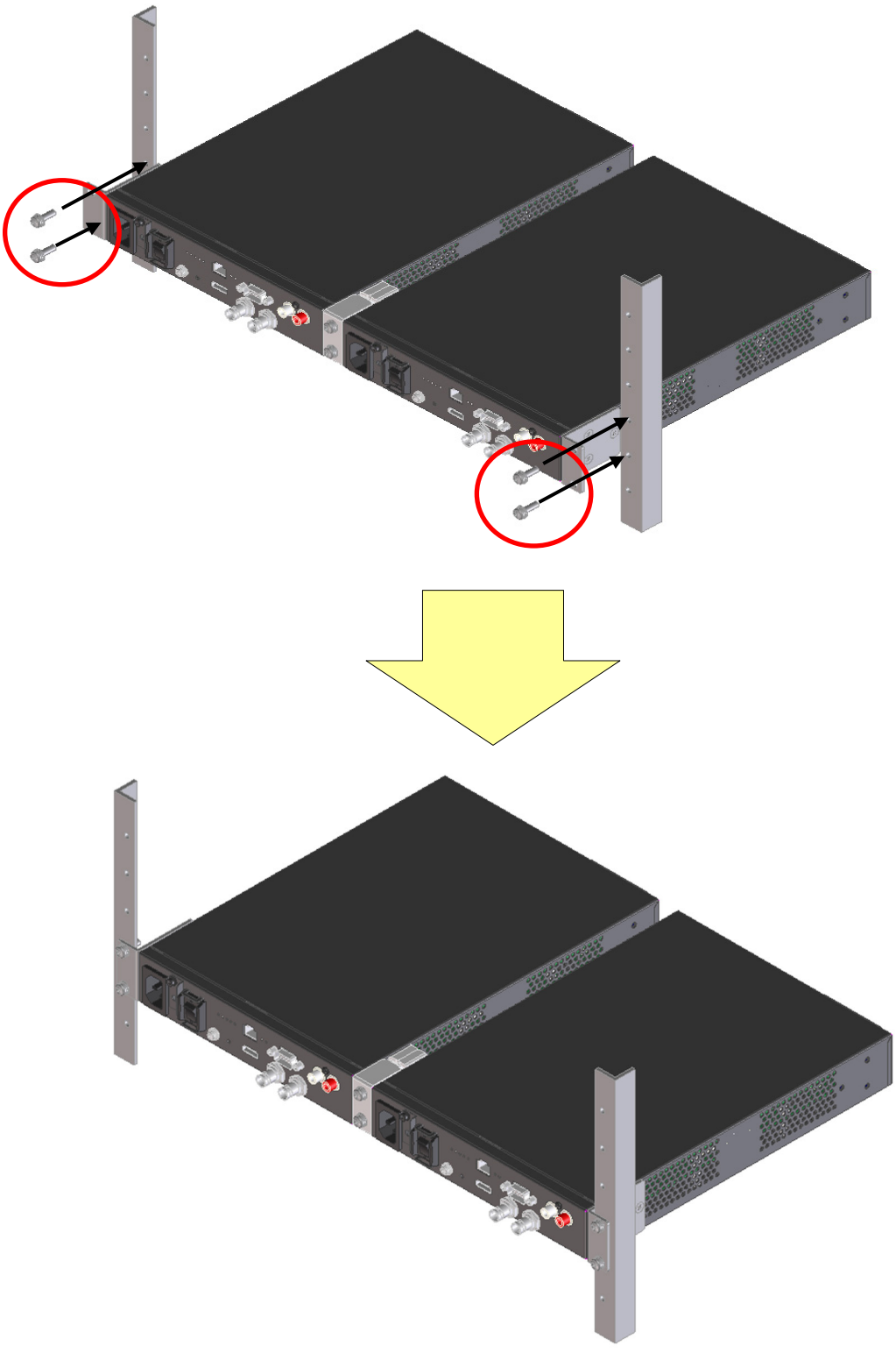
(4) Connect the second device with the rack mounting kit “A” and “B” on IP-900 using six same screws (M4).



(5) Install the mounting kit C on IP-900 using two pan head screws (M5).



(6) Align the main unit at the desired height on the 19" rack, and firmly secure the unit in position with the screws supplied with this product. Use four pan head screws (M5) to fix the product in position.
To secure the unit to a server rack, use the cage nuts (D) and bind head screws (M6) supplied with this product.



- Removing the device

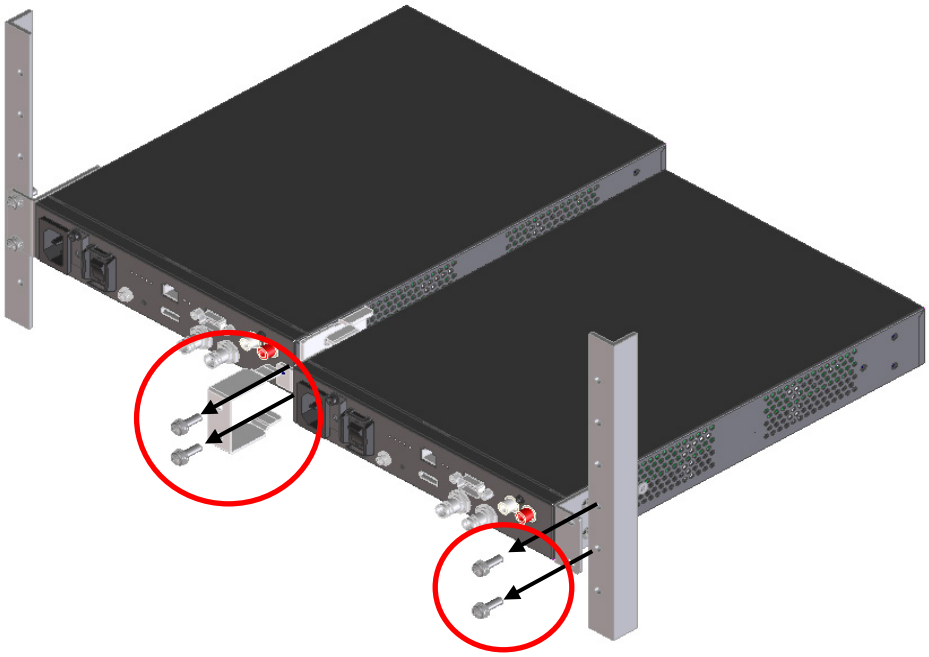
(1) When removing two devices at the same time

Remove them by reversing the installation procedure for two devices.

(2) When removing only one device

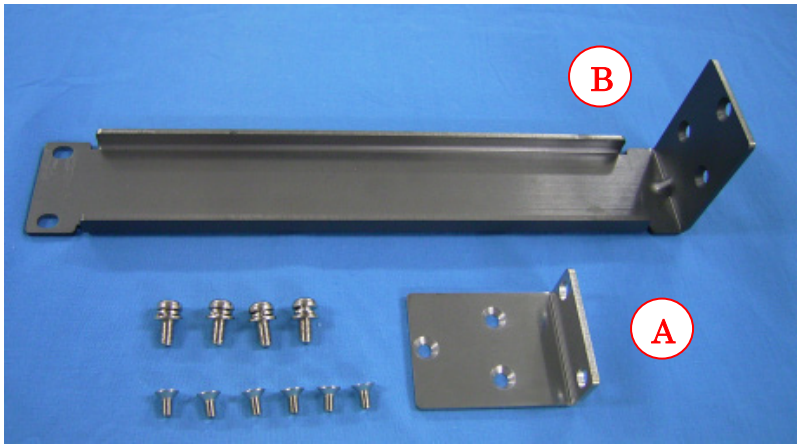
Remove the four screws shown in the figure below.

Remove the mounting brackets (C), and then remove the device.



- 1 unit per 1U (Type A1)

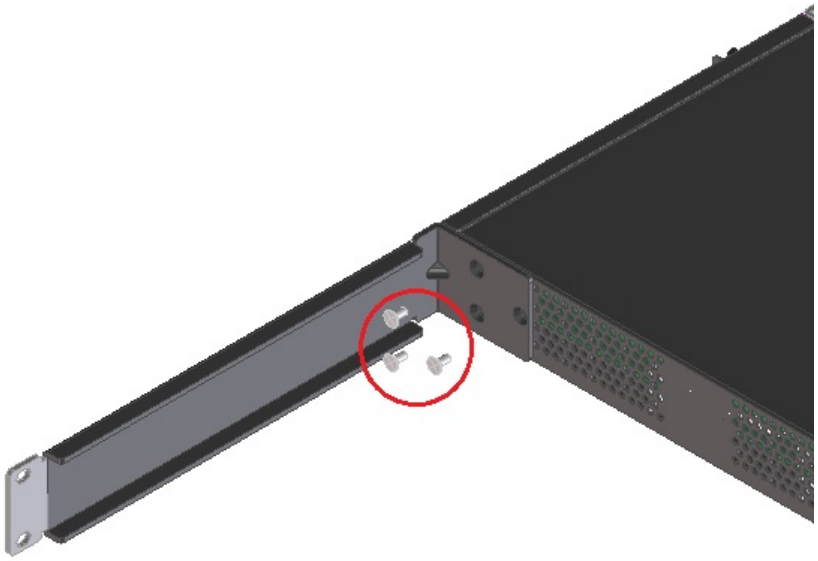
(1) Check components of the rack mounting kit.



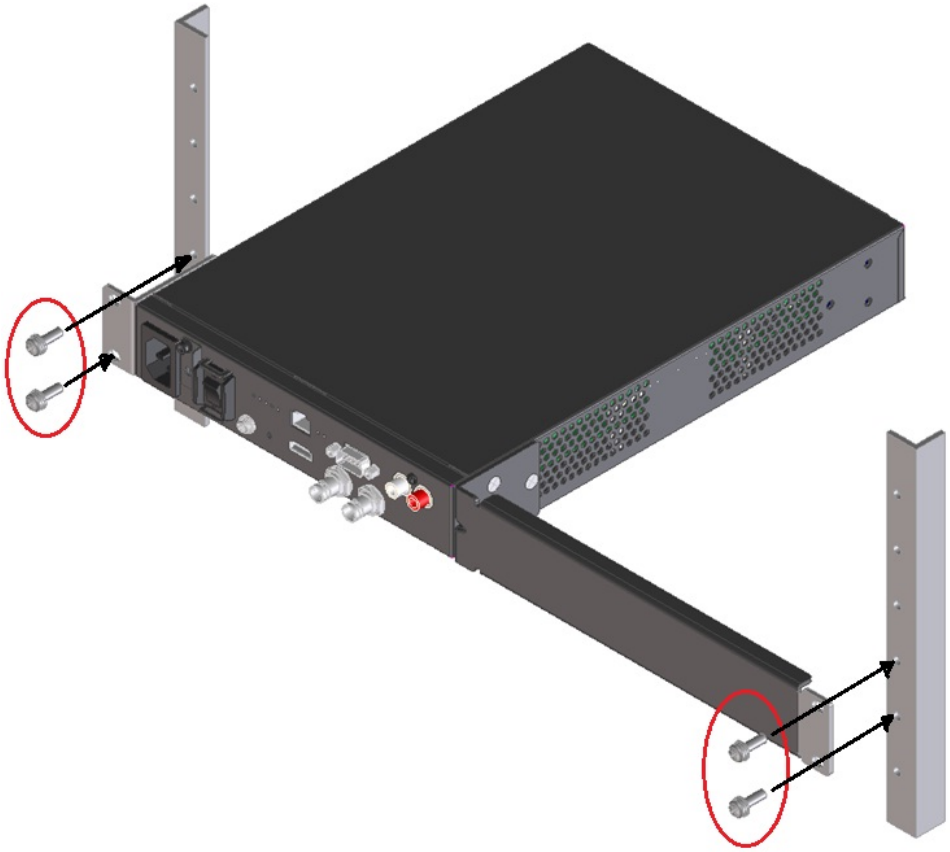
(2) Check all cables are disconnected.

(3) Install the rack mounting kit “A” on IP-900 using three same screws (M4).

(4) Install the rack mounting kit “B” on IP-900 series using three same screws (M4).



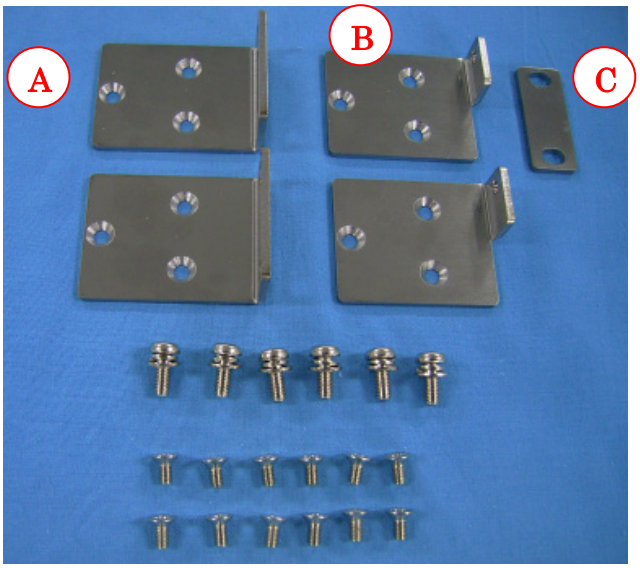
(5) Install IP-900 on 19” rack using four pan head screws (M5).



- Removing the device
  Remove the device by reversing the installation procedure.

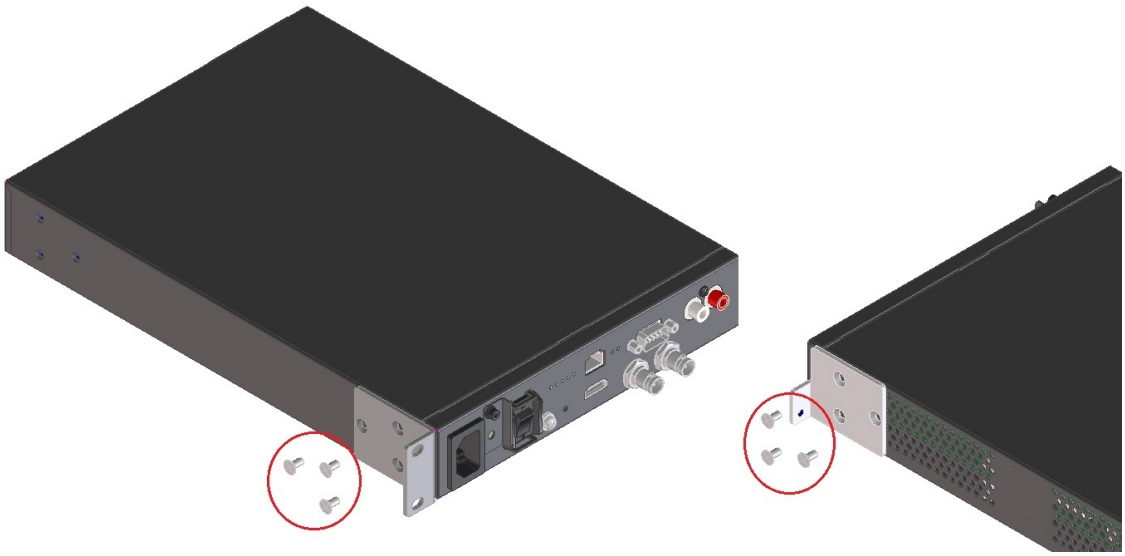
- 2 units per 1U (Type A2)

(1) Check components of the rack mounting kit.

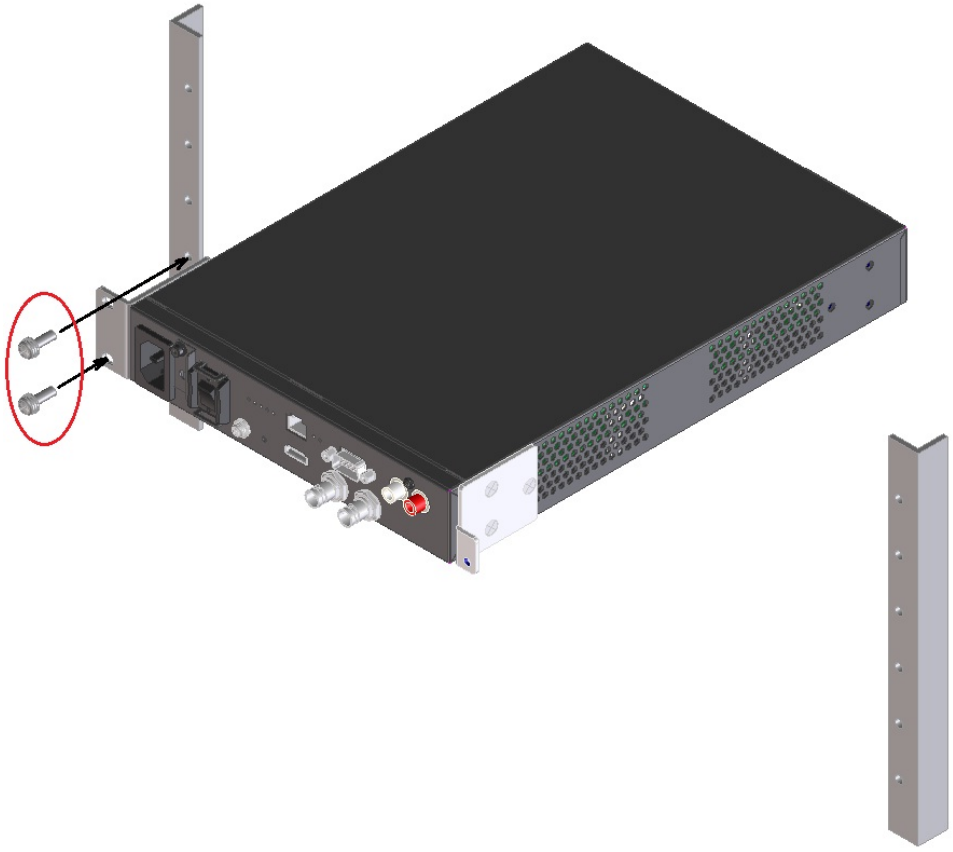


(2) Check all cables are disconnected.

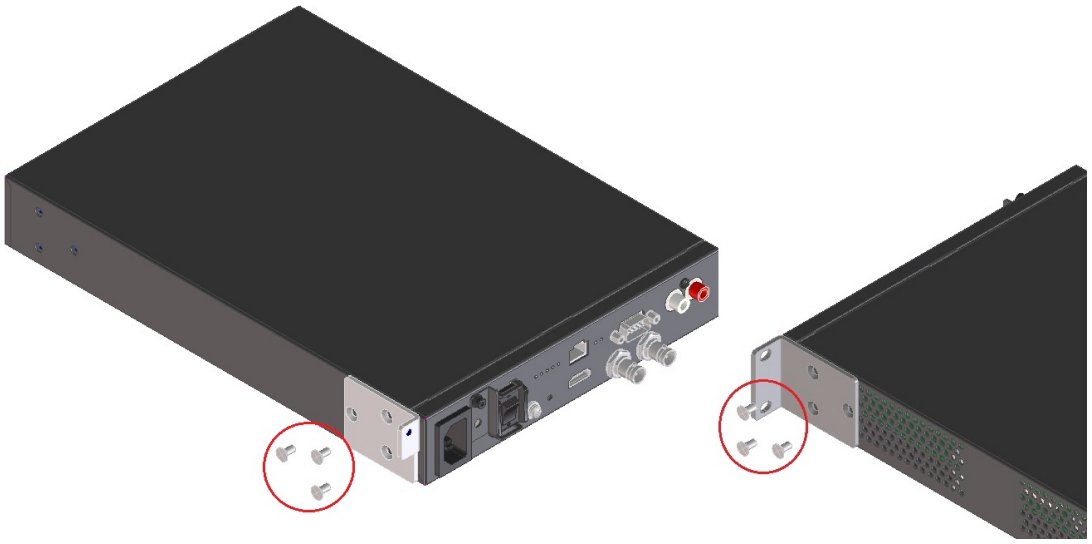
(3) Connect the first device with the rack mounting kit “A” and “B” on IP-900 using six same screws (M4).



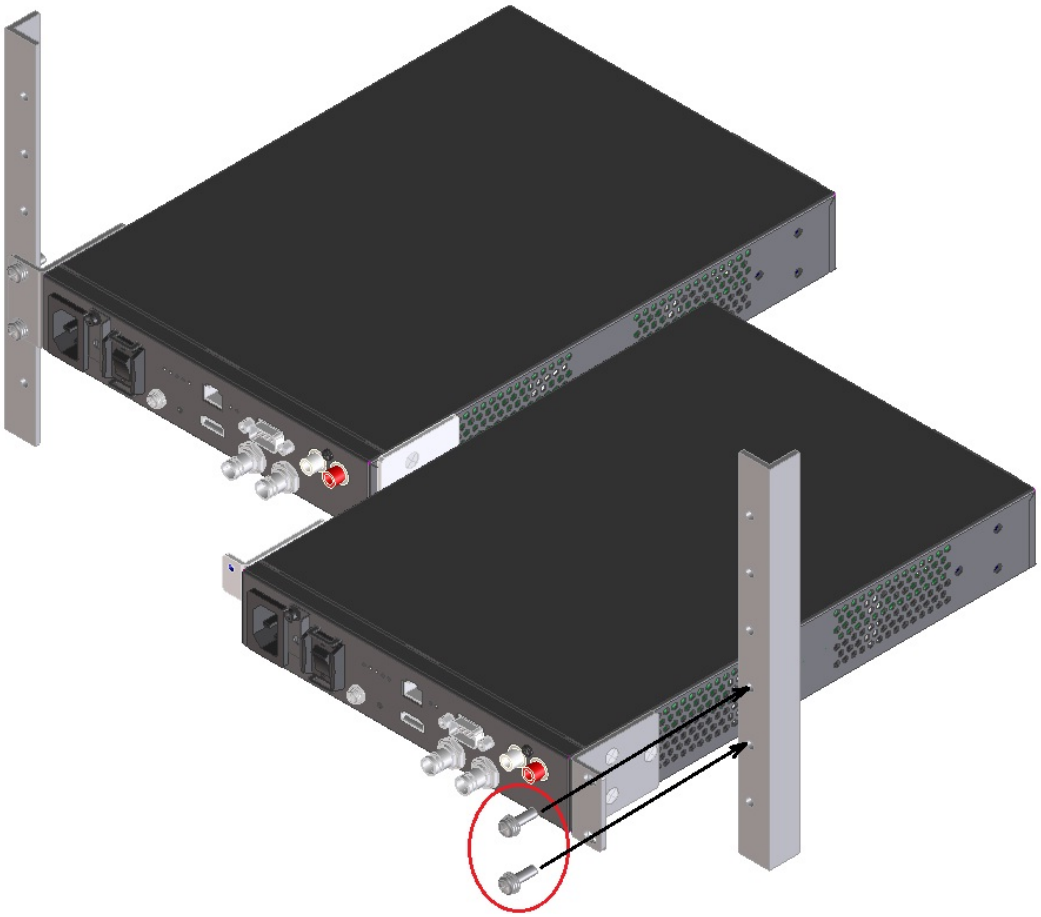
(4) Install IP-900 on 19” rack using two pan head screws (M5).



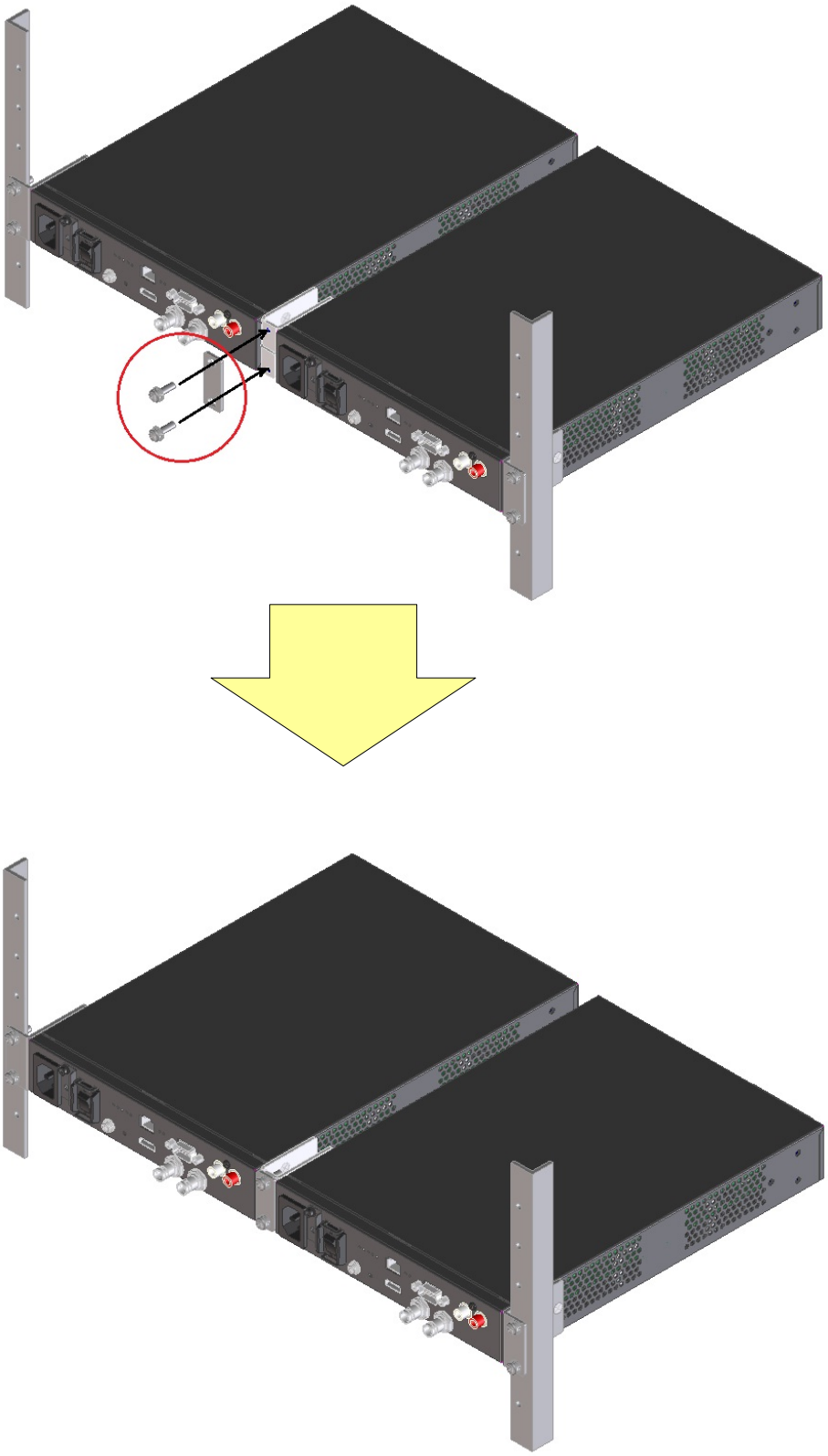
(5) Connect the second device with the rack mounting kit “A” and “B” on IP-900 using six same screws (M4).



(6) Install IP-900 on 19” rack using two pan head screws (M5).



(7) Install the mounting kit C on IP-900 using two pan head screws (M5).



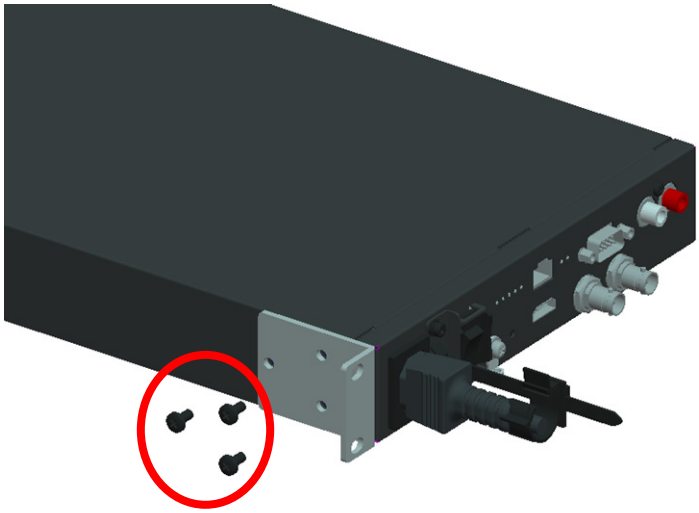
- Removing the device
  Remove the device by reversing the installation procedure.

- 1 unit per 1U(Type B1)

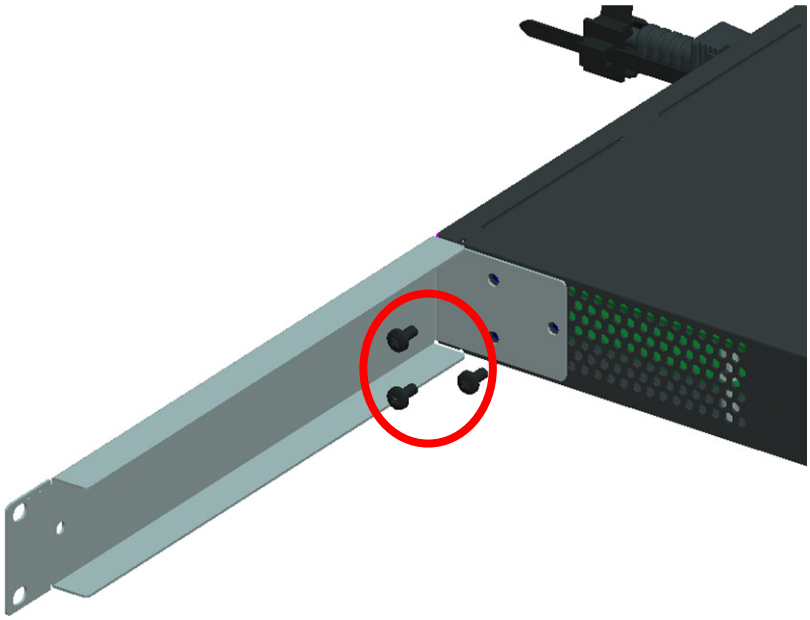
(1) Check components of the rack mounting kit.

(2) Check all cables disconnected.

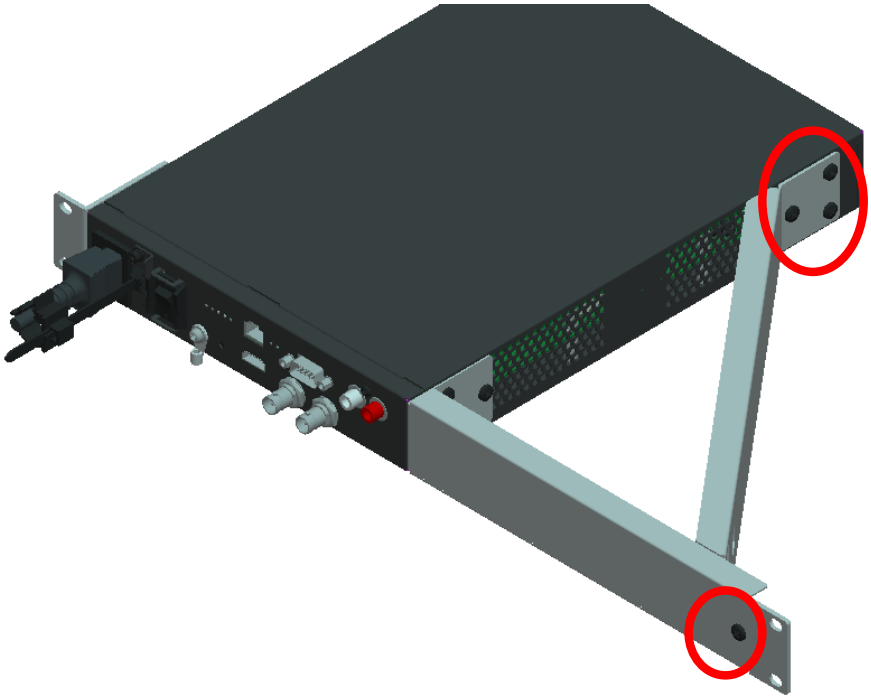
(3) Install the rack mounting kit A on IP-900E/IP-900D/IP-900IID using three same screws (M4).



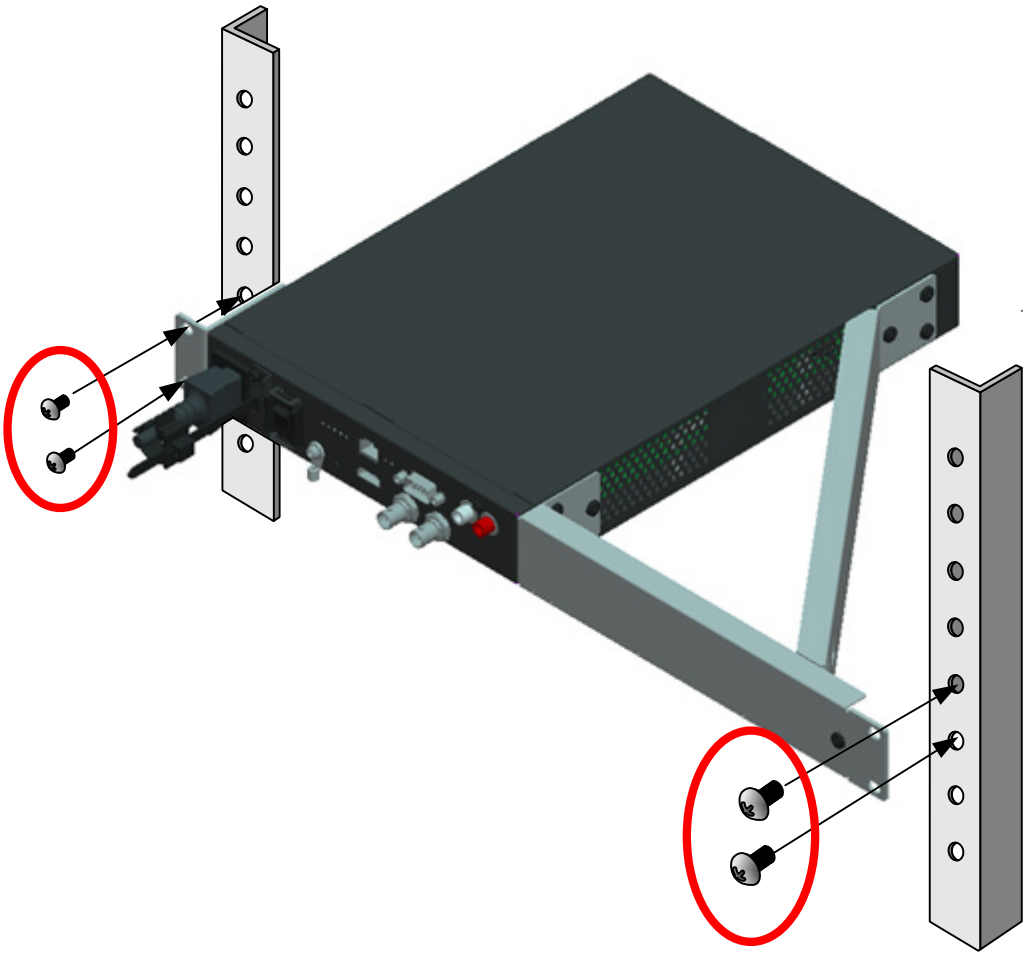
(4) Install the rack mounting kit B on IP-900 series using three same screws (M4).



(5) Install the rack mounting kit C on IP-900 series and rack mounting kit B using four screws (M4).



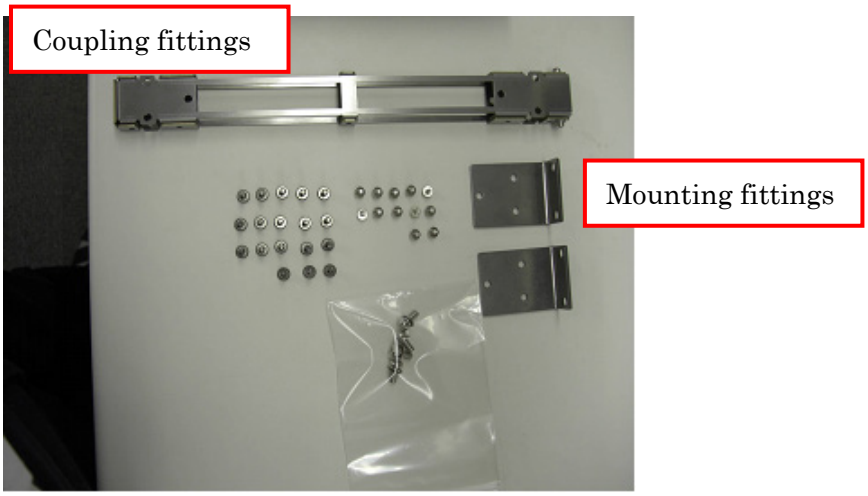
(6) Install IP-900E/IP-900D/IP-900IID on 19” rack using four pan head screws (M5).



- Removing the device
  Remove the device by reversing the installation procedure.

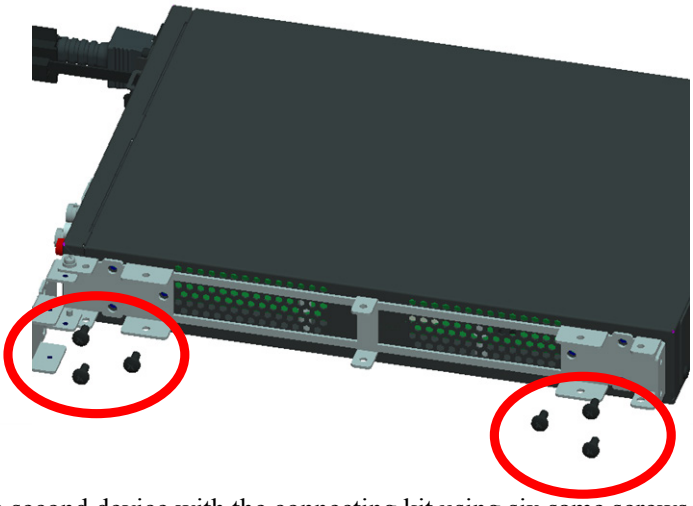
- 2 units per 1U(Type B2)

(1) Check contents of the rack mounting kit.

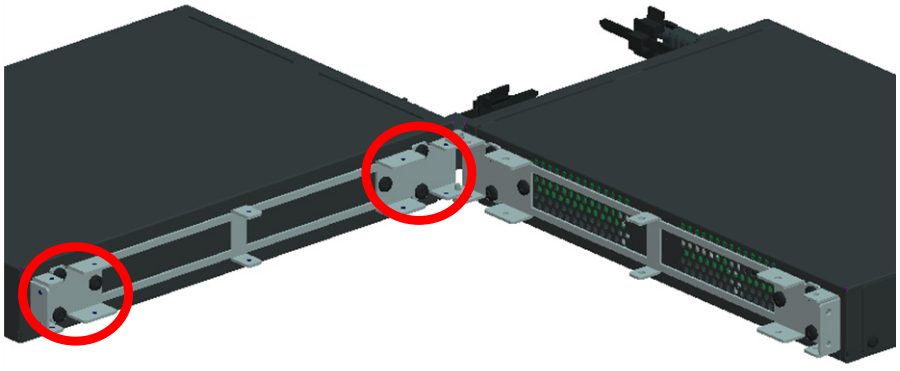


(2) Check all cables disconnected.

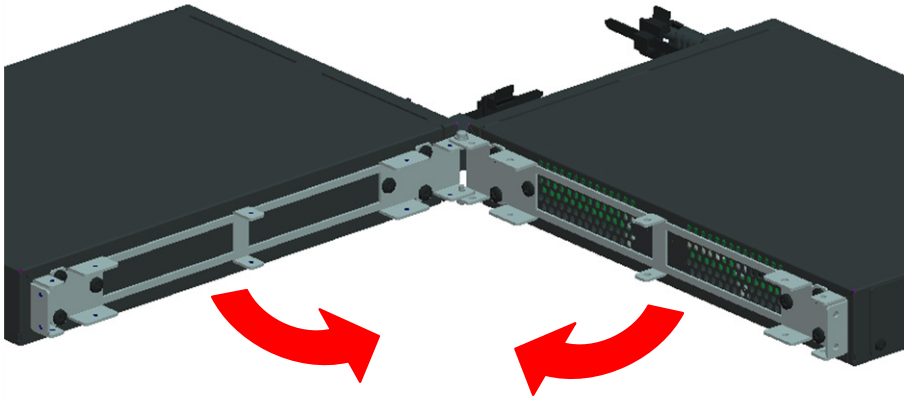
(3) Connect the first device with the connecting kit using six same screws (M4).

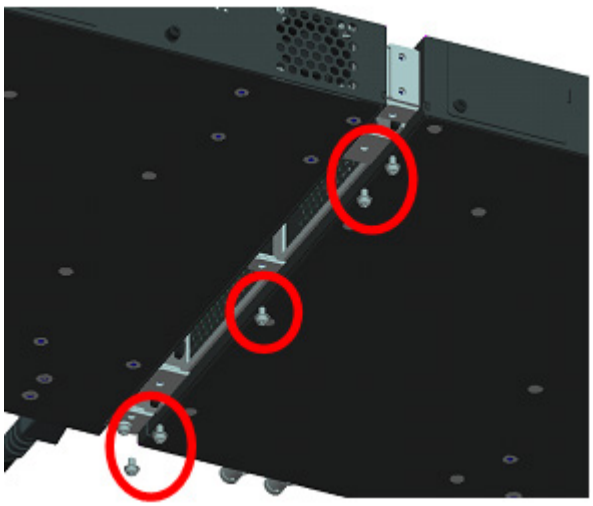


(4) Connect the second device with the connecting kit using six same screws (M4).

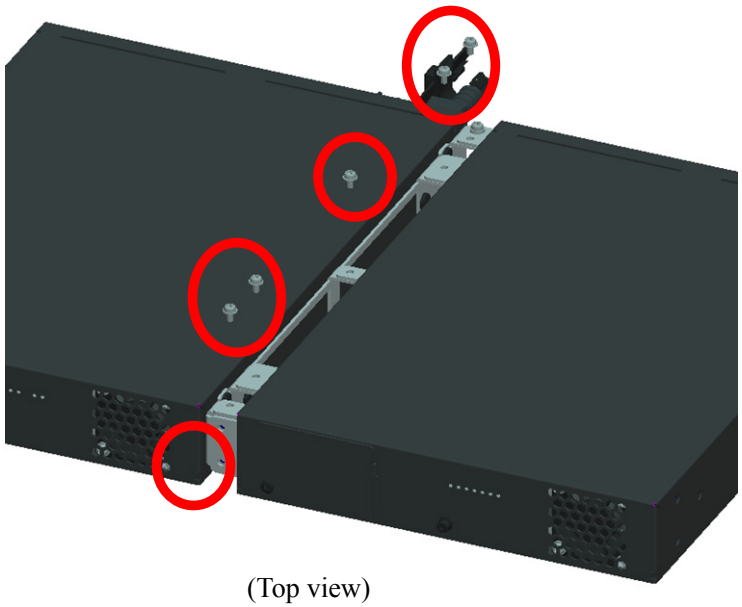


(5) Rotate the connecting kit, and fix with twelve screws (M4)



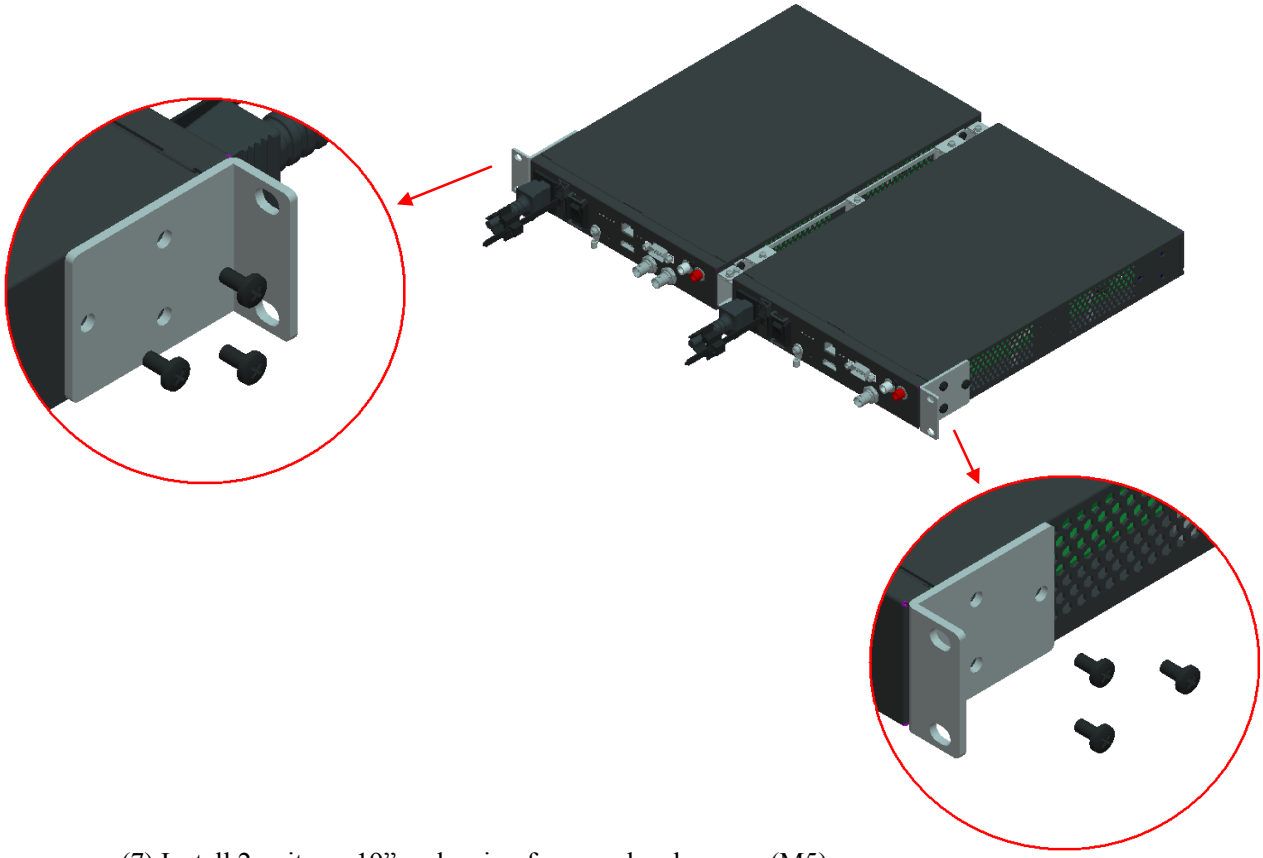


(Bottom view)

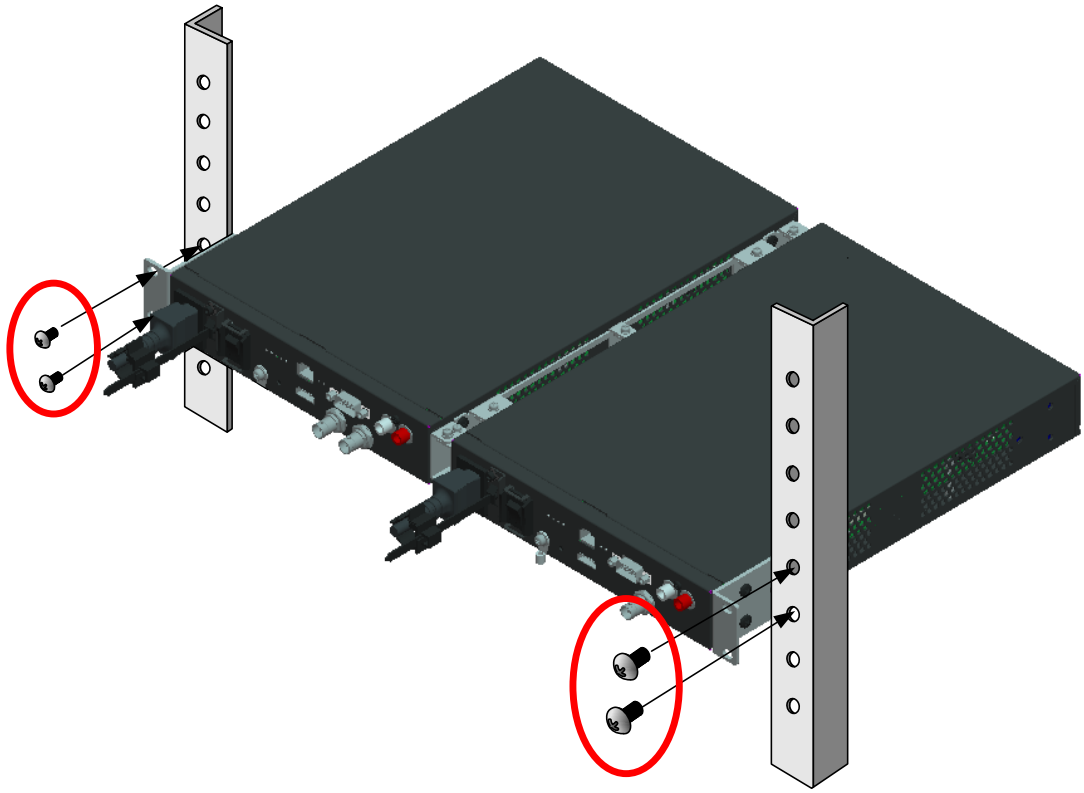


(Top view)

(6) Install the mounting kit on 2 units using six same screws(M4).



(7) Install 2 units on 19” rack using four pan head screws (M5).



- Removing the device
  Remove the device by reversing the installation procedure.

2. Place the equipment to a Table

Attach 4 rubber feet on the parts marked on the bottom of this equipment as below. Refer to "Open space required around this equipment" before deciding the place for this equipment.

Mark for rubber feet

⚠ CAUTION

Safety installation instruction:

1) Multiple pile

The maximum 5 IP-900E/IP-900D/IP-900IID can be piled under the environment condition specified. Please install considering the maintenance-ability. When IP-900E/IP-900D/IP-900IID are piled, please fix them to avoid to fall (Do not cover the air intake.). See Section 2.1.4, "Open space required around this equipment" for the installation space.

2) rack mounting

a) When IP-900E/IP-900D/IP-900IID is installed in a closed or multi-unit rack, the operating ambient temperature inside of the rack environment may be greater than room ambient. Therefore, the consideration should be given to operate in the environment compatible with the specifications in Appendix 2.2 "Environment Specifications."

- **The consideration for adjustment of the air condition like air circulation should be given to prevent the internal rack ambient from exceeding the maximum operating ambient temperature of IP-900E/IP-900D/IP-900IID.**
- **The maximum operating ambient temperature for IP-900E/IP-900D/IP-900IID: 55**℃.

b) The installation of IP-900E/IP-900D/IP-900IID in a rack should be such that the amount of airflow required for safe operation of IP-900E/IP-900D/IP-900IID is not compromised.

- **IP-900E/IP-900D/IP-900IID has ventilation opening at the right and rear side.**
- **Do not cover or close these ventilation openings to prevent overheating.**

c) The mounting of IP-900E/IP-900D/IP-900IID in a rack should be such that a hazardous condition in not archived due to uneven mechanical loading. To keep stability of the entire rack, please fix the rack to wall or floor by suitable means.

- **Be careful about injury during installation of IP-900E/IP-900D/IP-900IID into rack.**
- **Do not install IP-900E/IP-900D/IP-900IID into your rack where IP-900E/IP-900D/IP-900IID may make the entire rack unstable.**
- **The weight of IP-900E/IP-900D/IP-900IID with the maximum configuration: 2.3 kg**

d) When using a bracket for mounting two products and you remove one product, do not leave the remaining one that is fixed at one end only unattended. If you apply pressure to a product that is supported at one end only, it may deform the mounting bracket.

e) If IP-900E/IP-900D/IP-900IID is supplied from the power strip or the service outlet of other units, it may overload the power supply cord of the power strip or other units.

- **Confirm that the current rating of the power strip or the service outlet exceeds the combined ratings of all equipment is supplying.**
- **The electrical rating of IP-900E : Rated 100-240 VAC, 50/60 Hz, 1 phase, 0.38 - 0.20 A(IP-900E)/0.33 - 0.17 A(IP-900D) /0.35 - 0.18 A (IP-900IID).**

f) The reliable earthing of the rack-mounted equipment must be maintained. The particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of the power strips or the power distribution unit).

Note: The high leakage current may flow through the power strip earthing conductor if all power supply cords of IP-900E/IP-900D/IP-900IID are connected to one power strip. The earth connection is essential before connecting supply. If the power strip is not directly connected to the branch circuit, the power strip which has the industrial type attachment plug should be used.

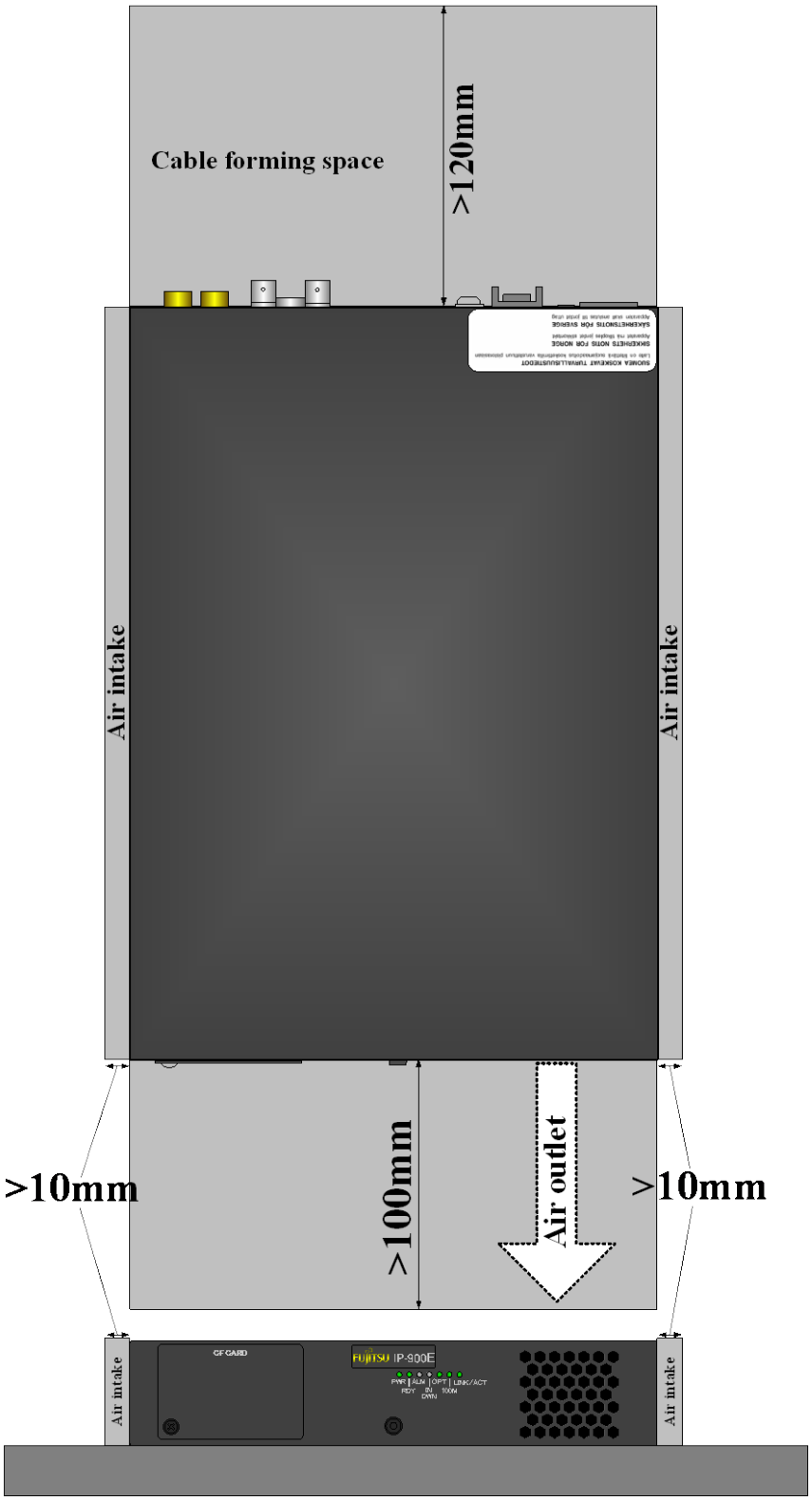
2.1.3 Air supply and exhaust of the equipment

IP-900E/IP-900D/IP-900IID is forced air cooled equipment. Be sure not to block the air intake/exhaust vents. Provide an adequate amount of space around the vents.

2.1.4 Open space required around this equipment

Provide the indicated (parts with hatched area) below, cable forming space, operation space and air intake/exhaust.

For the information of maintenance space, see Section 5.3.1, “Maintenance space.”



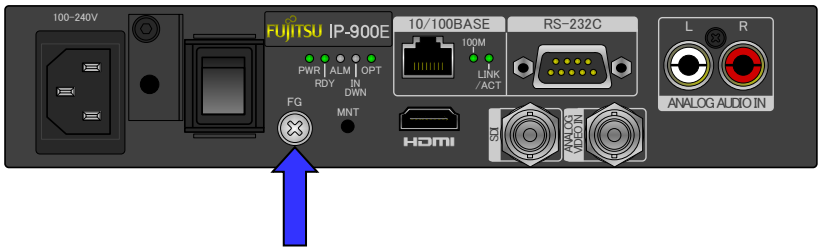
2.2 Power Supply System Connections

This section explains ground and power-source connections.

2.2.1 Connection to ground

Use a power cord with the standard two-prong plug with ground wire for FG and external ground connections.

When the exogenous noise influences IP-900E/IP-900D/IP-900IID, connect the FG terminal to an external ground.



FG terminal (M4)

Figure Connection to ground

2.2.2 Connection to power source

IP-900E/IP-900D/IP-900IID operation requires a power supply of 100-240 VAC. Insert the power cord with the standard two-prong plug with ground into the inlet connector.

The power cord is not supplied with this equipment. Procure it separately.

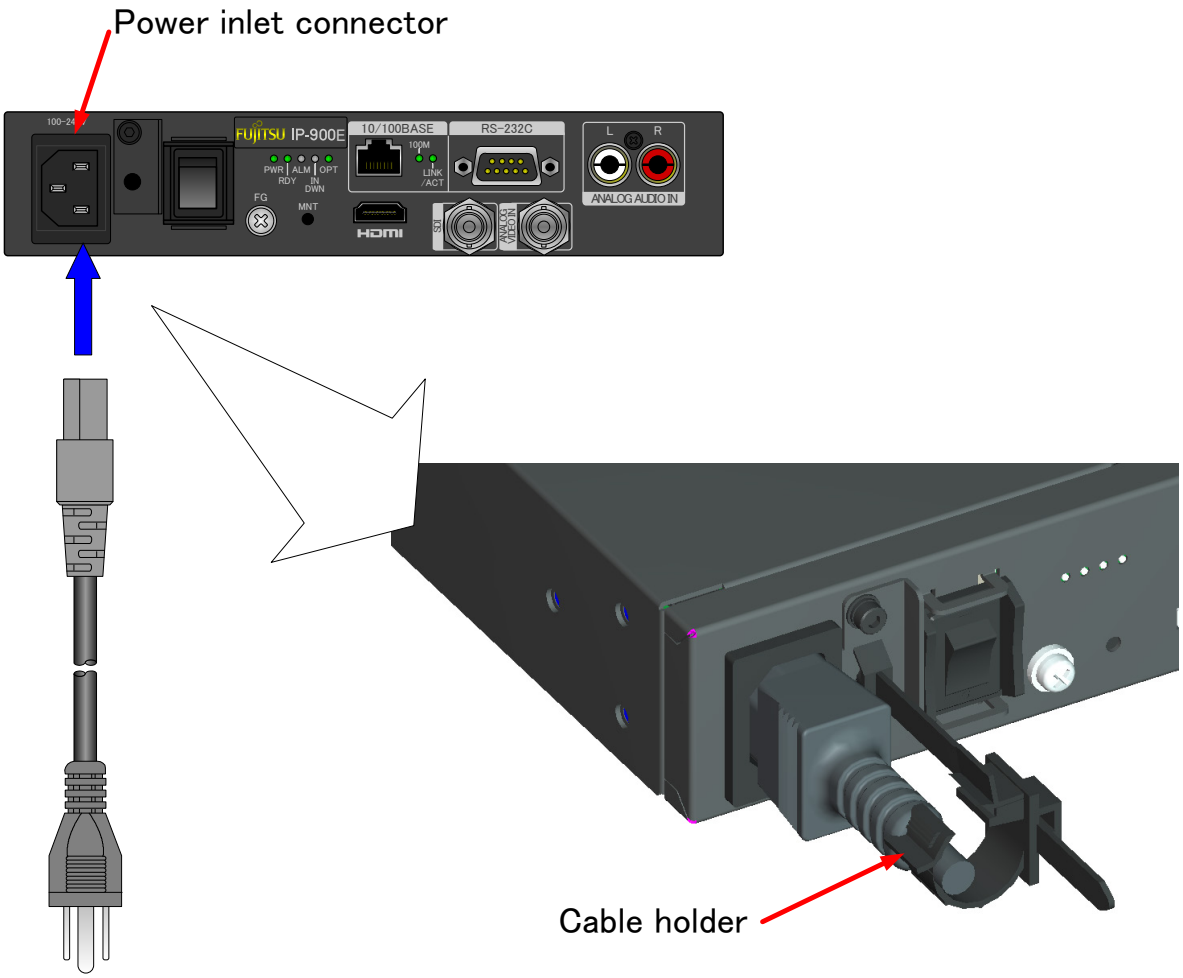


Figure Power cord connection

AC cord clamp

Insert the AC cord clamp into the AC cord clamp hole and fix the power cord as shown in figure above. When remove the AC cord clamp, screw out and remove it with the mounting kit.

USABLE DETACHABLE POWER SUPPLY CORD SET

MODEL	Input	Connector	Cord	Attachment Plug cap
North America <*1> <*2>	100-120V	IEC C-13 Rated 13A, 125V UL, CSA Approved	Type SJT, No.16 AWG Min. 3-Conductors (Single phase;2-current carrying conductors & ground) UL, CSA Approved	NEMA (5-15P) parallel blade Rated 13A, 125V UL, CSA Approved
	200-240V	IEC C-13 Rated 15A, 250V UL, CSA Approved	Type SJT, No.14 AWG Min. 3-Conductors (Single phase; 2-current carrying conductors & ground) UL, CSA Approved	NEMA (6-15P) tandem blade Rated 15 A, 250 V UL, CSA Approved
Europe <*2>	100-240V	IEC C-13 Rated 10A, 250V <*1>	CENELEC OC 3X1.0 square mm<*1> <HAR>	Rated 10 A, 250 V <*1>
Aus-tralia	100-240V	IEC C-13 Rated 10A, 250V	Cable: AS OD 3 X1.0 square mm e.g.	Rated 10 A, 250 V
U.K <*2>	100-240V	IEC C-13 Rated 10A, 250V	BS OC 3 X1.00 square mm	Rated 10 A. 250 V or
Japan	100V	IEC C-13 Rated 13A, 125V	Type HVCTF cross section area 1.25 square mm 3-Conductors (Single phase;2-current carrying conductors & ground)	NEMA (5-15P) parallel blade Rated 13 A, 125 V
		METI Approved or <PSE>	METI Approved or <PSE>	METI Approved or <PSE>
Korea	220V (Class I)	IEC 60320-1 (IEC C-13) Rated 12A, 250V or	Comply with KSC3304. Type VCTF cross section area 1.25 (0.50 or 1.00 or 2.00) square mm 3-Conductors (Single phase;2-current carrying conductors & ground) or	Comply with KSC8305. Rated 12A, 250V or
	220V (Class II)	IEC 60320-1 (IEC C-13) Rated 3A, 250V or	Comply with KSC3304. Type VCTFK cross section area 1.25 (0.50 or 0.75 or 1.00 or 2.00) square mm 2-Conductors or	Comply with KSC8305. Rated 12A, 250V or

Note: *1. Be sure that the detachable proper Supply cord has the approval of the appropriate safety agencies of the country where the equipment will be used.
*2. Cable length of above Power Supply cord shall be shorter than 4.5 m.

CERTIFICATION MARKING

Country	Agency	Certification Mark	Country	Agency	Certification Mark
Austria	OVE		Italy	IMQ	
Belgium	CEBEC		Norway	NEMKO	
Denmark	DEMKO		Spain	AEE	
Finland	FEI		Sweden	SEMKO	
France	UTE		Switzerland	SEV	
Germany	VDE				

⚠ WARNING

Possibility of electric shock, fire, and damage to this equipment

Always observe the precautions given below.

This indicates a hazardous situation that could lead to electric shock, fire, or damage to this equipment.

Always connect the power cord to a power receptacle for the standard two-prong plug with ground.

Use a power receptacle with a capacity of 1A or more. When using a power extension cable, be sure that the total power consumption of all devices connected to the cable does not exceed the rated capacity of the cable. If the power receptacle capacity is low, or power consumption exceeds the rated value, the power cord or power wiring may overheat and start a fire.

⚠ CAUTION

Possibility of damage to this equipment

Do not turn on this equipment until connection of peripheral devices is completed. Otherwise, this equipment may be damaged.

100-240 VAC

Using a power cord with the standard two-prong plug with ground, connect IP-900E/IP-900D/IP-900IID to 100-240 VAC outlet.

Provide a power receptacle for the standard two-prong plug with ground.

2.3 Audio and Video Device Connections

2.3.1 IP-900E (Encoder)

2 Digital and 1analog video input connectors are equipped for connecting with video output equipment.
- SDI Video Input (Digital Video)
  Connect to SDI IN connector using BNC cable. Input digital HD-SDI or SD-SDI signal.
  The signal is terminated with 75Ω impedance.
- HDMI Input (Digital Video)
  Connect to HDMI connector on front panel of IP-900E using the HDMI cable.
  Input digital signal of HDMI. The signal is terminated with 50Ω.
- Analog Video Input
  Connect to ANALOG VIDEO IN connector using BNC cable with NTSC or PAL signal.

2 Digital and 1analog audio input connectors are equipped for connecting with audio output equipment.
- Digital Audio Input
  SDI Embedded Audio and HDMI audio are supported.
- Analog Audio Input
  Connect to ANALOG AUDIO IN (L), (R) using the cable with RCA connector.
  The impedance is 54KΩ unbalanced. Inputting a signal outside of the rated value will cause a problem in terms of audio level and noise.

The figure of cable connections are shown below.

NOTE: For details about connectors and cables, see Section 4.2, “Cable and Connector Details.” For electrical specifications, see Appendix 2.3, “Function Specifications.”

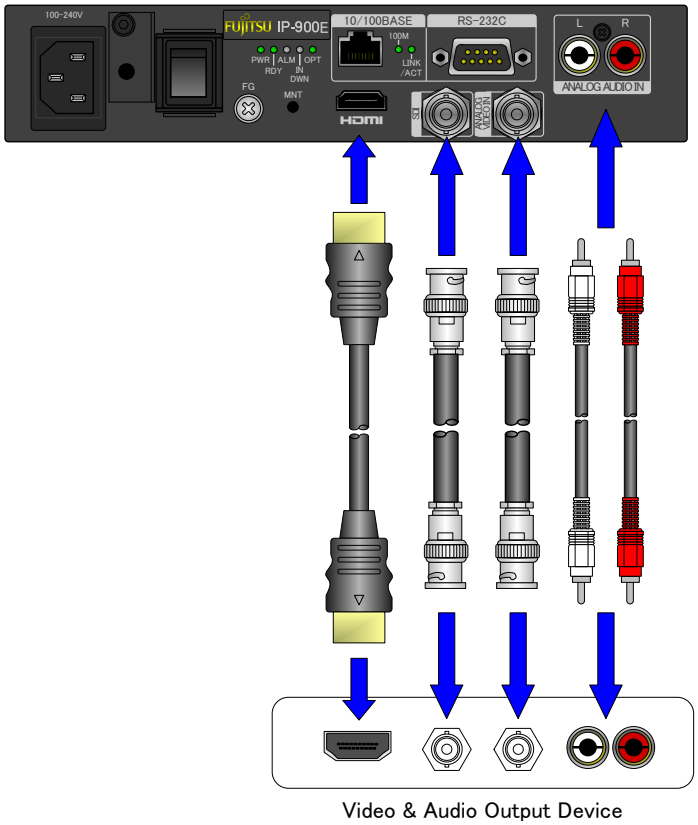


Figure Audio and video output device connections

2.3.2 IP-900D/IP-900IID (Decoder)

2 Digital and 1 analog video output connectors are equipped for connecting with video input equipment.
- SDI Video Output (Digital Video)
  Connect to SDI of IP-900IID using BNC cable. It outputs Digital HD-SDI or SD-SDI signal.
- HDMI Output (Digital Video)
  Connect to HDMI connector of IP-900D/900IID using HDMI cable. It outputs Digital signal.
- Analog Video Output
  Connect to ANALOG VIDEO OUT connector of IP-900D/900IID using BNC cable with NTSC or PAL signal.

2 Digital and 1 analog audio output connectors are equipped for connecting with audio input equipment.
- Digital Audio Output
  SDI Embedded Audio and HDMI audio are supported.
- Analog Audio Output
  Connect ANALOG AUDIO OUT (L), (R) using the cable with RCA connector.
  The impedance is 1KΩ unbalanced. Inputting a signal outside the rated value will cause a problem in terms of audio level and noise.

The figure of cable connections are shown below.

NOTE: For details about connectors and cables, see Section 4.2, “Cable and Connector Details.” For electrical specifications, see Appendix 2.3, “Function Specifications.”

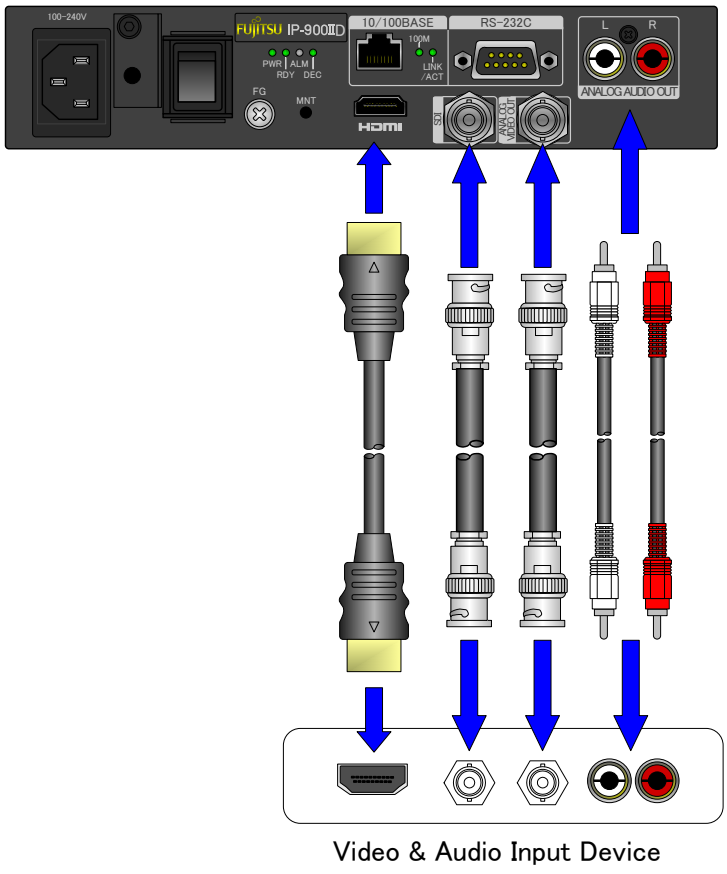


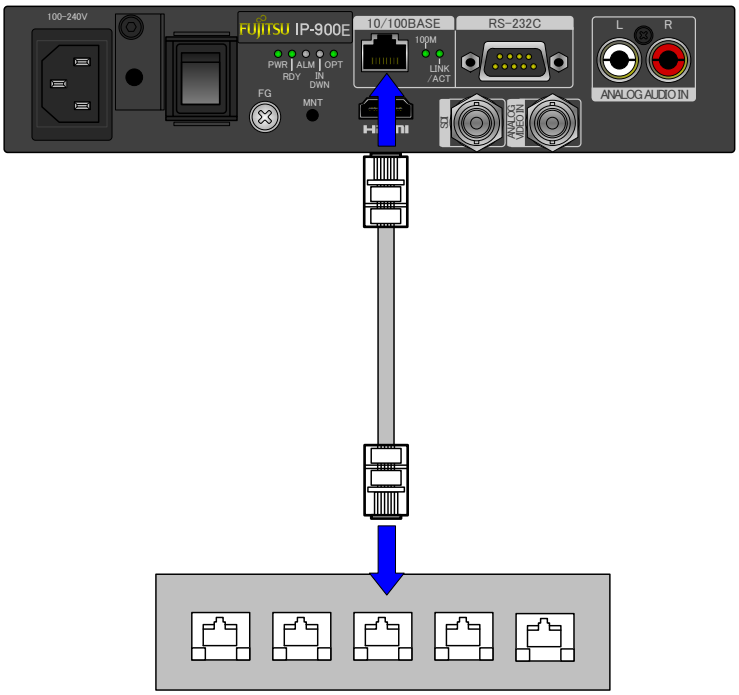
Figure Audio and video input device connections

2.4 Connection to Network

To connect IP-900E/IP-900D/IP-900IID to a LAN device, connect the LAN device to the LAN communication port of IP-900E/IP-900D/IP-900IID using a LAN cable (UTP cable). The LAN communication port specification of IP-900E/IP-900D/IP-900IID is 10BASE-T/100BASE-TX.

The figure below shows the connection method.

NOTE: For details about connectors and cables, see Section 4.2, "Cable and Connector Details." For electrical specifications, see Appendix 2.3, "Function Specifications."



Hub, Router, PC, etc.

Figure Connection to a network

⚠ CAUTION

Please do not provision the IP address below.

- IP address commonly unused (0.0.0.0, 255.255.255.255, etc…)
- Loop back address (127.xxx.xxx.xxx)
- Class D and Class E addresses
- IP address already used

For more information, see IP-900E/IP-900D/IP-900IID Software User's Guide.

2.5 Connection to RS-232C Device

IP-900E/IP-900D [RS-232C] connector works as communication port. The physical connector of IP-900E/IP-900D is the D-sub 9 pins (male) and the specification is DTE. Use a cross connection or straight cable corresponding to the connected device. Refer to Section 4.2, “Cable and Connector Details” for details.

The figure below shows the connection method.

NOTE: For details about connectors and cables, see Section 4.2, “Cable and Connector Details.”
For electrical specifications, see Appendix 2.3, “Function Specifications.”

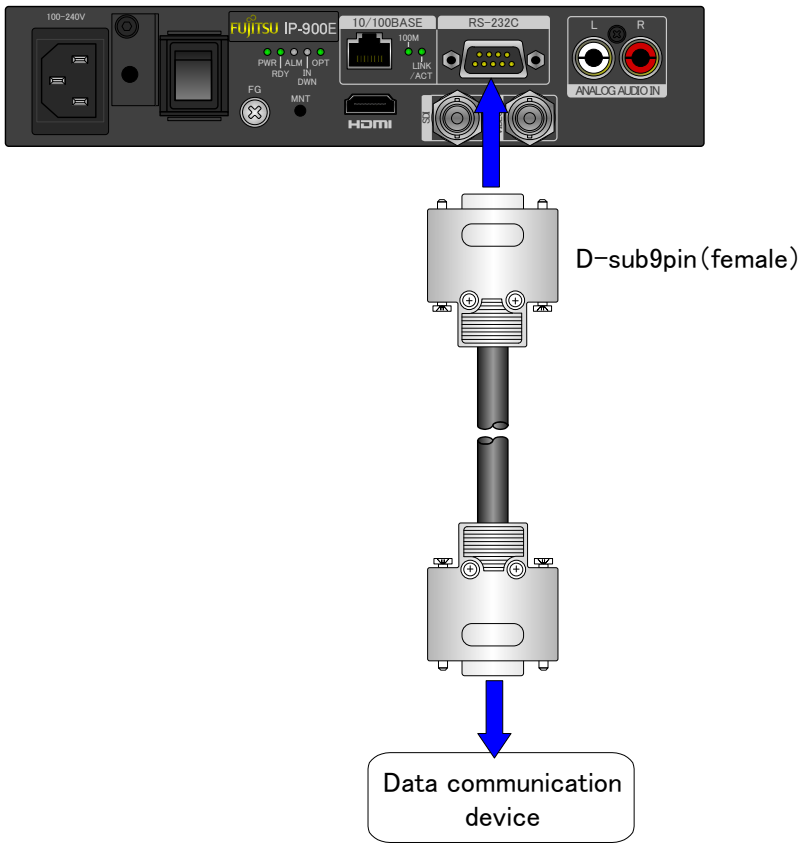


Figure Connection to RS-232C input/output device

2.6 CF Card Insertion and Removal

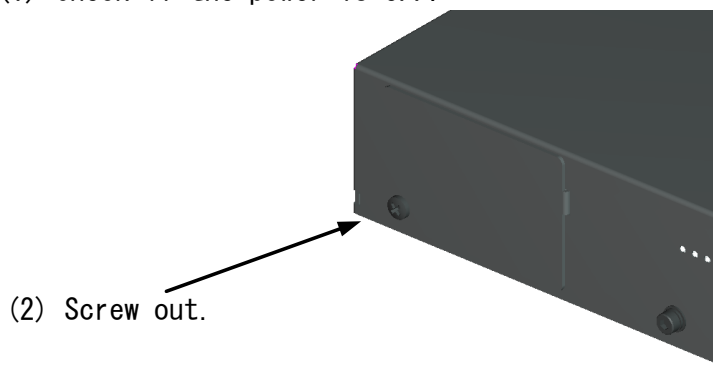
IP-900D/IP-900IID doesn't support CF card slot.

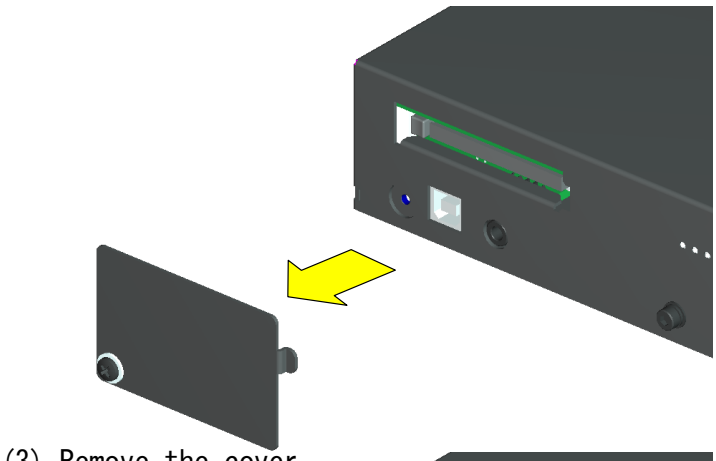
In order to insert the CF card, the front cover of IP-900E must be opened by screwing out the cover. No storage card is supplied with IP-900E. It can be procured separately, depending on the system.

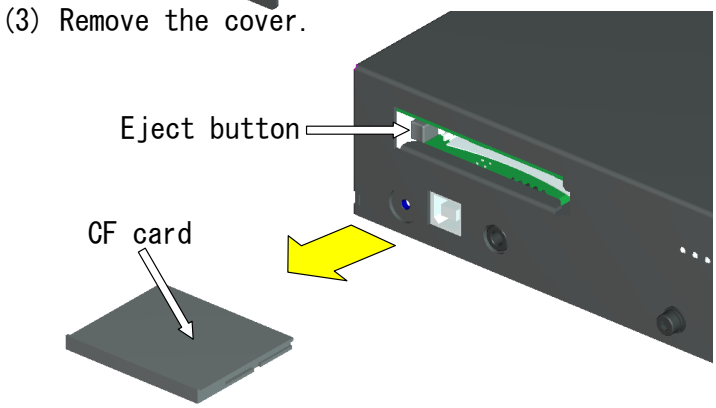
The CF card removal procedure is shown below.

Please turn off the power to insert or remove the CF card.

(1) Check if the power is OFF.







(4) Press the eject button and remove the CF card.
※CF card is unequipped initially (Separate order).

(5) Replace CF card and cover it.

Please contact Fujitsu office what type of CF card is available to use.

⚠ CAUTION

Updating the Software

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.

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

CHAPTER 3
OPERATION INSTRUCTIONS

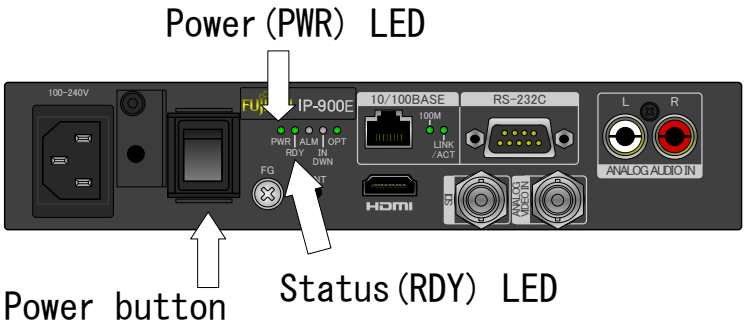
This section explains how to power on/off, setup and operate this equipment.
Figures or Web screens described in this chapter are used IP-900E/IP-900D/IP-900IIDs' as a sample. Operations and descriptions are common for all equipments.

3.1 Turn ON/OFF IP-900E/D

This section explains how to power on/off the IP-900E/IP-900D/IP-900IID.

3.1.1 Turn on IP-900E/D

When the power button on the front panel is set to the [|] position, the PWR LED turns on.
When IP-900E/IP-900D/IP-900IID completes preparations for operation, the RDY LED turns on.



|	This indicates the on switch, which is used to supply power to the IP-900E/D.
○	This indicates the off switch, which is used to disconnect power from the IP-900E/D.

3.1.2 Turn off IP-900E/D

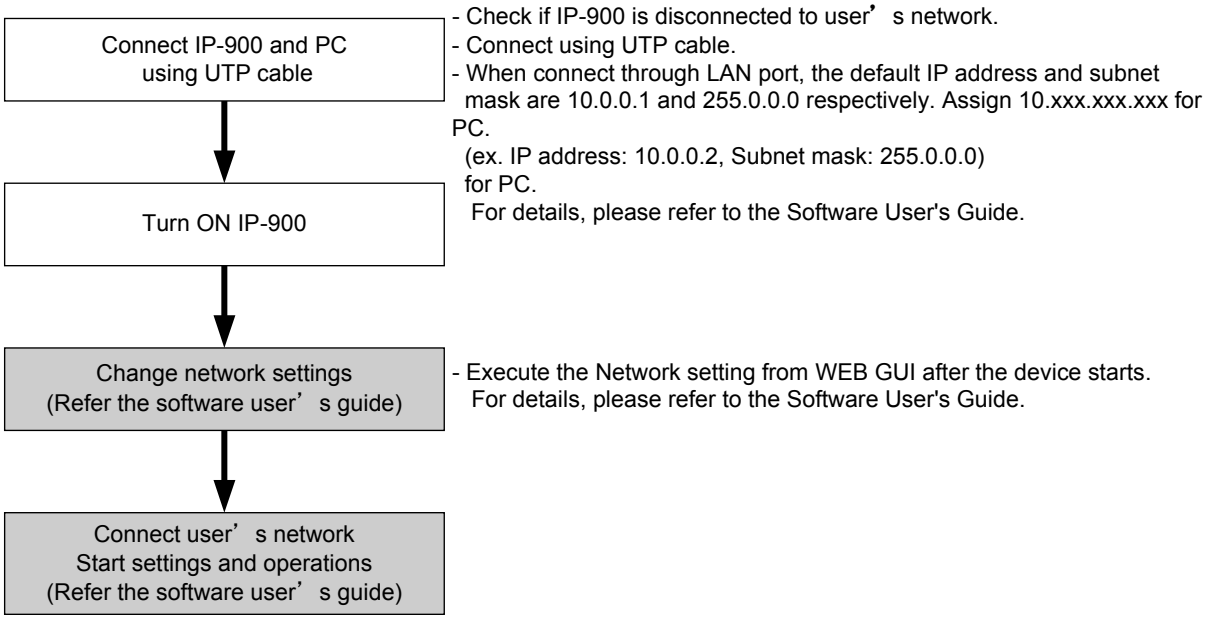
When the power button on the front panel is set to the [O] position, this equipment is turned off and the PWR LED turns off.

3.2 Device Settings and Operation

■Setup Procedure

The setup procedure is shown below.

See Software User's Guide for the procedure of the software installation and the each setting.



■Web browser recommended

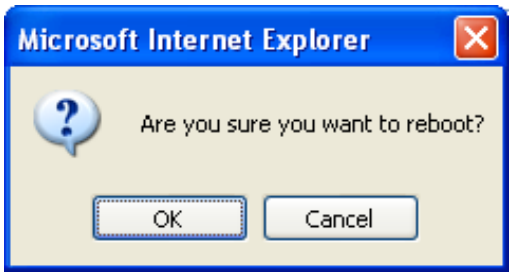
The recommended web browser is as follow.

- Internet Explorer 6.0 SP2 or later

This section briefly explains the basic functions of the setup pages.

3.2.1 Reboot

Clicking the REBOOT button displayed in the left frame of the browser reboots this equipment. When you click the button, the following dialog box shown below appears for confirmation. Click OK to reboot.



3.3 Special Use of MNT Button

You can start IP-900E/IP-900D/IP-900IID by turning on the power while holding down the [MNT] Button (for about 10 seconds) until the RDY LED begins blinking in orange. Doing so starts the IP-900E/IP-900D/IP-900IID with the initial IP address and subnet mask with which the IP-900E/IP-900D/IP-900IID is shipped from the factory (IP address 10.0.0.1, Subnet mask: 255.0.0.0).

Use this function when making initial settings for IP-900E/IP-900D/IP-900IID from a control terminal (such as a PC having a LAN interface) (*1).

*1 When you operate the IP-900E/IP-900D/IP-900IID with the default IP address, connect this equipment to a control terminal and make setting from the terminal with this equipment disconnected from your network.

After making settings according to the requirements for your network, connect this equipment to the network. If this equipment with the default settings made at the factory is connected to the network, an unexpected problem may occur with your network.

If you start IP-900E/IP-900D/IP-900IID while holding the [MNT] button, set the IP addresses and subnet masks of the control terminal to connect as follows:

- IP address : 10.xxx.xxx.xxx
  (xxx is any number from 0 to 255, excluding 10.0.0.0, 10.0.0.1, and 10.255.255.255.)
- Subnet mask : 255.0.0.0

CHAPTER 4
CABLE SPECIFICATIONS

This chapter contains a type of how work is implemented, cable connection system diagrams, and cable connector details

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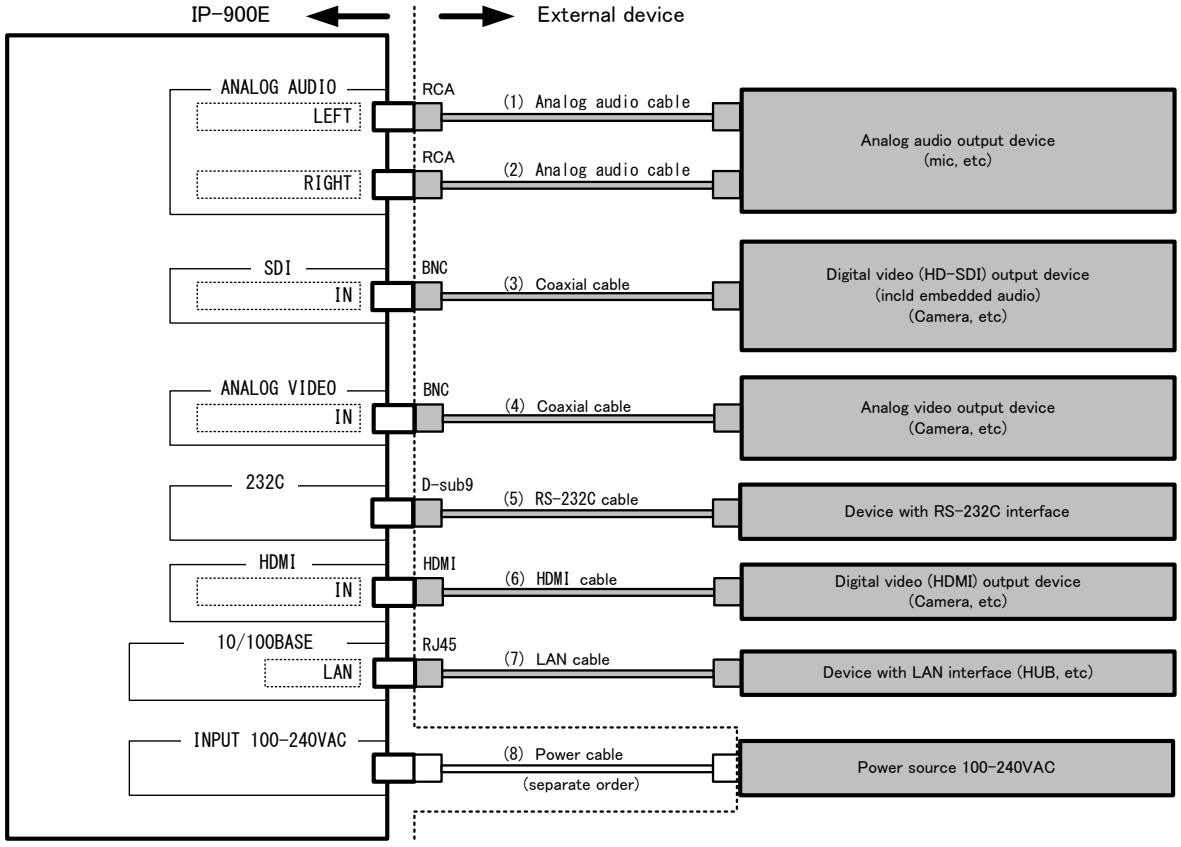
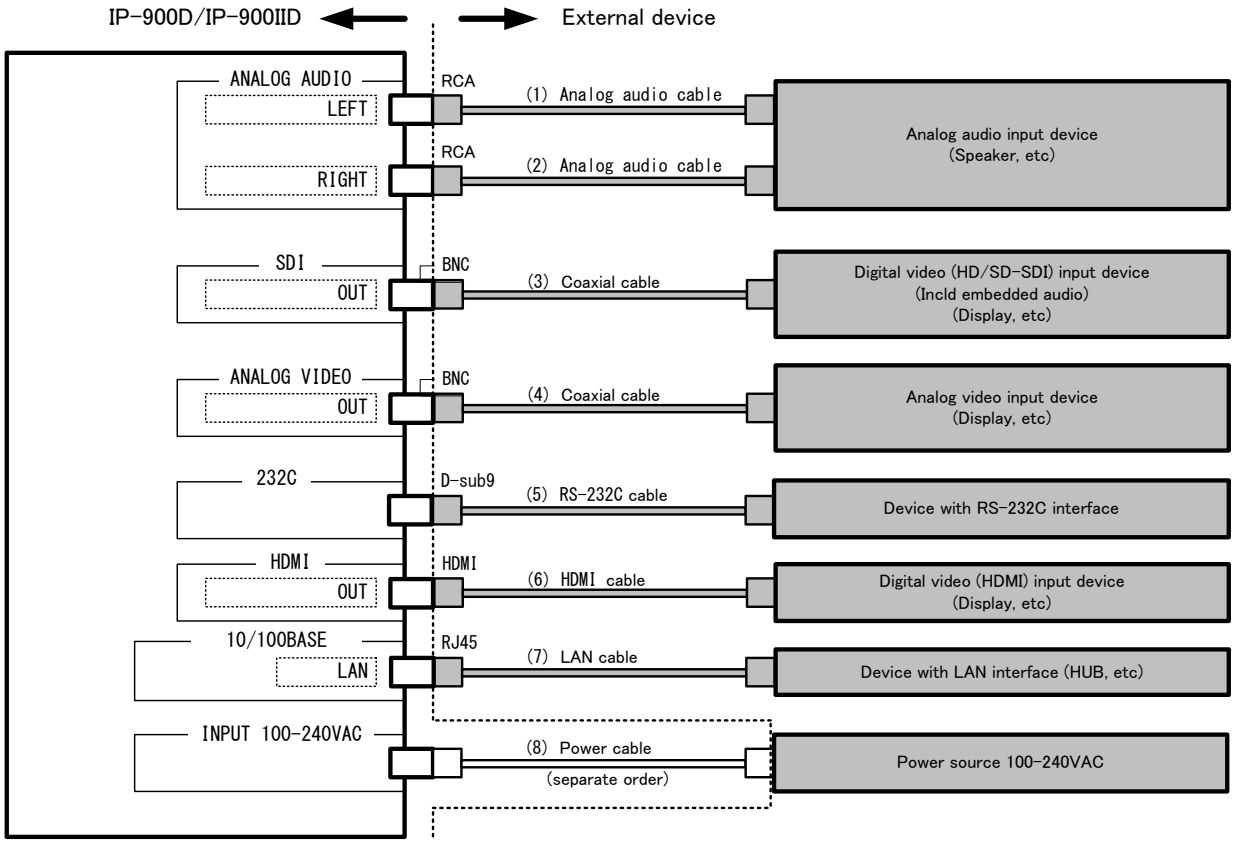
4.1 Installation Preparations

A type of IP-900E/IP-900D/IP-900IID installation work is shown below.



(IP-900E)

Cable (3) shown below are not be able to connect with IP-900D.

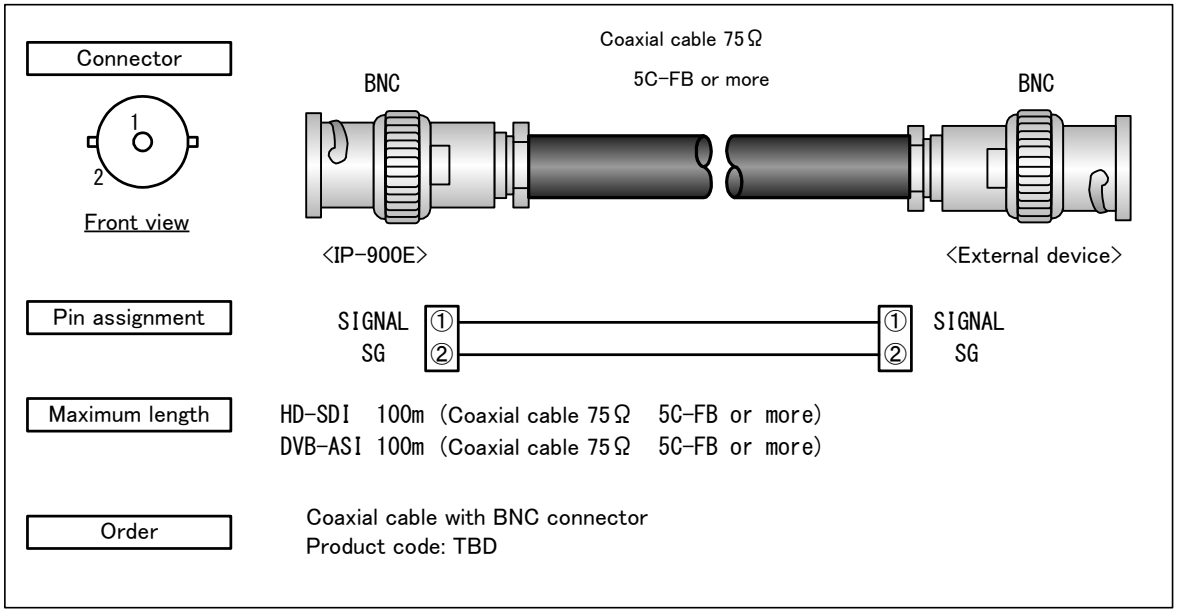


(IP-900D/IP-900IID)

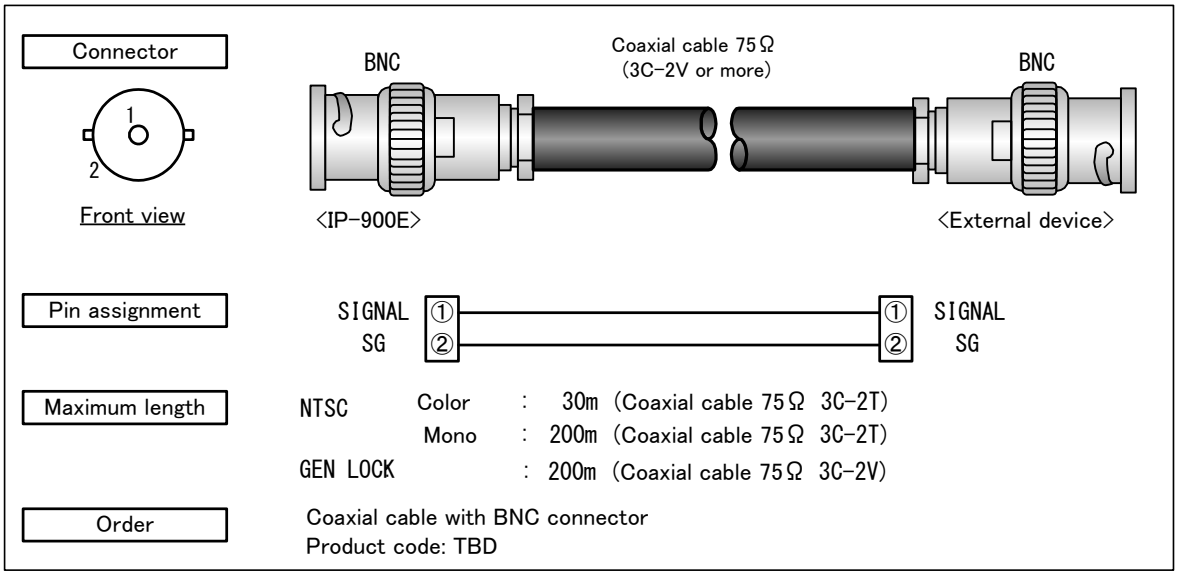
When constructing a system that uses IP-900E/IP-900D/IP-900IID, consideration must be given so that its boundary between IP-900E/IP-900D/IP-900IID and other devices is similar to that shown in the above figure. Since the type of work may change depending on the system, procure equipment and perform work based on consultations with a system designer.

4.2 Cable and Connector Details

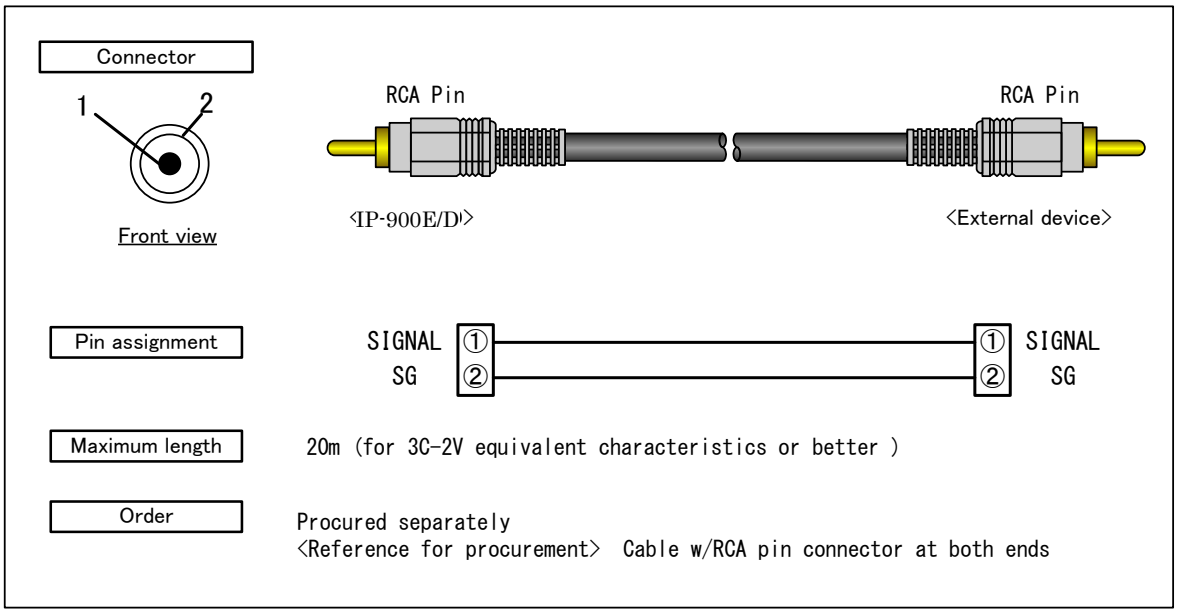
(1) SDI VIDEO cable



(2) Analog VIDEO cable

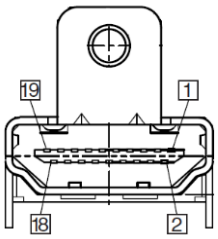


(3) Analog AUDIO cable

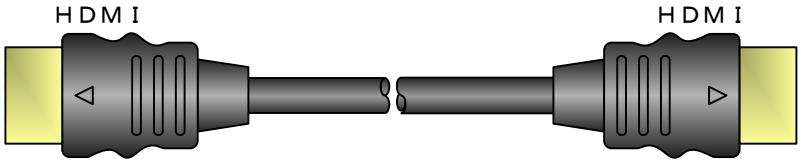


(4) HDMI cable

Connector



Front view



<IP-900E> <External device side>

Pin assignment

TMDS DATA2 +	①	①	TMDS DATA2 +
TMDS DATA2	②	②	TMDS DATA2
SHIELD			SHIELD
TMDS DATA2 −	③	③	TMDS DATA2 −
TMDS DATA1 +	④	④	TMDS DATA1 +
TMDS DATA1	⑤	⑤	TMDS DATA1
SHIELD			SHIELD
TMDS DATA1 −	⑥	⑥	TMDS DATA1 −
TMDS DATA0 +	⑦	⑦	TMDS DATA0 +
TMDS DATA0	⑧	⑧	TMDS DATA0
SHIELD			SHIELD
TMDS DATA0 −	⑨	⑨	TMDS DATA0 −
TMDS CLOCK +	⑩	⑩	TMDS CLOCK +
TMDS CLOCK	⑪	⑪	TMDS CLOCK
SHIELD			SHIELD
TMDS CLOCK −	⑫	⑫	TMDS CLOCK −
CEC	⑬	⑬	CEC
RESERVE(N.C.)	⑭	⑭	RESERVE(N.C.)
SCL	⑮	⑮	SCL
SDA	⑯	⑯	SDA
DDC/CEC GROUND	⑰	⑰	DDC/CEC GROUND
+5V POWER	⑱	⑱	+5V POWER
HOT PLUG	⑲	⑲	HOT PLUG
DETECT			DETECT

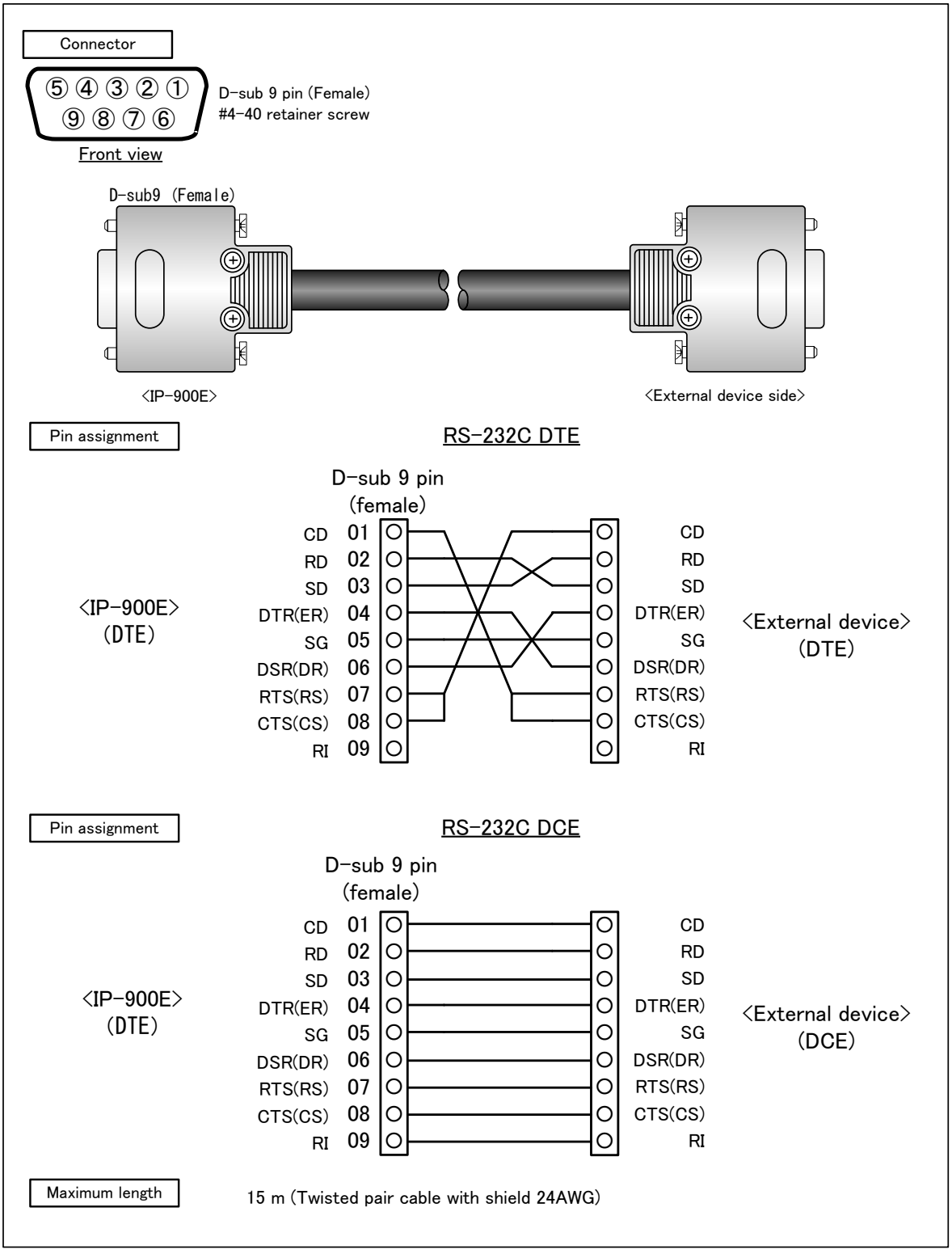
Maximum length

Length of the attested HDMI cable is pretermission.
The unattested cable can't be used.

Order

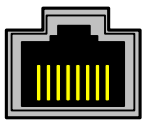
HDMI cable with HDMI connector

(6) RS-232C cable

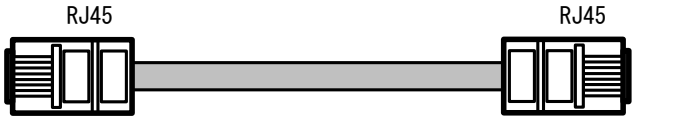


(7) LAN cable

Connector

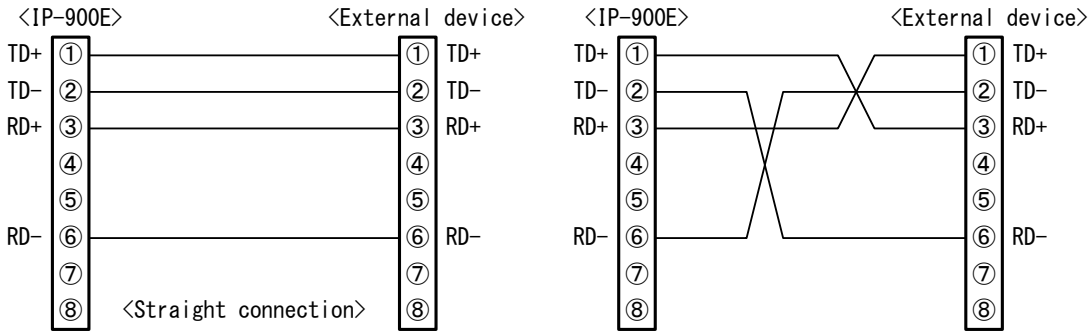


Front view



Pin assignment

10/100BASE



Max length

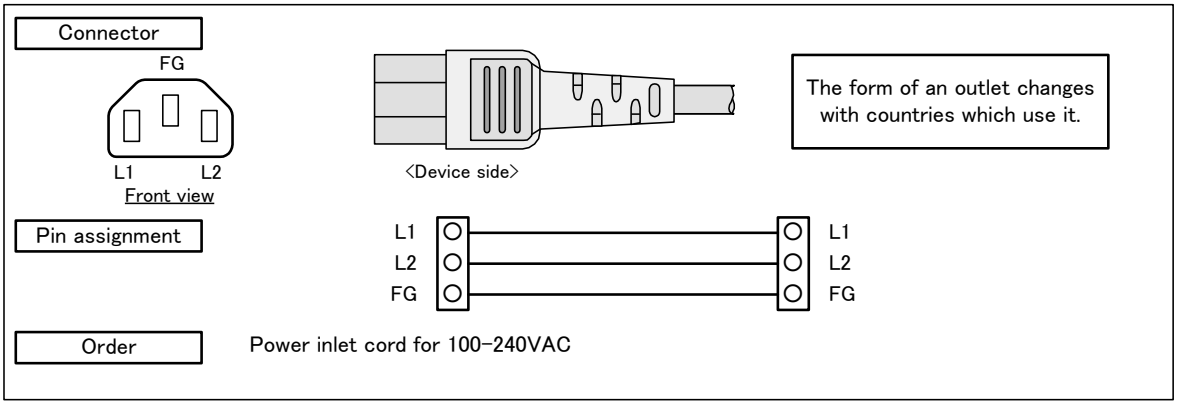
10/100BASE : 100m UTP cable (Category 5 or more)

order

5m : TPCBL-B005
10m : TPCBL-B010
50m : TPCBL-B050
100m : TPCBL-B100

(9) 100 - 240 VAC power cord

The power supply cable is not contained in this device. Please prepare the cable which suits the country which uses it.



USABLE DETACHABLE POWER SUPPLY CORD SET

MODEL	Input	Connector	Cord	Attachment Plug cap
North America <*1> <*2>	100-120V	IEC C-13 Rated 13A, 125V UL, CSA Approved	Type SJT, No.16 AWG Min. 3-Conductors (Single phase;2-current carrying conductors & ground) UL, CSA Approved	NEMA (5-15P) parallel blade Rated 13A, 125V UL, CSA Approved
	200-240V	IEC C-13 Rated 15A, 250V UL, CSA Approved	Type SJT, No.14 AWG Min. 3-Conductors (Single phase; 2-current carrying conductors & ground) UL, CSA Approved	NEMA (6-15P) tandem blade Rated 15 A, 250 V UL, CSA Approved
Europe <*2>	100-240V	IEC C-13 Rated 10A, 250V <*1>	CENELEC OC 3X1.0 square mm<*1> <HAR>	Rated 10 A, 250 V <*1>
Aus-tralia	100-240V	IEC C-13 Rated 10A, 250V	Cable: AS OD 3 X1.0 square mm e.g.	Rated 10 A, 250 V
U.K <*2>	100-240V	IEC C-13 Rated 10A, 250V	BS OC 3 X1.00 square mm	Rated 10 A. 250 V or
Japan	100V	IEC C-13 Rated 13A, 125V	Type HVCTF cross section area 1.25 square mm 3-Conductors (Single phase;2-current carrying conductors & ground)	NEMA (5-15P) parallel blade Rated 13 A, 125 V
		METI Approved or <PSE>	METI Approved or <PSE>	METI Approved or <PSE>

Korea	220V (Class I)	IEC 60320-1 (IEC C-13) Rated 12A, 250V	Comply with KSC3304. Type VCTF cross section area 1.25 (0.50 or 1.00 or 2.00) square mm 3-Conductors (Single phase;2-current carrying conductors & ground) or	Comply with KSC8305. Rated 12A, 250V or
	220V (Class II)	IEC 60320-1 (IEC C-13) Rated 3A, 250V or	Comply with KSC3304. Type VCTFK cross section area 1.25 (0.50 or 0.75 or 1.00 or 2.00) square mm 2-Conductors or	Comply with KSC8305. Rated 12A, 250V or

Note: *1. Be sure that the detachable proper Supply cord has the approval of the appropriate safety agencies of the country where the equipment will be used.
*2. Cable length of above Power Supply cord shall be shorter than 4.5 m.

CERTIFICATION MARKING

Country	Agency	Certification Mark	Country	Agency	Certification Mark
Austria	OVE		Italy	IMQ	
Belgium	CEBEC		Norway	NEMKO	
Denmark	DEMKO		Spain	AEE	
Finland	FEI		Sweden	SEMKO	
France	UTE		Switzerland	SEV	
Germany	VDE				

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CHAPTER 5
TROUBLESHOOTING

This section explains how to power on/off, setup and operate this equipment.
This chapter describes actions to be taken if this equipment does not operate normally or if an alarm LED turns on.
Figures described in this chapter are used IP-900Es' as a sample.

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5.1 Help Information

If a problem is found in device operation, take recommended action described in the table below, according to the applicable conditions. If you cannot solve the problem after taking each recommended action, contact to Fujitsu Service Center.

⚠WARNING

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

Table 5.1.1 Problem descriptions and recommended actions(IP-900E)

No.	Class	Status	Description	Recommended action
1.	Power	Power cannot be turned on.	Is the power cable connected?	Check the power cable is properly connected to the outlet.
2.			Is the outlet voltage normal?	Measure the voltage with a tester and check the voltage is normal. When another device is connected to the same outlet, check the other device's performance.
3.	Device	The ALM LED is on.	Equipment error is occurred.	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.
4.		The ALM LED is blinking.	Settings/ Performances of the equipment and each error is shown.	Check alarm code using log information screen of Web GUI. The countermeasures are shown.
			E013 Temperature warning	Check whether the condition is satisfied with "2.1 Installation Conditions" or not. - Do you secure certain space for air supply and exhaust opening? - Is ambient temperature within the condition? In case of having problems in the conditions above, reboot the equipment after excluding the all problems. In case of not having any problems, contact to Fujitsu CE because the equipment might be failed.
			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.
			L009 DHCP connection failure L00A PPPoE connection failure	Please refer to 43 of this table.
5.		The LEDs excluding LAN are on.	Is the ambient temperature of this equipment within the condition of specification?	If yes, adjust the temperature within the condition of specification. ⇒Refer to "2.1.1 Environment Conditions".
			Do you secure indicated space in the condition for air supply and exhaust opening?	If no, secure the space. ⇒Refer to "2.1.3 Air supply and exhaust of the equipment".

No.	Class	Status	Description	Recommended action
6.	Data	Data communication is disabled.	Is the port setting correct?	Check the data input-output port settings. ⇒Refer to Software User's Guide.
7.			Is the data input/output device operating normally?	Check the operation of the data input/ output devices.
8.			Are this equipment and the communication destination device correctly connected?	Check cable connections between this equipment and communication destination equipment and the cable pin assignments.
9.	Video	The INDWN lamp lights in orange.	Is the power to the video/audio output device (such as a camera) selected for input turned on?	Check the selected power supply of video/audio output device and the performance.
			Is this equipment correctly connected to the video/audio output device? (e.g. SDI signal was connected to analog video input of this equipment by mistake.)	Check the connection between this equipment and video/audio output devices correctly and whether the cable has problems or not.
10.			Are the specified input video/audio format matched with video/output device (such as camera) this equipment correctly connected to the video/audio output device? (e.g. Although this equipment was set as SD-SDI input setting, HD-SD signal input was detected by mistake.)	Check whether the format is set to the using video/audio format for this equipment and output device or not.
11.		The INDWN lamp blinks in orange.	Are the specified input video/audio format matched with video/output device (such as camera) this device correctly connected to the video/audio output device? (e.g. Although this equipment is set as 59.94Hz, the output device was set as 50Hz by mistake.)	Check whether the format is set to the using video/audio format for this equipment and output device or not.
12.		No images can be output on the receiving device (black screen).	Is the monitor which connects to the receiving device working normally?	Check the power and operation of the monitor.
13.			Is the receiving device working normally?	Check the power and operation of the receiving device.
14.			Is the receiving device and monitor connected correctly?	Check connections between the receiving device and the monitor.
15.			Does alarm occur on the receiving device?	If yes, refer to the user's guide of receiving device and follow the instructions.
16.			Does a color bar or gray screen appear on the receiving device when image input of this equipment is set to non-input? (Since this operation generates an alarm, obtaining the system administrator's approval before conducting this test.)	When color bar or the blue screen is displayed, the network and receiving device would be worked normally. Check whether the correct image is input in this equipment or not.
17.		Blue/gray screen is output.	Is the RDY LED blinking?	The hardware system is operating while the RDY LED is blinking. Wait until the LED remains on.
18.			Is the RDY LED turned on in orange?	This equipment is started in the maintenance mode. Reboot this equipment.
19.			Is the ALM LED blinking?	ALM LED blinks when IP address obtaining might be failed to get. Check IP address setting (For more information, refer to the Software User's Guide).

No.	Class	Status	Description	Recommended action
20.	Video	Blue/gray screen is output.	Has the encoder started encoding?	Set the encoder to start encoding.
21.			Has the decoder started decoding?	Set the decoder to start decoding.
22.			Is the streaming setting correct?	Make the correct streaming setting of this device and the encoder by referring to the Software User's Guide.
23.			Is the network normal?	Refer to "Network" in this table.
24.		Image/audio output is distorted.	Is packet loss occurring on the decoder?	If yes, confirm the followings. - Is system bit rate exceeding connected network capacity? - Are FEC/ARQ settings in this device and the opposed device correct? - Are the network device and LAN port settings (AUTO, Full/Half-duplex, etc) the same?
25.		The image output is distorted. (Analog input case)	Is the setting of encoder PAL when the camera or display is NTSC type?	Change encoder setting from PAL to NTSC. (Check decoder setting too.)
26.			Is the setting of encoder NTSC when the camera or display is PAL type?	Change encoder setting from NTSC to PAL. (Check decoder setting too.)
27.		The video contents look whitish. (Analog input case)	When AGC setting of encoder change ON or OFF, the video contents improve normal.	Encoder is working normal. If this problem improves normal when changing ON or OFF, the input or output signal is bigger or smaller than the normal range. Check this equipment connected.
28.			When AGC setting of encoder change ON or OFF, the video contents does not improve normal.	Encoder is working normal. The iris adjustment of the camera is possibly necessary.
29.		The video contents look dark.	When AGC setting of encoder change ON or OFF, the video contents improve normal.	Encoder is working normal. If this problem improves normal when changing ON or OFF, the input or output signal is bigger or smaller than the normal range. Check this equipment connected.
30.			When AGC setting of encoder change ON or OFF, the video contents does not improve normal.	Encoder is working normal. The iris adjustment of the camera is possibly necessary.
31.	Audio	Spoken words cannot be heard on the receiving device.	Isn't "None" selected in the audio format setting of this device?	Select an item other than "None" and set audio to be encoded.
32.			Is the receiving device turned on?	Check the power and operation of the receiving device.
33.			Are connections correct between the receiving device and speakers?	Check the connection between the receiving device and speakers.
34.			Does an alarm occur on receiving device?	If yes, refer to the user's guide of the receiving device.
35.		Noise is generated on the receiving device.	Can the noise be eliminated on the receiving device in case of pulling out the audio input cable at this equipment?	If pulling out the cable from this equipment eliminates the noise, audio signals may have noise. Check the audio output device.

No.	Class	Status	Description	Recommended action
36.	Audio	Noise is generated on the receiving device.	Is the receiving device operating normally?	If pulling out the line input cable from the receiving device does not eliminate the noise, this equipment can be assumed to be operating normally. Check the receiving device.
37.			Is packet loss occurred on the decoder?	- Is system bit rate exceeding connected network capacity? - Are FEC/ARQ settings of this device and the opposed device correct? - Are the network device and LAN port settings (AUTO, Full/half-duplex, etc) the same?
38.	Network	The LINK/ACT LED for the LAN port is not turned on.	Is the power to the communication destination device turned on?	Check the power supply and operation of the communication destination device.
39.			Are the LINK LEDs on this device and the hub turned on?	If the LINK LEDs are not ON, the LAN cable is not connected. Connect the LAN cable correctly.
40.		Device setting through a LAN is disabled.	Is the IP address specified from the Web browser correct?	Specify a correct IP address from the Web browser on the control terminal.
41.			Are the network settings (IP address, subnet mask, etc.) on the control terminal PC correct?	Make correct settings by referring to the PC user's guide and OS handbook. If this device is started with the default settings made before shipment from the factory, refer to "Section 3.2, "Device Settings and Operation," for the network settings for the control terminal PC.
42.			Is a reply received in response to a PING command issued to the IP address of this equipment?	If a reply is not received, turn on the power to this equipment while holding down the MNT button to start the system with the default IP address (10.0.0.1) set before shipment from the factory. Confirm the IP address. If the problem persists, check the status on the LAN. For information on this startup procedure, refer to Section 3.3, "Special Use of MNT Button."
43.			Is ALM LED blinking?	IP address mode setting is not proper. After rebooting this equipment with the default IP address set before shipment from the factory, 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. - L00A PPPoE connection failure Check PPPoE-related setting and PPPoE server (carrier side) operation of this device are correct. For details, please refer to the Software User's Guide.

Table 5.1.1 Problem descriptions and recommended actions(IP-900D/IP-900IID)

No.	Class	Status	Description	Recommended action
1	Power	Power cannot be turned on.	Is the power cable connected?	Check the power cable is properly connected to the outlet.
2			Is the outlet voltage normal?	Measure the voltage with a tester and check the voltage is normal. When another device is connected to the same outlet, check the other device's performance.
3	Device	The ALM LED is on.	Equipment error is occurred.	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.
4		The ALM LED is blinking.	Settings/Performances of the equipment and each error is shown.	Check alarm code using log information screen of Web GUI. The countermeasures are shown.
			E013 Temperature warning	Check whether the condition is satisfied with "2.1 Installation Conditions" or not. - Do you secure certain space for air supply and exhaust opening? - Is ambient temperature within the condition? In case of having problems in the conditions above, reboot the equipment after excluding the all problems. In case of not having any problems, contact to Fujitsu CE because the equipment might be failed.
			L009 DHCP connection failure L00A PPPoE connection failure	Please refer to 41 of this table.
5		The LEDs excluding LAN are on.	Is the ambient temperature of this equipment within the condition of specification?	If yes, adjust the temperature within the condition of specification. ⇒Refer to "2.1.1 Environment Conditions".
			Do you secure indicated space in the condition for air supply and exhaust opening?	If no, secure the space. ⇒Refer to "2.1.3 Air supply and exhaust of the equipment".
6	Data	Data communication is disabled.	Is the port setting correct?	Check the data input-output port settings. ⇒Refer to Software User's Guide.
7			Is the data input/output device operating normally?	Check the operation of the data input/ output device.
8			Are this equipment and the communication destination device correctly connected?	Check cable connections between this equipment and communication destination device and the cable pin assignments.
9	Video	No image can be output on the receiving device (black screen).	Is the receiving device turned on?	Check the power and operation of this equipment on the receiving device.
10			Is the power of device turned on?	Check that PWR LED lights.
11			Is this equipment correctly connected to the monitor?	Check the connection between device and the monitor.
12			Is the video output setting of this device correct?	Check the video output setting of this device allows the monitor to display.
13			Is ALM LED turned on?	Refer to clause 3 in this table.

No.	Class	Status	Description	Recommended action
14	Video	No image can be output on the receiving device (black screen).	Does a color bar or gray screen appear on the receiving device if image input of the Encoder device is set to non-input? (Since this operation generates an alarm, obtaining the system administrator's approval before conducting this test.)	If the blue screen is displayed, the receiving device can be assumed to be operated normally. Verify that the correct image is input in the Encoder device.
15		Displayed blue/gray screen on the receiving device	Is the RDY LED blinking?	The hardware system is operating while the RDY LED is blinking. Wait until the LED remains on.
16			Is the RDY LED turned on orange?	This equipment is started in the maintenance mode. Reboot this equipment.
17			Is DEC LED off?	Decoder is not working. Check the followings.
18			Has the decoder started decoding?	Set the decoder to start decoding.
19			Has the encoder started encoding?	Check the encoder is starting to encode.
20			Is the streaming setting correct?	Make correct live stream settings of this device and encoder by referring to the Software User's Guide.
21			Is the network normal?	Refer to "Network" in this table.
22		Received image sometimes freezes or distorted.	Is packet loss occurring? (Is DEC LED blinking in green?)	Refer to clause 42 in this table
23		The image output is distorted. (Analog output case)	Is the setting of encoder PAL when the camera or display is NTSC type?	Change decoder setting from PAL to NTSC. (Check encoder setting too.)
24			Is the setting of encoder NTSC when the camera or display is PAL type?	Change encoder setting from NTSC to PAL. (Check encoder setting too.)
25		The video contents look whitish.	When AGC setting of encoder change ON or OFF, the video contents improve normal.	Encoder is working normal. If this problem improves normal when changing ON or OFF, the input or output signal is bigger or smaller than the normal range. Check this equipment connected.
26			When AGC setting of encoder change ON or OFF, the video contents does not improve normal.	Encoder is working normal. The iris adjustment of the camera is possibly necessary.
27		The video contents look dark.	When AGC setting of encoder change ON or OFF, the video contents improve normal.	Encoder is working normal. If this problem improves normal when changing ON or OFF, the input or output signal is bigger or smaller than the normal range. Check this equipment connected.
28			When AGC setting of encoder change ON or OFF, the video contents does not improve normal.	Encoder is working normal. The iris adjustment of the camera is possibly necessary.
29	Audio	Spoken words cannot be heard on this equipment	Has the receiving device been turned on the power?	Check the power and operation of the receiving device.
30			Isn't "None" selected in the audio format setting of the encoder?	Select an item other than "None" and set audio to be encoded.
31			Are connections correct between the receiving device and speakers?	Check the connection between the receiving device and speakers.
32			Is ALM LED turned on?	Refer to clause 3 in this table.

No.	Class	Status	Description	Recommended action
33	Audio	Noise is generated on this equipment.	Does noise disappear when disconnecting LAN cable?	If not, this device is considered as abnormal.
34		Noise is generated on this equipment.	Does noise disappear when disconnecting audio input cable from the encoder?	If so, audio signal input to the encoder is considered to be mixed with noise. Check the audio output device.
35		Noise is generated on this equipment.	Is packet loss occurring? (Is DEC LED blinking in **green**?)	Refer to clause 42 in this table.
36	Network	The LINK/ACT LED for the LAN port is not turned on.	Is the power to the communication destination device turned on?	Verify the power supply and operation of the communication destination device.
37			Are the LINK LEDs on this device and the hub turned on?	If the LINK LEDs are not ON, the LAN cable is not connected. Connect the LAN cable correctly.
38		Device setting through a LAN is disabled.	Is the IP address specified from the Web browser correct?	Specify a correct IP address from the Web browser on the control terminal.
39			Are the network settings (IP address, subnet mask, etc.) on the control terminal PC correct?	Make correct settings by referring to the PC user's guide and OS handbook. If this device is started with the default settings made before shipment from the factory, refer to "Section 3.2, "Device Settings and Operation," for the network settings for the control terminal PC.
40			Is a reply received in response to a PING command issued to the IP address of this equipment?	If a reply is not received, turn on the power to this equipment while holding down the MNT button to start the system with the default IP address (10.0.0.1) set before shipment from the factory. Confirm the IP address. If the problem persists, check the status on the LAN. For information on this startup procedure, refer to Section 3.3, "Special Use of MNT Button."
41			Is ALM LED blinking?	IP address mode setting is not proper. After rebooting this equipment with the default IP address set before shipment from the factory, 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. - L00A PPPoE connection failure Check PPPoE-related setting and PPPoE server (carrier side) operation of this device are correct. For details, please refer to the Software User's Guide.
42		The DEC LED is blinking in **green.**	Error is occurring in the received stream data. Check connected network and the encoder are set/operated correctly.	If so, confirm the followings. ・Is system bit rate exceeding connected network capacity? ・Are FEC/ARQ settings of this device and the encoder correct? ・Are the network device and LAN port settings (AUTO, Full/Half-duplex, etc) the same?

5.2 Alarm LED Lamp

This section describes corrective actions to take if an alarm LED turns on.

The appropriate corrective action depends on the alarm code displayed. See the table below for this information.

Reference See Software User's Guide for information how to check the alarm log check and an example with displayed information.

Table 5.2 Alarm codes and corrective actions

Code	Corrective action
Lxxx	LAN network related alarms are shown as "Lxxx". Alarm LED is not turned on. Each code's description and the countermeasures are shown below. Check the network and destination device. If an error cannot be identified or recovered, contact your system administrator or Fujitsu CE.
L001	LAN is not connected. Check the connecting status of LAN cable and the settings of the network equipment such as hub.
L006	Time synchronization with the time server is failed. Check time server and the related settings of this equipment and whether the server works correctly or not.
L009	Failed to establish DHCP connection. Check DHCP server and the related settings of this equipment and whether the server works correctly or not.
L00A	Failed to establish PPPoE connection. Check PPPoE related settings and whether the server (provider side) works correctly or not.
L010	Failed to IPv6 Stateless Address Autoconfiguration. Check IPV6 router and the related settings of this equipment and whether the router works correctly or not.
Ixxx	This alarm is related with input status. Each INDWN LED (IP-900E) and DEC LED (IP-900D) is turned on or blinked. Each code's description and the countermeasures are shown below. If an error cannot be identified or recovered, contact your system administrator or Fujitsu CE.
I001 (Only IP-900E)	No SDI input signals. Check SDI output equipment and SDI cable which are connected to SDI input terminal. INDWN LED is turned on in orange.
I002 (Only IP-900E)	No HDMI input signals. Check HDMI output equipment and HDMI cable which are connected to HDMI input terminal. INDWN LED is turned on in orange.
I003 (Only IP-900E)	No Analog video input signals. Check Analog video output equipment and analog video cable which are connected to Analog video input connector. INDWN LED is turned on in orange.
I011 (Only IP-900E)	Synchronization error with input signals. Check whether format settings of this equipment for the signal are adequately specified or not. INDWN LED blinks in orange.
I021 (Only IP-900D/IID)	Errors are detected in the received stream data. Check whether the using rate of sending side (Encoder) is appropriate for the network or not.
Exxx	This alarm shows the error of this equipment and ALM LED is turned the light on or blinked. Turn off the equipment at once and turn on the power again. In case of not turning off ALM LED even if you reboot the power, contact Fujitsu CE. Our CE may ask you the alarm code. Please refer to "Table 4-3 Alarm Code List" of our software Users Guide for the details.

xxx: Indicates a three-digit numeric value. See Software User's Guide.

In addition, LED display details are given in the following table:

Table 5.3 LED display details

Display	Description
PWR	Turns on in green when this equipment is turned on.
RDY	Blinks in green in the operation preparation state, and lights in green in the operation state. Blinks in orange in the maintenance mode waiting state, and lights in orange in maintenance mode.
INDWN	No LED lights in normal state. Lights in orange in the state of audio/video input down or abnormal. Blinks in orange when the input signal slipping for encoder and the reference clock input down for decoder.
ALM	Alarm LED. Blinks or lights in orange when a device alarm occurs. For more details of the alarm log, refer to Section 3.2.7, "Log" of IP-900E/IP-900D Software User's Guide."
OPT	Lights in green when the HD upgrade option is installed.
DEC	Decoding are displayed by the LED. This LED is turned on in green during decoding and turned off when decoding is not being performed. DEC LED blinks in green when a decoding error occurs.
100M	Turns on in green if the connected LAN is 100BASE-TX. Turns off if the connected LAN is 10BASE-T.
LINK/ACT	Indicates the LAN connection status and data send status. Turns on in green when there is a LAN (HUB) connection. Turns off when there is no LAN connection. Blinks in green when communication is in progress.

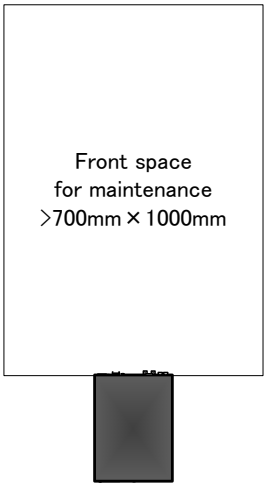
Note) In case of detecting temperature alarm, ALM LED is turned on and the equipment will move to shut down mode. After moving to the shutdown mode, all LED are turned on except LINK/ACT,100M.

5.3 Maintenance

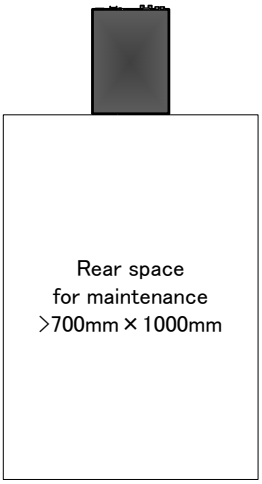
5.3.1 Maintenance space

When the operators do the maintenance work, the maintenance space below is required in addition to Section 2.1.4, “Open space required around this equipment.”

Desk-top installation:
Please allocate the space more than 1 m in front or rear for maintenance.

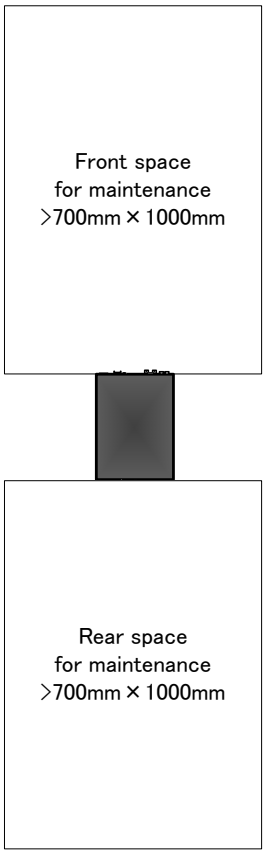


Front access case



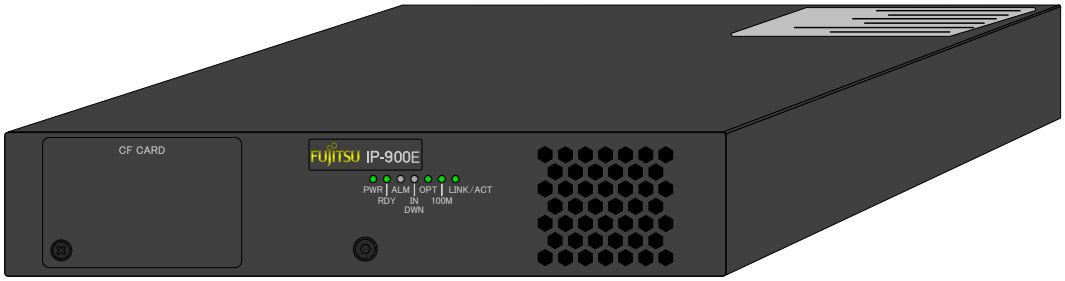
Rear access case

Rack installation:
Please allocate the space more than 1 m in front and rear for maintenance.



5.3.2 Change equipment (Only for CE)

I When the failure situation is not recovered even if you check and follow the instructions by referring to Section 5.1, “Help Information”, the hardware might be failure. Change hardware as below



The equipment itself is regarded as repair unit. When you regarded it as failure, please change the equipment.

In case that the optional CF card is installed in the main unit, please do not forget to remove it and re-install in the replaced unit.

Please refer to Section 2.6, “CF card insertion and removal,” for the respective maintenance.

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Appendix

The appendix contains view of this equipment and its main specifications. Notes on installation work and preparations for on-site turn-up are also contained in this section.

Figures described in this chapter are used IP-900Es' as a sample.

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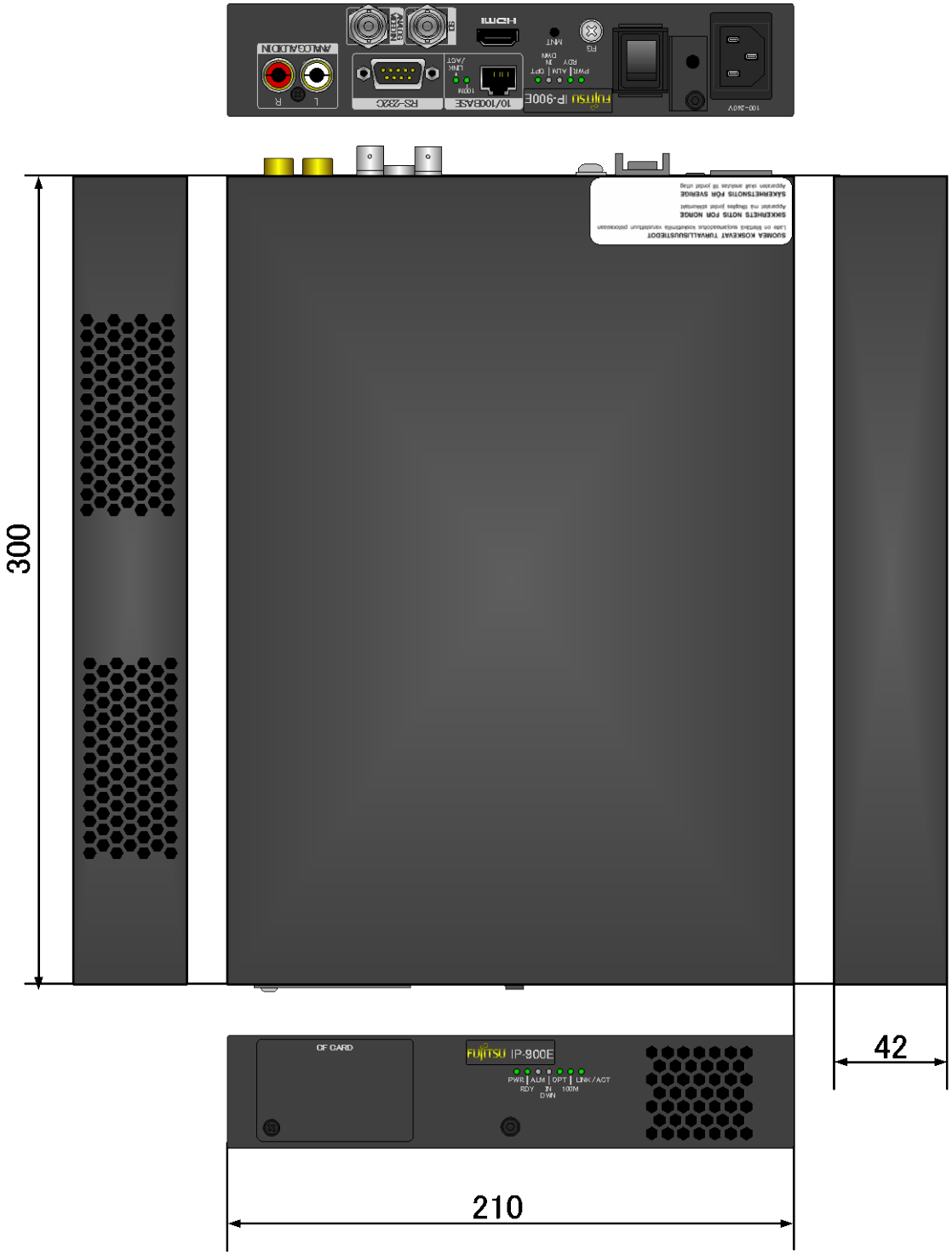
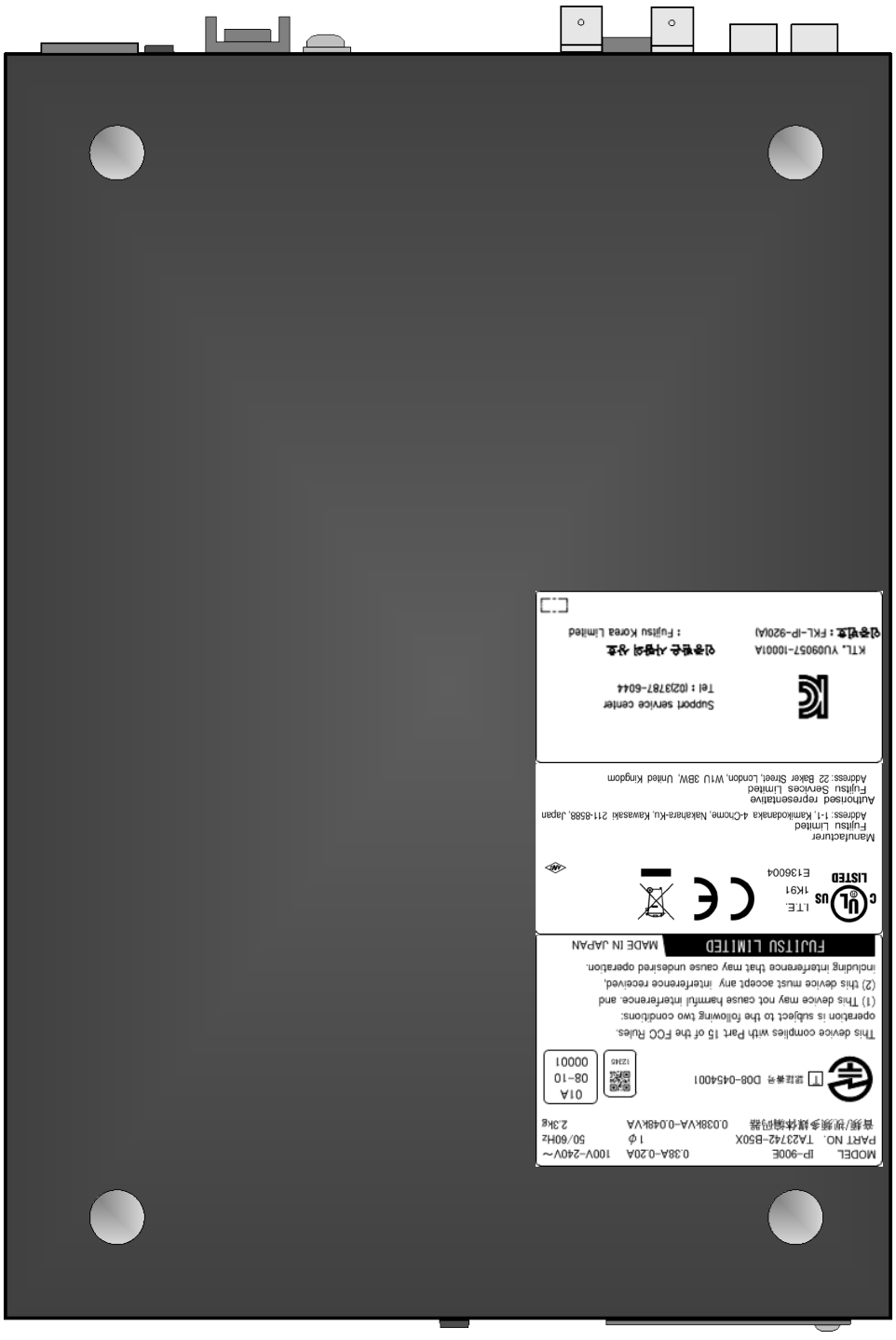
A.1 Appearance

The appearance of IP-900E/IP-900D/IP-900IID is shown below.




MODEL IP-900E 0.38A-0.20A 100V-240V~
PART NO. TA2374Z-B50X 1φ 50/60Hz
音频/视频多媒体编码器 0.038kVA-0.048kVA 2.3kg
01A
08-10
00001
D08-045401001
This device complies with Part 15 of the FCC Rules.
operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired operation.
FUJITSU LIMITED MADE IN JAPAN
LISTED
E136004
Manufacturer
Fujitsu Limited
Address: 1-1, Kamikodanaka 4-Chome, Nakahara-Ku, Kawasaki 211-8588, Japan
Authorised representative
Fujitsu Services Limited
Address: 22 Baker Street, London, W1U 3BW, United Kingdom
Support service center
Tel : 0213787-6044
KTL: YU09057-10001A
: Fujitsu Korea Limited

Bottom View

A.2 Basic Specifications

This chapter describes the external specifications, environment specifications, and function specifications of this equipment.

A.2.1 External specifications

This equipment has the following external specifications:

Item	Specifications
Installation conditions	Indoor: Installation on a desk or in a rack that is mounted
Dimensions	Width: 210, Height: 42, Depth: 300 (mm) (excluding projections)
Cooling method	Forced air cooling (maintenance-free fan used)
Power	100-240VAC
Weight	Max. 2.3 kg
Power consumption	IP-900E : 38 VA or less @ 100VAC IP-900D : 33 VA or less @ 100VAC IP-900IID : 35 VA or less @ 100VAC

A.2.2 Environment specifications

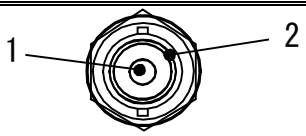
This equipment has the following environmental specifications:

Item	Specifications
Power conditions	100-240 VAC ± 10%, 50/60 Hz ± 3 Hz
Temperature and humidity conditions	Temperature: -10 to 55°C (No low temperature startup: -10 to -1°C) Humidity: 20 to 90% (without condensation) (Conditions for guaranteed operation and characteristics)
Dust	Communication equipment room or office environment (0.15 mg/m^3 or less)
Gaseous contamination	In accordance to IEC 60721-3-3 Class 3C1 Sulphur dioxide SO_2 : Max 0.037 cm^3/m^3 Hydrogen sulphide H_2S : Max 0.0071 cm^3/m^3 Chlorine Cl :: Max 0.034cm^3/m^3 Hydrogen chloride HCl : Max 0.066 cm^3/m^3 Hydrogen fluoride HF : Max 0.0036 cm^3/m^3 Ammonia NH_3 : Max 0.42 cm^3/m^3 Ozone O_3 : Max 0.005 cm^3/m^3 Nitrogen oxides NO_2 : Max 0.052 cm^3/m^3
EMI (Electro Magnetic Interference - regulation)	FCC (part 15) Class A EN55022 Class A VCCI Class A

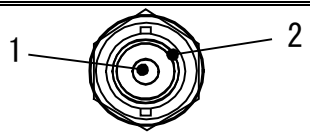
A.2.3 Function specifications

This chapter describes functional specifications of individual parts of this equipment.

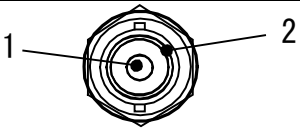
(IP-900E only)

Name	Specifications		Remarks
Digital SDI VIDEO input	Signal format: NRZI Input impedance: 75Ω (Unbalanced) Signal amplitude: 800mVp-p Maximum amplitude level: 800mVp-p ± 10%		
Connector name	SDI		BNC
Pin number	Signal name	Remarks	
1 2	SIGNAL SG		

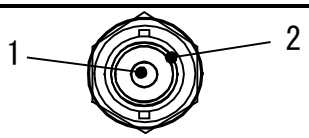
(IP-900E only)

Name	Specifications		Remarks
Analog VIDEO input	Signal format: NTSC (Analog composite, 29.97frames/s) PAL (Analog composite, 25frames/s) Input impedance: 75Ω (Unbalanced) Signal amplitude: 1.0 Vp-p Maximum amplitude level: 0.5dB (0dB=100IRE) Permissible cable length: 30m (3C-2T or equivalent)		
Connector name	ANALOG VIDEO IN		BNC
Pin number	Signal name	Remarks	
1 2	SIGNAL SG		

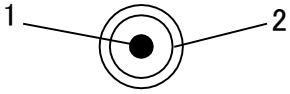
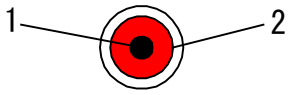
(IP-900IID only)

Name	Specifications		Remarks
Digital SDI VIDEO output	Signal format: NRZI Output impedance: 75Ω (Unbalanced) Signal amplitude: 800mVp-p Maximum amplitude level: 800mVp-p ± 10%		
Connector name	SDI		BNC
Pin number	Signal name	Remarks	
1 2	SIGNAL SG		

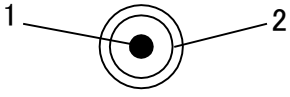
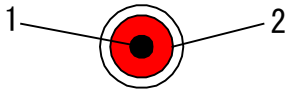
(IP-900D / IP-900IID only)

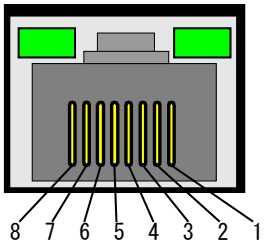
Name	Specifications		Remarks
Analog VIDEO output	Signal format: NTSC (Analog composite, 29.97frames/s) PAL (Analog composite, 25frames/s) Output impedance: 75Ω (Unbalanced) Signal amplitude: 1.0 Vp-p Maximum amplitude level: 0.5dB (0dB=100IRE) Permissible cable length: 30m (3C-2T or equivalent)		
Connector name	ANALOG VIDEO OUT		BNC
Pin number	Signal name	Remarks	
1 2	SIGNAL SG		

(IP-900E only)

Name	Specifications		Remarks
Analog AUDIO input	Analog voice signal(unbalanced) Input impedance: 54kΩ Input maximum level: +2Vrms Permissible DC input level: ±5Vrms		
Connector name	ANALOG AUDIO IN (L)		RCA
	Signal name	Remarks	
1 2	SIGNAL S G		
Connector name	ANALOG AUDIO IN (R)		RCA
	Signal name	Remarks	
1 2	SIGNAL S G		

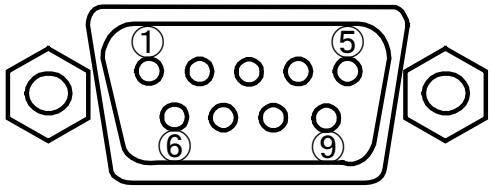
(IP-900D / IP-900IID only)

Name	Specifications		Remarks
Analog AUDIO output	Analog voice signal(unbalanced) Output impedance: 1kΩ Output maximum level: +2Vrms		
Connector name	ANALOG AUDIO OUT (L)		RCA
	Signal name	Remarks	
1 2	SIGNAL S G		
Connector name	ANALOG AUDIO OUT (R)		RCA
	Signal name	Remarks	
1 2	SIGNAL S G		

<table>
<tr><td>Name</td><td colspan="3">Specifications</td><td>Remarks</td></tr>
<tr><td>LAN interface</td><td colspan="3">[10BASE-T]
System standard: IEEE802.3
Transmission clock: 10Mbit/s±10000ppm(±0.01%)
Load impedance: 100Ω
Transmission coding: Manchester coding
[100BASE-TX]
System standard: IEEE802.3u
Transmission clock: 125 Mbit/s±5000ppm(±0.005%)
Load impedance: 100Ω
Transmission coding: 4B5B</td><td></td></tr>
<tr><td>Connector name</td><td colspan="2">10/100 BASE</td><td>RJ-45</td></tr>
<tr><td>Pin number</td><td>Signal name</td><td>Remarks</td><td rowspan="9"> 
</td></tr>
<tr><td>1</td><td>TD+</td><td>Trans. data+</td></tr>
<tr><td>2</td><td>TD-</td><td>Trans. data-</td></tr>
<tr><td>3</td><td>RD+</td><td>Reciv. data+</td></tr>
<tr><td>4</td><td>N.C.</td><td>-</td></tr>
<tr><td>5</td><td>N.C.</td><td>-</td></tr>
<tr><td>6</td><td>RD-</td><td>Reciv. data-</td></tr>
<tr><td>7</td><td>N.C.</td><td>-</td></tr>
<tr><td>8</td><td>N.C.</td><td>-</td></tr>
<tr><td>Cable</td><td colspan="3">Standard: ANSI/TIA/EIA568A CAT5
Pin assignment: Comply with one of two below
Pin No. 1 2 3 4 5 6 7 8
T568A W/G G W/O Bl W/Bl O W/Br Br
T568B W/O O W/G Bl W/Bl G W/Br Br
[W: white, G: green, O: orange, Bl: blue, Br: brown]</td></tr>
</table>

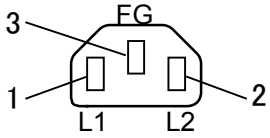
Name	Specifications	Remarks
Data interface (RS-232C)	No. of CH : 1 ch Signal system : Asynchronous Connection : DTE Bit rate : 1200, 2400, 4800, 9600, 19200, 38400 bps Data length :7/ 8 Parity : NONE/ODD/EVEN Stop bit : 1/2	RS-232C

Connector name	RS-232C		D-sub 9 pin(male)
Pin number	Signal name	Remarks	
1	CD	Carrier Detect	
2	RD	Receive Data	
3	SD	Send Data	
4	DTR (ER)	Data Terminal Ready	
5	SG	Signal Ground	
6	DSR (DR)	Data set Ready	
7	RTR (RS)	Request to Send	
8	CTS (CS)	Clear to Send	
9	RI	Ring Indicator	



Name	Specifications	Remarks
POWER	Parallel 2 pin with ground Input voltage : 100-240VAC±10% Connector : Inlet Button : Locker button Input protection : Built-in fuse Withstand voltage : 1,500 VAC	

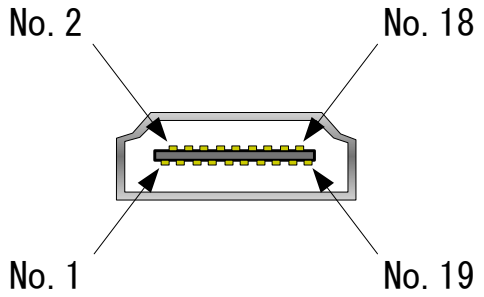
Connector name	100-240V		
Pin number	Signal name	Remarks	
1	L1		
2	L2		
3	FG		



(IP-900E only)

Name	Specifications	Remarks
HDMI input	Version : 1.2a Signal format : TMDS Input impedance : 50 ohms ±10% Maximum length : -------- connector : 19PIN Type A	Length of the attested HDMI cable is pretermission. The unattested cable can't be used. DVI isn't supported.

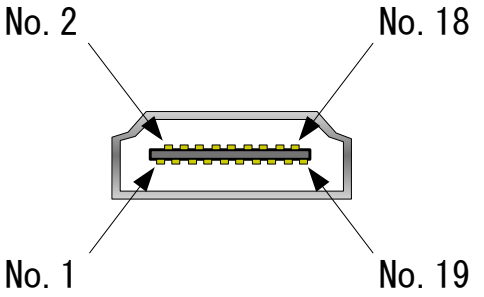
Connector name	HDMI IN		HDMI 19 pin Type A
Pin number	Signal name	Remarks	
1	TMDS DATA2 +		
2	TMDS DATA2 SHIELD		
3	TMDS DATA2 -		
4	TMDS DATA1 +		
5	TMDS DATA1 SHIELD		
6	TMDS DATA1 -		
7	TMDS DATA0 +		
8	TMDS DATA0 SHIELD		
9	TMDS DATA0 -		
10	TMDS CLOCK +		
11	TMDS CLOCK SHIELD		
12	TMDS CLOCK -		
13	CEC		
14	RESERVE(N.C)		
15	SCL		
16	SDA		
17	DDC/CEC GROUND		
18	+5V POWER		
19	HOT PLUG DETECT		



(IP-900D /IP-900IID only)

Name	Specifications	Remarks
HDMI output	Version : 1.2a Signal format : TMDS Output impedance : 50 ohms ±10% Maximum length : -------- connector : 19PIN Type A	Length of the attested HDMI cable is pretermission. The unattested cable can't be used. DVI isn't supported.

Connector name	HDMI OUT		HDMI 19 pin Type A
Pin number	Signal name	Remarks	
1	TMDS DATA2 +		
2	TMDS DATA2 SHIELD		
3	TMDS DATA2 -		
4	TMDS DATA1 +		
5	TMDS DATA1 SHIELD		
6	TMDS DATA1 -		
7	TMDS DATA0 +		
8	TMDS DATA0 SHIELD		
9	TMDS DATA0 -		
10	TMDS CLOCK +		
11	TMDS CLOCK SHIELD		
12	TMDS CLOCK -		
13	CEC		
14	RESERVE(N.C)		
15	SCL		
16	SDA		
17	DDC/CEC GROUND		
18	+5V POWER		
19	HOT PLUG DETECT		



LED name		ON	Blinking	OFF	Remarks
PWR	G	Power ON	---	Power OFF	
RDY	G	Normal operation	Starting up	Software inactive	Blink interval: 0.5s Maintenance mode (Cancel button startup): LAN subnet mask (255.0.0.0)
	O	Maintenance mode LAN (IP=10.0.0.1, Subnet=255.0.0.0)	Maintenance mode starting up		
ALM	O	Equipment alarm	FAN alarm Temperature alarm CF card access error IP address acquisition failure	Normal operation	
IN DWN (IP900E only)	O	Video input down/fault	Reference clock slipping Reference clock input down/fault	Normal operation	HD-SDI video input or reference clock input monitoring
LINK/ACT [LAN]	G	LINK established	LAN packets detection	Cable disconnection or software inactive	
100M	G	100BASE operation	---	10BASE operation	
OPT (IP-900E only)	G	HD-option installed	---	HD-option not installed	
DEC (IP-900D/ IP-900IID only)	G	Decoding stream	Packet loss	Not decoding stream	

G: Green, O: Orange

Name	Button type	Specifications	Behavior
POWER	Locker button	Turn ON/OFF	

A.3 Preparations for Installation Work

This section contains notes and describes check items for installation work.

A.3.1 Scope of installation work

For details about the scope of installation work, see Section 4.1, “Installation Preparations.”

A.3.2 Unpacking and device check

Unpack and check this equipment as follows:

- During unpacking, carefully handle this equipment so as not to apply shock to it or damage its appearance.
- Make sure that this equipment and accompanying package are not damaged.
- Make sure that wiring does not have a short circuit and is not disconnected.
- Make sure that no incorrect screw is contained in the package.

A.3.3 Installation conditions

For the classification of this work, see Section 2.1, “Installation Conditions.”

The installation method may differ depending on the site where this equipment is installed. In principle, the installation method conforms to the appropriate method for the site.

Do not install this equipment at the following locations:

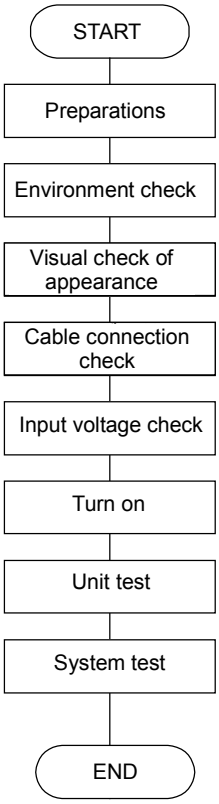
- Place exposed to direct sunlight or near a heater.
- Humid or dusty place
- Place where this equipment is exposed to shock or vibration
- Unstable place, such as on a slope or place with a lot of weight on it
- Place where this equipment is subject to strong magnetic and radio waves

A.3.4 Connecting external cables

Refer to Chapter 2, “Installation and Connection,” for the connection methods, Section 4.2, “Cables and Connector Details,” and A.2.3, “Function specifications,” for device connector pin assignments.

A.4 Preparations for On-siteTurn-up

This chapter explains the workflow of on-site turn-up.



Since system configurations of this equipment are diverse depending on the applications used, this chapter describes the checking process for only a single device.

(1) Preparations

1) Check the system configuration
   Check the entire system configuration.
2) Check the units and cables to be connected to this equipment
   Check the units to be connected to this equipment, cables that have to be procured, and installation conditions.
3) Tools and measuring instruments necessary for work:
   - Digital multimeter
   - General-purpose tools

(2) Environment check

1) Ambient air temperature, humidity and power supply
   Check the ambient air temperature, the humidity and power supply conform to A.2.2, "Environment Specifications.
2) Ground connection (FG)
   Check using a grounding resistance of 100 ohms, a wire of $2mm^2$ or thicker, or your country's applicable standard.

(3) Visual check of appearance

1) Check this equipment surface has no damage such as scratches, dirt, rust, deformation or peeling of its coating.
2) Check the patent nameplate and device nameplate are still attached, and that buttons are not damaged.
3) Check the connectors are not loose.

(4) Cable connection check

Check the individual cables are connected as prescribed in system specifications.
Refer to Chapter 2, "Installation and Connection," for the connection methods, Section 4.2, "Cables and Connector Details," and A.2.3, "Function specifications," for device connector pin assignments.
Hardware settings need not be set in this equipment.

(5) Input voltage check

Check the voltage of power supplied to this equipment is in a range of 100-240 VAC ± 10%.

(6) Turn on

1) Set Power button on the front panel to [ON].
2) Check PWR LED lamp on the front panel is on.

(7) Unit test

1) Since this device executes a self-check immediately after power is turned on, check the RDY LED on the front of the panel does not light after power is turned on.
2) The LEDs light if the self-check detects an unusual condition.

(8) System test

1) Software installation
   Install appropriate software following IP-900 Series Software User's Guide.
2) Set-up check
   Various devices settings complying with the system specification are made from the control terminal either directly or via the network.
3) Input video check
   Check the video input to this equipment is correctly output to the monitor (television).
4) Data communication check
   Check the line used by the system is connected.
5) Status check
   After the final setup, when the equipment is in the system operation state, check this equipment status LED (RDY) on the front of this equipment lights in green, and that the alarm LED (ALM) is off.

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Glossary and Index

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Glossary

Alarm Log
Record of errors that have occurred on devices and communication lines

BNC (Bayonet Neill Concelman)
Type of coaxial connector whose characteristic impedance is 75 Ω. A locking system called a bayonet lock is used, ensuring cables are easy to connect and remove, and secure connections. The connector is compact and lightweight and has a frequency range compatible with the high frequency of 4 GHz, so it can be used for measuring instruments and digital audio equipment.

Browser
General name for programs that support users who want to select desired options from available options. Using a browser, a user can trace links on the Internet to access such multimedia information as text, audio, and video by simply using a pointing device (e.g., mouse) to select items.

DCE (Data Circuit terminating Equipment)
Data circuit terminating equipment. DCE is a term from ITU-T. Similar to modems and DSUs, it changes signals to waveform that are suitable for their transmission routes.

DHCP (Dynamic Host Configuration Protocol)
This is the protocol to assign IP address dynamically when startup and to release it when shutdown. The IP address prepared by DHCP server is assigned.

DTE (Data Terminating Equipment)
Data terminating equipment. It is one kind of terminal equipment (e.g., PC). DTE is a term from ITU-T and is paired with DCE.

Embedded Audio
It is the scheme to embed (multiplex) AES/EBU digital audio signals in the auxiliary data area (blanking area) of the serial digital signal.

FG (Frame Ground)
Ground for a cabinet

Flow Control
Procedure for controlling the flow of data between two devices. Its purpose is to prevent data loss when this equipment buffer becomes full.

Gateway
Equipment that connects network systems that use different protocols. It basically converts one protocol into another to support operation between two networks. In a broader sense, a gateway sometimes means a device that transfers information between any two networks.

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.

HTTP (Hyper Text Transfer Protocol)
Protocol used for sending and receiving files and other data between a WWW server and WWW browser

Hub
Concentrator required for using 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, and a switching hub has switching functions.

IP (Internet Protocol)
Protocol used between host computers to transfer packets over all of the Internet. The codes that identify the destinations and senders in packet transfers are called IP addresses. An IP address is a 32-bit code that can identify a network and host in the network. A unique IP address must be allocated to each hosts that communicates on the Internet.

IP Address
Code used for identifying a node (e.g., PC) operating using TCP/IP. This 32-bit number is divided into four 8-bit sections, and an example of this is 200.10.101.1.

IP Multicast

Technology for transmitting identical data to multiple remote destinations simultaneously using TCP/IP. An address system called class D is used for multicasting. In the class D address system, the first four bits (1110) indicate a multicast, and the remaining 28 bits specify a multicast group. Path control methods for IP multicasting are PIM and DVMRP, but no one method has become the standard yet.

LAN (Local Area Network)

Data communication system in a specific area (maximum of 6 miles or about 10 km). It provides moderate to high data transfer speeds.

LCD (Liquid Crystal Display)

The display device using the liquid crystal. A LCD is a thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector. There are two categories, the simple matrix like STN and DSTN and the active matrix like TFT.

LED (Light-Emitting Diode)

The IP-900E/IP-900D/IP-900IID has a power LED lamp and alarm LED lamps. The power LED lamp is lit in green to indicate this equipment is on. An alarm LED lamp is lit in red to indicate that an alarm has been generated.

MPEG-4

Standard for the compression and coding of color video for storage purposes, and the name of the organization promoting this standardization is used in the name of the standard. MPEG-4 handles not only regular image and voice data but also a comprehensive range of multimedia data, including computer graphics and text. It defines a flexible framework for a scalable object encoding system depending on technological developments. It has a transfer speed ranging from several tens of Kbps to several tens of Mbps (low bit rate to wide range). It is intended for low-speed communication by general-purpose multimedia encoding systems on mobile terminals.

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.

PPPoE (Point to Point Protocol over Ethernet)

This is the user authentication standard for the connection like PPP connection on the Ethernet network.

PS

MPEG-2 method of multiplexing audio, video, and data. It is an abbreviation of Program Stream, and it is used for transmission and storage in an error-free environment.

RS-232C

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

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

Standard definition digital video interface standardized in SMPTE259M.

SG (Signal Ground)

Ground for signals

Subnet Mask

Mask value used for obtaining a subnet network address from an IP address. The subnet address is obtained by using an AND operation between an IP address and 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.

TS (Transport Stream)

The stream used in the multi-programs multiplexing, standardized in MPEG-2 systems. The transport stream offers features for error correction for transportation over unreliable media, and is used in broadcast applications and ATM telecommunication.

TTL (Time To Live)

Abbreviation of time to live, which indicates the survival time of a packet in 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 time specified in the Time To Live field of the IP header is reached.

UDP (User Datagram Protocol)

Abbreviation of User Datagram Protocol, which 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 (i.e., most general one-to-one communication)

UTP Cable

Abbreviation of unshielded twisted pair. It is a unshielded pair of wires twisted together, and these wires are used for Ethernet cabling and other purposes.

10BASE-T

LAN that uses unshielded twisted-pair (UTP) cables and complies with the IEEE 802.3 standard. A 10BASE-T connection uses a concentrator called a hub. It is widely used because special cabling work is not necessary and wiring can be done easily. The maximum length of cable wiring is 100 m.

100BASE-TX

One of the 100BASE LAN standards (also called Fast Ethernet), it supports a transfer rate of 100 Mbps. Other 100BASE standards are 10BASE-T4 and 100BASE-FX, and the difference is the type of cable used. 100BASE-TX uses unshielded twisted-pair (UTP) cables. It also uses the RJ-45 connector, which is similar to the modular jacks used for telephones.

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CE Conformity Information

Following address can be reached at for regarding the CE conformity information.

Fujitsu Services Limited
Address: 22 Baker Street, London, W1U 3BW, United Kingdom

IP-900E
IP-900D
IP-900IID
Hardware User's Guide

Edition 10 Jun 2018

If this manual is missing a page or pages are not in the proper order, it will be replaced.