IP-900E
IP-900D
IP-900 II D

Hardware User's Guide

FUJITSU

(This page is intentionally left blank)

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

Handling of This Manual

The manual contains important information regarding the safe use of IP-900E/IP-900D series.   Read it thoroughly before operating this device.   Make sure that users of the device 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 the device 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 series 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 series 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.

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.
FUJITSU DISCLAIMS ALL WARRANTIES REGARDING THE INFORMATION
CONTAINED HEREIN, WHETHER EXPRESSED, IMPLIED, OR STATUTORY.
   FUJITSU reserves the right to make changes to any products described herein without further notice
and without obligation.

IP-900E/IP-900D series

PREFACE

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

IP-900E/IP-900D series 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.

August 2009   2nd Edition

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 series is intended for indoor use.

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

IP-900E/IP-900D series

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 the device.   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 series operation.

Chapter 2   Installation and Connection

This chapter describes conditions for IP-900E/IP-900D series installation and explains how to connect it to peripheral the devices.

Chapter 3   Operating Instructions

This chapter explains how to power on/off, set up and operate the device.

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 the device does not operate normally or if an alarm LED turns on.

Appendix

The appendix contains views of the device 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.

IP-900E/IP-900D series

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 the device 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 the device
Always observe the precautions given below.
This indicates a hazardous situation that could lead to electric shock, fire or damage to the device.
- Always connect the power cord to a power receptacle for a standard two-prong plug with ground.
- Connect the device 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."

IP-900E/IP-900D series

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 the device, 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 the device, 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 the device 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 the device. The presence of foreign matter such as water inside the device creates a hazardous situation that could lead to electric shock. **Possibility of electric shock and fire** Ensure that no liquid is splashed on the device, making it wet. The presence of foreign matter such as water inside the device 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.

IP-900E/IP-900D series

Work type	Warning
Installation	**Possibility of electric shock and fire** Do not install the device 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 the device 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 the device** Always observe the precautions given below. This indicates a hazardous situation that could lead to electric shock, fire and damage to the device. • Always connect the power plug to a power receptacle for a standard two-prong plug with ground. • Connect the device 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.

IP-900E/IP-900D series

Work type	Warning
Installation and relocation	Possibility of serious injury and damage to the device Do not install the device 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 the device. Possibility of serious injury and damage to the device When relocating the device, observe the following precautions to protect against serious injury and damage to the device: • 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 the device, take special care to pay attention to your surroundings.
Clean	Possibility of fire, serious injury and damage to the device When cleaning the device, observe the following precautions to protect against fire, serious injury and damage to the device: • When cleaning the device, please do not use cleaning spray that is including combustible material. Also, please do not use it around the device. • When cleaning the device, 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 the device from switches or the spaces.

IP-900E/IP-900D series

LABEL

The warning label shown below is affixed to the device.
- ・ 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 the devices.

Mark for rubber feet

MODEL	IP-900E	0.38A–0.20A	100V–240V～
PART NO.	TA23742–B50X	1 φ	50/60Hz
	0.038kVA–0.048kVA		2.3kg

認証番号 D08-0454001

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

MODEL	IP-900D	0.33A–0.17A	100V–240V～
PART NO.	TA23742–B60X	1 φ	50/60Hz
	0.033kVA–0.041kVA		2.3kg

認証番号 D08-0454001

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

MODEL	IP-900IID	0.35A–0.18A	100V–240V～
PART NO.	TA23742–B61X	1 φ	50/60Hz
	0.035kVA–0.045kVA		2.3kg

認証番号 D08-0454001

01A
09–08
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

IP-900E/IP-900D series

PRODUCT HANDLING PRECAUTIONS

Maintenance

⚠WARNING

⚠CAUTION

Do not try to repair the device yourself.　Contact a Fujitsu Service Center.

Read this manual thoroughly before attempting to operate the device.
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 the device interface specifications (see Appendix 2.3, "Device Specifications") can be connected.　Otherwise, if incompatible devices are connected, the result may be personal injury and property damage.

Disposal

To dispose of the device, 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.　Doing so may result in personal injury and property damage.

IP-900E/IP-900D series

CONTENTS

IP-900E/IP-900D series

CHAPTER 1

PREPARATIONS

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

(This page is intentionally left blank)

1.1 Main Features

IP-900E/IP-900D series 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-900 II D
Video input	HD-SDI / SD-SDI	1ch	[BNC]	O *1	–	–
	HDMI	1ch	[HDMI]	O *1	–	–
	Analog Composite	1ch	[BNC]NTSC/PAL	O	–	–
Video output	HD-SDI / SD-SDI	1ch	[BNC]	–	–	O
	HDMI	1ch	[HDMI]	–	O	O
	Analog Composite	1ch	[BNC] NTSC/PAL	–	O	O
Audio input	HD/SD-SDI embedded	2ch	[BNC], 1 stereo pairs	O	–	–
	HDMI	2ch	[HDMI]	O	–	–
	Analog unbalanced	2ch	[RCA], 1 stereo pair	O	–	–
Audio output	HD/SD-SDI embedded	2ch	[BNC], 1 stereo pairs	–	–	O
	HDMI	2ch	[HDMI]	–	O	O
	Analog unbalanced	2ch	[RCA], 1 stereo pair	–	O	O
Network	LAN	1ch	[RJ45], 10BASE-T / 100BASE-TX	O	O	O
Data input/output	RS-232C	1ch	[D-sub9-pin], male connector	O	O	O
CF CARD slot	CF CARD	1	Data storage application	O	–	–
Installation conditions	Indoor: On a desk, mounted in a rack			O		
Dimensions	W: 210 H: 42 D: 300 (mm) Note: Excluding protrusions (i.e., not including feet)			O		
Cooling system	Forced air cooling			O		
Power supply	100-240VAC			O		
Weight	Maximum 2.3kg			O		
Power consumption	38VA or less @ 100VAC			O		
Temperature Humidity	-10 to 55°C (No low temperature startup: -10 to -1°C) 5 to 95%RH (No condensing)			O		

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

IP-900E/IP-900D series

1.2　Components

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

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

・ **Safety manual: 1pc**
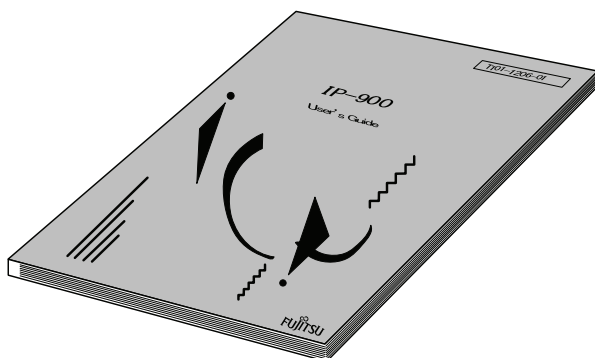
・ **Feet: 4 pcs**
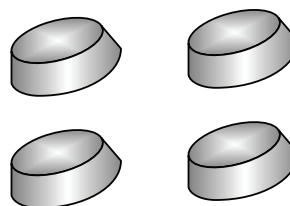
・ **Holder of power supply cable: 1 pc**

IP-900E/IP-900D series
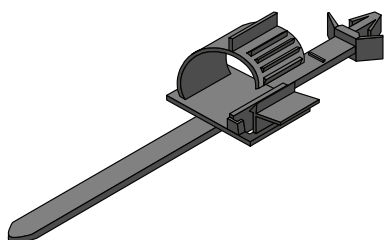
1.3 Basic Application Examples

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

IP-900E/IP-900D series

1.4 Part Names

This section gives the name and describes the function of individual parts of IP-900E/IP-900D series.
The diagrams below show the layout of parts on the outside of the device, and the table below lists the name and describes the function of individual parts.

- IP-900E

Figure　Front panel

Figure　Rear panel

Part names

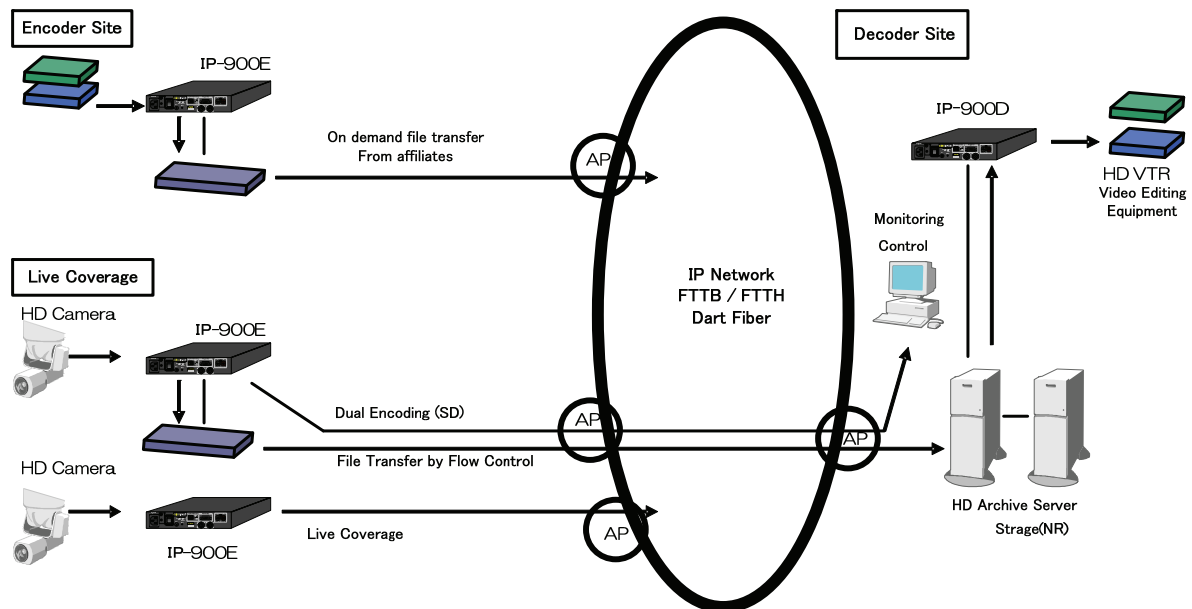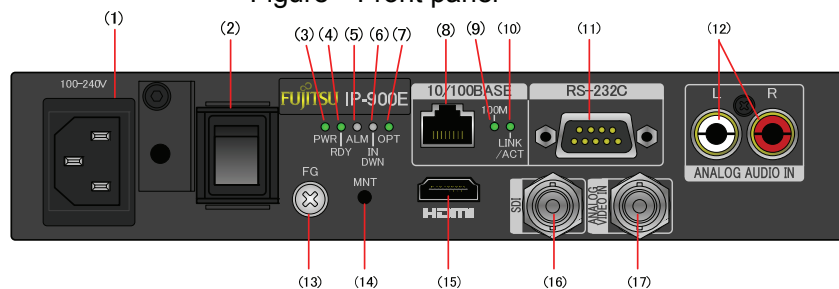| No.	Name	Description
(1)	Power inlet connector (INPUT 100-240VAC)	Can be connected to a 100-240VAC commercial power supply by using power card with a standard two-prong plug with ground. See Section 2.2.2, "Connection to a Power Source," for an explanation on using this connector.　See Section 4.2, "Cable and Connector Details," for cable connection information.
(2)	Power button	Turns the device on and off.
(3)	Power LED (PWR)	Turns on when the device 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.

IP-900E/IP-900D series

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 the device. 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 3.4, "Mode Switch Setting and Operation," 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
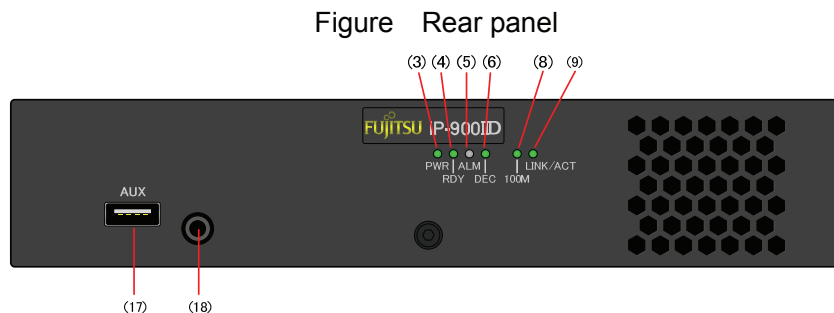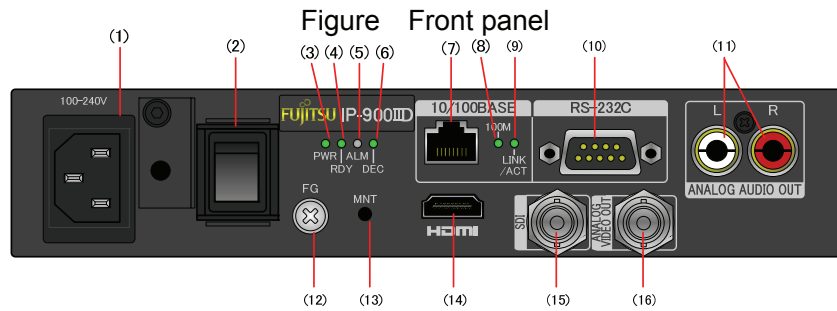
Figure　Rear panel

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 the device on and off.
(3)	Power LED (PWR)	Turns on when the device 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 the device. See Section 2.2.1, "Connection to ground," for an explanation on using this terminal.

IP-900E/IP-900D series

8

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 3.4, "Mode Switch Setting and Operation," 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.

IP-900E/IP-900D series

(This page is intentionally left blank)

CHAPTER 2

INSTALLATION AND CONNECTION

This chapter describes conditions for IP-900E/IP-900D series 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 series 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, air flow into and out from the device, and the requirement for open space around the device.

2.1.1   Environment conditions

Ensure that installation site conditions do not exceed 55°C.   Under this condition, IP-900E/IP-900D series can operate in the multiple pile.   Otherwise, the operating environment may damage and shorten the product life of IP-900E/IP-900D series noticeably.

2.1.2   Installation environment

1. 19" rack mounting

Using the mounting kit, it is possible to mount on 19" rack complied EAI standard (1U size). There are two kinds of rack mounting kit (a possible type equipped with one per 1U and a possible type equipped with two).

⚠ CAUTION

The mounting kit attached must be used to install.   When the installation is unstable, the serious accident may be caused.

- Two IP-900E/IP-900D series per 1U

(1) Check contents of the rack mounting kit.

Coupling fittings

Mounting fittings

IP-900E/IP-900D series
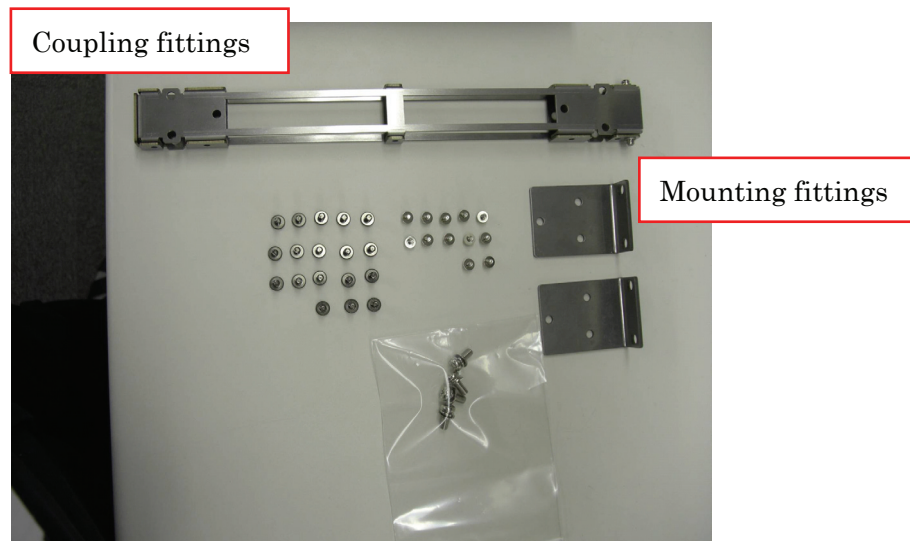
(2) Check all cables disconnected.

(3) Connect the first device with the coupling fittings using six same screws (M4).

(4) Connect the second device with the coupling fittings using six same screws (M4).

IP-900E/IP-900D series
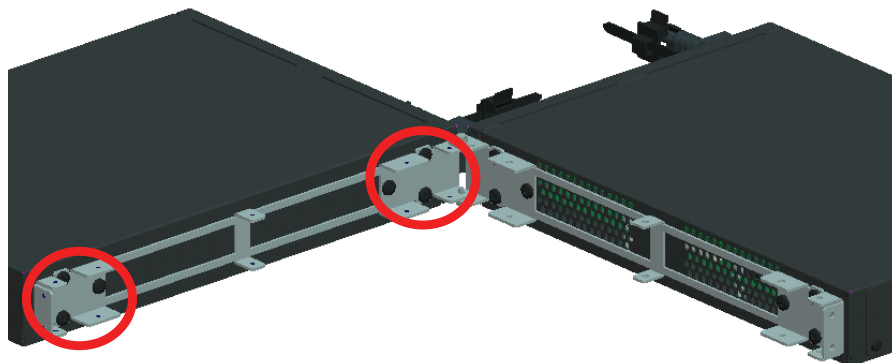
(5) Rotate the coupling fittings, and fix with twelve screws (M4).
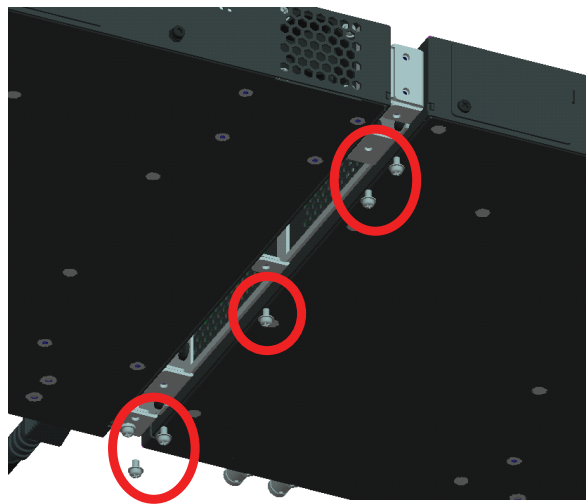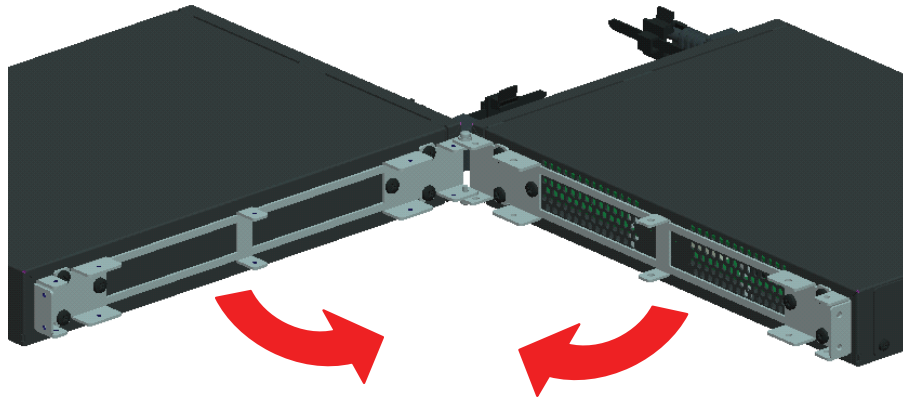
(Bottom view)

(Top view)
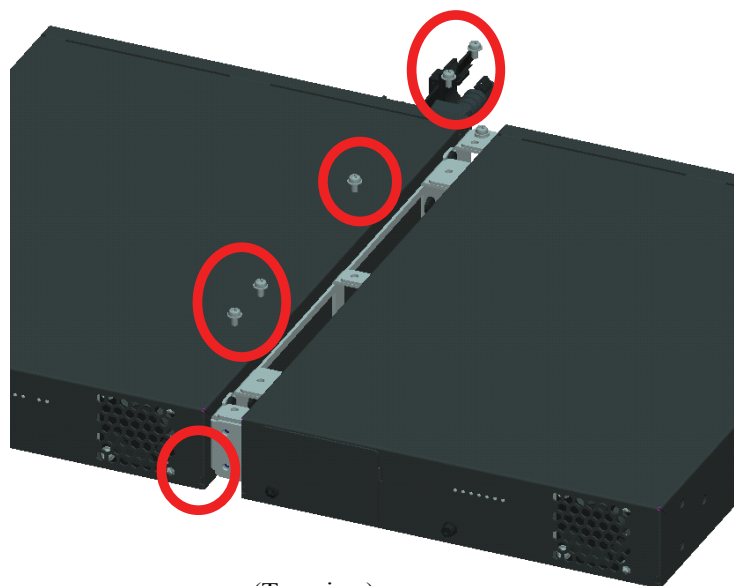
IP-900E/IP-900D series

(6) Install the mounting fittings on IP-900E/IP-900D series using six same screws(M4).
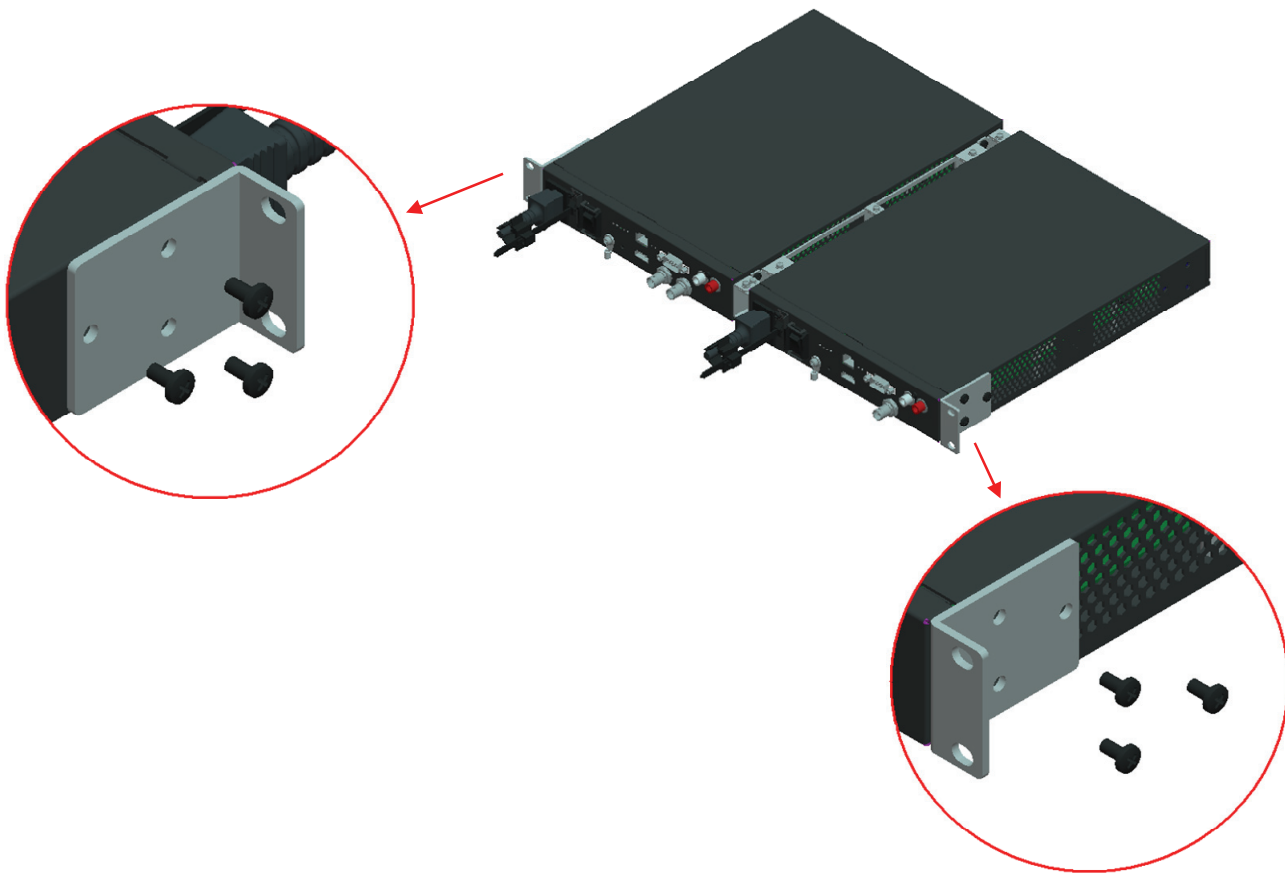
(7) Install IP-900E/IP-900D series on 19" rack using four screws (M5).
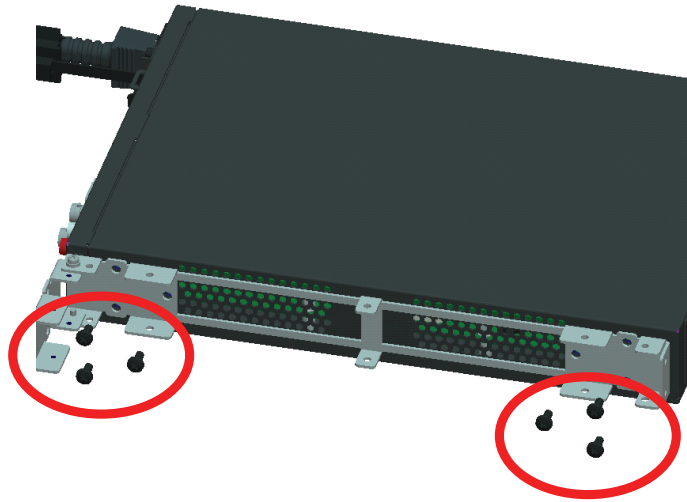

IP-900E/IP-900D series

16
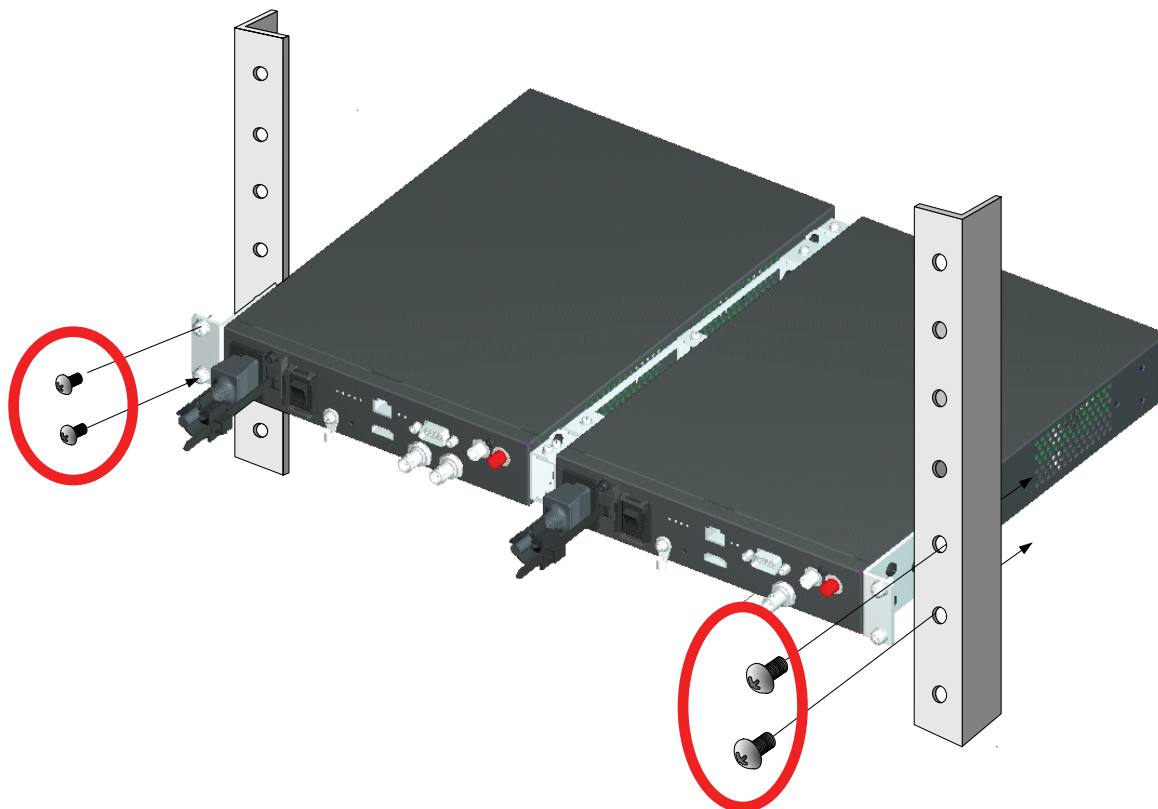
- One IP-900E/IP-900D series per 1U

(1) Check contents of the rack mounting kit.

(2) Check all cables disconnected.

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

IP-900E/IP-900D series

17
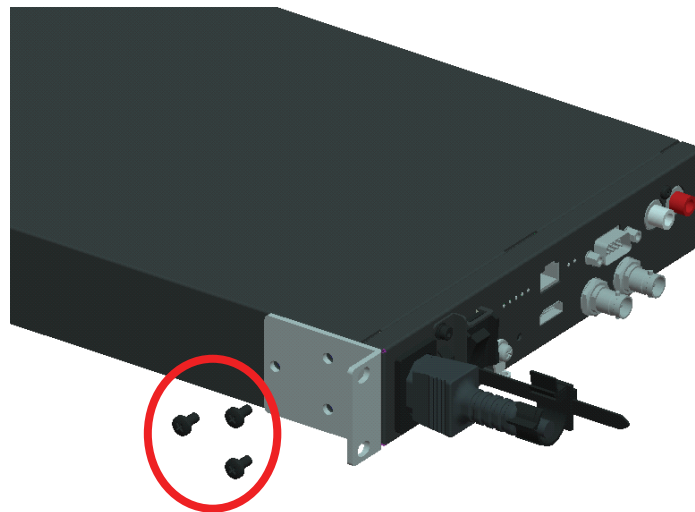
(4) Install the rack mounting kit B on IP-900E/IP-900D series using three same screws (M4).
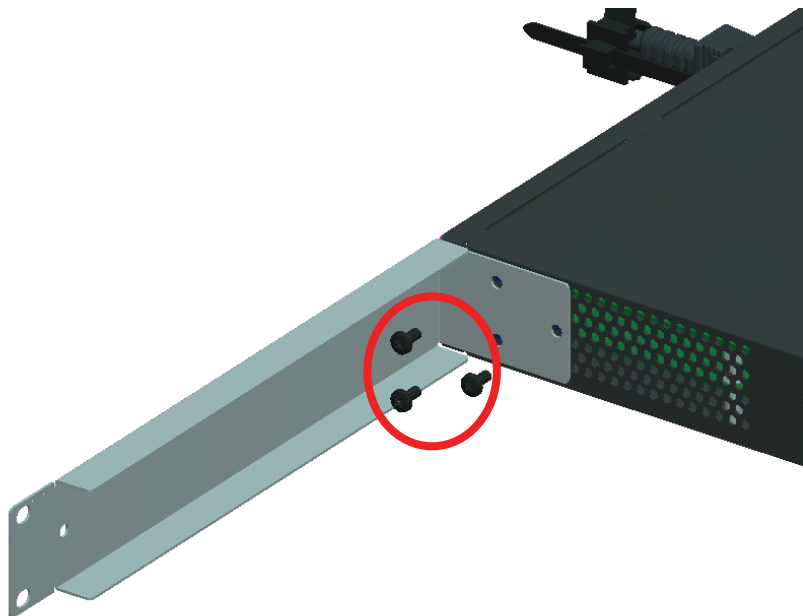
(5) Install the rack mounting kit C on IP-900E/IP-900D series and rack mounting kit B using four screws (M4).

IP-900E/IP-900D series

18
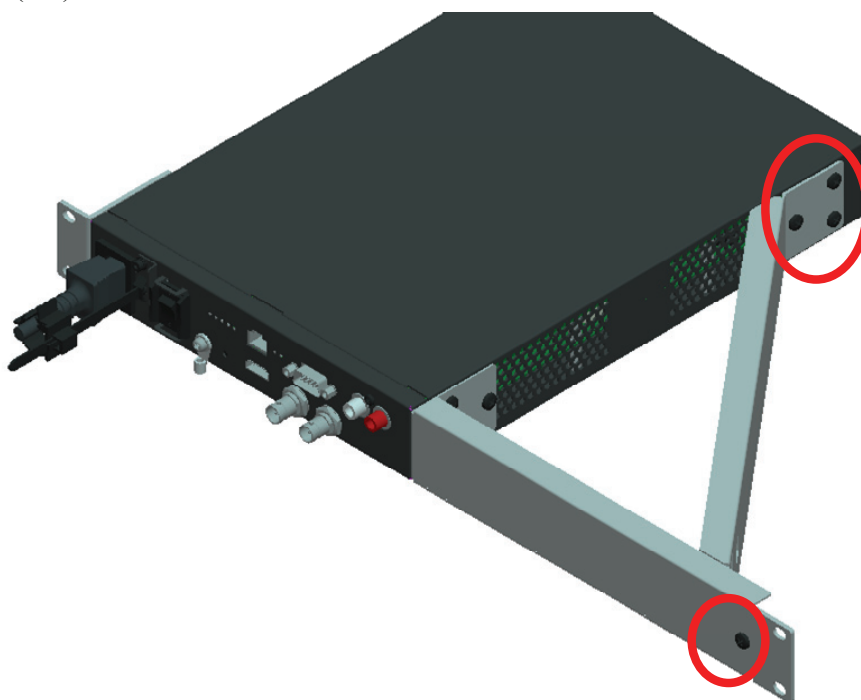
(6) Install IP-900E/IP-900D series on 19" rack using four screws (M5).
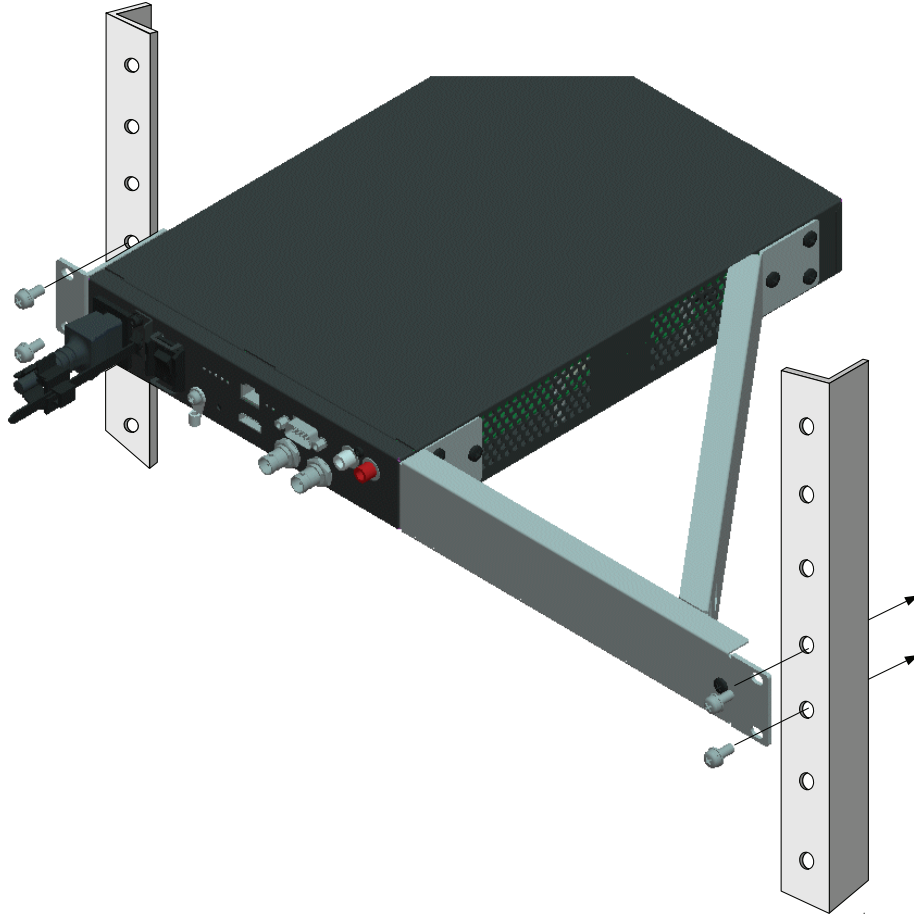
2. Desk-top installation

Install IP-900E/IP-900D series referring Section 2.1.3, "Air flow into and out from the device" and Section 2.1.4, "Open space required around the device" after sticking the four rubber feet (Rack mounting kit is not required).

Mark for rubber feet

⚠ CAUTION

Safety installation instruction:

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

2) **When IP-900E/IP-900D series 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 series.**
   - **The maximum operating ambient temperature for IP-900E/ IP-900D series: 55°C.**

IP-900E/IP-900D series

20

3) **The installation of IP-900E/IP-900D series in a rack should be such that the amount of airflow required for safe operation of IP-900E/IP-900D series is not compromised.**
   - **IP-900E/IP-900D series has ventilation opening at the right and rear side.**
   - **Do not cover or close these ventilation openings to prevent overheating.**

4) **The mounting of IP-900E/IP-900D series 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 series into rack.**
   - **Do not install IP-900E/IP-900D series into your rack where IP-900E/IP-900D series may make the entire rack unstable.**
   - **The weight of IP-900E/IP-900D series with the maximum configuration: 2.3 kg**

5) **If IP-900E/IP-900D series 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).**

6) **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 series 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.

7) **For installing, IP-900E/IP-900D series shall be installed near the wall-outlet and the wall-outlet shall be easily accessible.**

2.1.3　Air flow into and out from the device

IP-900E/IP-900D series is forced air cooled.　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 the device

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."

IP-900E/IP-900D series

22
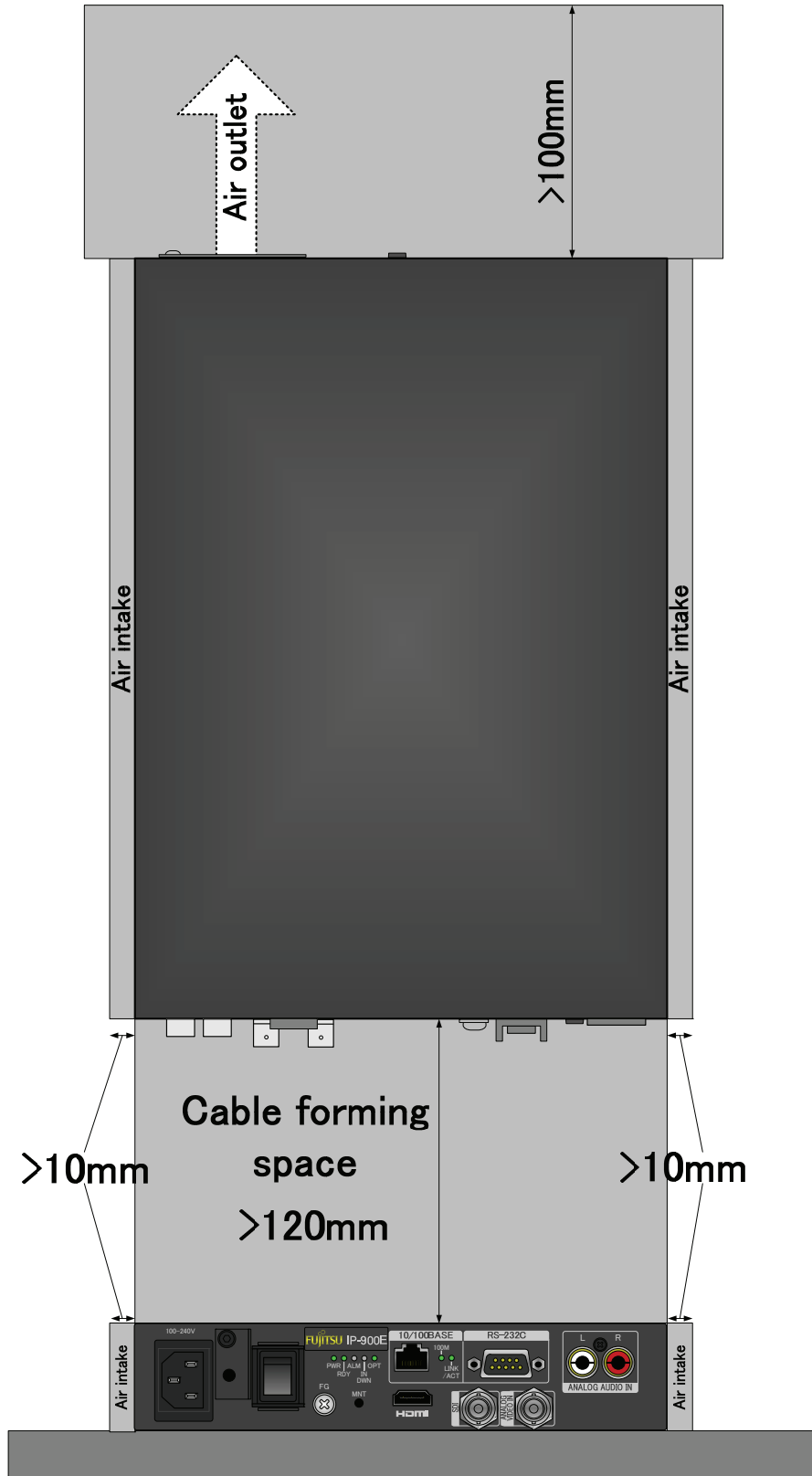
2.2 | Power Supply System Connections

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 series, connect the FG terminal to an external ground.
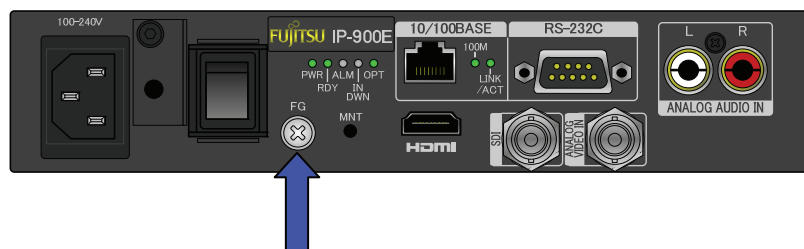
FG terminal (M4)

Figure   Connection to ground

2.2.2   Connection to power source

IP-900E/IP-900D series 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 the device.   Procure it separately.

Power inlet connector

Cable holder
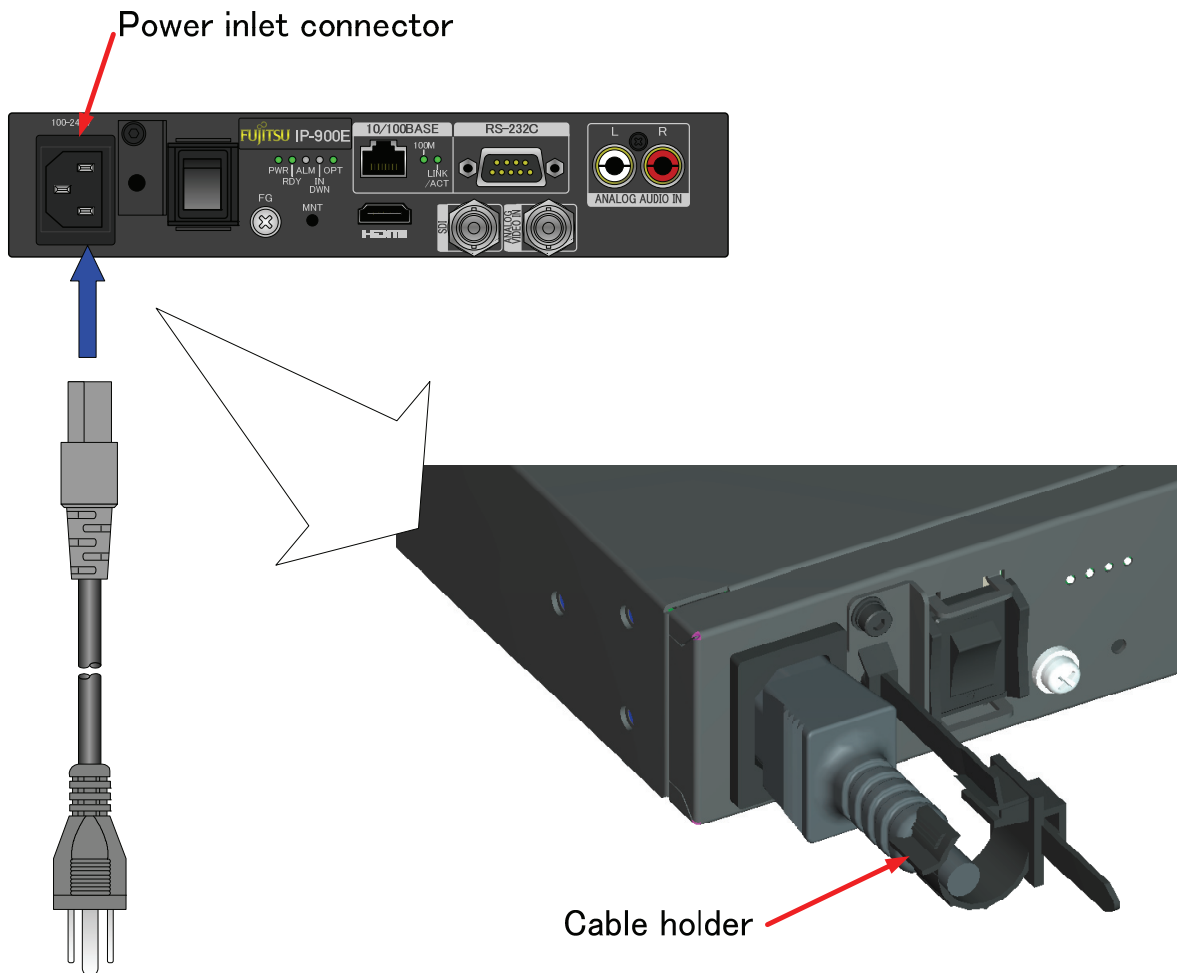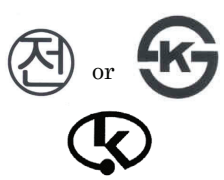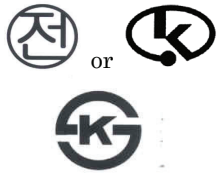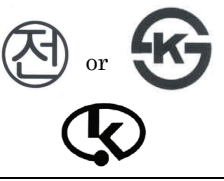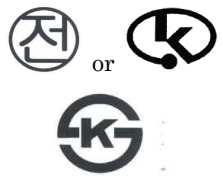
Figure   Power cord connection

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.

IP-900E/IP-900D series

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>
Australia	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
	220V (Class II)	IEC 60320-1 (IEC C-13) Rated 3A, 250V	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

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.

IP-900E/IP-900D series

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 the device

Always observe the precautions given below.

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

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 the device

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

100-240 VAC

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

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

IP-900E/IP-900D series

2.3   Audio and Video Device Connections

2.3.1   IP-900E (Encoder)

For audio and video encoding, there are two digital video, one analog video, two digital audio and two analog audio terminals to connect audio and video output device.

Digital and analog video input

Connect to SDI terminal using coaxial cable with BNC connector and input HD-SDI or SD-SDI signal. The signal is terminated in 75Ω.

Connect to HDMI terminal using the HDMI cable.   The signal is terminated in 50Ω.

Connect to ANALOG VIDEO IN terminal using coaxial cable with BNC connector and input NTSC/PAL signal. The signal is terminated in 75Ω.

Digital and 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 HD-SDI and HDMI embedded audio is supported for the digital audio too.

The figure below shows how to connect the digital and analog audio/video cables.

NOTE: For details about connectors and cables, see Section 4.2, "Cable and Connector Details."   For electrical specifications, see Appendix 2.3, "Function Specifications."
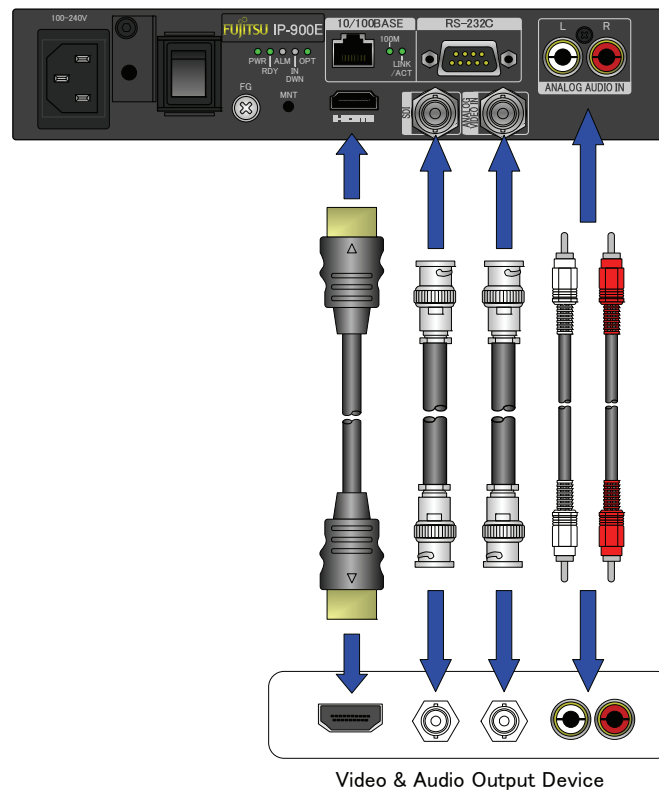
Figure   Audio and video output device connections

IP-900E/IP-900D series

27

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

For audio and video decoding, there are one or two digital video, one analog video, one digital audio and two analog audio terminals to connect and audio and video input device.

Digital and analog video output

Connect to SDI OUT using coaxial cable with BNC connector and output HD/SD-SDI signal. SDI output can be supported for IP-900IID.

Connect to HDMI terminal using the HDMI cable.   The signal is terminated in 50Ω.

Connect to ANALOG VIDEO OUT using coaxial cable with BNC connector and output NTSC or PAL signal. The signal is terminated in 75Ω.

Digital audio output

The HDMI embedded audio is supported.

Analog audio output

Connect to 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 below shows how to connect the digital and analog audio/video and the reference clock cables.

NOTE: For details about connectors and cables, see Section 4.2, "Cable and Connector Details."
For electrical specifications, see Appendix 2.3, "Function Specifications."
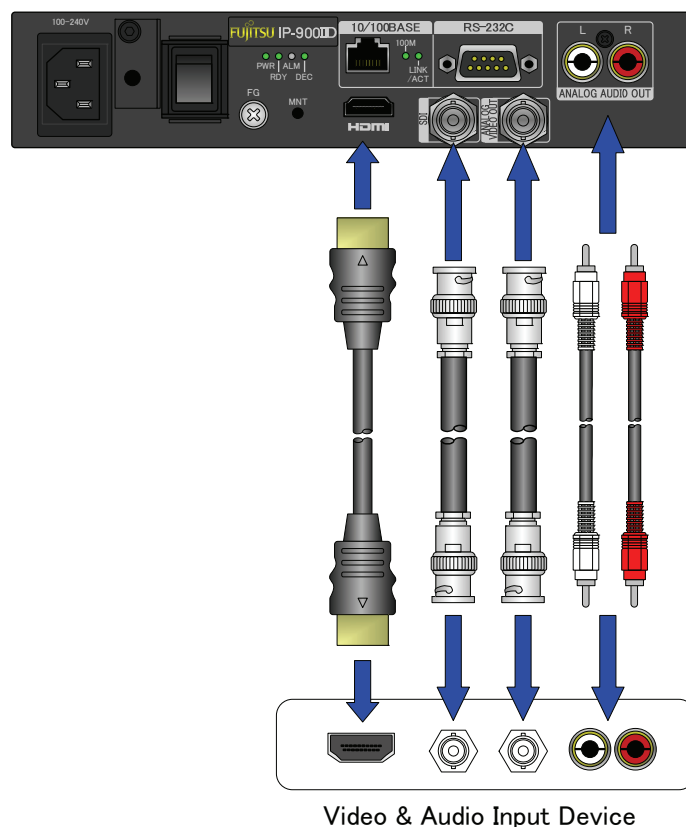
Figure Audio and video input device connections

IP-900E/IP-900D series

28

2.4 | Connection to Network

To connect IP-900E/IP-900D series to a LAN device, connect the LAN device to the LAN communication port of IP-900E/IP-900D series using a LAN cable (UTP cable).   The LAN communication port specification of IP-900E/IP-900D series 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."
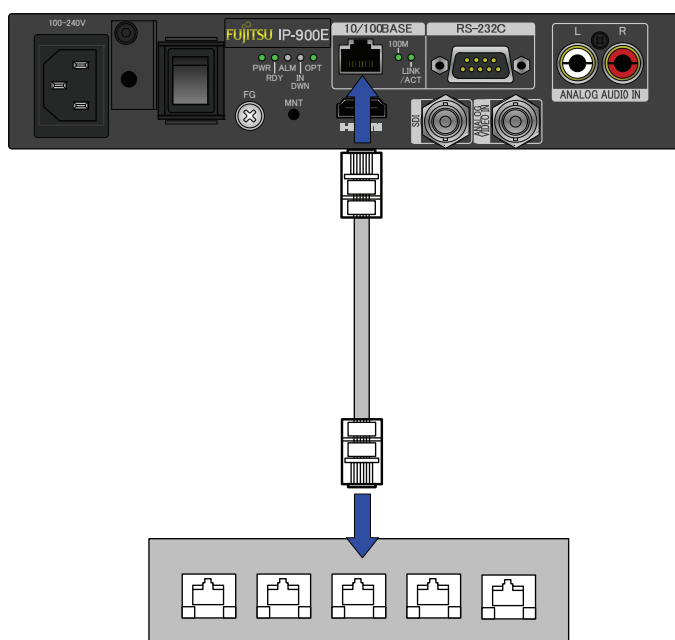
Hub, Router, PC, etc.

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 series Software User's Guide.

2.5 Connection to RS-232C Device

The [RS-232C] connector of IP-900E/IP-900D series is the RS-232C communication terminal.   The terminal of IP-900E/IP-900D series is the D-sub 9 pins (male) and the specification is DTE.   Use a cross connection or straight cable corresponding to the connected device.   See Section 4.2, "Cable and Connector 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."
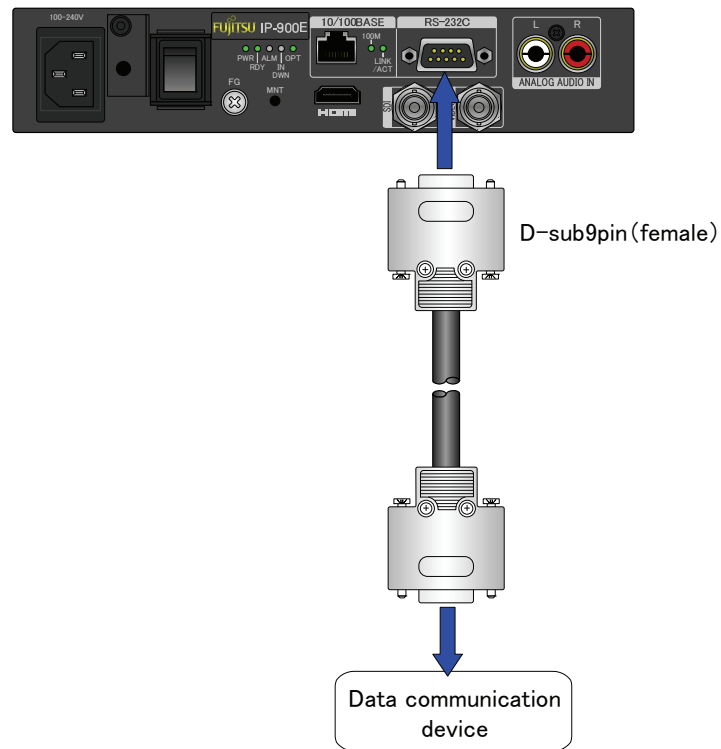
Figure   Connection to RS-232C input/output device

IP-900E/IP-900D series

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.

(2) Screw out.

(3) Remove the cover.

Eject button
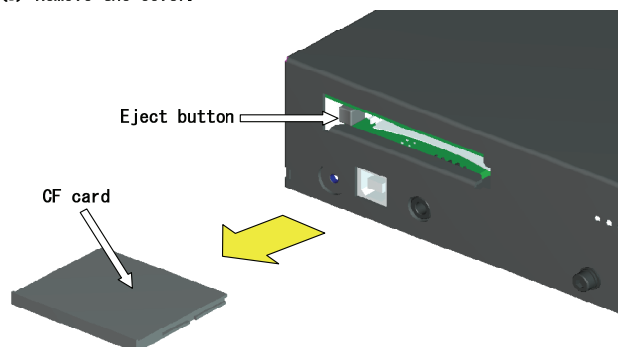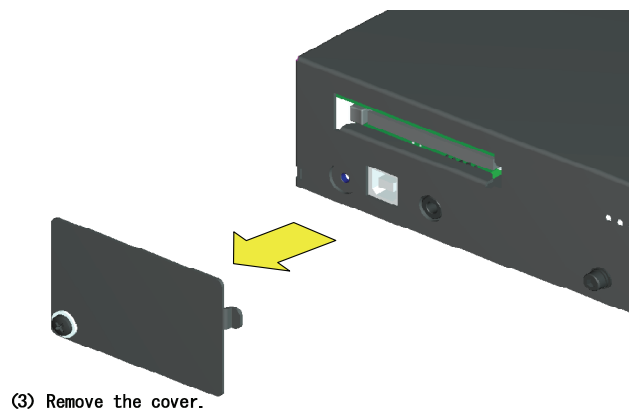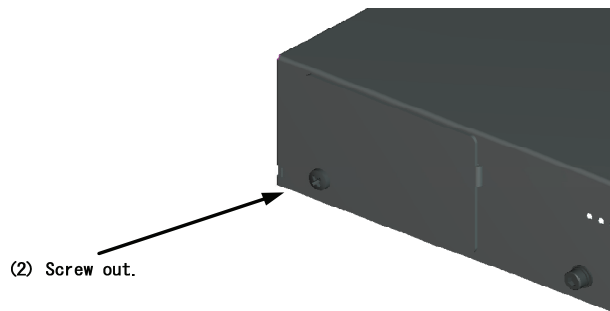
CF card

(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.

(This page is intentionally left blank)

CHAPTER 3

OPERATION INSTRUCTIONS

This section explains how to power on/off, setup and operate the device.

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.

(This page is intentionally left blank)

3.1 | Power ON/OFF

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

3.1.1 Powering on

When the power button on the front panel is set to the [|] position, the PWR LED turns on.

When IP-900E/IP-900D series completes preparations for operation, the RDY LED turns on.

Power(PWR) LED

Power button   Status(RDY) LED
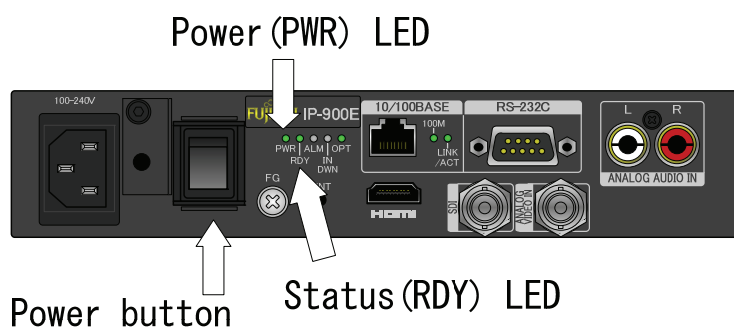
3.1.2 Powering off

When the power button on the rear panel is set to the [O] position, the device is powered 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.

```
┌─────────────────────────┐      ─ Check if IP-900 is disconnected to user's network.
│  Connect IP-900 and PC  │      ─ Connect using UTP cable.
│     using UTP cable     │      ─ When connect through LAN port, the default IP address and subnet
└─────────────────────────┘        mask are 10.0.0.1 and 255.0.0.0 respectively. Assign 10.xxx.xxx.xxx for PC.
            │                       (ex. IP address: 10.0.0.2, Subnet mask: 255.0.0.0)
            ▼                       for PC.
┌─────────────────────────┐      See Section 3.3, "Operation Management." for more details.
│        Power ON         │
└─────────────────────────┘
            │
            ▼                    ─ After rebooted, start setting from WEB GUI.
┌─────────────────────────┐       See Section 3.3, "Operation Management" of the software user's
│ Change network settings │        guide for mode details.
│         Reboot          │      ─ After rebooted, connected to the user's network and set up the various
└─────────────────────────┘        parameters. See Section 3.2.2, "Reboot" for more details.
            │
            ▼
┌─────────────────────────┐
│  Connect user's network │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│ Start settings and operations │
│ (Refer the software user's guide) │
└─────────────────────────┘
```

■**Web browser recommended**

The recommended web browser is as follow.

- Internet Explorer 6.0 SP2 or later

IP-900E/IP-900D series

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

3.2.1   Maintenance page

Clicking the Settings, Log or Software management menu in the left frame of the browser displays the corresponding device setting page so that you can set or display items.

3.2.2   Reboot

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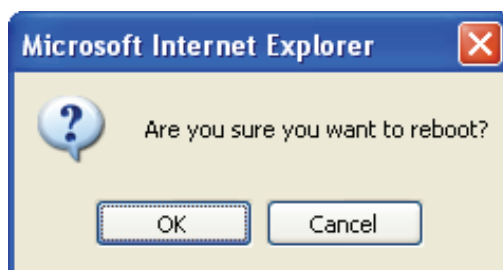
3.3 Operation Management

3.3.1   Settings

On the PC Web browser, specify the IP address of IP-900E/IP-900D series (10.0.0.1) [example: http://10.0.0.1/] to set up a connection to the http server of the IP-900E/IP-900D series.
When connect through LAN port, set the PC IP address and subnet mask as follows:

-   IP address   : 10.xxx.xxx.xxx
      (xxx is a number from 0 to 255, excluding 10.0.0.0, 10.0.0.1, and 10.255.255.255.)
      〔Example: 10.0.0.2〕
-   Subnet mask   : 255.0.0.0

The page shown below first appears (Initial page at power-on immediately after shipment from the factory).   The IP addresses and subnet masks set for the IP-900E/IP-900D series on the LAN, and the gateway setting are displayed.

⚠ CAUTION

When you operate the IP-900E/IP-900D series with the default settings after shipment from the factory, disconnect the IP-900E/IP-900D series from your network.   Connect it to the setting terminal via a Hub or directly.   Set up the IP-900E/IP-900D series to meet the requirements for your network and then connect the IP-900E/IP-900D series to the network.   If you connect the IP-900E/IP-900D series to your network with the default settings, an unexpected problem may be caused with your network.

IP-900E/IP-900D series

3.3.2   Log

Click Log in the left frame of the browser to display the log information page in the right frame of the browser, where you can check alarm log information on the IP-900E/IP-900D series.

Clicking DELETE ALL LOGS in the right frame deletes all log information.

* Up to 1,000 log items can be saved.   Log items exceeding 1,000 items overwrite existing items beginning with the chronologically oldest item.   (Ten pages of log information, 100 items per page, are saved.)

For details, see IP-900E/IP-900D series Software User's Guide.

IP-900E/IP-900D series

3.4 | Special Use of MNT Button

You can start IP-900E/IP-900D series 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 series with the initial IP address and subnet mask with which the IP-900E/IP-900D series 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 series from a control terminal (such as a PC having a LAN interface) (*1).

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

After making settings according to the requirements for your network, connect the device to the network.   If the device 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 series 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

IP-900E/IP-900D series

CHAPTER 4

CABLE SPECIFICATIONS

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

(This page is intentionally left blank)

4.1 Installation Preparations

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

IP-900E		External device
ANALOG AUDIO LEFT	RCA (1) Analog audio cable	Analog audio output device (mic, etc)
RIGHT	RCA (2) Analog audio cable	
SDI IN	BNC (3) Coaxial cable	Digital video (HD-SDI) output device (incld embedded audio) (Camera, etc)
ANALOG VIDEO IN	BNC (4) Coaxial cable	Analog video output device (Camera, etc)
232C	D-sub9 (5) RS-232C cable	Device with RS-232C interface
HDMI IN	HDMI (6) HDMI cable	Digital video (HDMI) output device (Camera, etc)
10/100BASE LAN	RJ45 (7) LAN cable	Device with LAN interface (HUB, etc)
INPUT 100-240VAC	(8) Power cable (separate order)	Power source 100-240VAC

(IP-900E)

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

IP-900D/IP-900IID ◄————► External device

IP-900D/IP-900IID side	Connector	Cable	External device
ANALOG AUDIO LEFT	RCA	(1) Analog audio cable	Analog audio input device (Speaker, etc)
RIGHT	RCA	(2) Analog audio cable	
SDI OUT	BNC	(3) Coaxial cable	Digital video (HD/SD-SDI) input device (Incld embedded audio) (Display, etc)
ANALOG VIDEO OUT	BNC	(4) Coaxial cable	Analog video input device (Display, etc)
232C	D-sub9	(5) RS-232C cable	Device with RS-232C interface
HDMI OUT	HDMI	(6) HDMI cable	Digital video (HDMI) input device (Display, etc)
10/100BASE LAN	RJ45	(7) LAN cable	Device with LAN interface (HUB, etc)
INPUT 100-240VAC		(8) Power cable (separate order)	Power source 100-240VAC

(IP-900D/IP-900IID)

When constructing a system that uses IP-900E/IP-900D series, consideration must be given so that its boundary between IP-900E/IP-900D series 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.

IP-900E/IP-900D series

44

4.2 Cable and Connector Details

(1) SDI VIDEO cable

Connector	
Front view	BNC — Coaxial cable 75Ω 5C-FB or more — BNC
	⟨IP-900E⟩ ⟨External device⟩
Pin assignment	SIGNAL ① ——— ① SIGNAL SG ② ——— ② SG
Maximum length	HD-SDI 100m (Coaxial cable 75Ω 5C-FB or more) DVB-ASI 100m (Coaxial cable 75Ω 5C-FB or more)
Order	Coaxial cable with BNC connector Product code: TBD

(2) Analog VIDEO cable

Connector	
Front view	BNC — Coaxial cable 75Ω (3C-2V or more) — BNC
	⟨IP-900E⟩ ⟨External device⟩
Pin assignment	SIGNAL ① ——— ① SIGNAL SG ② ——— ② SG
Maximum length	NTSC Color : 30m (Coaxial cable 75Ω 3C-2T) Mono : 200m (Coaxial cable 75Ω 3C-2T) GEN LOCK : 200m (Coaxial cable 75Ω 3C-2V)
Order	Coaxial cable with BNC connector Product code: TBD

IP-900E/IP-900D series

45

(3) Analog AUDIO cable

Connector specifications

1   2

Front view

RCA Pin   RCA Pin

<IP-900E>   <External device>

Connector pin assignment   SIGNAL   ①————————————① SIGNAL
                              SG   ②————————————② SG

Length restrictions   20m (for 3C-2V equivalent characteristics or better)

Type of preparation   Procured separately <Reference for procurement> Cable w/RCA pin connector at both ends

IP-900E/IP-900D series

46

(4) HDMI cable

Connector

H D M I   H D M I

⟨IP-900E⟩   ⟨External device side⟩

Front view

Pin assignment

TMDS DATA2 +	①		①	TMDS DATA2 +
TMDS DATA2 SHIELD	②		②	TMDS DATA2 SHIELD
TMDS DATA2 −	③		③	TMDS DATA2 −
TMDS DATA1 +	④		④	TMDS DATA1 +
TMDS DATA1 SHIELD	⑤		⑤	TMDS DATA1 SHIELD
TMDS DATA1 −	⑥		⑥	TMDS DATA1 −
TMDS DATA0 +	⑦		⑦	TMDS DATA0 +
TMDS DATA0 SHIELD	⑧		⑧	TMDS DATA0 SHIELD
TMDS DATA0 −	⑨		⑨	TMDS DATA0 −
TMDS CLOCK +	⑩		⑩	TMDS CLOCK +
TMDS CLOCK SHIELD	⑪		⑪	TMDS CLOCK 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 DETECT	⑲		⑲	HOT PLUG DETECT

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

Order   HDMI cable with HDMI connector

IP-900E/IP-900D series

(6) RS-232C cable

Connector

```
⑤ • • • • • ①
⑨ • • • • ⑥
```
Front view

D-sub 9 pin (male)
#4-40 retainer screw

D-sub9 (female)

〈External device side〉

Pin assignment

RS-232C DTE

D-sub 9 pin
(female)

〈IP-900E〉
(DTE)

CD	01			CD
RD	02			RD
SD	03			SD
DTR(ER)	04			DTR(ER)
SG	05			SG
DSR(DR)	06			DSR(DR)
RTS(RS)	07			RTS(RS)
CTS(CS)	08			CTS(CS)
RI	09			RI

〈External device〉
(DTE)

Pin assignment

RS-232C DCE

D-sub 9 pin
(female)

〈IP-900E〉
(DTE)

CD	01			CD
RD	02			RD
SD	03			SD
DTR(ER)	04			DTR(ER)
SG	05			SG
DSR(DR)	06			DSR(DR)
RTS(RS)	07			RTS(RS)
CTS(CS)	08			CTS(CS)
RI	09			RI

〈External device〉
(DCE)

Maximum length

15 m (Twisted pair cable with shield 24AWG)

IP-900E/IP-900D series

(7) LAN cable

```
┌─────────────┐
│  Connector  │
└─────────────┘

        12345678
       Front view
```

        RJ45   RJ45

        <IP-900E>   <External device>

```
┌───────────────┐
│ Pin assignment │
└───────────────┘
```

10/100BASE

<IP-900E>			<External device>	<IP-900E>			<External device>
TD+	①	①	TD+	TD+	①	①	TD+
TD−	②	②	TD−	TD−	②	②	TD−
RD+	③	③	RD+	RD+	③	③	RD+
	④	④			④	④	
	⑤	⑤			⑤	⑤	
RD−	⑥	⑥	RD−	RD−	⑥	⑥	RD−
	⑦	⑦			⑦	⑦	
	⑧	⑧			⑧	⑧	

<Straight connection>

```
┌─────────────┐
│ Max length  │
└─────────────┘
```
10/100BASE : 100m UTP cable (Category 5 or more)

```
┌─────────┐
│  order  │
└─────────┘
```
    5m : TPCBL-B005
   10m : TPCBL-B010
   50m : TPCBL-B050
  100m : TPCBL-B100

IP-900E/IP-900D series

(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 [CSA logo]	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 [CSA logo]
	200-240V	IEC C-13 Rated 15A, 250V UL, CSA Approved [CSA logo]	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 [CSA logo]
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>
Australia	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 A$A 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 PSE or <PSE>	METI Approved PSE or <PSE>	METI Approved PSE or <PSE>

IP-900E/IP-900D series

| 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 |
| | 220V (Class II) | IEC 60320-1 (IEC C-13) Rated 3A, 250V | 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 |

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				

IP-900E/IP-900D series

51

(This page is intentionally left blank)

IP-900E/IP-900D series

CHAPTER 5

TROUBLESHOOTING

This section explains how to power on/off, setup and operate the device.

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

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

(This page is intentionally left blank)

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 the action does not solve the problem, contact a service representative.

⚠ 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?	Make sure that the power cable is properly connected to the outlet.
2.			Is the outlet voltage normal?	Measure the voltage with a tester to confirm that the voltage is normal. If another device is connected to the same outlet, check the operation of the device.
3.	Device	The ALM LED is blinking.	Check the log information from the browser. The temperature inside the device has risen to the critical level, the fan speed has fallen, or a CF card access error has occurred.	If the ambient temperature of the device is too high, make proper arrangements to lower the ambient temperature. If there is any shielding material in the installation space, remove it. If the fan speed is low, the fan needs to be replaced. Contact a Fujitsu Service Center. In the case of a CF card access error, restart the device. If the problem persists, contact a Fujitsu Service Center. The CF card or the device needs to be replaced.
4.		The ALM LED is on.	The device is faulty.	Troubleshoot from the control terminal. (For details, see the software manuals.)
5.		The LEDs excluding LAN are on.	Is the ambient temperature of the device higher than that in the specifications?	Adjust the temperature so that the ambient temperature of the device meets the specification's condition.
			Is there any shielding material in the installation space?	Remove the shielding material.
6.	Data	Data communication is disabled.	Is the port setting correct?	Check the data input-output port setting.
7.			Is the data input/output device operating normally?	Check the operation of the data input/ output device.
8.			Are the device and the communication destination device correctly connected?	Check cable connections between the device and communication destination device 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?	Verify the power supply and operation of the video/audio output device selected for input.
10.			Is this device correctly connected to the video/audio output device?	Check the cable connection between this device and video/audio output device.
11.		The INDWN lamp blinks in orange.	The synchronization slipping occurs for encoder or the reference clock input fault occurs for decoder.	Make sure that the video input signal for encoder or the reference clock input signal for decoder is set correctly.

No.	Class	Status	Description	Recommended action
12.		No image can be output on the receiving side (black screen).	Has the monitor on the receiving side been powered on?	Check the power and operation of the monitor.
13.			Has the device on the receiving side been powered on?	Check the power and operation of the device on the receiving side.
14.			Is the device on the receiving side and monitor correctly connected?	Check connections between the device on the receiving side and the monitor.
15.			Did the device on the receiving side generate an alarm?	If an alarm is generated, refer to the relevant operating manuals on the receiving side, and take appropriate corrective action.
16.			Does a color bar or gray screen appear on the receiving side if image input of the 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 side can be assumed to be operated normally. Verify that the correct image is input in the device.
17.	Video	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 orange?	The device is started in the maintenance mode. Reboot the device.
19.			Is the ALM LED blinking?	ALM LED blinks when IP address obtaining is on going or releasing. Check IP address setting (For more information, refer the Software User's Guide).
20.			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 so, 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.)

IP-900E/IP-900D series

No.	Class	Status	Description	Recommended action
27.	Video	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 the device 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 vide 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 the device 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 side.	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.			Has the receiving unit been powered on?	Check the power and operation of the receiving unit.
33.			Are connections correct between the receiving unit and speakers?	Check the connection between the receiving unit and speakers.
34.			Was an alarm generated, refer to operating manual of the receiving unit?	If an alarm was generated, refer to operating manual of the receiving unit.
35.		Noise is generated on the receiving side.	Does pulling out the audio input cable fro the device eliminate the noise?	If pulling out the cable from the device eliminates the noise, audio signals may have noise.　Check the audio output device.
36.			Is the receiving unit operating normally?	If pulling out the line input cable from the receiving device does not eliminate the noise, the device can be assumed to be operating normally.　Check the receiving unit.
37.			Isn't packet loss occurring on the decoder?	If so, confirm the followings. ・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?	Verify 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.

IP-900E/IP-900D series

No.	Class	Status	Description	Recommended action
41.	Network		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, see "Section 3.3.1, "Settings," 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 the device?	If a reply is not received, turn on the power to the device 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, see Section 3.6, "Special Use of Cancel Key."

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?	Make sure that the power cable is properly connected to the outlet.
2			Is the outlet voltage normal?	Measure the voltage with a tester to confirm that the voltage is normal. If another device is connected to the same outlet, check the operation of the device.
3	Device	The ALM LED is blinking.	Check the log information from the browser. The temperature inside the device has risen to the critical level, the fan speed has fallen, or a CF card access error has occurred.	If the ambient temperature of the device is too high, make proper arrangements to lower the ambient temperature. If there is any shielding material in the installation space, remove it. If the fan speed is low, the fan needs to be replaced. Contact a Fujitsu Service Center. In the case of a CF card access error, restart the device. If the problem persists, contact a Fujitsu Service Center. The CF card or the device needs to be replaced.
4		The ALM LED is on.	The device is faulty.	Troubleshoot from the control terminal. (For details, see the software manuals.)
5		The LEDs excluding LAN are on.	Is the ambient temperature of the device higher than that in the specifications?	Adjust the temperature so that the ambient temperature of the device meets the specification's condition.
			Is there any shielding material in the installation space?	Remove the shielding material.
6	Data	Data communication is disabled.	Is the port setting correct?	Check the data input-output port setting.
7			Is the data input/output device operating normally?	Check the operation of the data input/ output device.
8			Are the device and the communication destination device correctly connected?	Check cable connections between the device and communication destination device and the cable pin assignments.

IP-900E/IP-900D series

58

No.	Class	Status	Description	Recommended action
9		No image can be output on the receiving side (black screen).	Has the device on the receiving side been powered on?	Check the power and operation of the device on the receiving side.
10			Is the power of device on?	Check that PWR LED lights.
11			Is the device correctly connected to the monitor?	Check the connection between the device and monitor.
12			Is the video output setting of this device correct?	Make sure 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.
14			Does a color bar or gray screen appear on the receiving side 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 side can be assumed to be operated normally. Verify that the correct image is input in the Encoder device.
15	Video	Displayed blue screen on the receiving side.	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?	The device is started in the maintenance mode. Reboot the device.
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?	Make sure that 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?)	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 the device 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 the device 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.

IP-900E/IP-900D series

No.	Class	Status	Description	Recommended action
29	Audio	Spoken words cannot be heard on the device	Has the receiving unit been powered on?	Check the power and operation of the receiving unit.
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 unit and speakers?	Check the connection between the receiving unit and speakers.
32			Is ALM LED turned on?	Refer to clause 3 in this table.
33		Noise is generated on the device.	Does noise disappear when disconnecting LAN cable?	If not, this device is considered as abnormal.
34			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			Is packet loss occurring? (Is DEC LED blinking?)	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, see "Section 3.3.1, "Settings," 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 the device?	If a reply is not received, turn on the power to the device 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, see Section 3.6, "Special Use of Cancel Key."
41			Is ALM LED blinking?	IP address mode setting is not proper. After rebooting the device with the default IP address set before shipment from the factory, connect to the Web and confirm these alarm codes. ・L009 DHCP connection failure Make sure that DHCP-related setting and DHCP server setting/operation of this device are correct. ・L00A PPPoE connection failure Make sure that PPPoE-related setting and PPPeE 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.	Error is occurring in the received stream data. Make sure that 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?

IP-900E/IP-900D series

5.2 | Alarm LED Lamp Is On

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 Section 3.3.2, "Log," 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	Check the network and destination device. If an error cannot be identified, contact your system administrator.
Exxx	Turn off and on the device. If the device is still operating abnormally after being powered on again, contact your maintenance personnel. Then, he/she may ask the alarm code.
Ixxx	This indicates a loss of video input. Check the video output device and video cable connected to the video input terminal.

xxx: Indicates a three-digit numeric value.   See Section 3.3.2, "Log," for more details.

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

Table 5.3   LED display details

Display	Description
PWR	Lights in green when the device is powered 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, see Section 3.2.2, "Log" and Section 3.2.7, "Log" of IP-900E/IP-900D series Software User's Guide."
OPT	Lights in green when the HD upgrade option is installed.
DEC	Goes on in green during decoding. This LED stays off when decoding is not being performed. It blinks in green when a decoding error occurs.
100M	Turns on if the connected LAN is 100BASE.
LINK/ACT	Indicates the LAN connection status and data send status. It is lit when there is a LAN (HUB) connection, and off when there is no LAN connection. It blinks when communication is in progress.

IP-900E/IP-900D series

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 the device."

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

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

Front space
for maintenance
>700mm × 1000mm

Front access case

Front space
for maintenance
>700mm × 1000mm

Rear space
for maintenance
>700mm × 1000mm

Rear space
for maintenance
>700mm × 1000mm

Rear access case

IP-900E/IP-900D series
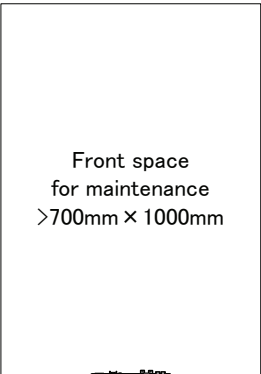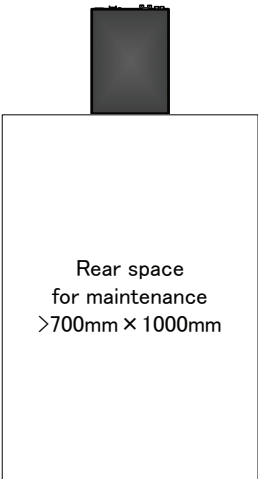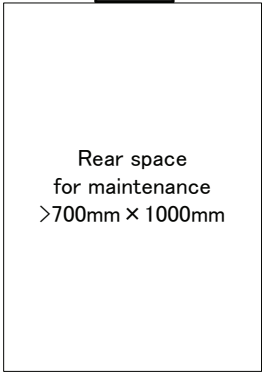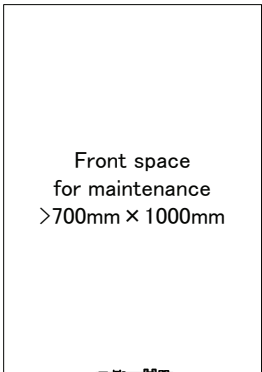
5.3.2   Change of maintenance parts (Maintenancer only)

If there is no improvement of situation after checking and dealing with referring Section 5.1, "Help Information," change the hardware following the procedure below.

The maintenance unit of this product is the whole equipment. When failure, please change whole equipment for the change of the maintenance parts.

Please refer Section 2.6, "CF card insertion and removal," for the respective maintenance.

(This page is intentionally left blank)

Appendix

The appendix contains view of the device 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.

(This page is intentionally left blank)

A.1 Appearance

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

IP-900E/IP-900D series

67

Bottom View

IP-900E/IP-900D series

A.2 Basic Specifications

This chapter describes the external specifications, environment specifications, and function specifications of the device.
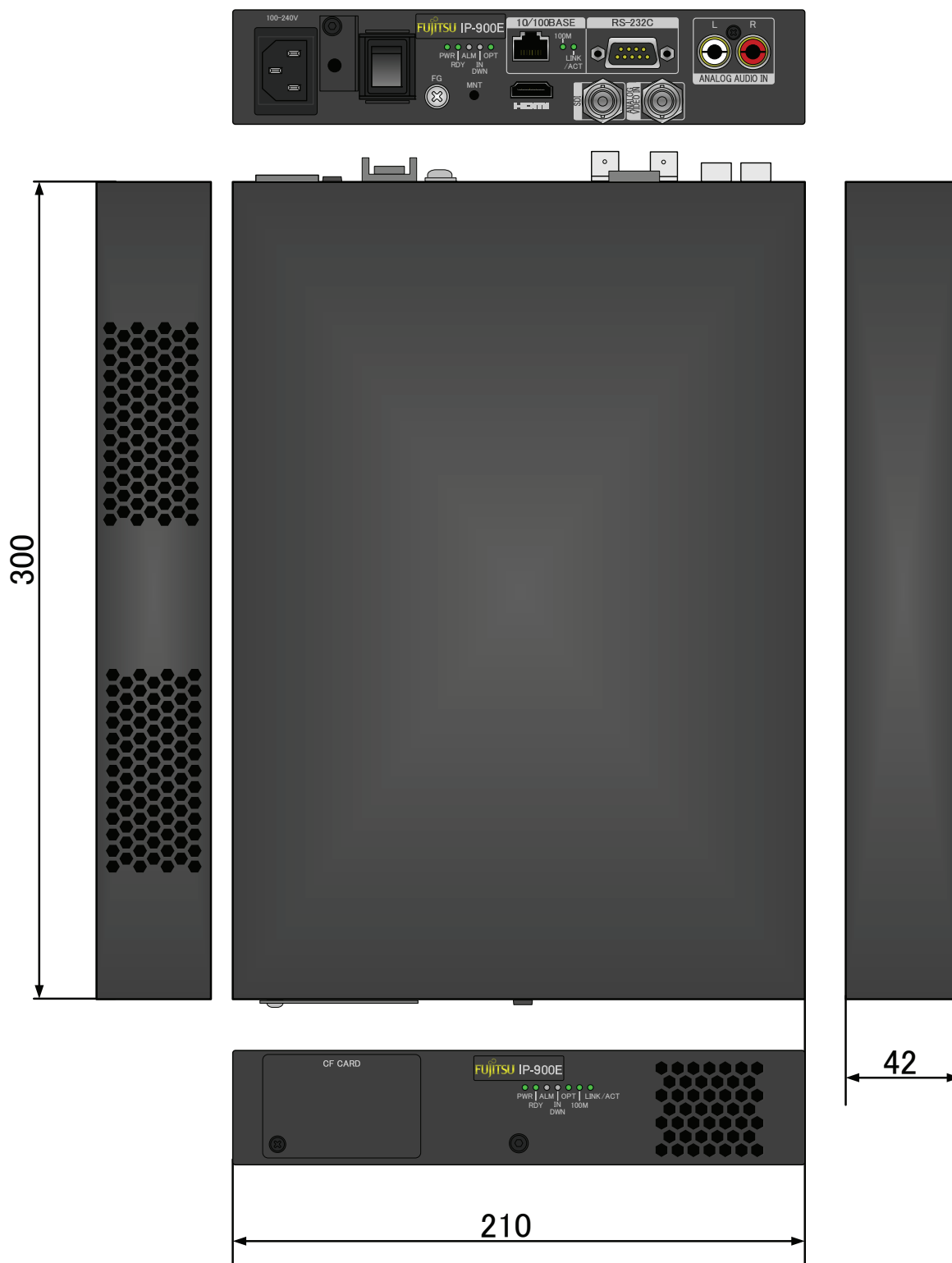
A.2.1 External specifications

The device 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
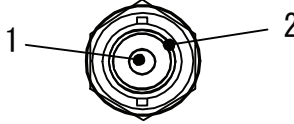
The device has the following environmental specifications:

Item	Specifications
Power conditions	100-240 VAC $\pm$ 10%, 50/60 Hz $\pm$ 3 Hz
Temperature and humidity conditions	Temperature: -10 to 55°C (No low temperature startup: -10 to -1°C) Humidity: 5 to 95% (without condensation) (Conditions for guaranteed operation and characteristics)
Dust	Communication equipment room or office environment (0.15 mg/m^3 or less)
EMI (Electro Magnetic Interference - regulation)	FCC (part 15) Class A EN55022 Class A VCCI Class A

IP-900E/IP-900D series

A.2.3 Function specifications

This chapter describes functional specifications of individual parts of the device.
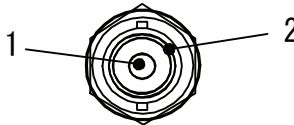
(IP-900E only)

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			
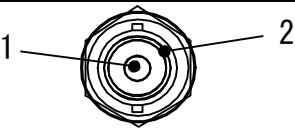
(IP-900E only)

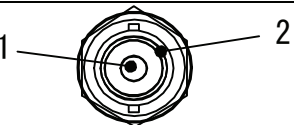| Name	Specifications			Remarks
Analog VIDEO input	Signal format: NTSC (Analog composite, 29.97frames/s) PAL (Analog composite, 25frames/s) Input impedance: 75Ω (Unbalanced) Signal amplitude: 1.0 Vp-p Maximum amplitude level: 0.5dB (0dB=100IRE) Permissible cable length: 30m (3C-2T or equivalent)			
Connector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

(IP-900IID only)

Name	Specifications			Remarks
Digital SDI VIDEO output	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/IP-900D series

(IP-900D / IP-900IID only)
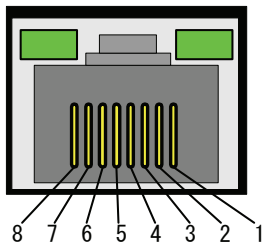
Name	Specifications	Remarks
Analog VIDEO output	Signal format: NTSC (Analog composite, 29.97frames/s) PAL (Analog composite, 25frames/s) Output impedance: 75Ω (Unbalanced) Signal amplitude: 1.0 Vp-p Maximum amplitude level: 0.5dB (0dB=100IRE) Permissible cable length: 30m (3C-2T or equivalent)	
Connector name	ANALOG VIDEO OUT	BNC
Pin number	Signal name	Remarks	
1 2	SIGNAL SG		
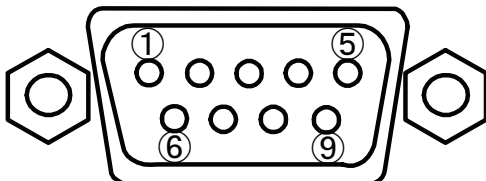
(IP-900E only)
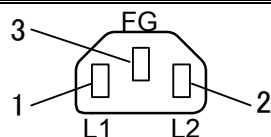
Name	Specifications	Remarks
Analog AUDIO input	Analog voice signal(unbalanced) Input impedance: 54kΩ Input maximum level: +2Vrms Permissible DC input level: ±5Vrms	
Connector name	ANALOG AUDIO IN (L)	RCA
	Signal name	Remarks	
1 2	SIGNAL S G		
Connector name	ANALOG AUDIO IN (R)	RCA
	Signal name	Remarks	
1 2	SIGNAL S G		

(IP-900D / IP-900IID only)
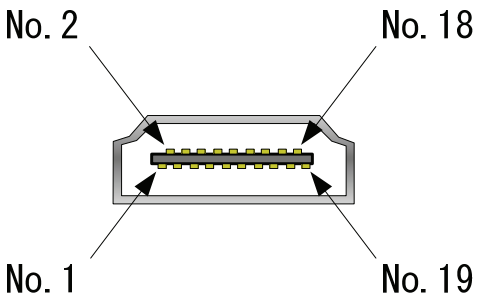
Name	Specifications	Remarks
Analog AUDIO output	Analog voice signal(unbalanced) Output impedance: 1kΩ Output maximum level: +2Vrms	
Connector name	ANALOG AUDIO OUT (L)	RCA
	Signal name	Remarks	
1 2	SIGNAL S G		
Connector name	ANALOG AUDIO OUT (R)	RCA
	Signal name	Remarks	
1 2	SIGNAL S G		

IP-900E/IP-900D series

Name	Specifications		Remarks
LAN interface	[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		
Connector name	10/100 BASE	RJ-45	

Pin number	Signal name	Remarks	
1	TD+	Trans. data+	
2	TD-	Trans. data-	
3	RD+	Reciv. data+	
4	N.C.	-	
5	N.C.	-	8 7 6 5 4 3 2 1
6	RD-	Reciv. data-	
7	N.C.	-	
8	N.C.	-	

Cable	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]

IP-900E/IP-900D series

72
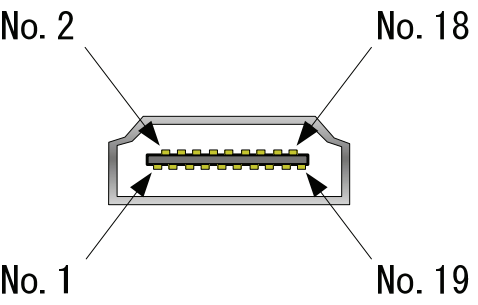
Name	Specifications		Remarks
Data interface (RS-232C)	No. of CH : 1 ch Signal system : Asynchronous Connection : DTE Bit rate : 1200, 2400, 4800, 9600, 19200, 38400 bps Data length :7/ 8 Parity : NONE/ODD/EVEN Stop bit : 1/2		RS-232C
Connector name	RS-232C		D-sub 9 pin(male)
Pin number	Signal name	Remarks	
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/IP-900D series

（IP-900E only）

Name	Specifications		Remarks
HDMI input	Signal format Input impedance Maximum length connector	: TMDS : 50 ohms ±10% : -------- : 19PIN Type A	Length of the attested HDMI cable is pretermission. The unattested cable can't be used.
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		No. 2 No. 18
6	TMDS DATA1 -		
7	TMDS DATA0 +		
8	TMDS DATA0 SHIELD		
9	TMDS DATA0 -		
10	TMDS CLOCK +		
11	TMDS CLOCK SHIELD		No. 1 No. 19
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	Signal format Input impedance Maximum length connector	: TMDS : 50 ohms ±10% : -------- : 19PIN Type A	Length of the attested HDMI cable is pretermission. The unattested cable can't be used.
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		No. 2 No. 18
6	TMDS DATA1 -		
7	TMDS DATA0 +		
8	TMDS DATA0 SHIELD		
9	TMDS DATA0 -		
10	TMDS CLOCK +		
11	TMDS CLOCK SHIELD		
12	TMDS CLOCK -		No. 1 No. 19
13	CEC		
14	RESERVE(N.C)		
15	SCL		
16	SDA		
17	DDC/CEC GROUND		
18	+5V POWER		
19	HOT PLUG DETECT		

IP-900E/IP-900D series

LED name		ON	Blinking	OFF	Remarks
PWR	G	Power ON	---	Power OFF	
RDY	G	Normal operation	Starting up	Software inactive	Blink interval: 0.5s
	O	Maintenance mode LAN (IP=10.0.0.1, Subnet=255.0.0.0)	Maintenance mode starting up		Maintenance mode (Cancel button startup): LAN subnet mask (255.0.0.0)
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	Power ON/OFF	

IP-900E/IP-900D series

75

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 the device as follows:

- During unpacking, carefully handle the device so as not to apply shock to it or damage its appearance.
- Make sure that the device 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 the device is installed. In principle, the installation method conforms to the appropriate method for the site.
Do not install the device at the following locations:
- Place exposed to direct sunlight or near a heater.
- Humid or dusty place
- Place where the device is exposed to shock or vibration
- Unstable place, such as on a slope or place with a lot of weight on it
- Place where the device is subject to strong magnetic and radio waves
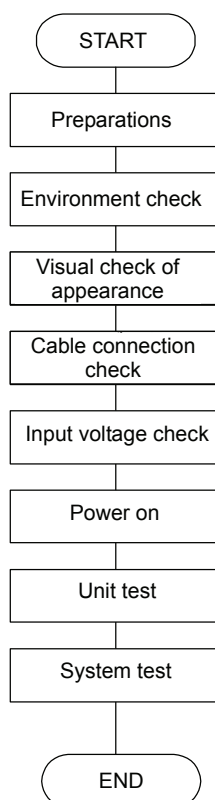
A.3.4 Connecting external cables

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-site Turn-up

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

```
        ( START )
            │
     ┌──────────────┐
     │ Preparations │
     └──────────────┘
            │
     ┌──────────────────┐
     │ Environment check │
     └──────────────────┘
            │
     ┌──────────────────┐
     │ Visual check of   │
     │ appearance        │
     └──────────────────┘
            │
     ┌──────────────────┐
     │ Cable connection  │
     │ check             │
     └──────────────────┘
            │
     ┌──────────────────┐
     │ Input voltage check │
     └──────────────────┘
            │
     ┌──────────────┐
     │ Power on     │
     └──────────────┘
            │
     ┌──────────────┐
     │ Unit test    │
     └──────────────┘
            │
     ┌──────────────┐
     │ System test  │
     └──────────────┘
            │
        ( END )
```

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

IP-900E/IP-900D series

(1) Preparations
    1) Check the system configuration
        Check the entire system configuration.
    2) Check the units and cables to be connected to the device
        Check the units to be connected to the device, 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
        Make sure that the ambient air temperature, the humidity and power supply conform to A.2.2, "Environment Specifications.
    2) Ground connection (FG)
        Make sure that use 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) Make sure that the device surface has no damage such as scratches, dirt, rust, deformation or peeling of its coating.
    2) Make sure that patent nameplate and device nameplate are still attached, and that buttons are not damaged.
    3) Make sure that connectors are not loose.

(4) Cable connection check
    Make sure that 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 the device.

(5) Input voltage check
    Make sure that the voltage of power supplied to the device is in a range of 100-240 VAC ± 10%.

(6) Power on
    1) Set Power button on the front panel to [ON].
    2) Make sure that that 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, make sure that 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-900E/IP-900D 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
      Make sure that the video input to the device is correctly output to the monitor (television).
    4) Data communication check
      Make sure that the line used by the system is connected.
    5) Status check
      After the final setup, when the equipment is in the system operation state, make sure that the device status LED (RDY) on the front of the device lights in green, and that the alarm LED (ALM) is off.

(This page is intentionally left blank)

Glossary and Index

(This page is intentionally left blank)

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 the device 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-900E/IP-900D series

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 series has a power LED lamp and alarm LED lamps. The power LED lamp is lit in green to indicate the device 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

Command supported by operating systems such as UNIX, Windows 9x, and Windows NT, and it is used in TCP/IP networks to check whether IP packets can reach or have reached their communication destinations

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, which is 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, Windows 95, and Windows NT.

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.

IP-900E/IP-900D series

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.

IP-900E/IP-900D series

Index

IP-900E/IP-900D series

N

O

P

R

S

T

U

V

W

IP-900E/IP-900D series

CE Conformity Information

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

FUJITSU EUROPE LIMITED
Hayes Park Central, Hayes End Road,,
Hayes, UB4 8FE, U.K.
TEL: 44-20-8573-4444
FAX: 44-20-8573-2643

IP-900E/IP-900D series

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