FUJITSU

IP-920E/DC
Hardware User's Guide

(This page is intentionally left blank)

USING IP-920E/DC SAFELY

Handling of This Manual

The manual contains important information regarding the safe use of IP-920E/DC. Read it thoroughly before operating this device. Make sure that users of this equipment read and understand thoroughly all safety precautions contained in the manual. Keep this manual in a safe and convenient location for quick reference.
Fujitsu makes every effort to prevent users and bystanders from injury and to prevent property damage. To ensure no harm to you and bystanders, and to prevent damage to this equipment itself, be sure to use this equipment in accordance with instructions in the manual.

The following notice is for USA users only.
IP-920E/DC 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-920E/DC is designed and manufactured for use in standard applications such as office work, personal devices, and household appliances. The product is not intended for special uses (such as nuclear-reactor control in atomic energy facilities, aeronautic and space systems, air traffic control, operation control in mass transit systems, medical devices for life support, and missile firing controls in weapons facilities) where particularly high reliability requirements exist, where the pertinent levels of safety are not guaranteed, or where a failure or operational error could threaten a life or cause physical injury (hereafter referred to as "mission-critical" use). Customers considering use of this product for mission-critical applications must have safety-assurance measures in place beforehand. Moreover, they are requested to consult our sales representative before embarking on such specialized use.

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

HIGH-DEFINITION MULTIMEDIA INTERFACE

IMPORTANT NOTE TO USERS

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

While FUJITSU has sought to ensure the accuracy of all information in this manual, FUJITSU assumes no liability to any party for any damage caused by any error or omission contained in this manual, its updates or supplements, whether such errors or omissions result from negligence, accident, or any other cause. In addition, FUJITSU assumes no liability with respect to the application or use of any product or system in accordance with descriptions or instructions contained herein; including any liability for incidental or consequential damages arising therefrom.
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.

PREFACE

Thank you for purchasing the IP-920E/DC.

IP-920E/DC is 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-920E 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.

This manual is intended for system designers and system managers who use IP-920E/DC. Readers are assumed to have a basic knowledge of networks and video distribution.

*1: IP-920E/DC supports only SD video. By adding optional software, IP-920E/DC will be upgraded to support HD video.

Edition 9
Jun 2018

Product operating environment

- Designed for use in real-time audio/video transmission systems and in the transmission system of monitoring systems, IP-920E/DC is intended for indoor use.

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

ORGANIZATION AND CONTENTS OF THIS MANUAL

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

Chapter 1 Preparations

This chapter describes the checks that are required before the start of IP-920E/DC operation.

Chapter 2 Installation and Connection

This chapter describes conditions for IP-920E/DC installation and explains how to connect it to peripheral this equipments.

Chapter 3 Operating Instructions

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

Chapter 4 Connection Cable Specifications

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

Chapter 5 Troubleshooting

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

Appendix

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

Glossary

The glossary defines the technical terms used in this manual.

Index

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

WARNING INDICATIONS

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

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

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

Warning indications within text

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

(Example)

⚠WARNING

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

- When using IP-920E/DC, ensure to set a breaker at an internal wiring between this equipment and an external power-supply unit or at an output part of an external power-supply unit. Also, ensure to use a breaker that cuts off both terminals at the same time. Observe the conditions below and select a proper breaker.
  - Service voltage: DC12 to 24V±10%
  - Steady current: 3.3A (maximum in case of 12V)
  - Inrush current: up to 10A

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

SAFETY PRECAUTIONS

List of important warnings

The table below contains a list of important warning indications.

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

Work type	Warning
Normal use	Possibility of electric shock and fire If an excessive heat, smoke, an abnormal odor or an unusual noise is coming from this equipment, immediately set its power switch to OFF and remove the power cord plug from the power receptacle. Then, contact a Fujitsu Service Center. This indicates a hazardous situation that could lead to fire and electric shock. Possibility of electric shock and fire If foreign matter (e.g., water, bits of metal, fluid) gets inside this equipment, immediately set its power switch to OFF and remove the power cord plug from the power receptacle. Then, contact a Fujitsu Service Center. This indicates a hazardous situation that could lead to fire and electric shock. Possibility of electric shock and fire If this equipment has been dropped or otherwise damaged, immediately set its power switch to OFF and remove the power cord plug from the power receptacle. Then, contact a Fujitsu Service Center. This indicates a hazardous situation that could lead to electric shock. Possibility of electric shock and fire To keep foreign matter out, ensure that drink containers and metal objects are not placed on or near this equipment. The presence of foreign matter such as water inside this equipment creates a hazardous situation that could lead to electric shock. Possibility of electric shock and fire Ensure that no liquid is splashed on this equipment, making it wet. The presence of foreign matter such as water inside this equipment creates a hazardous situation that could lead to fire and electric shock. Possibility of electric shock and fire Ensure that the power cord does not become damaged, and avoid tampering with it. If the power cord has a heavy object is placed on it, pulled at, bent, or becomes entangled, it could be damaged as a result. Also, the power cord could be damaged if subjected to heat, creating a hazardous situation that could lead to fire and electric shock.

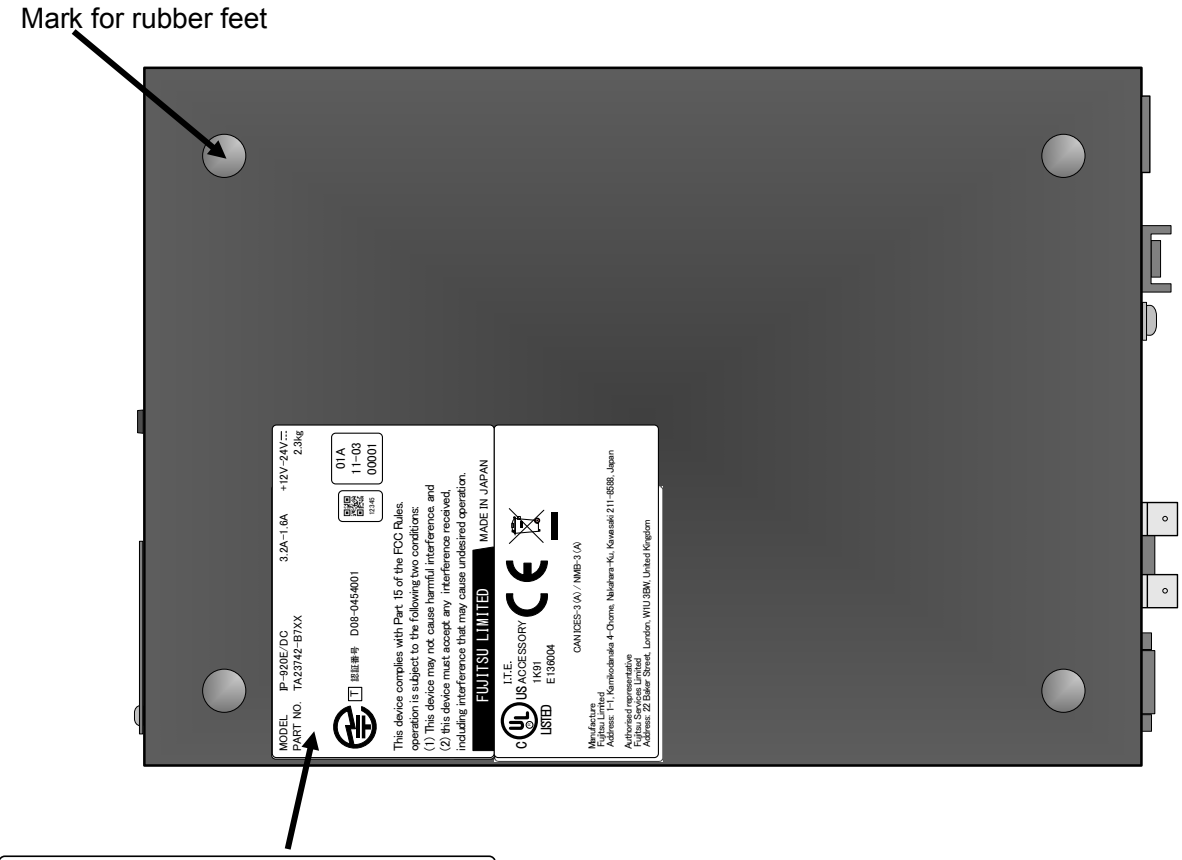
Work type	Warning
Installation	Possibility of electric shock and fire Always observe the precautions given below. This indicates a hazardous situation that could lead to electric shock, fire and damage to this equipment. • Ensure to use a DC power supply with SELV safety status. Using a power supply with another safety status could lead to electric shock, fire or damage to this equipment. Possibility of electric shock and fire Do not install this equipment in the following places because using it there may cause a fire: • Extremely dusty or dirty place • Wet or humid location • Hot location, such as a place where this equipment is exposed to direct sunlight or is near heating equipment • Near products (e.g., speakers) that generate a strong magnetic field • Location where the temperature is too hot or cold • In an environment with sharp temperature fluctuations • Area with poor ventilation • Near a fire Possibility of electric shock, fire, and damage to this equipment Always observe the precautions given below. This indicates a hazardous situation that could lead to fire and damage to this equipment. • Choose a power supply that meets the nominal voltage of IP-920E/DC. • Use the power cable (DC) attached to IP-920E/DC. If the attached cable is not usable, use a cable adapted to current capacity of more than 5A. • When using IP-920E/DC, ensure to set an internal wiring between IP-920E/DC and an external power-supply unit or a breaker at an output part of an external power-supply unit. Also, ensure to use a breaker that cuts off both terminals at the same time. Observe the conditions below and select a proper breaker. - Service voltage: DC12 to 24V±10% - Steady current: 3.2A (maximum in case of 12V) - Inrush current: up to 10A

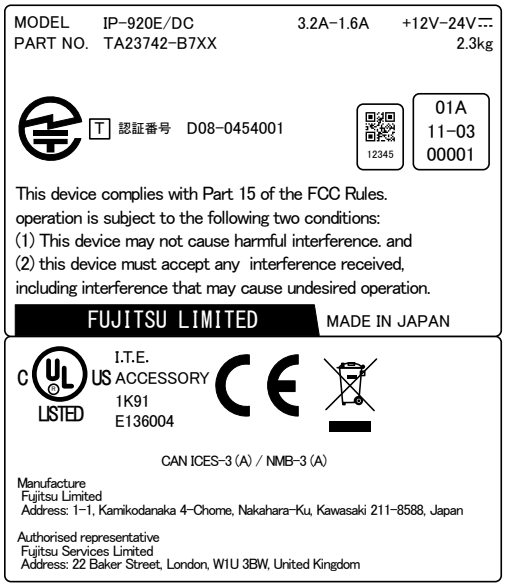
Work type	Warning
Installation and relocation	Possibility of serious injury and damage to this equipment Do not install this equipment in places where it is exposed to shock and strong vibrations, on an incline or in unstable locations. This indicates a hazardous situation that could lead to serious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

LABEL

The warning label shown below is affixed to this equipment.

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





Label : IP-920E/DC

PRODUCT HANDLING PRECAUTIONS

Maintenance

⚠WARNING

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

⚠CAUTION

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

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

Connectable devices

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

CF card consideration

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

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

Disposal

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

Modification and restoration

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

CONTENTS

Chapter 1 Preparations 1

1.1 Main Features 3
1.2 Components 4
1.3 Basic Application Examples 5
1.4 Part Names 6

Chapter 2 Installation and Connection 9

2.1 Installation Conditions 11
2.1.1 Environment conditions 11
2.1.2 Installation environment 11
2.1.3 Air supply and exhaust of the equipment 30
2.1.4 Open space required around this equipment 31
2.2 Power Supply System Connections 32
2.2.1 Connection to ground 32
2.2.2 Connection to power source 33
2.3 Audio and Video Device Connections 35
2.4 Connection to Network 36
2.5 Connection to RS-232C Device 37
2.6 CF Card Insertion and Removal 38

Chapter 3 Operation Instructions 41

3.1 Turn ON/OFF IP-920E/DC 43
3.1.1 Turn on IP-920E/DC 43
3.1.2 Turn off IP-920E/DC 43
3.2 Device Settings and Operation 44
3.2.1 Reboot 45
3.3 Special Use of MNT Button 46

Chapter 4 Cable Specifications 47

4.1 Installation Preparations 49
4.2 Cable and Connector Details 50

Chapter 5 Troubleshooting 59

5.1 Help Information 61
5.2 Alarm LED Lamp Is On 65
5.3 Maintenance 67
5.3.1 Maintenance space 67
5.3.2 Change equipment (Only for CE) 68

Appendix 69
A.1 Appearance 71
A.2 Basic Specifications 73
A.2.1 External specifications 73
A.2.2 Environment specifications 73
A.2.3 Function specifications 74
A.3 Preparations for Installation Work 79
A.3.1 Scope of installation work 79
A.3.2 Unpacking and device check 79
A.3.3 Installation conditions 79
A.3.4 Connecting external cables 79
A.4 Preparations for On-site Turn-up 80
Glossary and Index 83
Glossary 85
Index 88
CE Conformity Information 90

CHAPTER 1
PREPARATIONS

This chapter describes the checks that are required before the start of IP-920E/DC operation.

1.1 Main Features 3

1.2 Components 4

1.3 Basic Application Examples 5

1.4 Part Names 6

(This page is intentionally left blank)

1.1 Main Features

IP-920E/DC is 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-920E 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.

Main Features

Item	Specifications		
Video input	HD-SDI / SD-SDI	1ch	[BNC]
	HDMI 1.2a (*2)	1ch	[HDMI]
	Analog Composite	1ch	[BNC]NTSC/PAL
Audio input	HD/SD-SDI embedded	2ch	[BNC], 1 stereo pairs
	HDMI 1.2a (*2)	2ch	[HDMI]
	Analog balanced	2ch	[D-sub9-pin], female connector, 1 stereo pair
Network	LAN	1ch	[RJ45], 10BASE-T / 100BASE-TX
Data input/output	RS-232C	1ch	[D-sub9-pin], male connector
CF CARD slot	CF CARD	1	Data storage application
Installation conditions	Indoor: On a desk, mounted in a rack		
Dimensions	W: 210 H: 42 D: 300 (mm) Note: Excluding protrusions (i.e., not including feet)		
Cooling system	Forced air cooling		
Power supply	+12-24VDC		
Weight	Maximum 2.3kg		
Power consumption	38.4W or less		
Temperature Humidity	-10 to 55°C (No low temperature startup: -10 to -1°C) 20 to 90%RH (No condensing)		
Safety Standard	Approved as Class III device of IEC60950-1, UL60950-1, EN60950-1		

*1: IP-920E supports only SD video. By adding optional software, IP-920E will be upgraded to support HD video.

*2: DVI isn't supported.

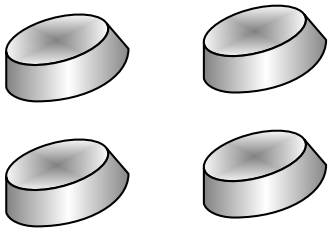
1.2 Components

The IP-920E/DC product package consists of the following components.
Attachments for all series consist of same contents.

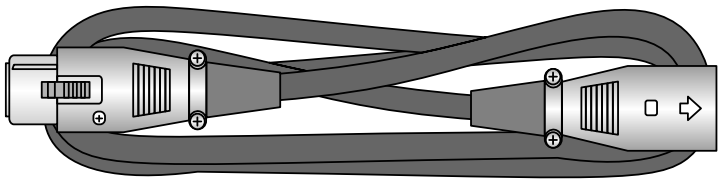
- **IP-920E/DC: 1 pc (cables separate order)**

- **Safety manual: 1pc**

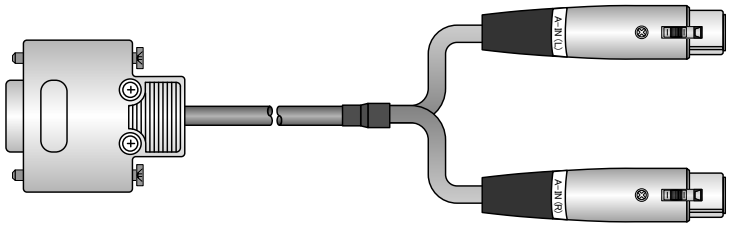
- **Feet: 4 pcs**



- **DC Power cable: 1 pc**

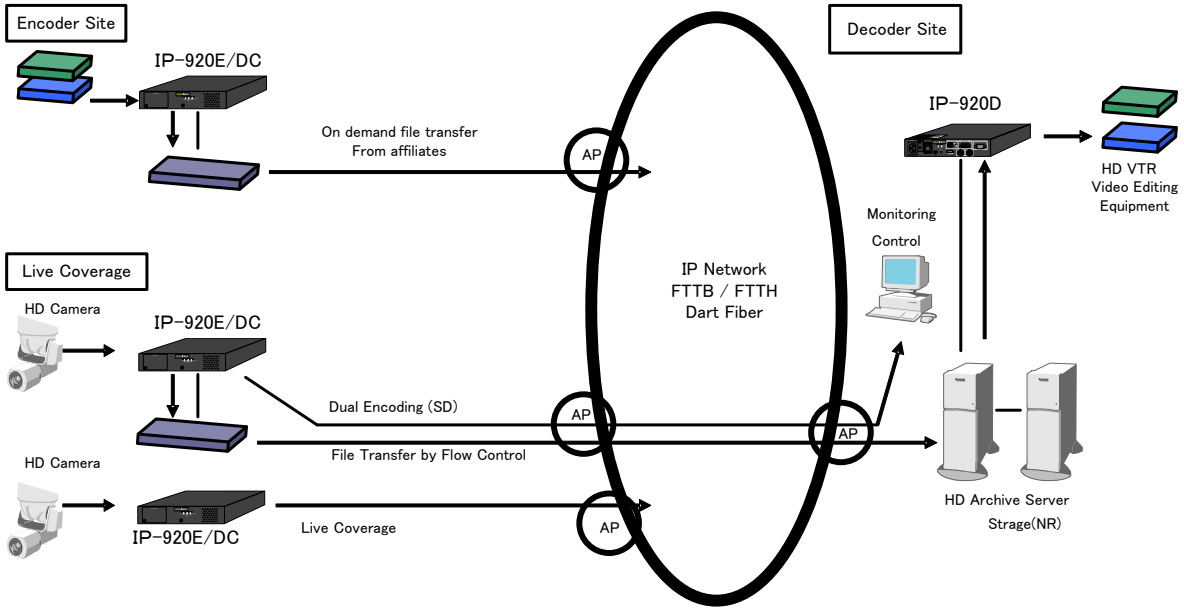


- **Audio adapter cable (type 1) : 1 pc**



1.3 Basic Application Examples

Examples (sys tem configuration) of use of IP-920E/DC are shown below.



1.4 Part Names

This section gives the name and describes the function of individual parts of IP-920E/DC.
The diagrams below show the layout of parts on the outside of this equipment, and the table below lists the name and describes t he function of individual parts.

- IP-920E/DC

Figure Front panel

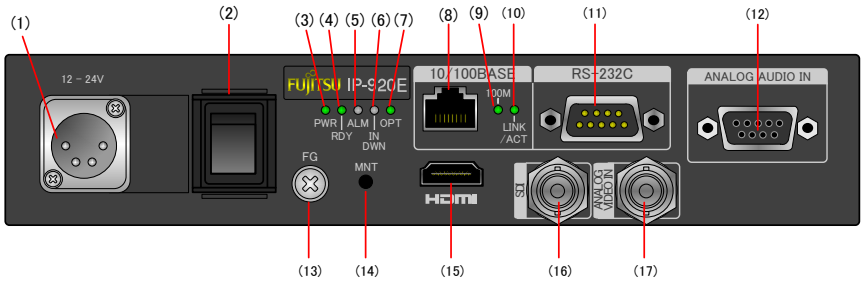
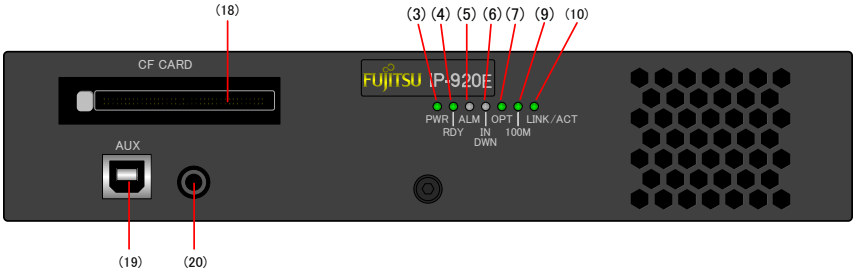


Figure Rear panel



Part names

No.	Name	Description
(1)	Power inlet connector (DC +12-24V)	By using a DC power cable attached to IP-920E/DC, it enables to connect to a power supply of DC12-24V. However, a connectable power-source equipment needs to be SELV (*) safety status. See Section 2.2.2, “Connection to a Power Source,” for an explanation on using this connector. See Section 4.2, “Cable and Connector Details,” for cable connection information.
(2)	Power button	Turns this equipment on and off.
(3)	Power LED (PWR)	Turns on when this equipment is powered on.
(4)	Status LED (RDY)	Turn on when IP-920E 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-920E 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.

* SELV is a secondary circuit protected in the structure that electrical potential difference between any two touchable points is not dangerous under the normal condition or even under the condition that any one point is broken. It indicates up to 60V in case of DC voltage.

No.	Names	Description
(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.
(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)	Audio input terminal. 600Ω balanced. See Section 2.3, "Audio and Video Device Connections," for an explanation on using this terminal. See Section 4.2, "Cable and Connector Details," for cable connection information.
(13)	FG terminal (FG)	Use for an FG connection to this equipment. See Section 2.2.1, "Connection to ground," for an explanation on using this terminal.
(14)	Maintenance mode switch (MNT)	IP-920E start mode selector switch. when the IP-920E is powered on with this switch held down, it starts in initial start mode. See section 3.3, "Special Use of MNT Button," for an explanation on using this switch.
(15)	HDMI input (HDMI)	Digital HDMI video input terminal. 50Ω unbalanced. See Section 2.3, "Audio and Video Device Connections," for an explanation on using this terminal. See Section 4.2, "Cable and Connector Details," for cable connection information.
(16)	SDI video input (SDI)	Digital HD-SDI video input terminal. 75Ω unbalanced. See Section 2.3, "Audio and Video Device Connections," for an explanation on using this terminal. See Section 4.2, "Cable and Connector Details," for cable connection information.
(17)	Video input (ANALOG VIDEO IN)	Analog video input terminal. 75Ω unbalanced. See section 2.3, "Audio and Video Device Connections," for an explanation on using this terminal. See Section 4.2, "Cable and Connector Details," for cable connection information.
(18)	CF CARD slot	Slot in which a CompactFlash@ card is inserted.
(19)	AUX port (AUX)	Auxiliary port.
(20)	Test port	Factory test port.

(This page is intentionally left blank)

CHAPTER 2

INSTALLATION AND CONNECTION

This chapter describes conditions for IP-920E/DC installation and explains how to connect it to peripheral devices.

2.1 Installation Conditions 11

2.2 Power Supply System Connections 32

2.3 Audio and Video Device Connections 35

2.4 Connection to Network 36

2.5 Connection to RS-232C Device 37

2.6 CF Card Insertion and Removal 38

⚠ CAUTION

Possibility of serious injury

The power cord and other cables connected to IP-920E/DC may become entangled with someone walking close to them, possibly leading to serious injury and property damage. Clamp the cables to the rack or floor.

2.1 Installation Conditions

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

2.1.1 Environment conditions

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

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

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

2.1.2 Installation environment

1. 19” rack mounting

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

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

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

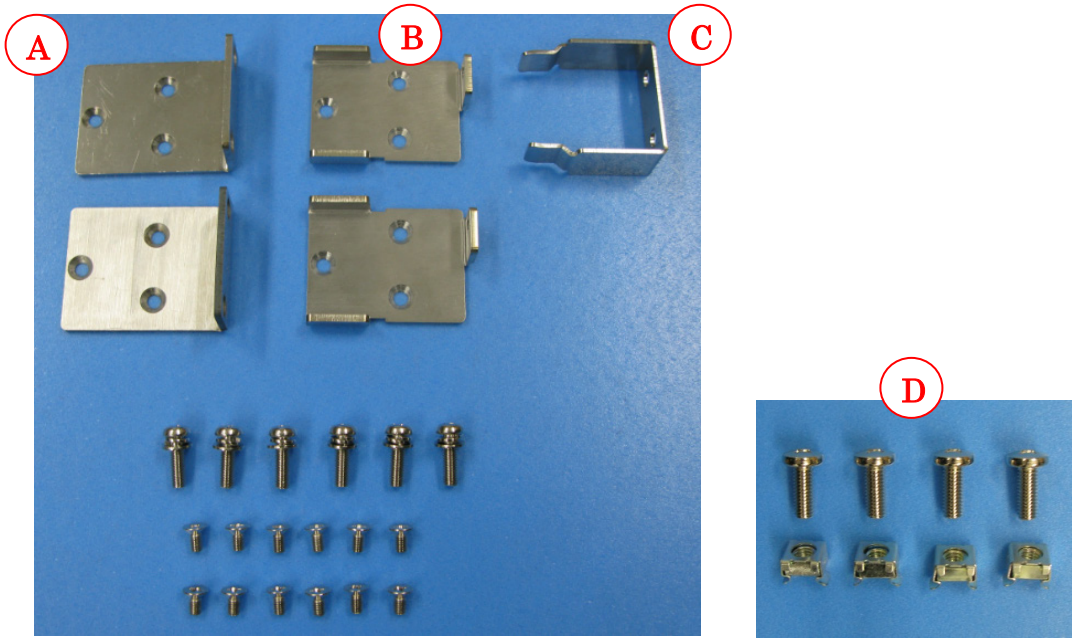
5 types of rack mounting kit are available. (Type A1, A2, B1, B2 and C2)

⚠ CAUTION

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

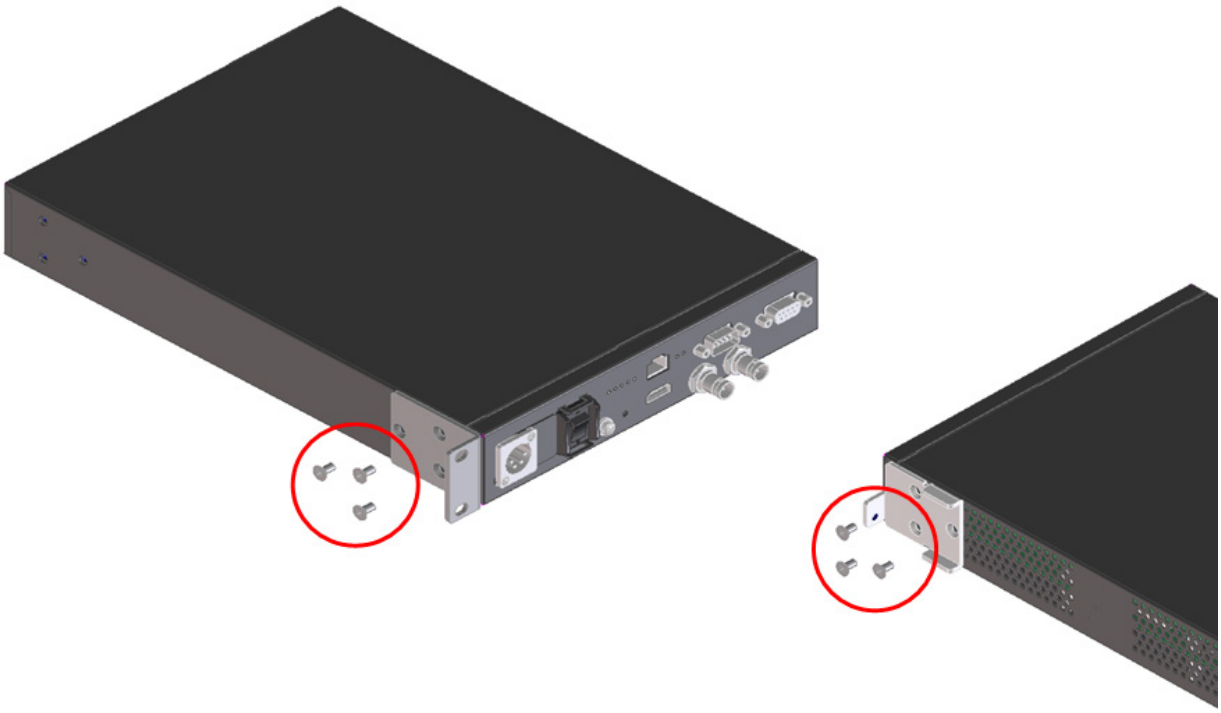
- Two IP-920 per 1U (Type C2)

(1) Check contents of the rack mounting kit.

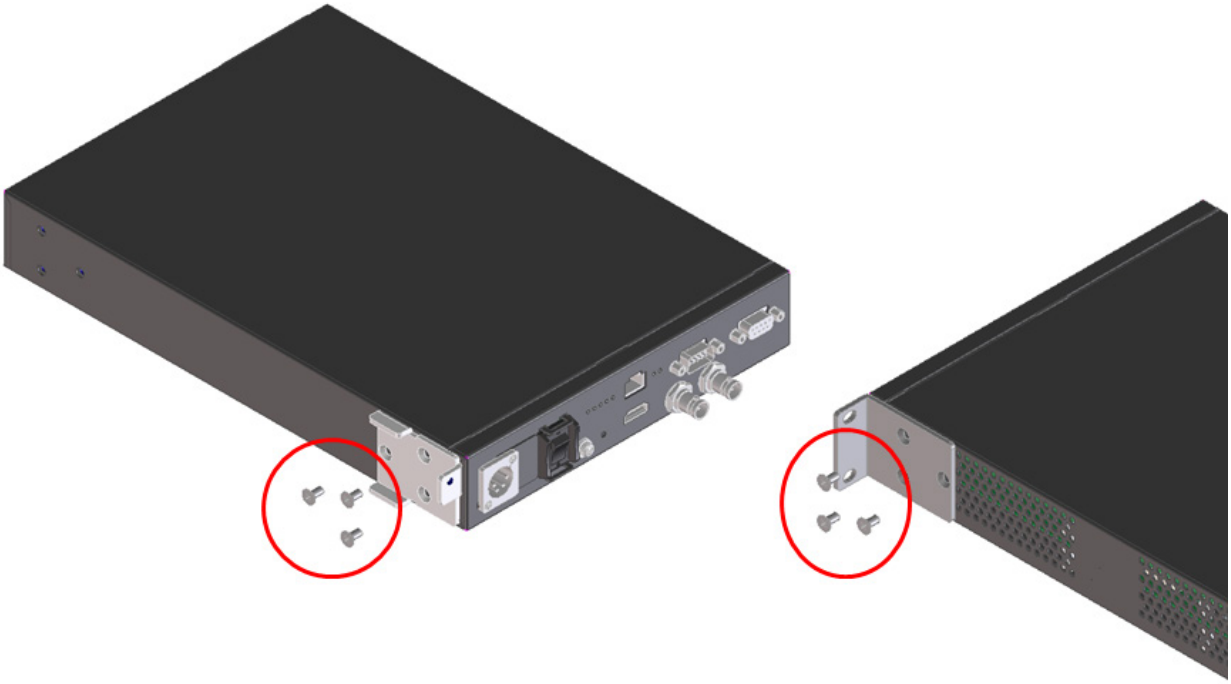


(2) Check all cables disconnected.

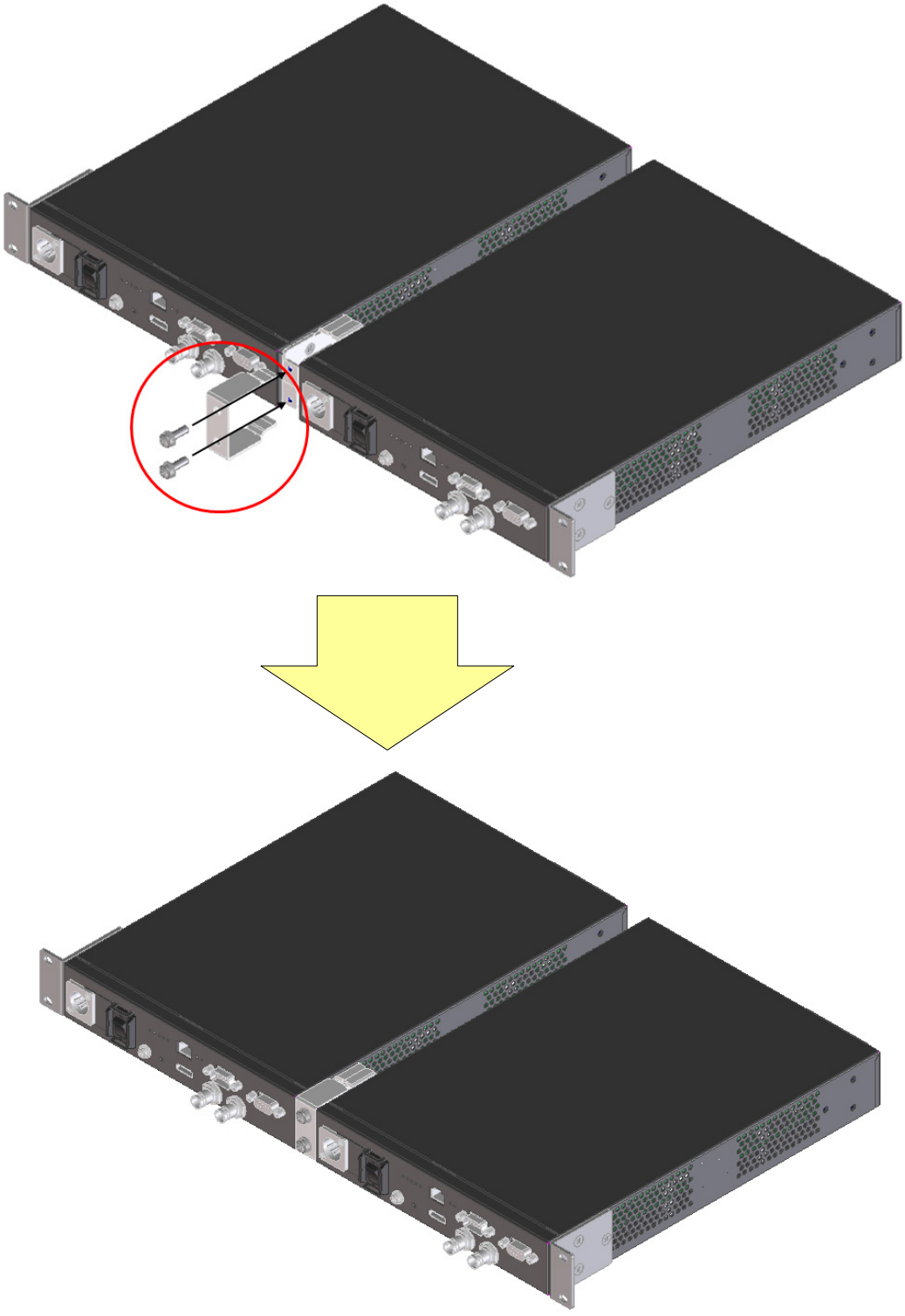
(3) Connect the first device with the rack mounting kit “A” and “B” on IP-920 using six same screws (M4).



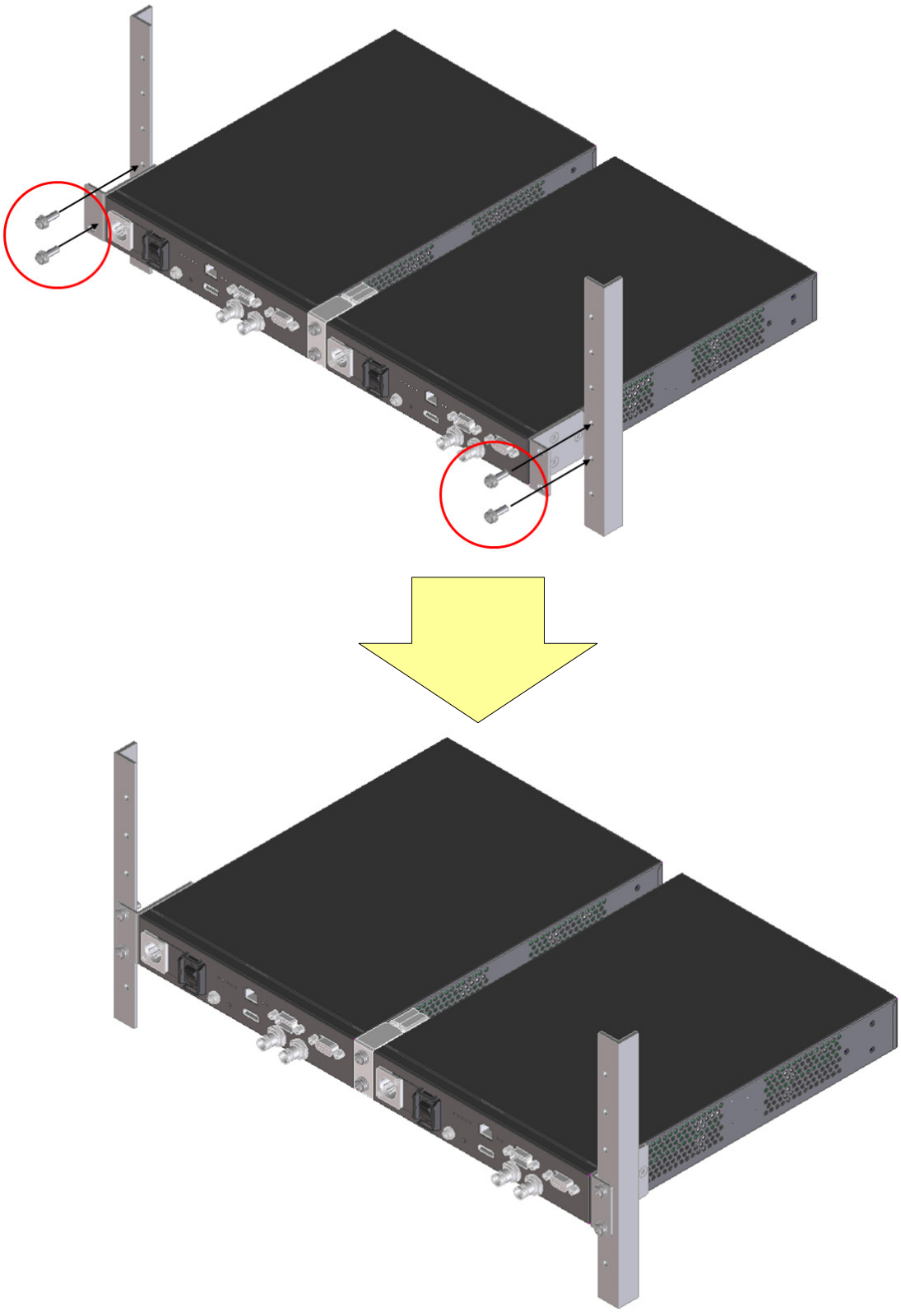
(4) Connect the second device with the rack mounting kit “A” and “B” on IP-920 using six same screws (M4).



(5) Install the mounting kit C on IP-920 using two pan head screws (M5).



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



- Removing the device

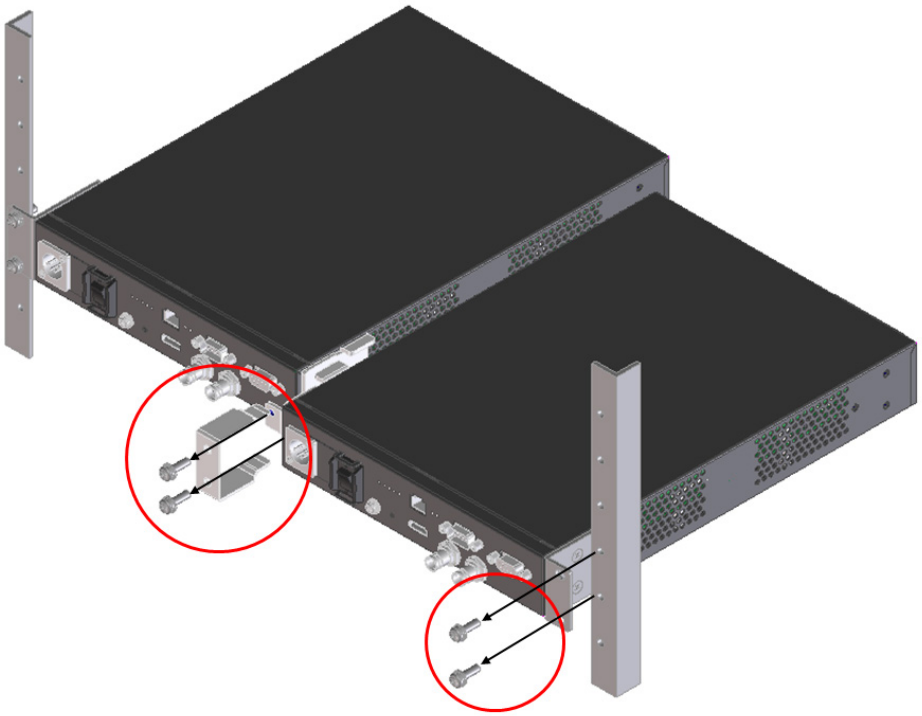
(1) When removing two devices at the same time

Remove them by reversing the installation procedure for two devices.

(2) When removing only one device

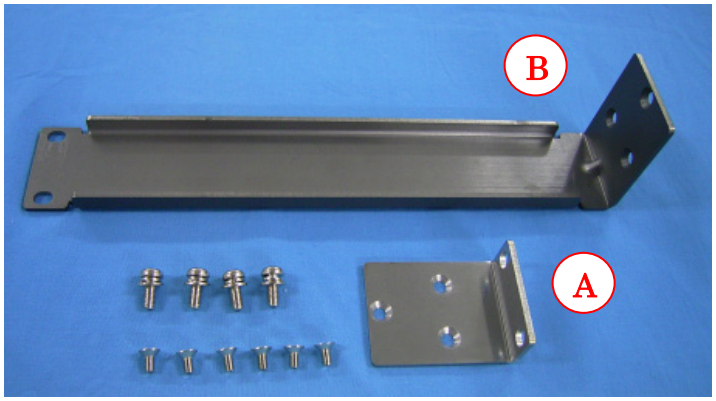
Remove the four screws shown in the figure below.

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



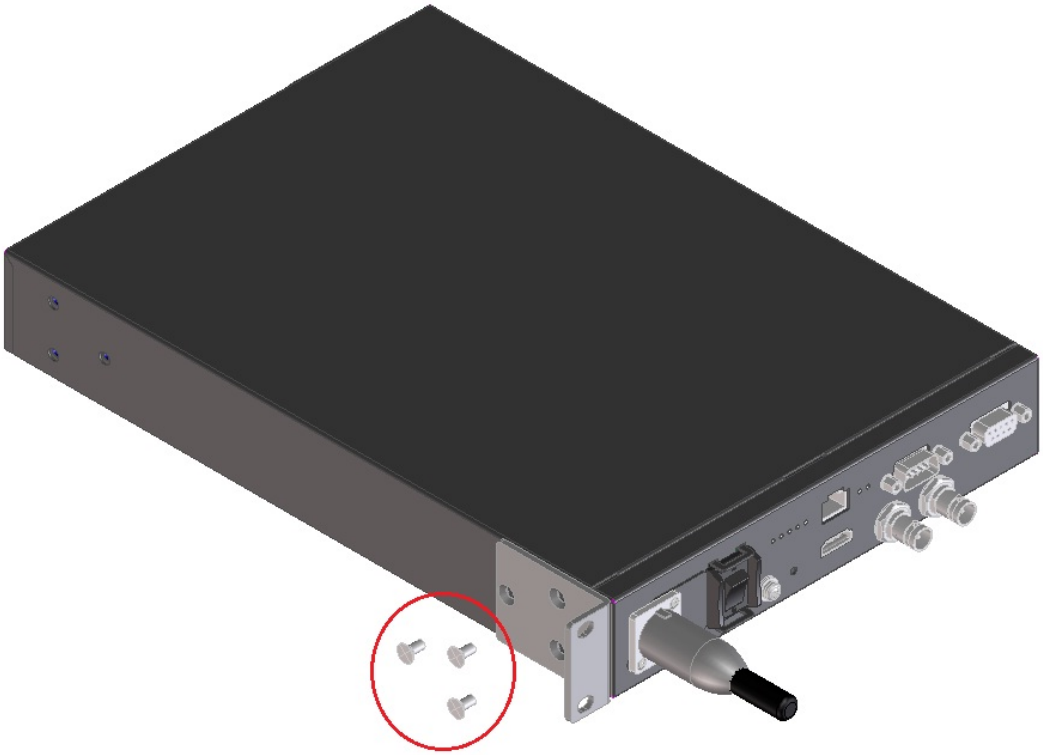
- 1 unit per 1U (Type A1)

(1) Check components of the rack mounting kit.

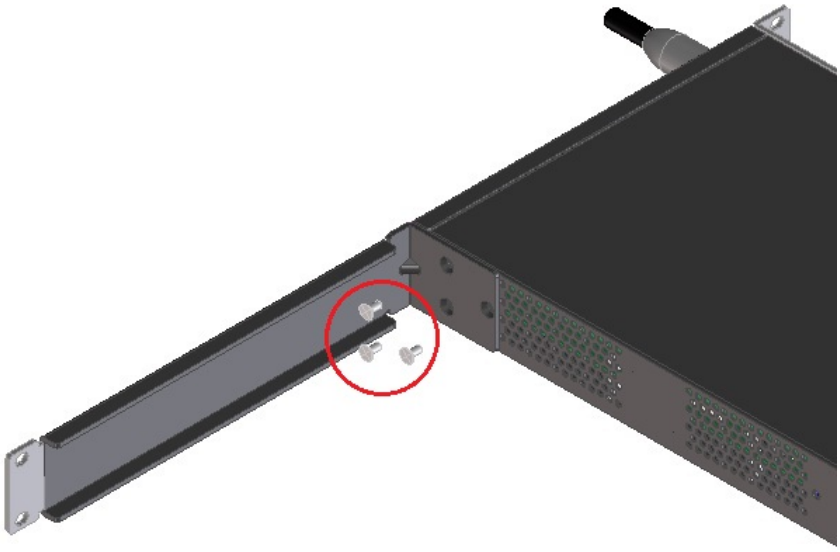


(2) Check all cables are disconnected.

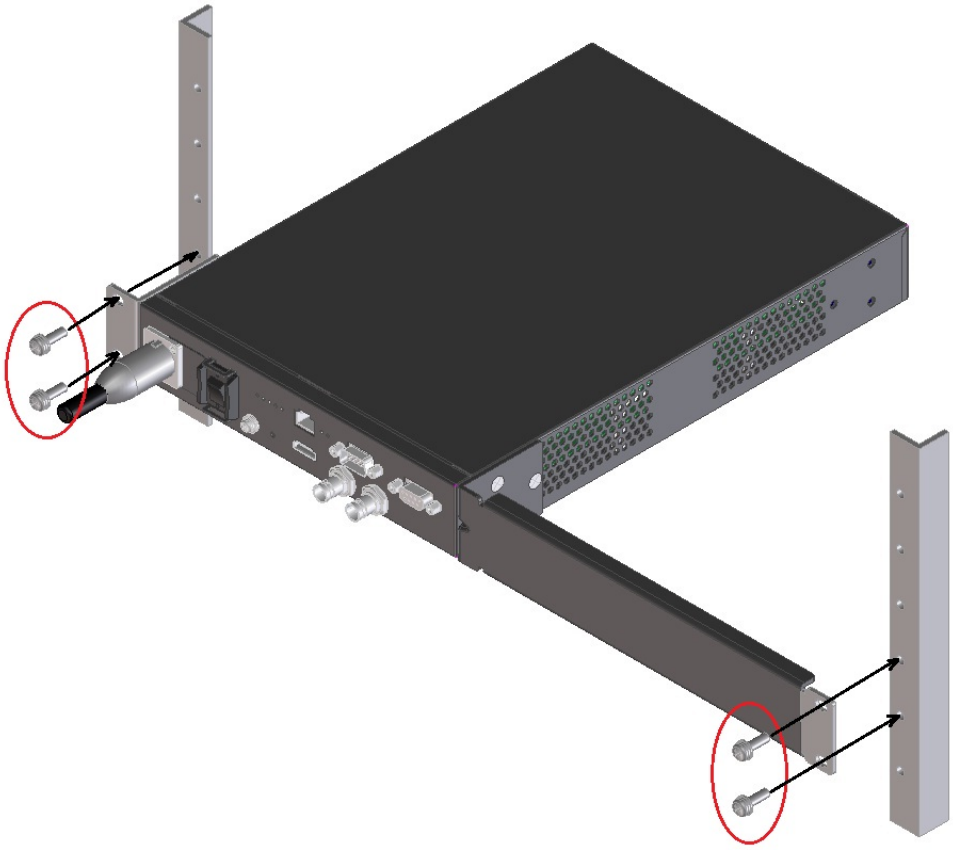
(3) Install the rack mounting kit “A” on IP-920 using three same screws (M4).



(4) Install the rack mounting kit “B” on IP-920 series using three same screws (M4).



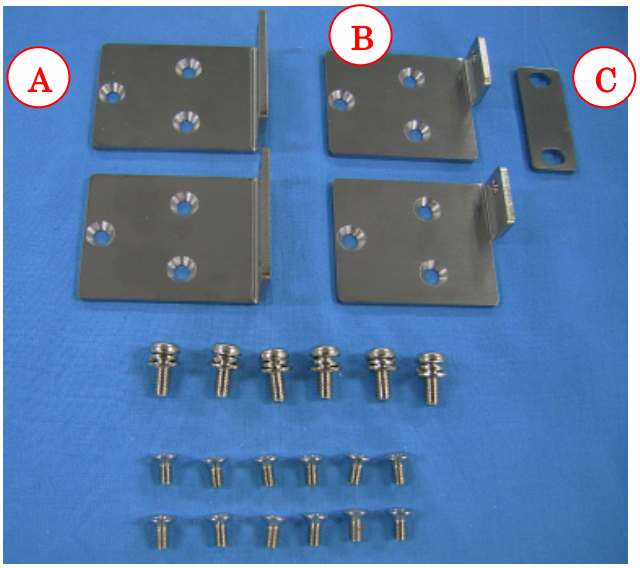
(5) Install IP-920 on 19” rack using four pan head screws (M5).



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

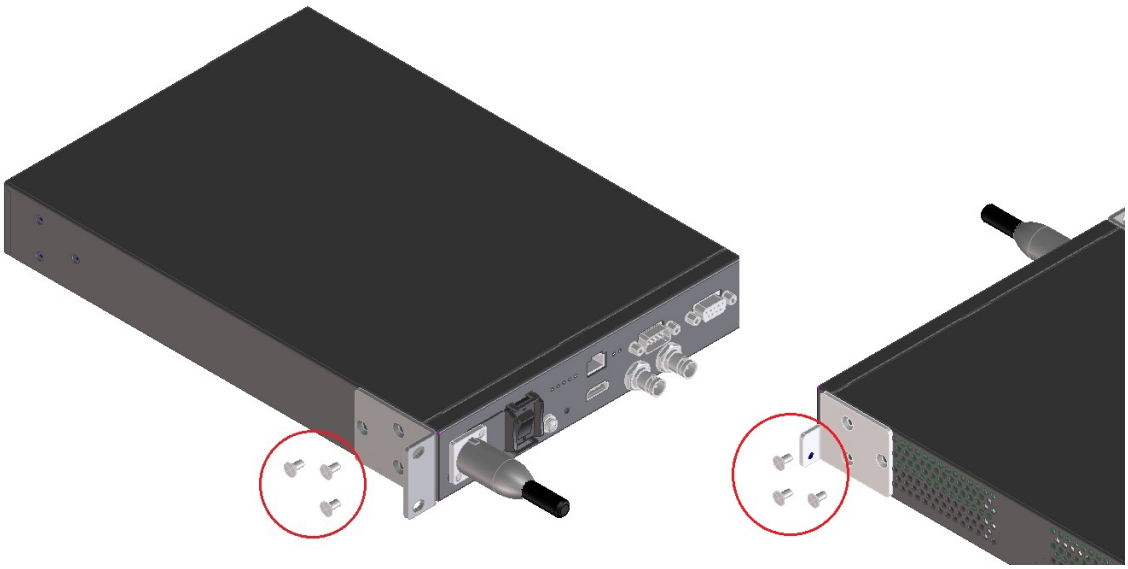
- 2 units per 1U (Type A2)

(1) Check components of the rack mounting kit.

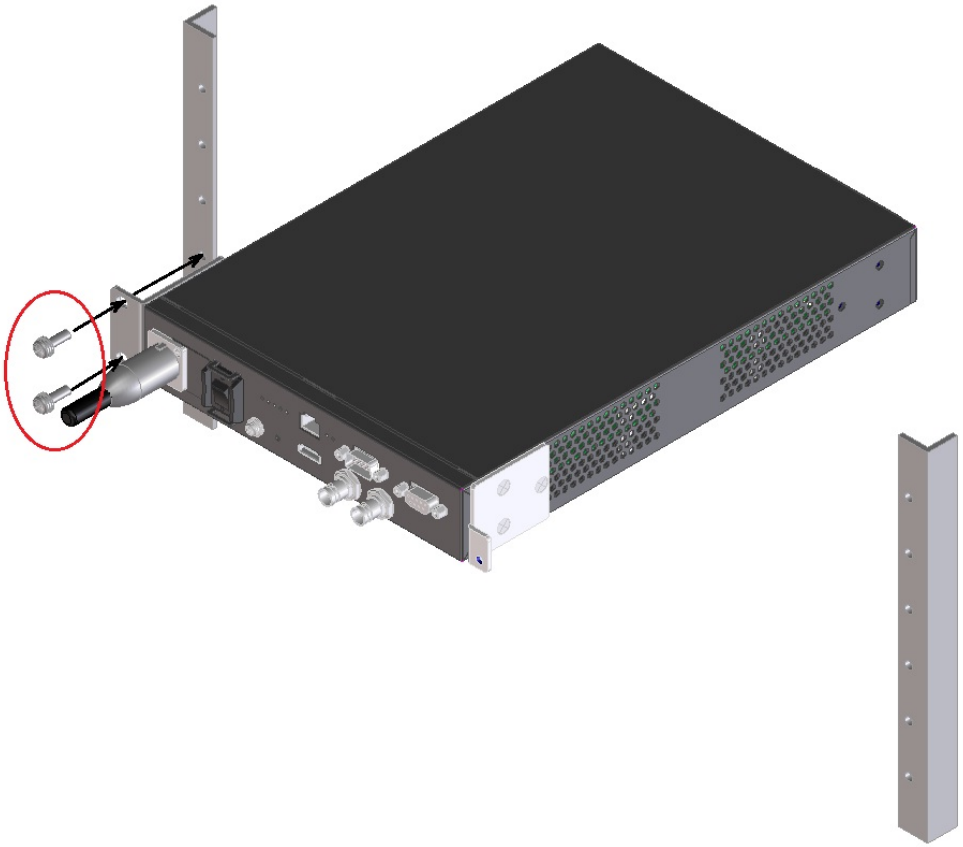


(2) Check all cables are disconnected.

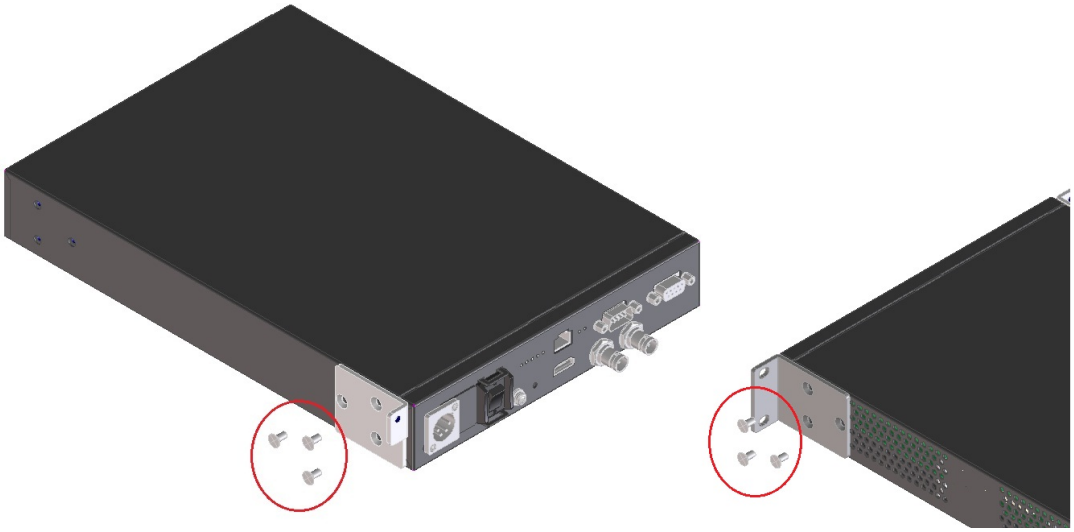
(3) Connect the first device with the rack mounting kit “A” and “B” on IP-920 using six same screws (M4).



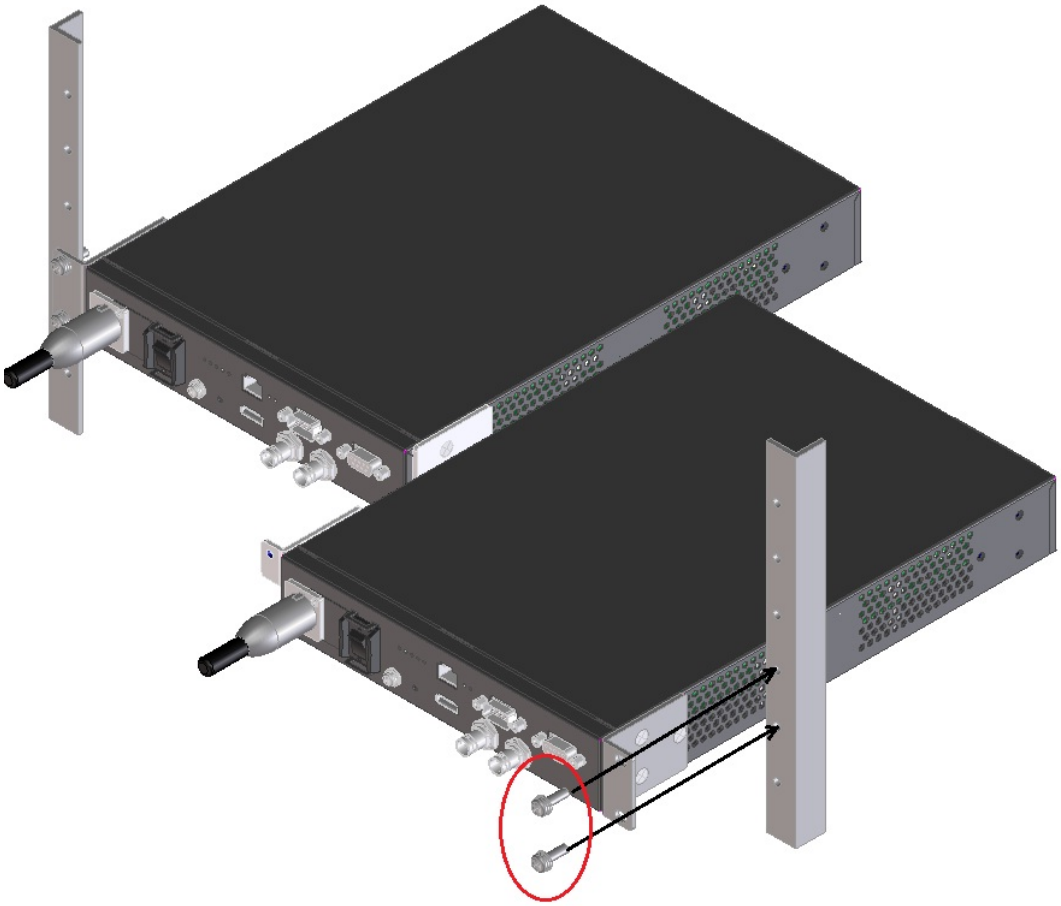
(4) Install IP-920 on 19” rack using two pan head screws (M5).



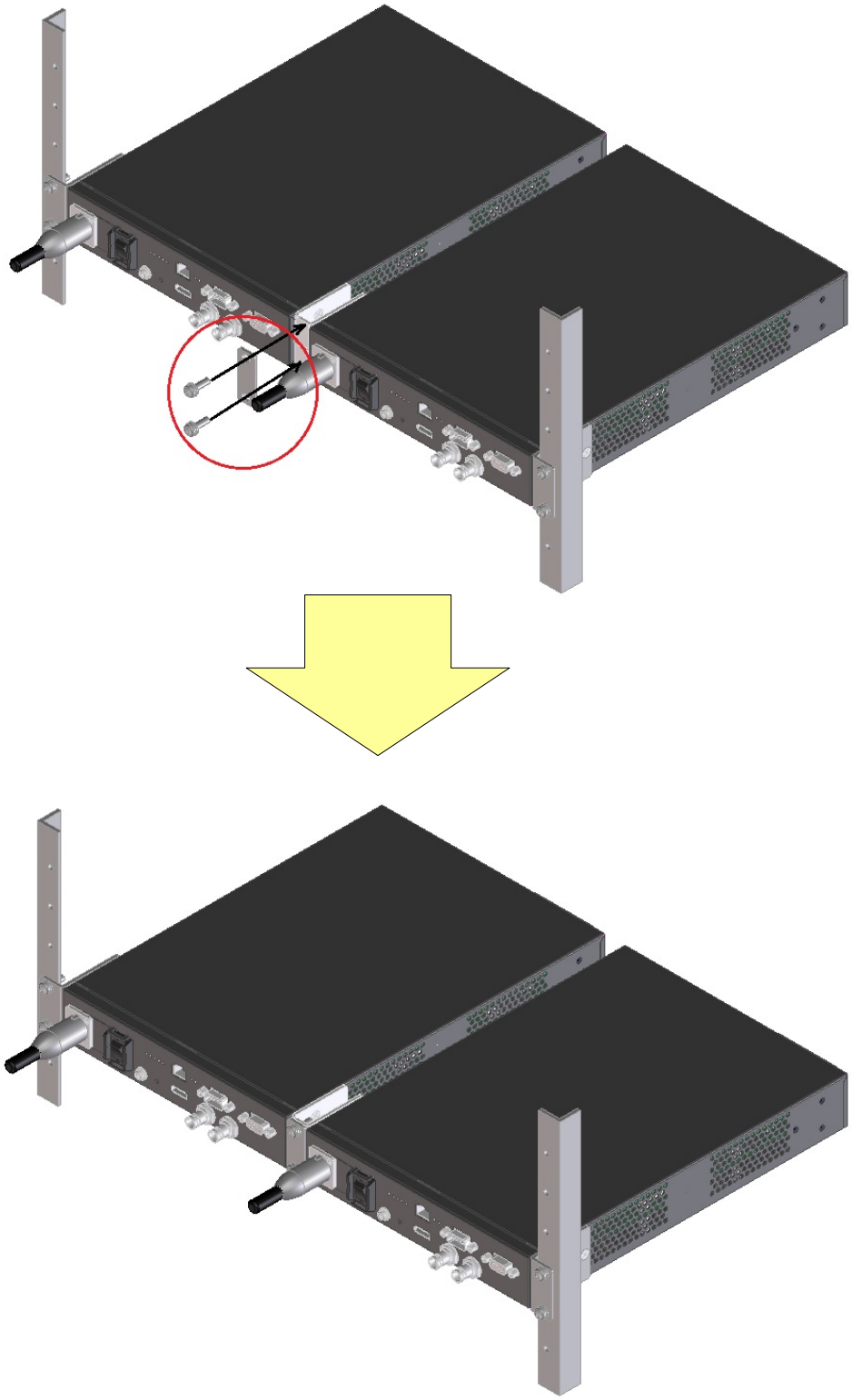
(5) Connect the second device with the rack mounting kit “A” and “B” on IP-920 using six same screws (M4).



(6) Install IP-920 on 19” rack using two pan head screws (M5).



(7) Install the mounting kit C on IP-920 using two pan head screws (M5).



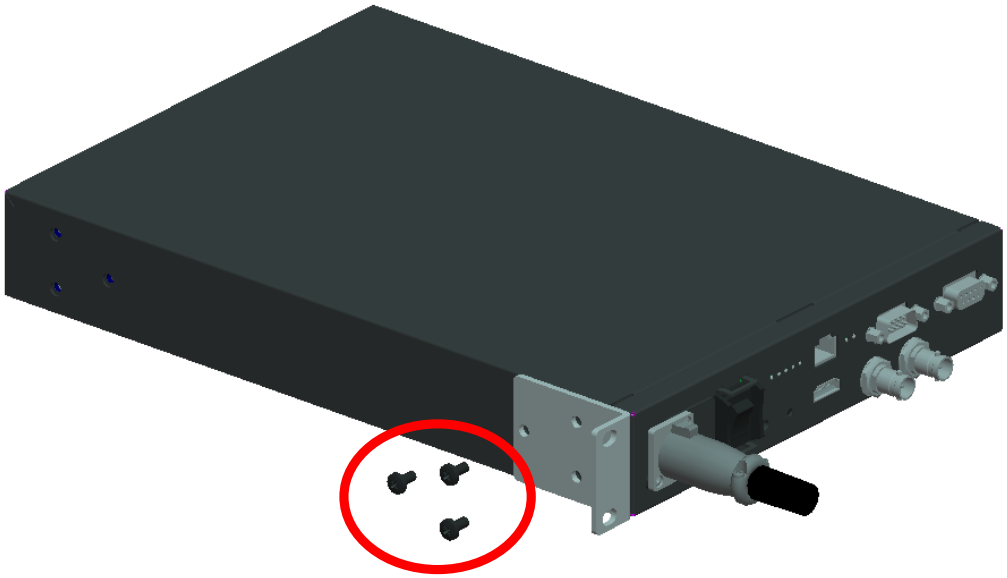
- Removing the device
  Remove the device by reversing the installation procedure.

- 1 unit per 1U(Type B1)

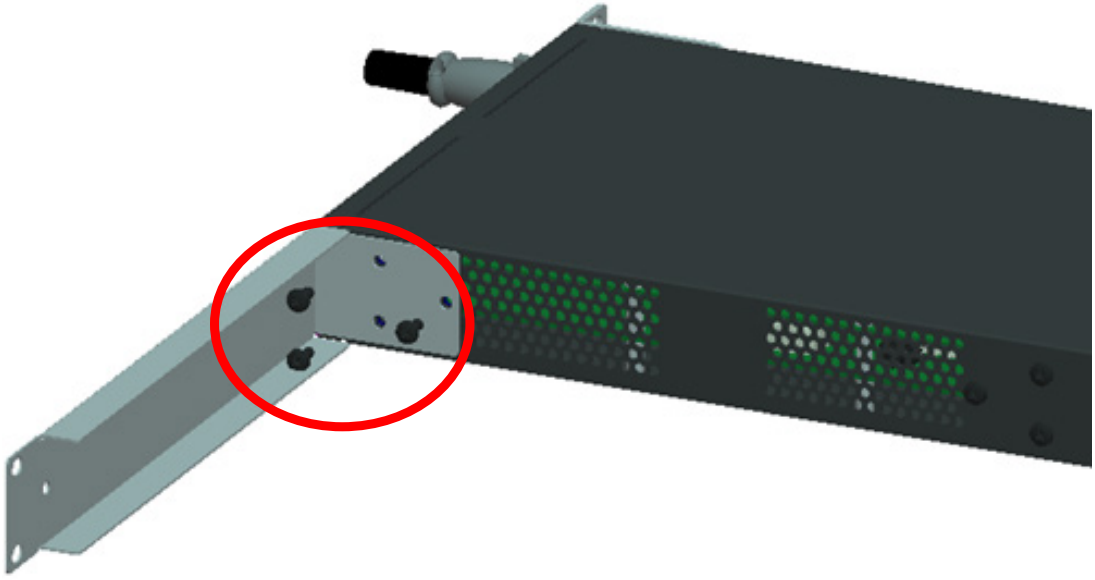
(1) Check components of the rack mounting kit.

(2) Check all cables disconnected.

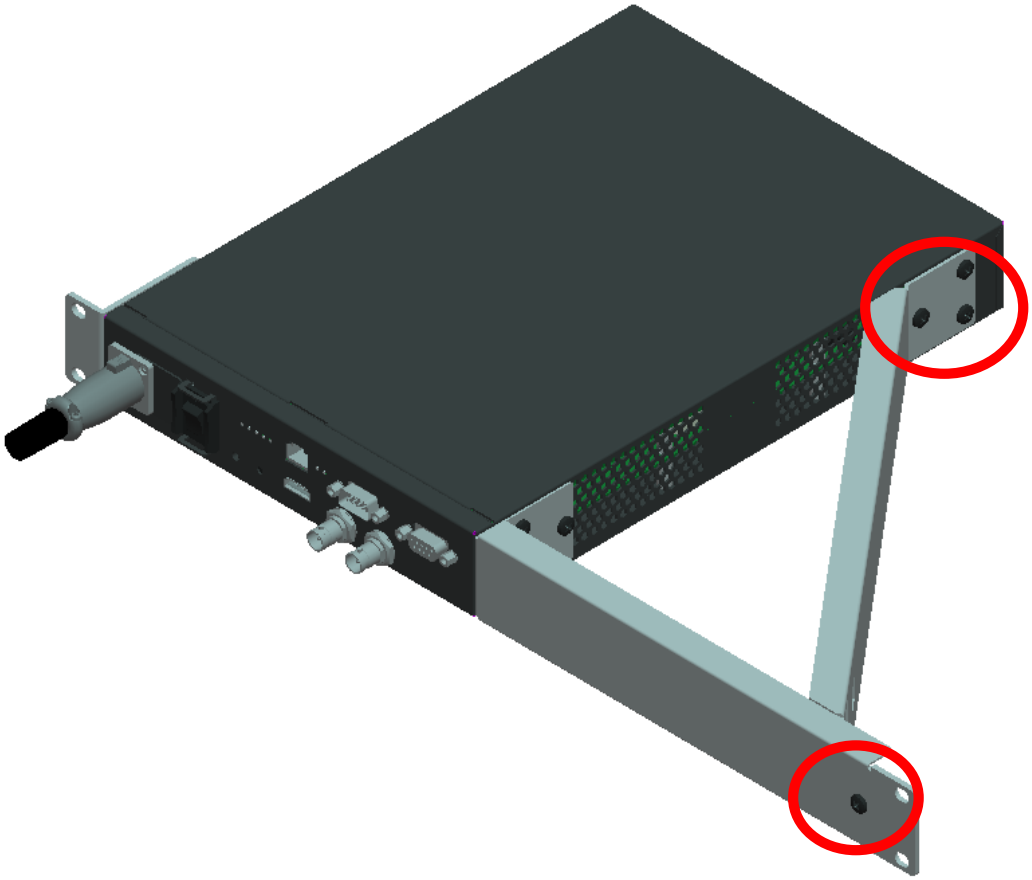
(3) Install the rack mounting kit A on IP-920 using three same screws (M4).



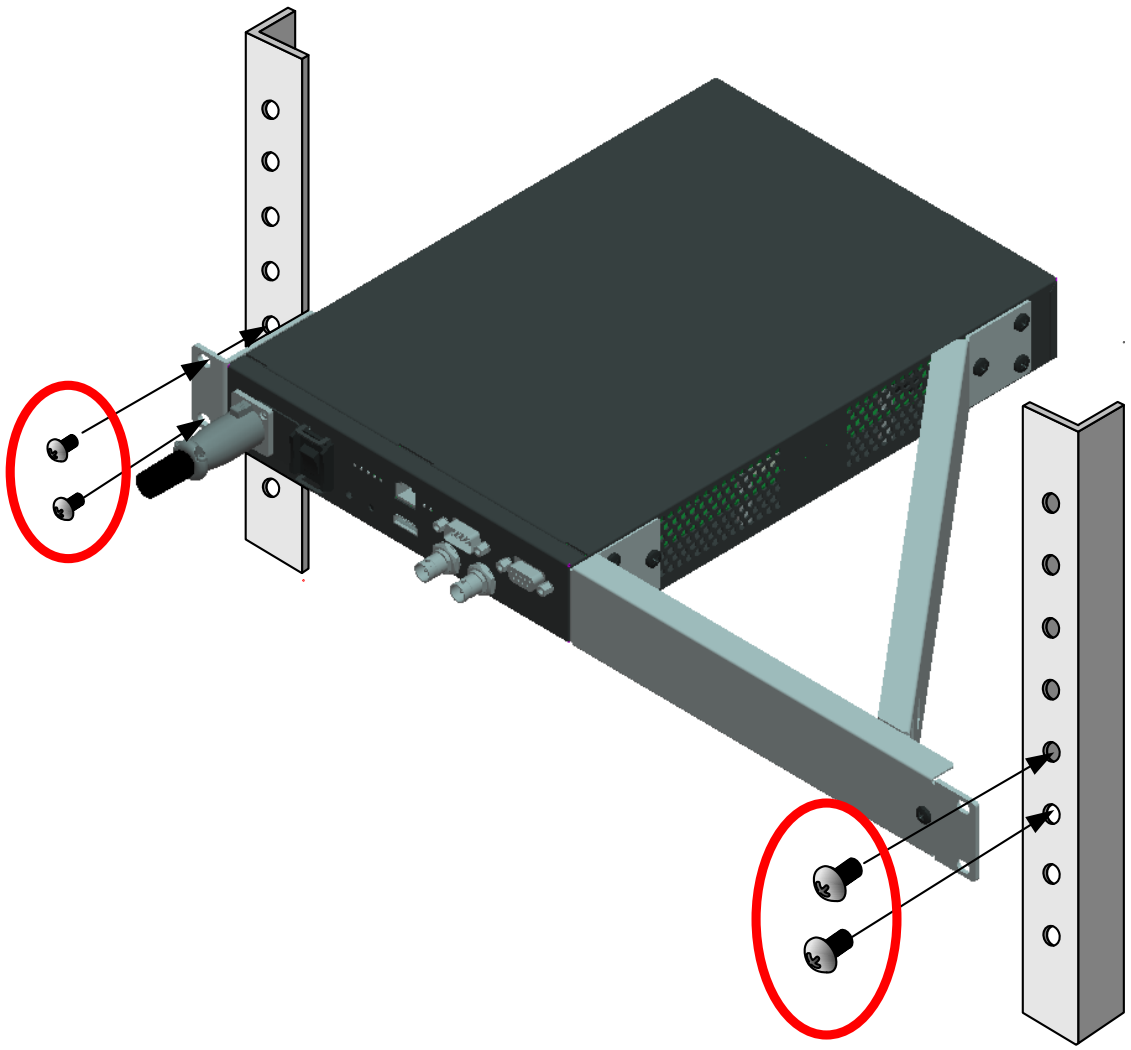
(4) Install the rack mounting kit B on IP-920 using three same screws (M4).



(5) Install the rack mounting kit C on IP-920 and rack mounting kit B using four screws (M4).



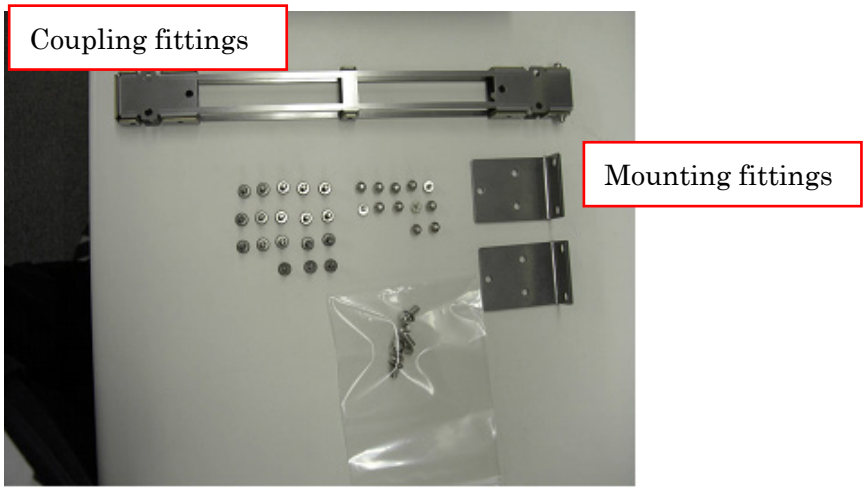
(6) Install IP-920 on 19” rack using four pan head screws (M5).



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

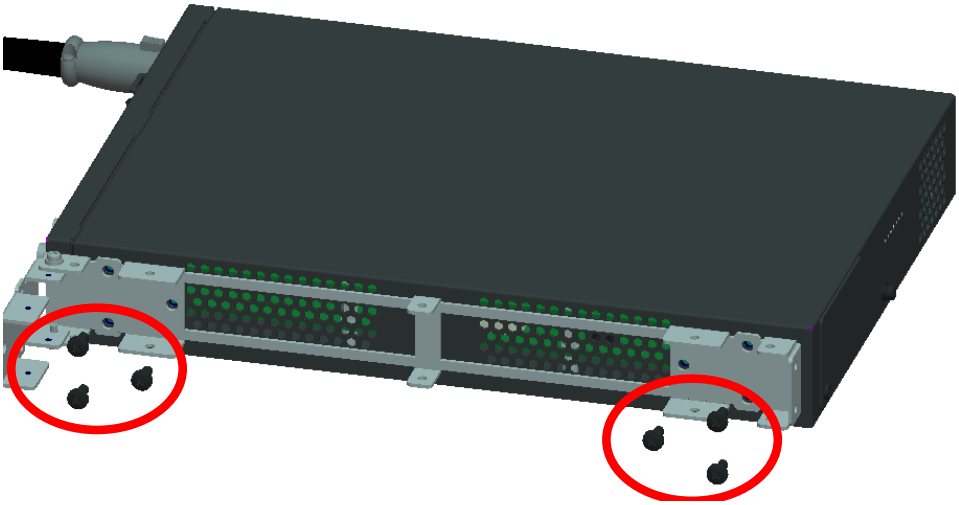
- - 2 units per 1U(Type B2)

(1) Check contents of the rack mounting kit.

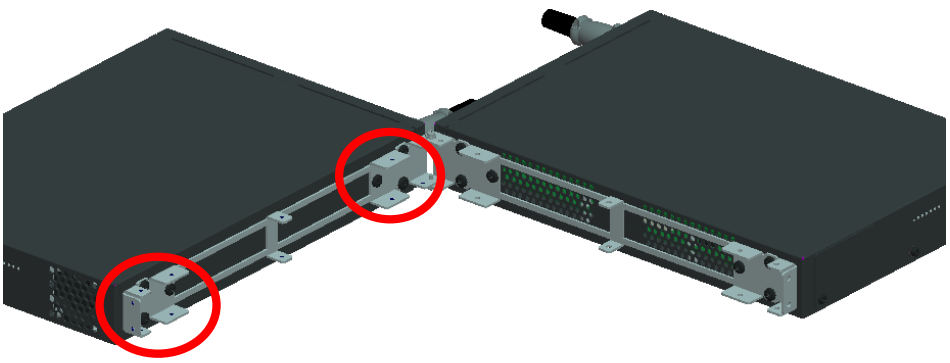


(2) Check all cables disconnected.

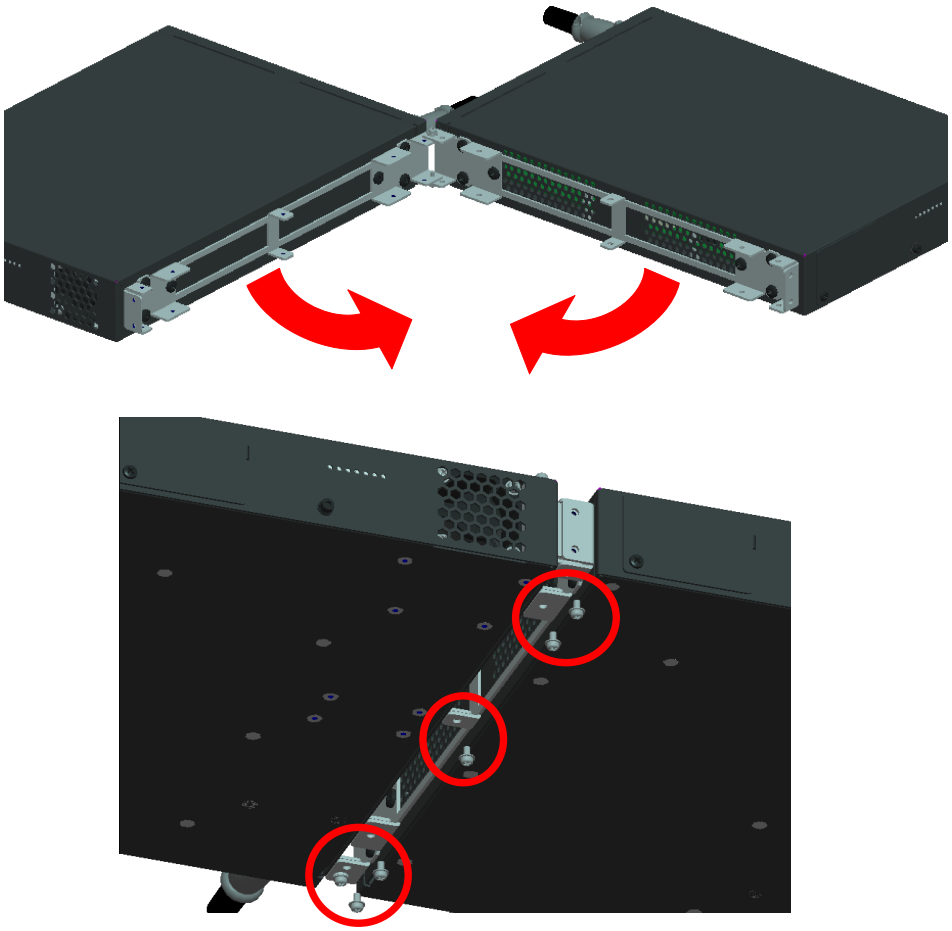
(3) Connect the first device with the connecting kit using six same screws (M4).



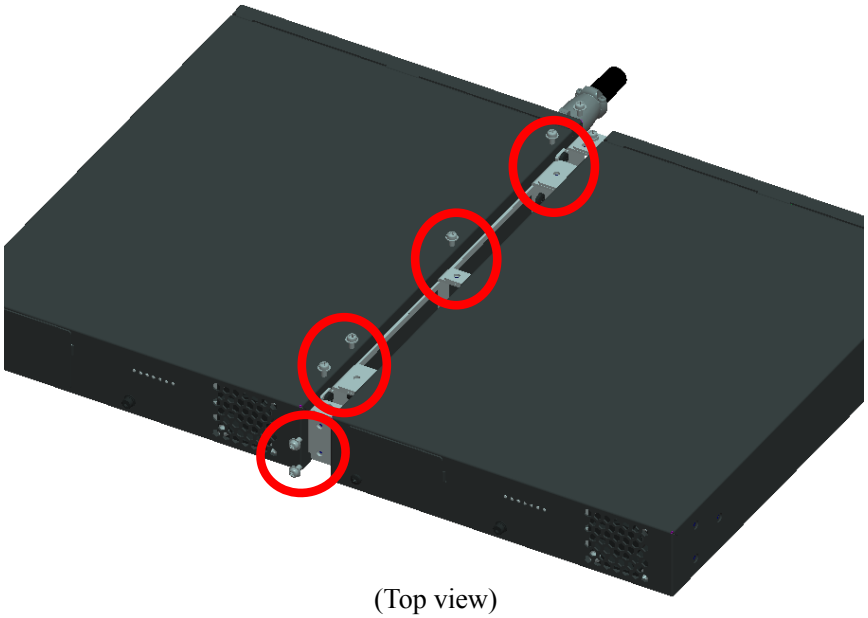
(4) Connect the second device with the connecting kit using six same screws (M4).



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

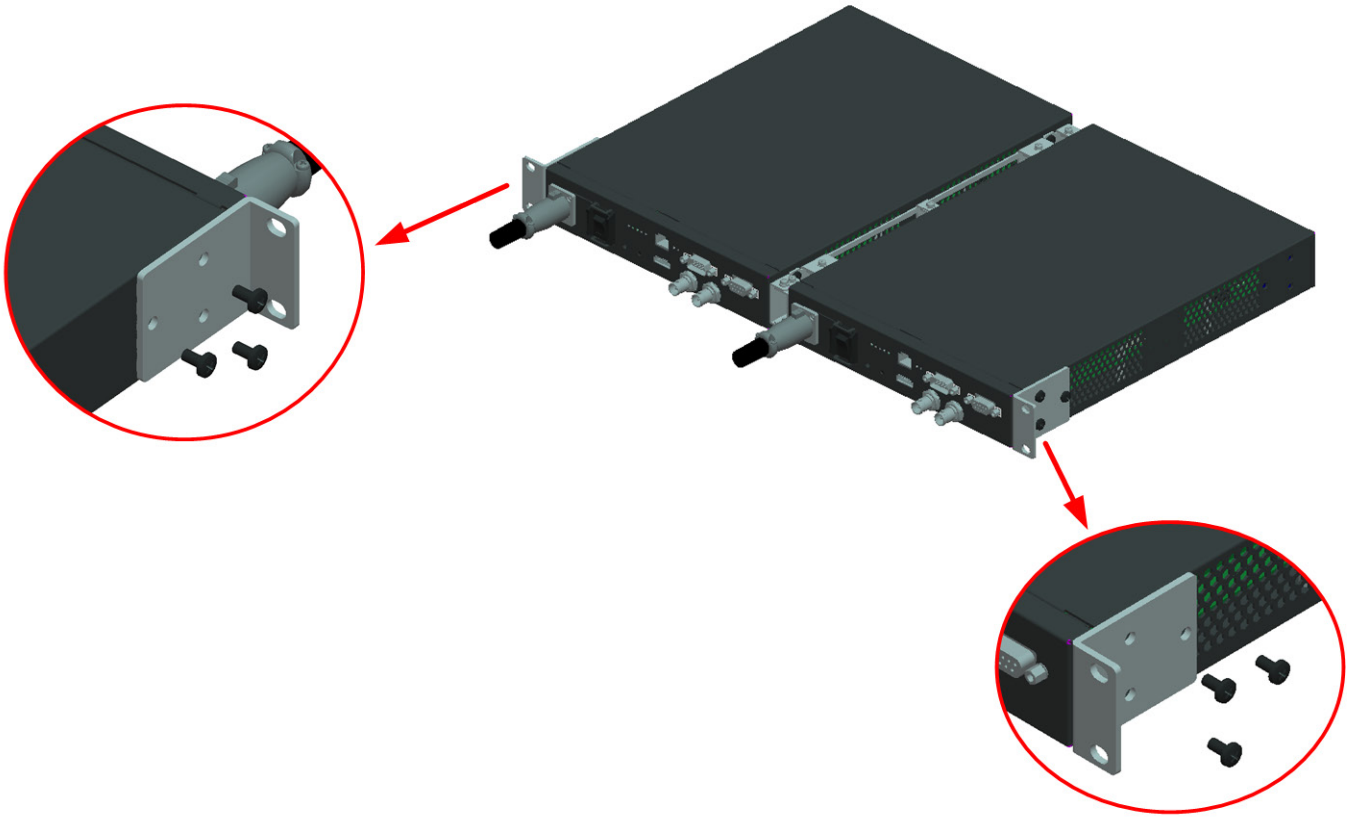


(Bottom view)

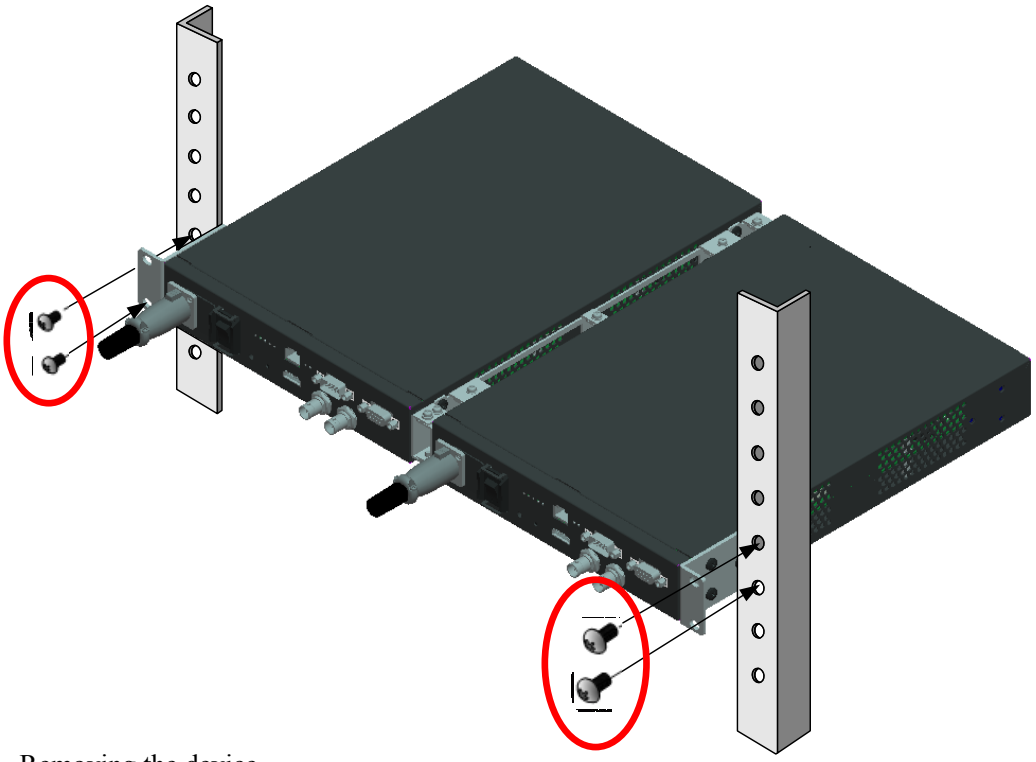


(Top view)

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



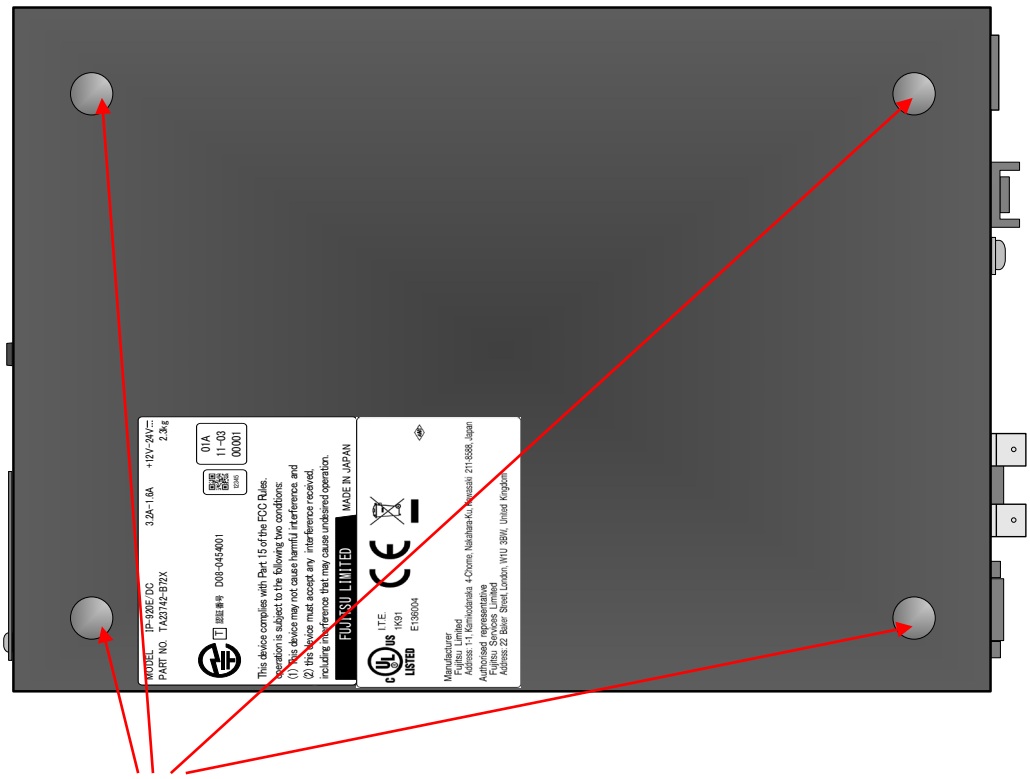
(7) Install 2 units on 19” rack using four pan head screws (M5).



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

2. Place the equipment to a Table

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



Mark for rubber feet

⚠ CAUTION

Safety installation instruction:

1) Multiple pile

The maximum 5 IP-920E/DC can be piled under the environment condition specified. Please install considering the maintenance-ability. When IP-920E/DC is piled, please fix them to avoid falling (do not cover the air intake.). See Section 2.1.4, "Open space required around this equipment" for the installation space.

2) rack mounting

a) When IP-920E/DC 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-920E/DC.**
- **The maximum operating ambient temperature for IP-920E/DC: 55**°C.

b) The installation of IP-920E/DC in a rack should be such that the amount of airflow required for safe operation of IP-920E/DC is not compromised.
- **IP-920E/DC has ventilation opening at the right and rear side.**
- **Do not cover or close these ventilation openings to prevent overheating.**

c) The mounting of IP-920E/DC 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-920E/DC into rack.**
- **Do not install IP-920E/DC into your rack where IP-920E/DC may make the entire rack unstable.**
- **The weight of IP-920E/DC with the maximum configuration: 2.3 kg**

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

e) Confirm that power supplying capacity of power tap is larger than the total nominal power of all devices connected in the rack.
The nominal power of IP-920E/DC is DC +12-24V, 3.2-1.6 A.

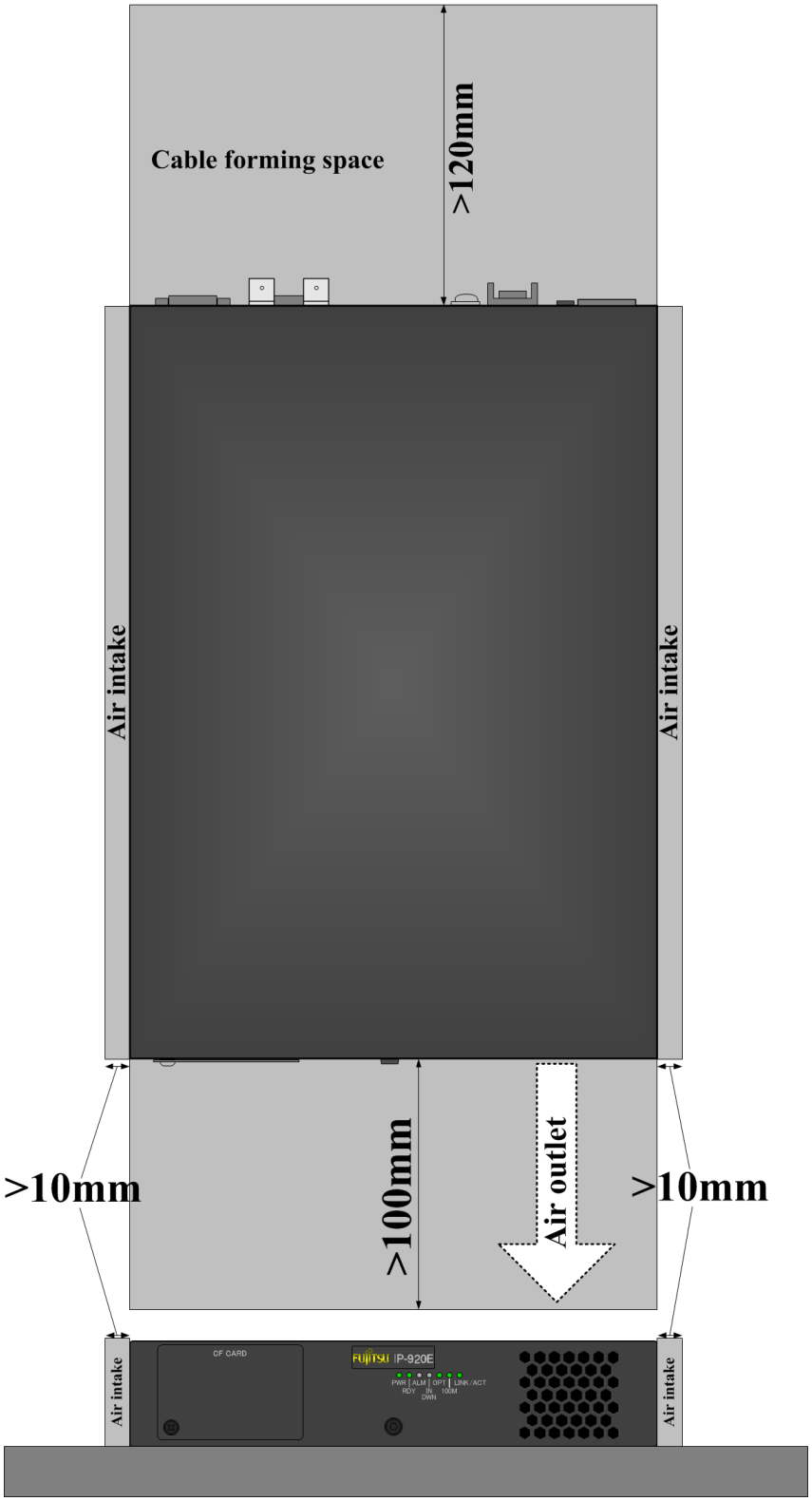
2.1.3 Air supply and exhaust of the equipment

IP-920E/DC is forced air cooled equipment. Be sure not to block the air intake/exhaust vents. Provide an adequate amount of space around the vents.

2.1.4 Open space required around this equipment

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

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

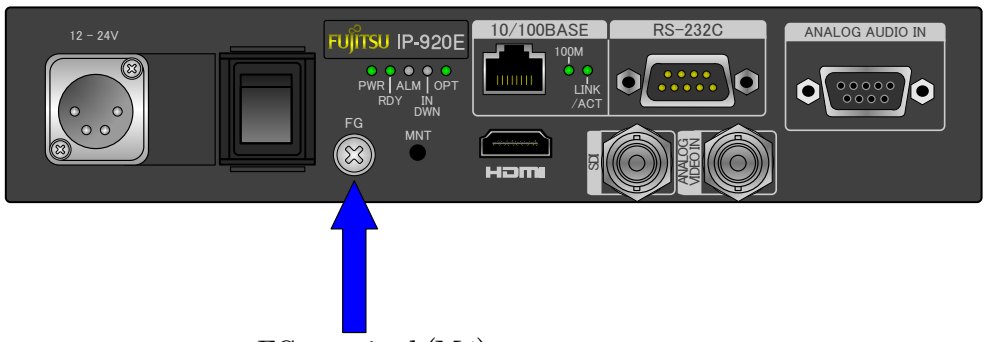


2.2 Power Supply System Connections

This section explains ground and power-source connections.

2.2.1 Connection to ground

When the exogenous noise influences IP-920E/DC, connect the FG terminal to an external ground.



FG terminal (M4)

Figure Connection to ground

2.2.2 Connection to power source

IP-920E/DC is safety-approved Class III devices of IEC60950-1, UL60950-1 and EN60950-1. Therefore, IP-920E/DC needs power source from SELV. Also, in case of using this device in the United States, it needs to be a UL60950-1 approved power-supply unit.

Prepare a power-supply unit outputting DC12-24V with a power consumption of more than 40W and connect to this equipment by using the attached DC power cable.

* In case of using non-attached power cable, select a power cable referring to (9) in "4.2 Cable Connector Details."
Also, power cable can be ordered separately with your suitable length.

<Reference>

・DC power cable (3m) : TA77057-3000 (normally attached)

・DC power cable (length specification) : TA77057-xxxx (Maximum length : 3m)
(TA77057-0500 is 0.5m, TA77057-2000 is 2m)

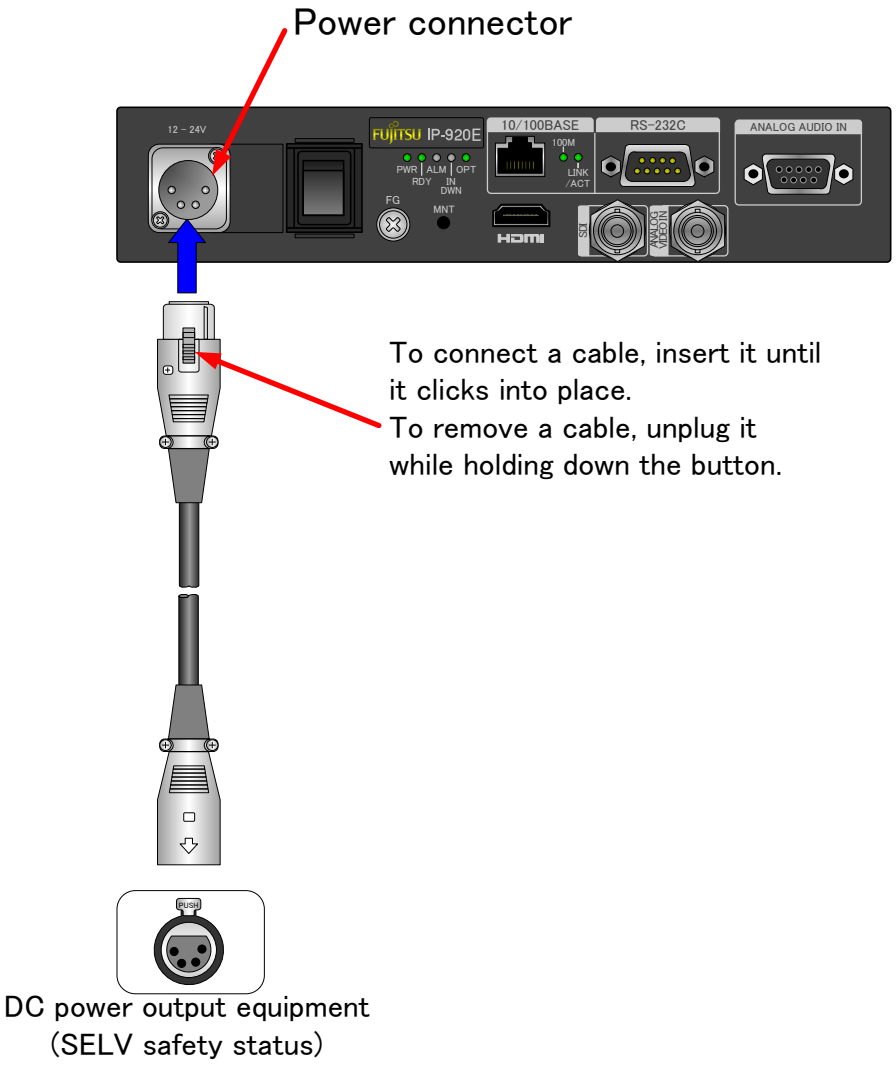


Figure Power cord connection

⚠WARNING

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

Always observe the precautions given below.

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

Use a DC power cable attached to IP-920E/DC. If the attached power cable is unusable, select a power cable referring to (9) in "4.2 Cable and Connector Details."

Use a power-supply unit outputting DC12-24V with a power consumption of more than 40W.

2.3 Audio and Video Device Connections

2 Digital and 1analog video input connectors are equipped for connecting with video output equipment.
- SDI Video Input (Digital Video)
  Connect to SDI IN connector using BNC cable. Input digital HD-SDI or SD-SDI signal.
  The signal is terminated with 75Ω impedance.
- HDMI Input (Digital Video)
  Connect to HDMI connector on front panel of IP-920E/DC using the HDMI cable.
  Input digital signal of HDMI. The signal is terminated with 50Ω.
- Analog Video Input
  Connect to ANALOG VIDEO IN connector using BNC cable with NTSC or PAL signal.

2 Digital and 1analog audio input connectors are equipped for connecting with audio output equipment.
- Digital Audio Input
  SDI Embedded Audio and HDMI audio are supported.
- Analog Audio Input
  Connect to ANALOG AUDIO IN connector of IP-920E using the audio adaptor cable.

The figure of cable connections are shown below.

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

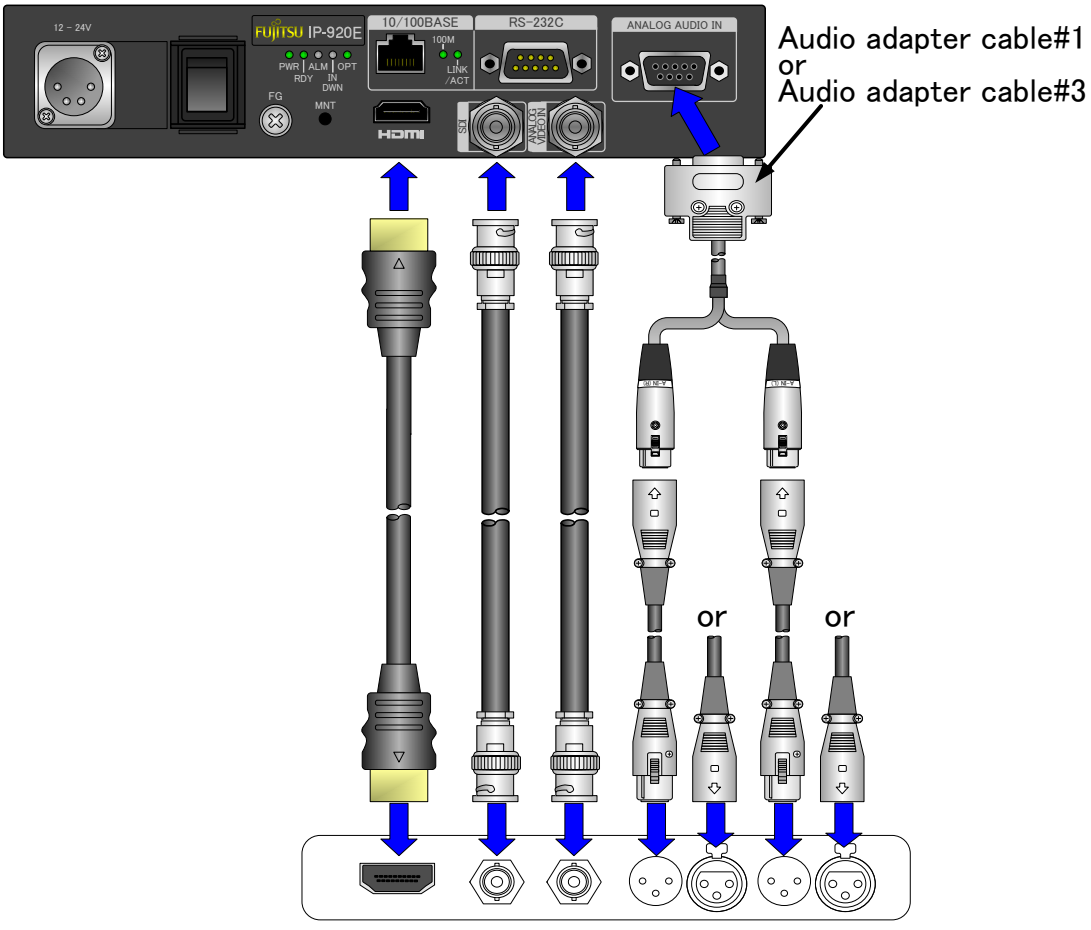


Figure Audio and video output device connections

2.4 Connection to Network

To connect IP-920E/DC to a LAN device, connect the LAN device to the LAN communication port of IP-920E/DC using a LAN cable (UTP cable). The LAN communication port specification of IP-920E/DC 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.”

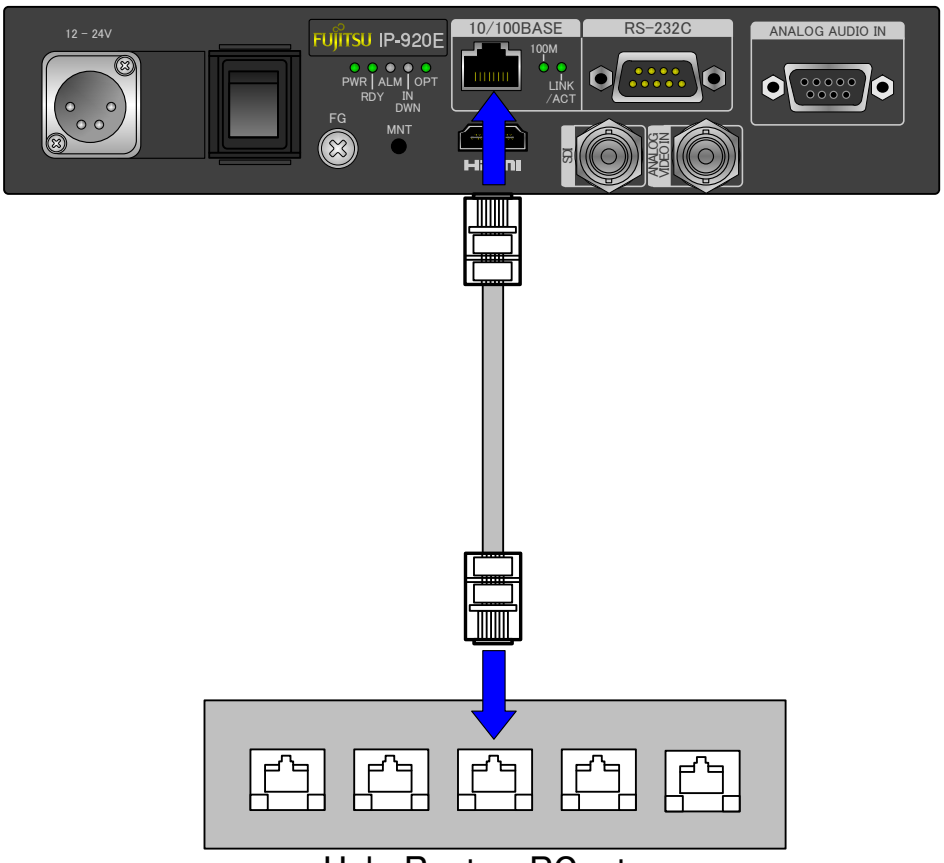


Figure Connection to a network

⚠ 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-920E/DC Software User’s Guide.

2.5 Connection to RS-232C Device

The [RS-232C] connector of IP-920E/DC is the RS-232C communication terminal. The terminal of IP-920E/DC 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.”

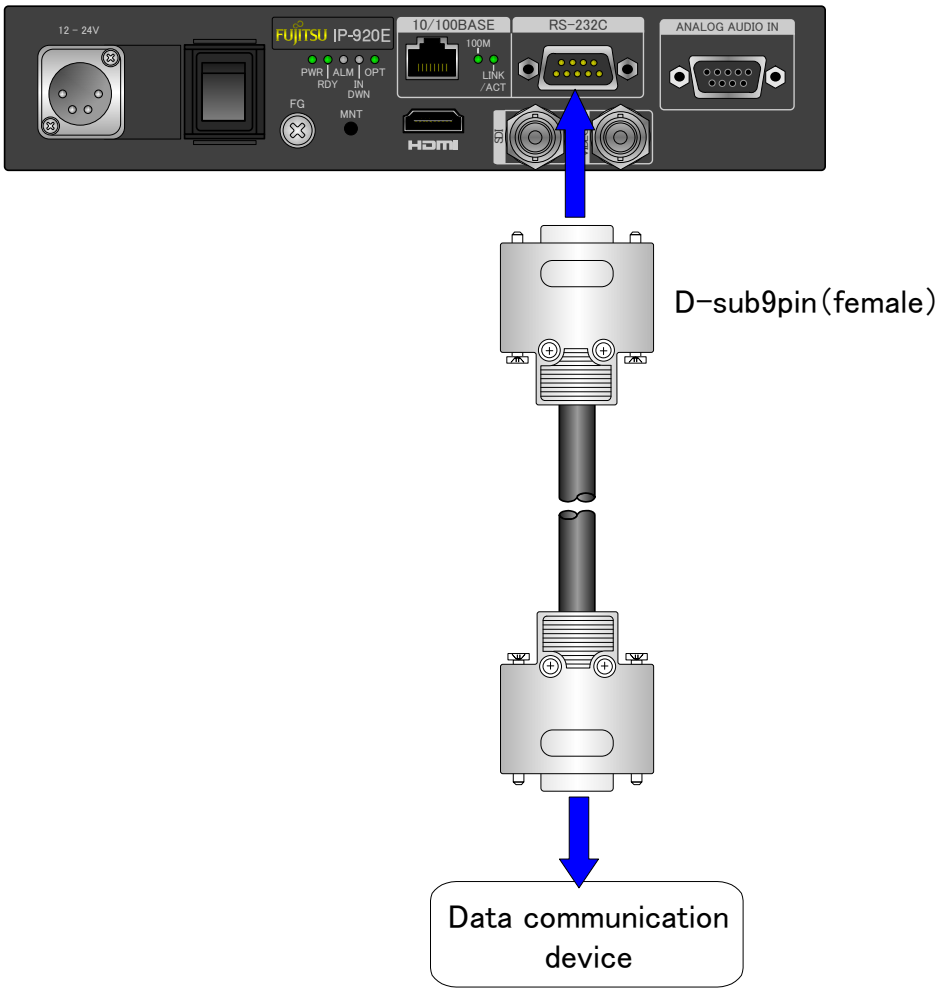


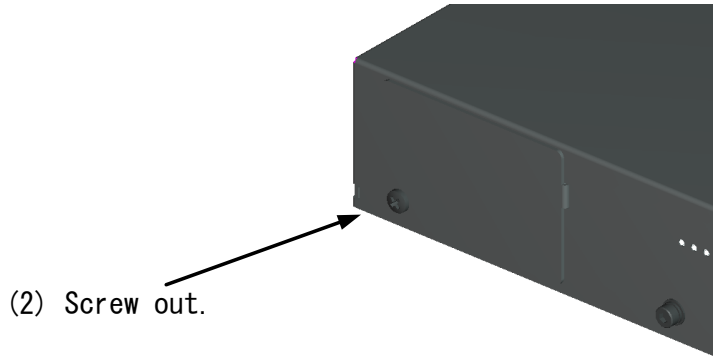
Figure Connection to RS-232C input/output device

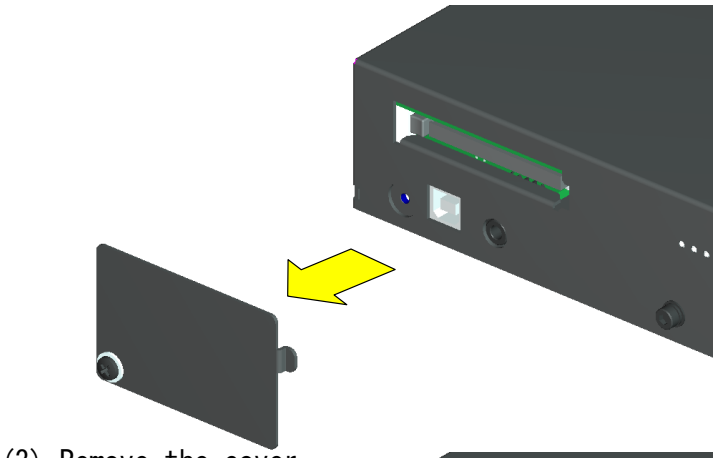
2.6 CF Card Insertion and Removal

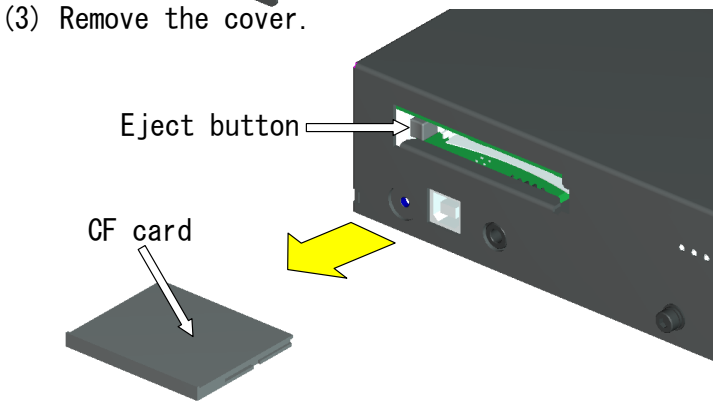
In order to insert the CF card, the front cover of IP-920E/DC must be opened by screwing out the cover. No storage card is supplied with IP-920E/DC. It can be procured separately, depending on the system. The CF card removal procedure is shown below.

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

(1) Check if the power is OFF.







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

(5) Replace CF card and cover it.

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

⚠ CAUTION

Updating the Software

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

CF card consideration

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

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

CHAPTER 3
OPERATION INSTRUCTIONS

This section explains how to power on/off, setup and operate this equipment.

3.1 Turn ON/OFF IP-920E/DC 43

3.2 Device Settings and Operation 44

3.3 Special Use of MNT Button 46

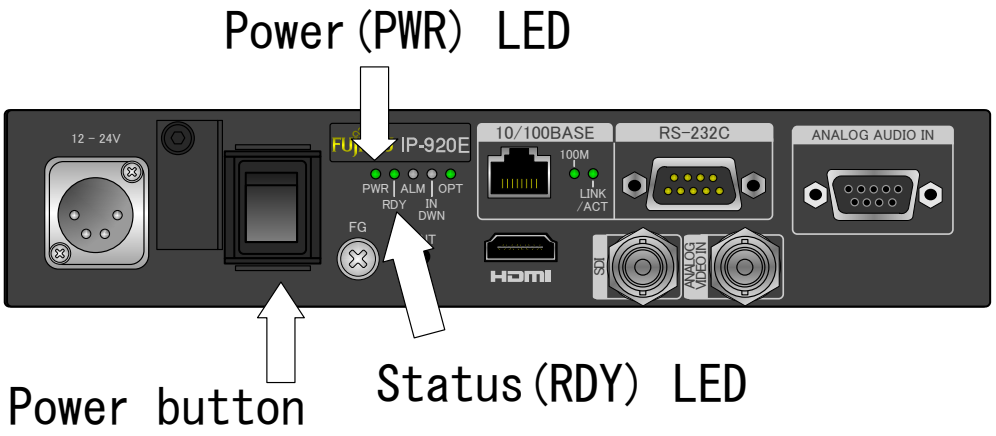
(This page is intentionally left blank)

3.1 Turn ON/OFF IP-920E/DC

This section explains how to power on/off the IP-920E/DC.

3.1.1 Turn on IP-920E/DC

When the power button on the front panel is set to the [|] position, the PWR LED turns on.
When IP-920E/DC completes preparations for operation, the RDY LED turns on.



|	This indicates the on switch, which is used to supply power to the IP-920E/DC.
○	This indicates the off switch, which is used to disconnect power from the IP-920E/DC.

3.1.2 Turn off IP-920E/DC

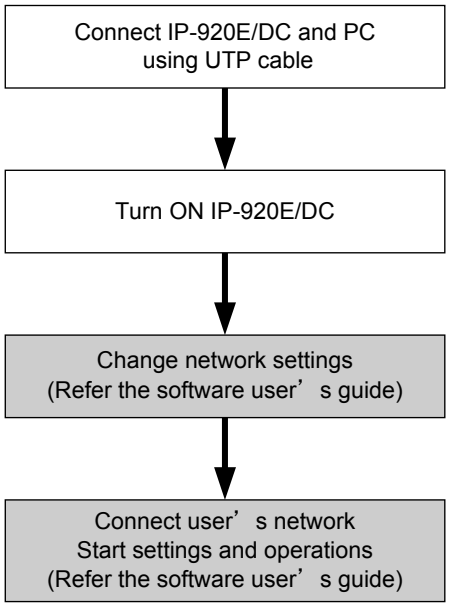
When the power button on the front panel is set to the [O] position, this equipment is turned off and the PWR LED turns off.

3.2 Device Settings and Operation

■Setup Procedure

The setup procedure is shown below.

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



- Check if IP-920E/DC is disconnected to user's network.
- Connect 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.
  For details, please refer to the Software User's Guide.

- Execute the Network setting from WEB GUI after the device starts.
  For details, please refer to the Software User's Guide.

■Web browser recommended

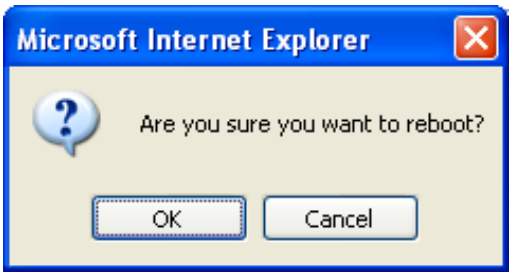
The recommended web browser is as follow.

- Internet Explorer 6.0 SP2 or later

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

3.2.1 Reboot

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



3.3 Special Use of MNT Button

You can start IP-920E/DC 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-920E/DC with the initial IP address and subnet mask with which the IP-920E/DC 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-920E/DC from a control terminal (such as a PC having a LAN interface) (*1).

*1 When you operate the IP-920E/DC with the default IP address, connect this equipment to a control terminal and make setting from the terminal with this equipment disconnected from your network.

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

If you start IP-920E/DC while holding the [MNT] button, set the IP addresses and subnet masks of the control terminal to connect as follows:

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

CHAPTER 4
CABLE SPECIFICATIONS

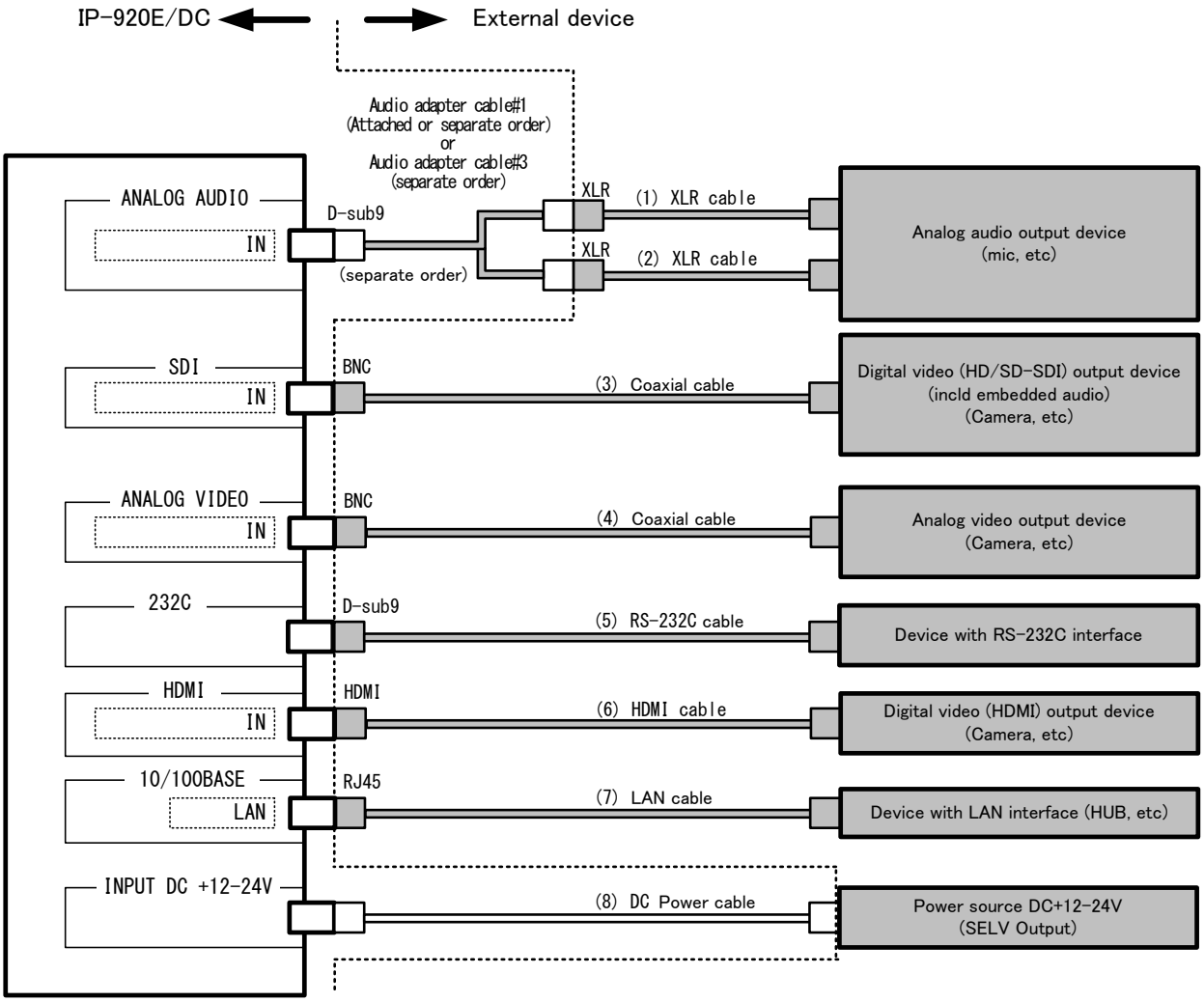
This chapter contains a type of how work is implemented, cable connection system diagrams, and cable connector details.

4.1 Installation Preparations.....49
4.2 Cable and Connector Details.....50

(This page is intentionally left blank)

4.1 Installation Preparations

A type of IP-920E/DC installation work is shown below.

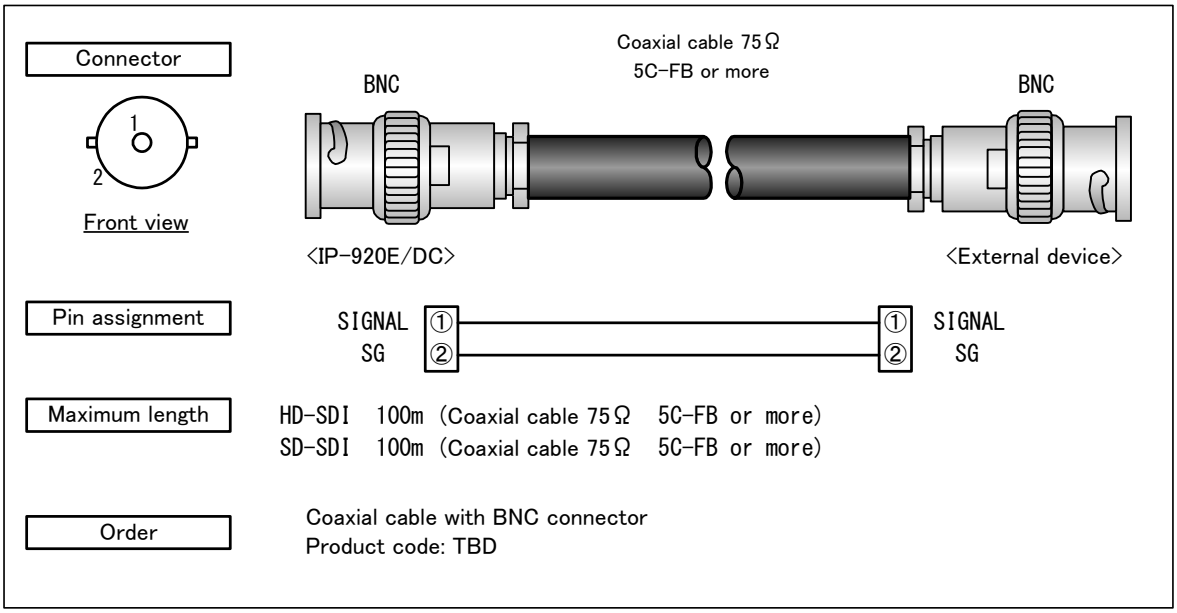


(IP-920E/DC)

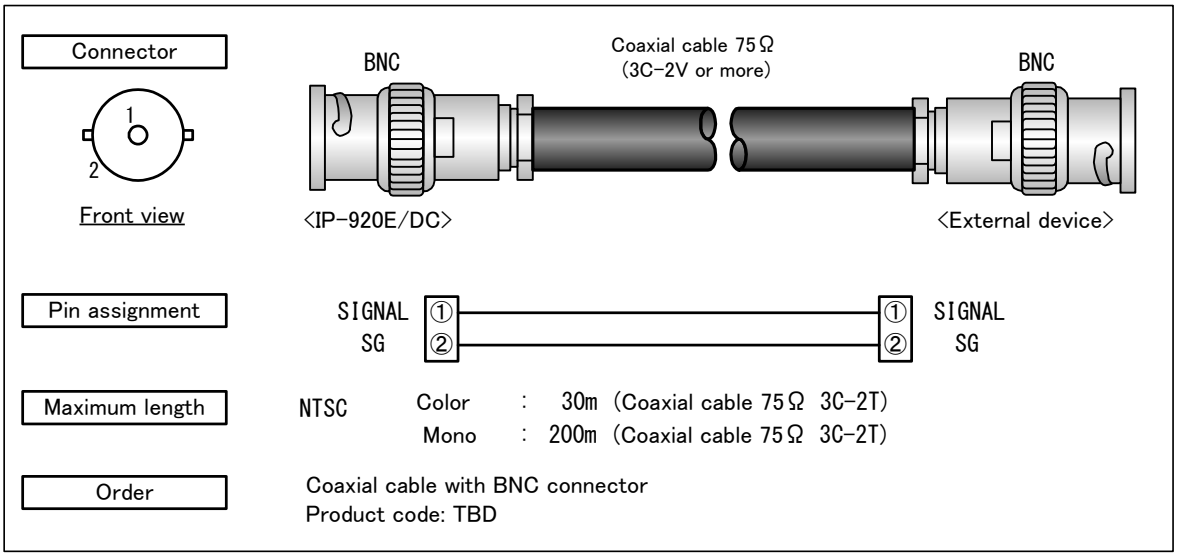
When constructing a system that uses IP-920E/DC, consideration must be given so that its boundary between IP-920E/DC and other devices is similar to that shown in the above figure. Since the type of work may change depending on the system, procure equipment and perform work based on consultations with a system designer.

4.2 Cable and Connector Details

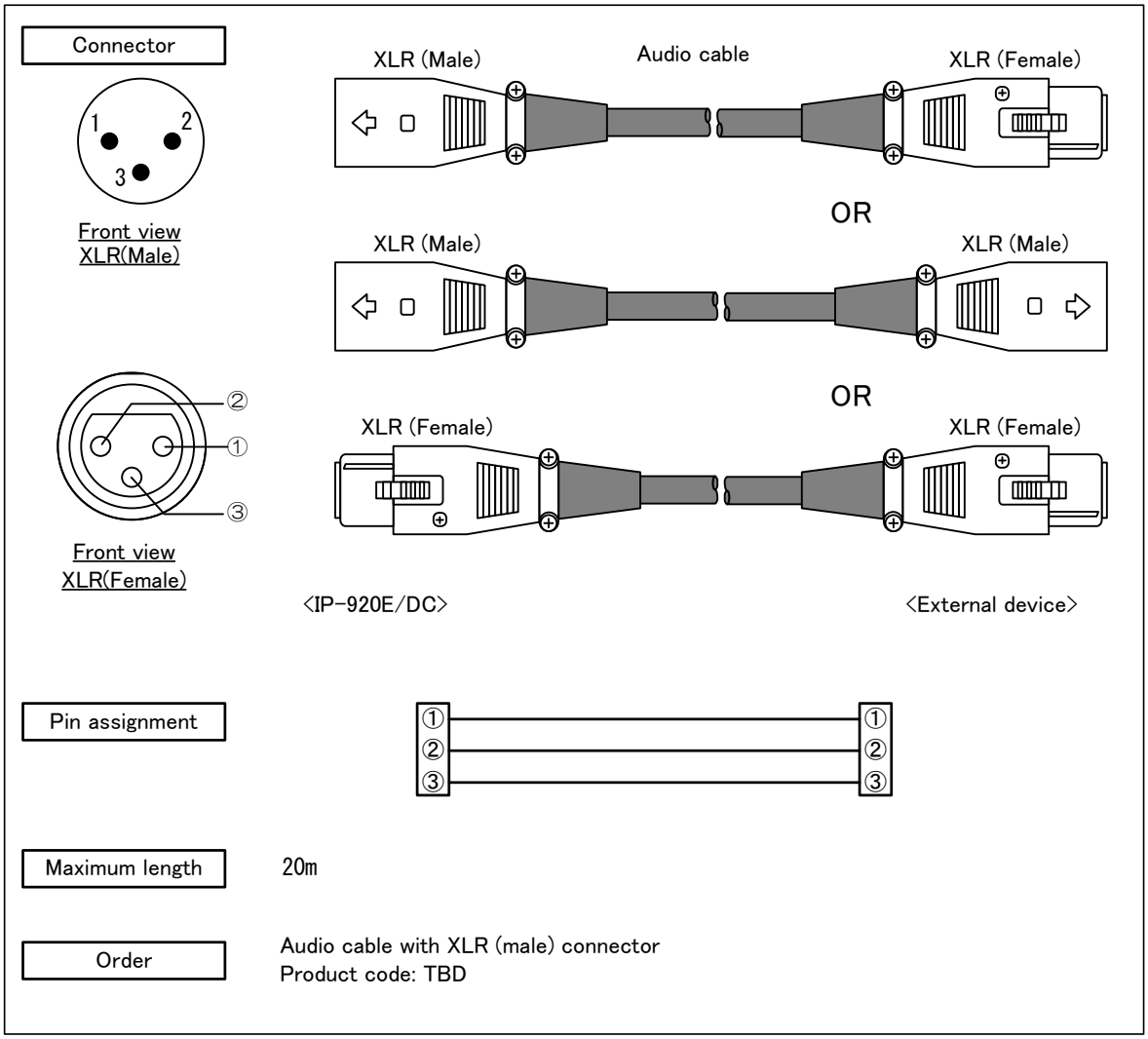
(1) SD I VIDEO cable



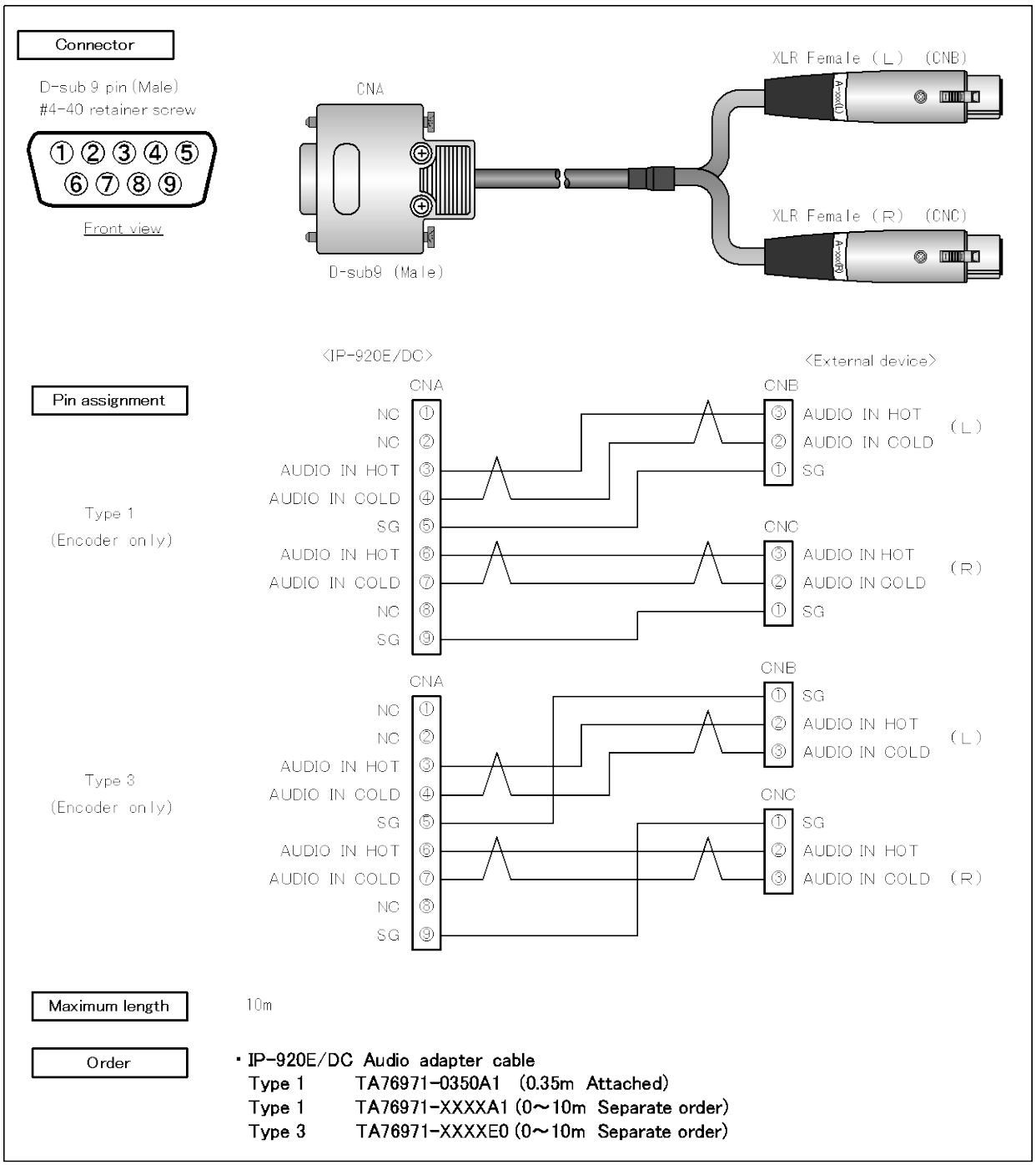
(2) Analog VIDEO cable



(3) Analog AUDIO cable

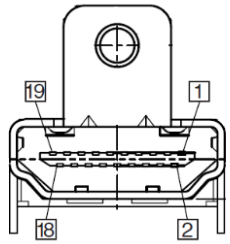


(4) AUDIO Adapter cable (#1, #3)

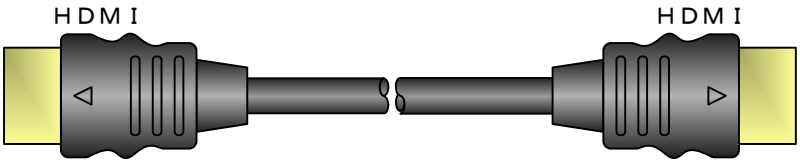


(5) HDMI cable

Connector



Front view



<IP-920E/DC> <External device side>

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

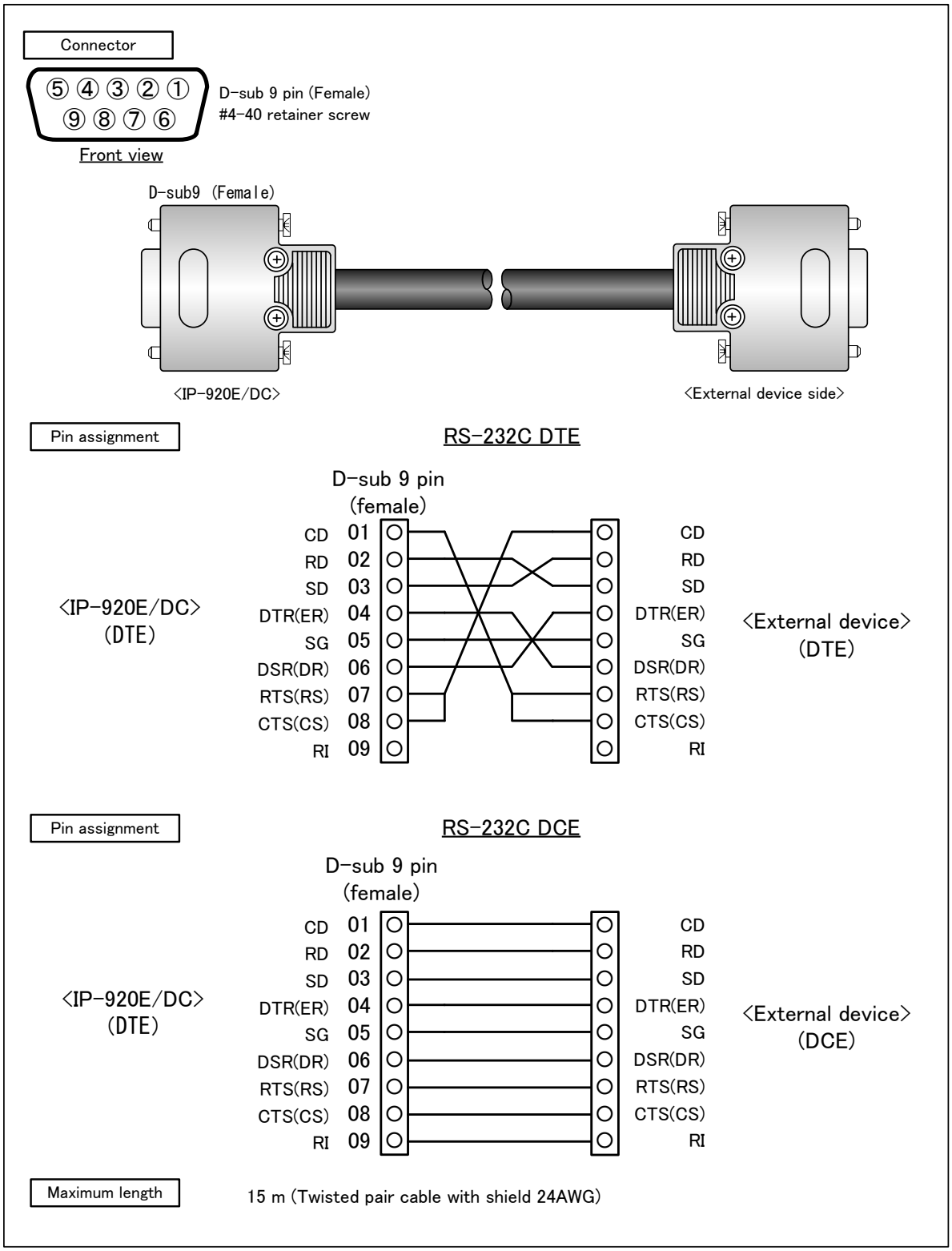
Maximum length

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

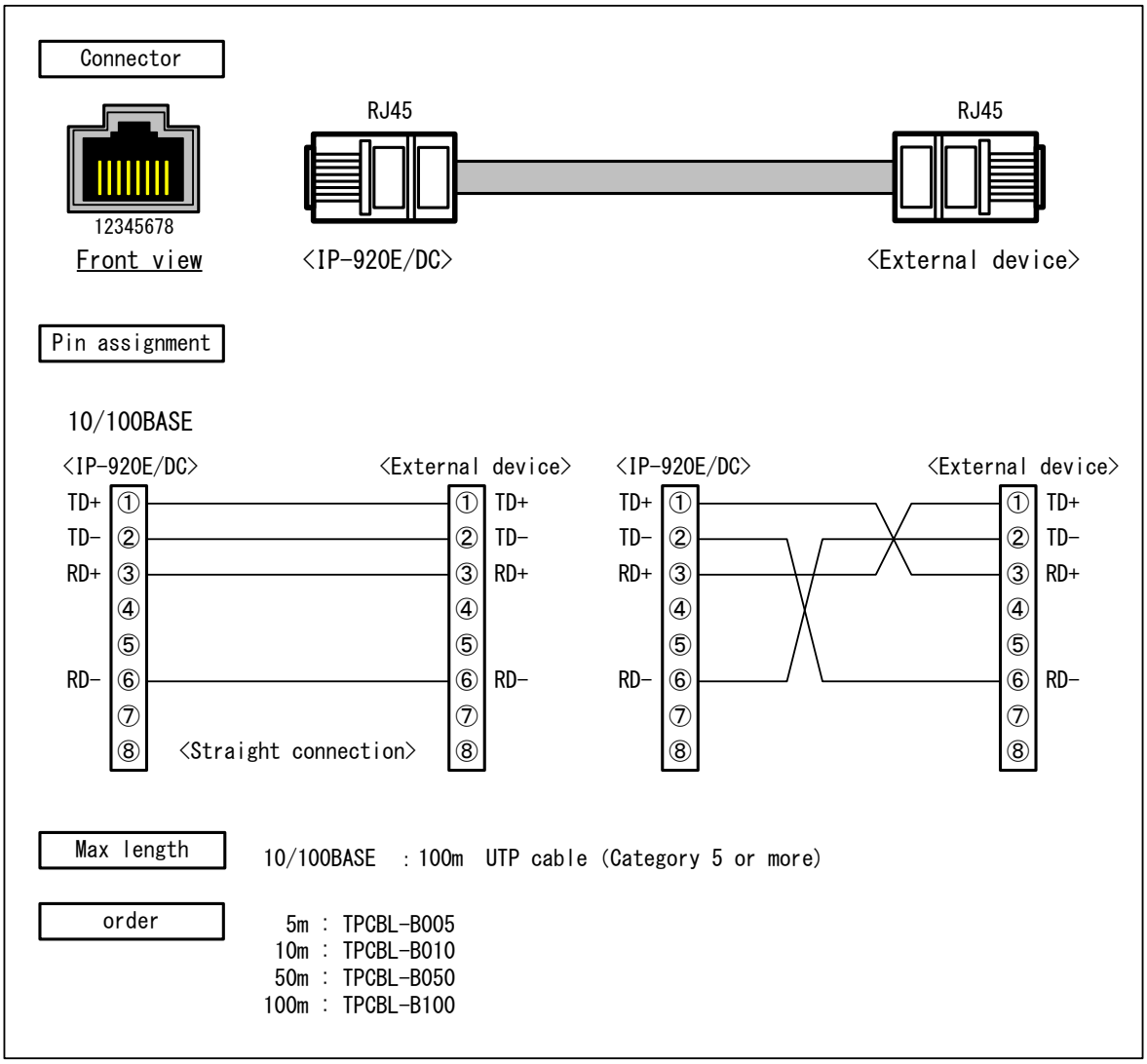
Order

HDMI cable with HDMI connector

(6) RS-232C cable

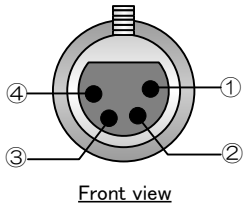


(7) LAN cable

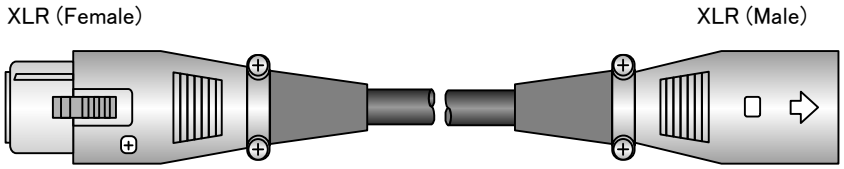

Connector
RJ45
RJ45
12345678
Front view
<IP-920E/DC>
<External device>
Pin assignment
10/100BASE
<IP-920E/DC>
<External device>
TD+ ①
TD- ②
RD+ ③
④
⑤
RD- ⑥
⑦
⑧
<Straight connection>
<IP-920E/DC>
<External device>
Max length
10/100BASE : 100m UTP cable (Category 5 or more)
order
5m : TPCBL-B005
10m : TPCBL-B010
50m : TPCBL-B050
100m : TPCBL-B100

(8) DC power cable (attached to IP-920E/DC)

Connector

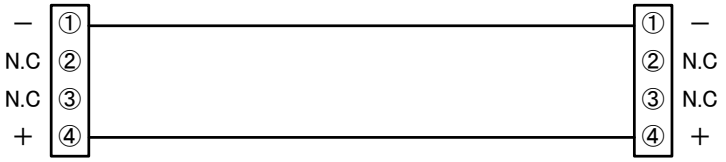


Front view



<IP-920E/DC> <External device>

Pin assignment



Order

・DC Power cord (normally attached) 3m :
TA77057-3000
・DC Power cord (length specified) Maximum length 3m :
TA77057-xxxx
Order example:TA77057-0500(0.5m),TA77057-2000(2.0m)

Manufacturer FUJITSU LIMITED

(9) In case of using non-attached DC power cable

Use a connector, cable and plug that meet the following conditions.

[IP-920E/DC Connector] Equivalent to HA216P-4S(72) / Allowable current: 5A and above / Nominal voltage: 60V and above

[Cable] Size: 0.5 square millimeter and above / Allowable current: 5A and above / Nominal voltage: 60V and above

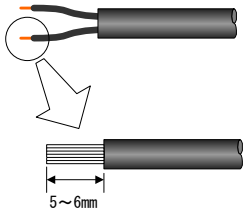
[Plug] Although it depends on the opposite device, select a plug of more than 5A-allowable current and more than 60V-nominal voltage. If you need a specialized tool when making a cable, ensure to use the matching item from the same maker as the plug's maker.

Please refer to the next page for the method of wire connection with IP-920E/DC connector.

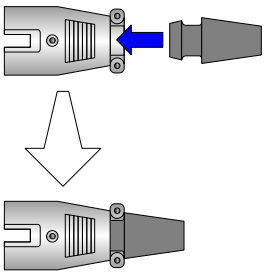
How to connect wiring with IP-920E/DC connector (DC power cable)

In case of using HA216P-4S(72)

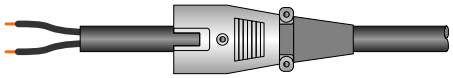
(1) Remove the insulation about 5-6 mm.



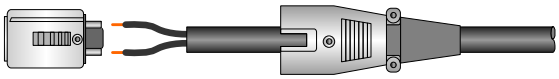
(2) Put the shell and the bushing together.



(3) Pass the cable through the hole.

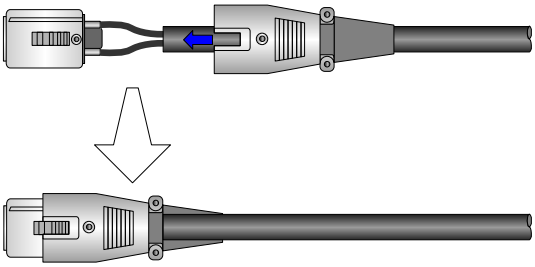


(4) Solder the pin.

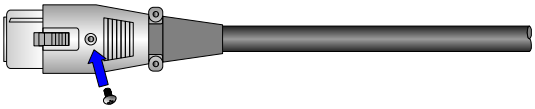


Pin #1 : (-)
Pin #2 : N.C
Pin #3 : N.C
Pin #4 : (+)

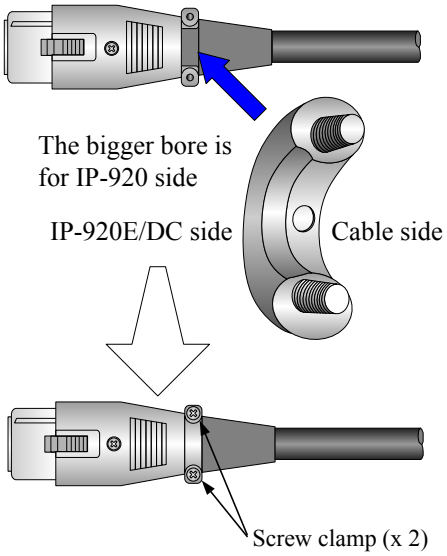
(5) Build it into the shell.



(6) Screw down the barrel.



(7) Screw down the clamp.



(This page is intentionally left blank)

CHAPTER 5
TROUBLESHOOTING

This section explains how to power on/off, setup and operate this equipment.
This chapter describes actions to be taken if this equipment does not operate normally or if an alarm LED turns on.

5.1 Help Information.....61

5.2 Alarm LED Lamp Is On.....65

5.3 Maintenance.....67

(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

No.	Class	Status	Description	Recommended action
1.	Power	Power cannot be turned on.	Is the power cable connected?	Check the power cable is properly connected to the outlet.
2.			Is the outlet voltage normal?	Measure the voltage with a tester and check the voltage is normal. When another device is connected to the same outlet, check the other device's performance.
3.	Device	The ALM LED is on.	Equipment error is occurred.	Contact to CE in Fujitsu Service Center. CE may ask the alarm code for checking your status. Check each alarm code using log information screen of Web GUI before you contact to us.
4.		The ALM LED is blinking.	Settings/ Performances of the equipment and each error is shown.	Check alarm code using log information screen of Web GUI. The countermeasures are shown.
			E013 Temperature warning	Check whether the condition is satisfied with "2.1 Installation Conditions" or not. - Do you secure certain space for air supply and exhaust opening? -Is ambient temperature within the condition? In case of having problems in the conditions above, reboot the equipment after excluding the all problems. In case of not having any problems, contact to Fujitsu CE because the equipment might be failed.
			E084 CF card access error E085 CF card power error	CF card or this equipment might be abnormal. In case that you have the spare CF card, please check whether the problem is recovered after replacing the failed card to the spare. Contact CE in Fujitsu Service Center in case that you do not have the spare or the problem is not recovered even after the replacement.
			L009 DHCP connection failure L00A PPPoE connection failure	Please refer to 43 of this table.
5.		The LEDs excluding LAN are on.	Is the ambient temperature of this equipment within the condition of specification?	If yes, adjust the temperature within the condition of specification. ⇒Refer to "2.1.1 Environment Conditions".
			Do you secure indicated space in the condition for air supply and exhaust opening?	If no, secure the space. ⇒Refer to "2.1.3 Air supply and exhaust of the equipment".

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

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

No.	Class	Status	Description	Recommended action
36.	Audio	Noise is generated on the receiving device.	Is the receiving device operating normally?	If pulling out the line input cable from the receiving device does not eliminate the noise, this equipment can be assumed to be operating normally. Check the receiving device.
37.			Is packet loss occurred on the decoder?	If yes, 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?	Check the power supply and operation of the communication destination device.
39.			Are the LINK LEDs on this device and the hub turned on?	If the LINK LEDs are not ON, the LAN cable is not connected. Connect the LAN cable correctly.
40.		Device setting through a LAN is disabled.	Is the IP address specified from the Web browser correct?	Specify a correct IP address from the Web browser on the control terminal.
41.			Are the network settings (IP address, subnet mask, etc.) on the control terminal PC correct?	Make correct settings by referring to the PC user's guide and OS handbook. If this device is started with the default settings made before shipment from the factory, refer to "Section 3.2, "Device Settings and Operation," for the network settings for the control terminal PC.
42.			Is a reply received in response to a PING command issued to the IP address of this equipment?	If a reply is not received, turn on the power to this equipment while holding down the MNT button to start the system with the default IP address (10.0.0.1) set before shipment from the factory. Confirm the IP address. If the problem persists, check the status on the LAN. For information on this startup procedure, refer to Section 3.3, "Special Use of MNT Button."
43.			Is ALM LED blinking?	IP address mode setting is not proper. After rebooting this equipment with the default IP address set before shipment from the factory, connect to the Web and confirm these alarm codes. - L009 DHCP connection failure Check DHCP-related setting and DHCP server setting/operation of this device are correct. - L00A PPPoE connection failure Check PPPoE-related setting and PPPoE server (carrier side) operation of this device are correct. For details, please refer to the Software User's Guide.

5.2 Alarm LED Lamp

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

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

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

Table 5.2 Alarm codes and corrective actions

Code	Corrective action
Lxxx	LAN network related alarms are shown as "Lxxx". Alarm LED is not turned on. Each code's description and the countermeasures are shown below. Check the network and destination device. If an error cannot be identified or recovered, contact your system administrator or Fujitsu CE.
L001	LAN is not connected. Check the connecting status of LAN cable and the settings of the network equipment such as hub.
L006	Time synchronization with the time server is failed. Check time server and the related settings of this equipment and whether the server works correctly or not.
L009	Failed to establish DHCP connection. Check DHCP server and the related settings of this equipment and whether the server works correctly or not.
L00A	Failed to establish PPPoE connection. Check PPPoE related settings and whether the server (provider side) works correctly or not.
L010	Failed to IPv6 Stateless Address Autoconfiguration. Check IPV6 router and the related settings of this equipment and whether the router works correctly or not.
Ixxx	This alarm is related with input status. Each INDWN LED (IP-920E) and DEC LED (IP-920D) is turned on or blinked. Each code's description and the countermeasures are shown below. If an error cannot be identified or recovered, contact your system administrator or Fujitsu CE.
I001	No SDI input signals. Check SDI output equipment and SDI cable which are connected to SDI input terminal. INDWN LED is turned on in orange.
I002	No HDMI input signals. Check HDMI output equipment and HDMI cable which are connected to HDMI input terminal. INDWN LED is turned on in orange.
I003	No Analog video input signals. Check Analog video output equipment and analog video cable which are connected to Analog video input connector. INDWN LED is turned on in orange.
I011	Synchronization error with input signals. Check whether format settings of this equipment for the signal are adequately specified or not. INDWN LED blinks in orange.
Exxx	This alarm shows the error of this equipment and ALM LED is turned the light on or blinked. Turn off the equipment at once and turn on the power again. In case of not turning off ALM LED even if you reboot the power, contact Fujitsu CE. Our CE may ask you the alarm code. Please refer to "Table 4-3 Alarm Code List" of our software Users Guide for the details.

xxx: Indicates three-digit numbers. Refer to Software User's Guide.

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

Table 5.3 LED display details

Display	Description
PWR	Turns on in green when this equipment is turned on.
RDY	Blinks in green in the operation preparation state, and lights in green in the operation state. Blinks in orange in the maintenance mode waiting state, and lights in orange in maintenance mode.
INDWN	No LED lights in normal state. Lights in orange in the state of audio/video input down or abnormal. Blinks in orange when the input signal slipping for encoder and the reference clock input down for decoder.
ALM	Alarm LED. Blinks or lights in orange when a device alarm occurs. For more details of the alarm log, refer to Section 3.2.7, "Log" of IP-920E/IP-920D Software User's Guide."
OPT	Lights in green when the HD upgrade option is installed.
100M	Turns on in green if the connected LAN is 100BASE-TX. Turns off if the connected LAN is 10BASE-T.
LINK/ACT	Indicates the LAN connection status and data send status. Turns on in green when there is a LAN (HUB) connection. Turns off when there is no LAN connection. Blinks in green when communication is in progress.

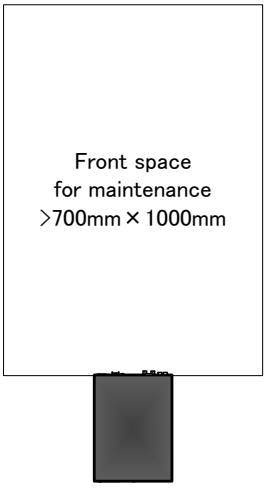
Note) In case of detecting temperature alarm, ALM LED is turned on and the equipment will move to shut down mode.
After moving to the shutdown mode, all LED are turned on except LINK/ACT,100M.

5.3 Maintenance

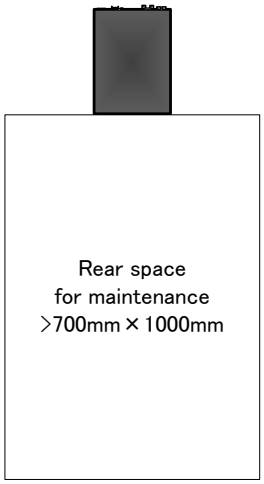
5.3.1 Maintenance space

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

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

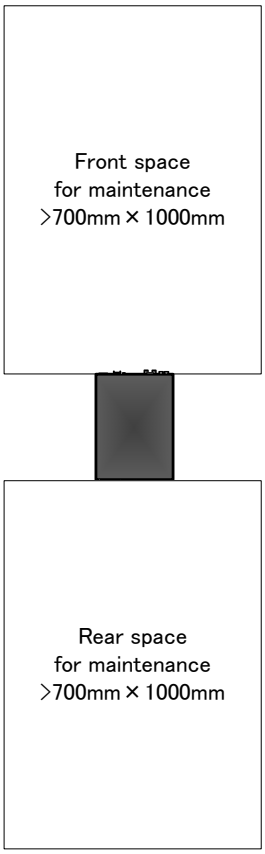


Front access case



Rear access case

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



5.3.2 Change equipment (Only for CE)

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

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

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

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

Appendix

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

A.1 Appearance 71

A.2 Basic Specifications 73

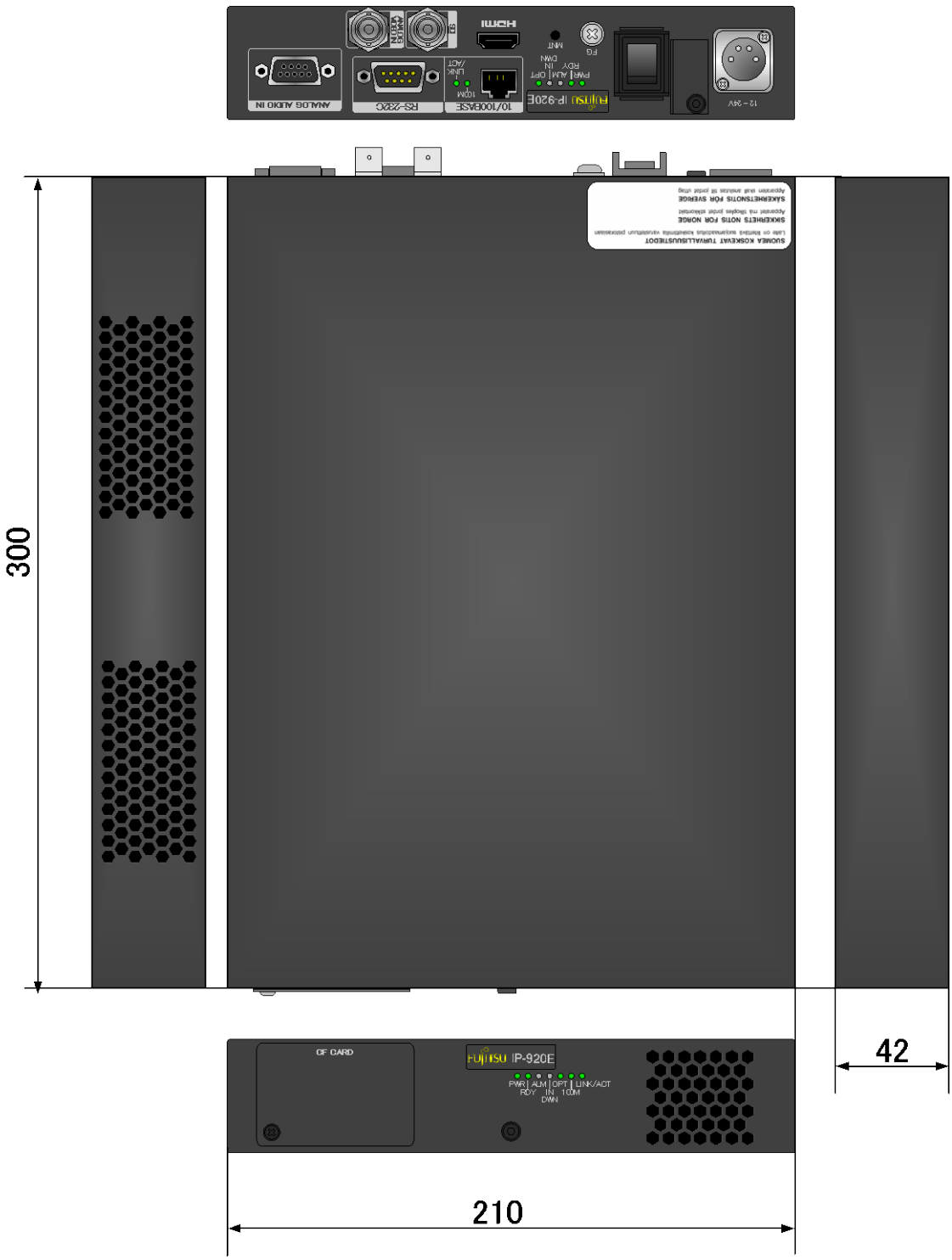
A.3 Preparations for Installation Work 79

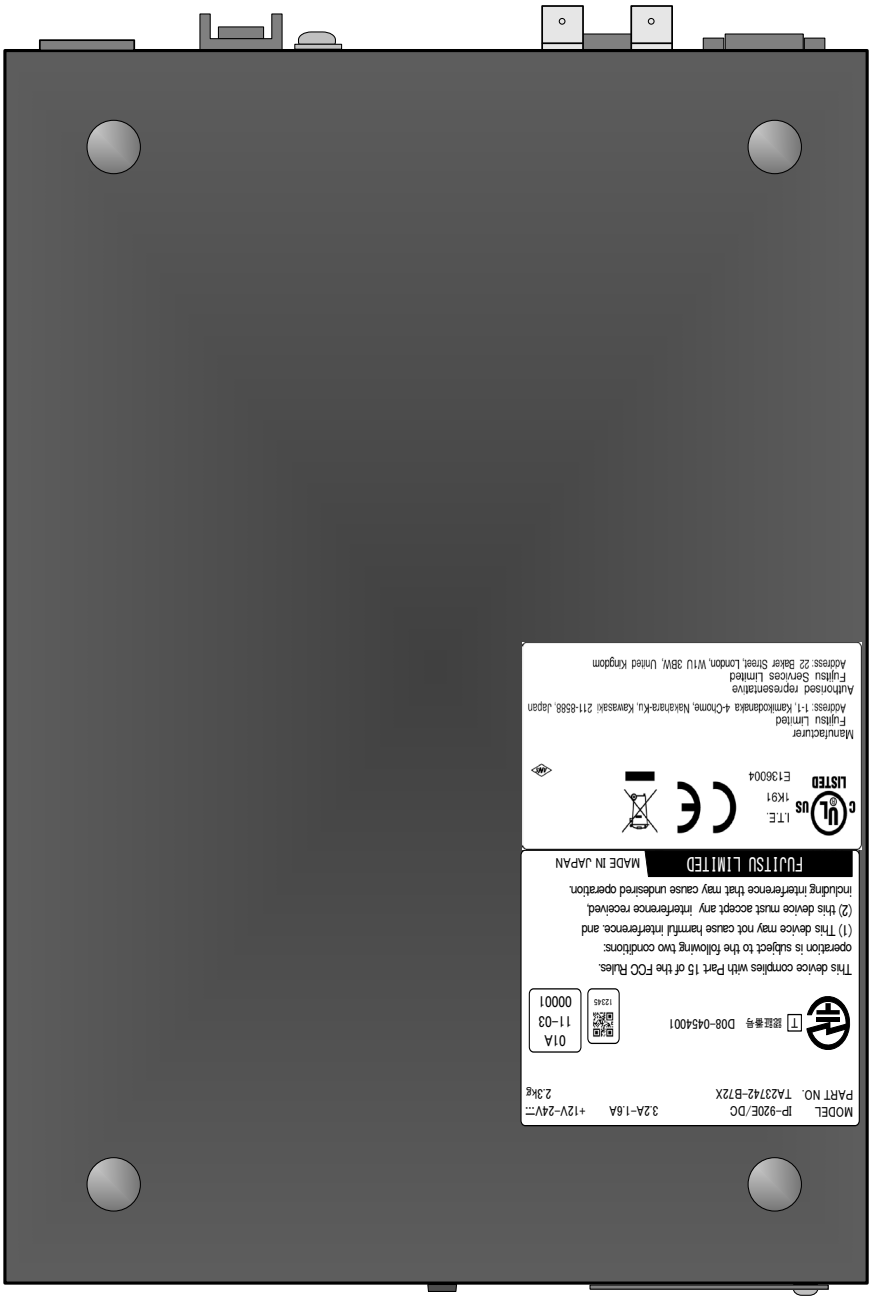
A.4 Preparations for On-site Turn-up 80

(This page is intentionally left blank)

A.1 Appearance

The appearance of IP-920E/DC is shown below.




MODEL IP-920E/DC 3.2A-1.6A +12V-24V⎓
PART NO. TA2374Z-B72X 2.3kg
認証番号 D08-045400l
01A
11-03
00001
This device compiles 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
Manufacturer
Fujitsu Limited
Address: 1-1, Kamikodanaka 4-Chome, Nakahara-Ku, Kawasaki 211-8588, Japan
Authorised representative
Fujitsu Services Limited
Address: 22 Baker Street, London, W1U 3BW, United Kingdom

Bottom View

A.2 Basic Specifications

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

A.2.1 External specifications

This equipment has the following external specifications:

Item	Specifications
Installation conditions	Indoor: Installation on a desk or in a rack that is mounted
Dimensions	Width: 210, Height: 42, Depth: 300 (mm) (excluding projections)
Cooling method	Forced air cooling (maintenance-free fan used)
Power	DC +12-24V
Weight	Max. 2.3 kg
Power consumption	38.4W or less

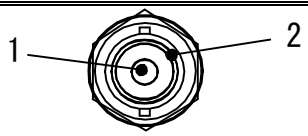
A.2.2 Environment specifications

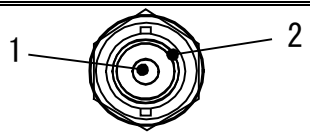
This equipment has the following environmental specifications:

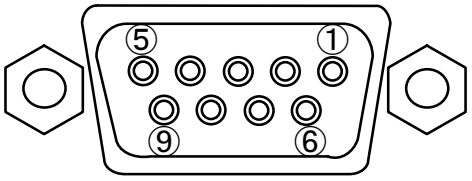
Item	Specifications
Power conditions	DC +12-24V ± 10%,
Temperature and humidity conditions	Temperature: -10 to 55°C (No low temperature startup: -10 to -1°C) Humidity: 20 to 90% (without condensation) (Conditions for guaranteed operation and characteristics)
Dust	Communication equipment room or office environment (0.15 mg/m^3 or less)
Gaseous contamination	In accordance to IEC 60721-3-3 Class 3C1 Sulphur dioxide SO_2 : Max 0.037 cm^3/m^3 Hydrogen sulphide H_2S : Max 0.0071 cm^3/m^3 Chlorine Cl :: Max 0.034cm^3/m^3 Hydrogen chloride HCl : Max 0.066 cm^3/m^3 Hydrogen fluoride HF : Max 0.0036 cm^3/m^3 Ammonia NH_3 : Max 0.42 cm^3/m^3 Ozone O_3 : Max 0.005 cm^3/m^3 Nitrogen oxides NO_2 : Max 0.052 cm^3/m^3
EMI (Electro Magnetic Interference - regulation)	FCC (part 15) Class A EN55022 Class A VCCI Class A
Safety Standard	Approved as Class III device of IEC60950-1/UL60950-1/EN60950-1

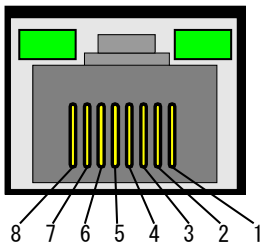
A.2.3 Function specifications

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

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	SIGNAL		
2	SG		

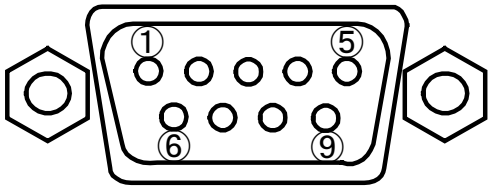
Name	Specifications		Remarks
Analog VIDEO input	Signal format: NTSC (Analog composite, 29.97frames/s) PAL (Analog composite, 25frames/s) Input impedance: 75Ω (Unbalanced) Signal amplitude: 1.0 Vp-p Maximum amplitude level: 0.5dB (0dB=100IRE) Permissible cable length: 30m (3C-2T or equivalent)		
Connector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

Name	Specifications		Remarks
Analog AUDIO input	Signal format: Analog audio Input impedance: 600Ω (Balanced) Signal amplitude: Max. 12Vp-p		
Connector name	ANALOG AUDIO IN		D-sub 9 pin(Female)
	Signal name	Remarks	
1	N.C		
2	N.C		
3	HOT(L)		
4	COLD(L)		
5	SG		
6	HOT(R)		
7	COLD(R)		
8	N.C		
9	S G		

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

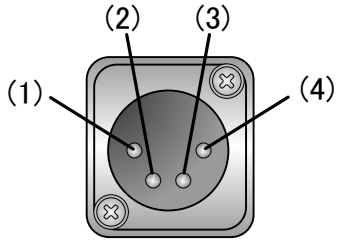
Name	Specifications	Remarks
Data interface (RS-232C)	No. of CH : 1 ch Signal system : Asynchronous Connection : DTE Bit rate : 1200, 2400, 4800, 9600, 19200, 38400 bps Data length :7/ 8 Parity : NONE/ODD/EVEN Stop bit : 1/2	RS-232C

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



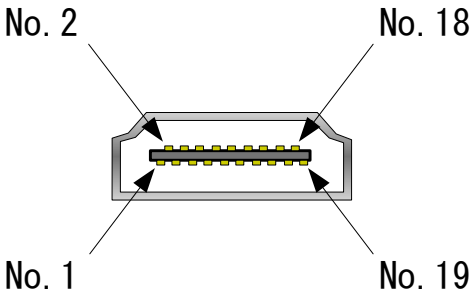
Name	Specifications	Remarks
POWER	Input voltage : +12-24V DC ±10% Connector : 4Pin XLR Connector Button : Locker button Input protection : Built-in fuse Withstand voltage : DC500 V	

Connector name	12-24V		
Pin number	Signal name	Remarks	
1	−		
2	N.C		
3	N.C		
4	+		



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

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



LED name		ON	Blinking	OFF	Remarks
PWR	G	Power ON	---	Power OFF	
RDY	G	Normal operation	Starting up	Software inactive	Blink interval: 0.5s Maintenance mode (Cancel button startup): LAN subnet mask (255.0.0.0)
	O	Maintenance mode LAN (IP=10.0.0.1, Subnet=255.0.0.0)	Maintenance mode starting up		
ALM	O	Equipment alarm	FAN alarm Temperature alarm CF card access error IP address acquisition failure	Normal operation	
IN DWN	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	G	HD-option installed	---	HD-option not installed	

G: Green, O: Orange

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

A.3 Preparations for Installation Work

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

A.3.1 Scope of installation work

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

A.3.2 Unpacking and device check

Unpack and check this equipment as follows:

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

A.3.3 Installation conditions

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

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

Do not install this equipment at the following locations:

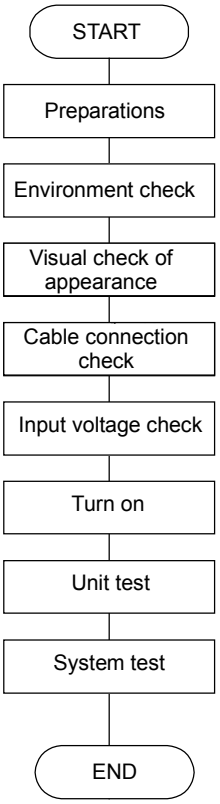
- Place exposed to direct sunlight or near a heater.
- Humid or dusty place
- Place where this equipment is exposed to shock or vibration
- Unstable place, such as on a slope or place with a lot of weight on it
- Place where this equipment is subject to strong magnetic and radio waves

A.3.4 Connecting external cables

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

A.4 Preparations for On-site Turn-up

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



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

(1) Preparations

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

(2) Environment check

1) Ambient air temperature, humidity and power supply
   Check the ambient air temperature, the humidity and power supply conform to A.2.2, "Environment Specifications.
   Confirm that connected power-source equipment supports SELV safety status.

(3) Visual check of appearance

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

(4) Cable connection check

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

(5) Input voltage check

Check the voltage of power supplied to this equipment is in a range of 12-24 VDC ± 10%.

(6) Turn on

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

(7) Unit test

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

(8) System test

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

Glossary and Index

Glossary 85
Index 88
CE Conformity Information 90

(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.

Class III Equipment
Equipment that does not generate higher voltage than SELV (Safety Extra-Low Voltage) by depending on SELV power source for protection against electric shock.

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

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

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

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

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

FG (Frame Ground)
Ground for a cabinet

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

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

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

HDMI (High Definition Multimedia Interface)
One of the multimedia interfaces integrated the audio, video and control and communicate each other.

H.264
This is one of the video compression coding systems standardized in ITU (International Telecommunication Union) in May, 2003. It is also standardized as a part of MPEG-4 (MPEG-4 part 10 Advanced Video Coding) in ISO (International Organization for Standard). Therefore, it is commonly called H.264/MPEG-4 AVC or H.264/AVC, showing both of parties.
This technology is used for the various applications from the low bit rate and low resolution like the mobile TV to the high bit rate, high resolution like HDTV. It is improved that the data capacity is half comparing MPEG-2 used wide spread.

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

Hub
Concentrator required for using 10BASE-T or 100BASE-TX as a local area network (LAN)

standard. Twisted-pair cables are used to connect hubs. A high-speed hub conforms to 100BASE-TX, and a switching hub has switching functions.

IP (Internet Protocol)

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

IP Address

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

IP Multicast

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

LAN (Local Area Network)

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

LED (Light-Emitting Diode)

The IP-920E/DC has a power LED lamp and alarm LED lamps. The power LED lamp is lit in green to indicate this equipment is on. An alarm LED lamp is lit in red to indicate that an alarm has been generated.

MPEG-4

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

PING

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

PPPoE (Point to Point Protocol over Ethernet)

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

PS

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

RS-232C

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

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

Standard definition digital video interface standardized in SMPTE259M.

SELV (Safety Extra-Low Voltage)

SELV is a secondary circuit protected in the structure that electrical potential difference between any two touchable points is not dangerous under the normal condition or even under the condition that any one point is broken.
It is a circuit that line voltage or potential difference from earth is quasi peak value: 42.4V, DC: up to 60V.

SG (Signal Ground)

Ground for signals

Subnet Mask

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

TCP (Transmission Control Protocol)

Abbreviation of Transmission Control Protocol, the protocol required for direct connection to the Internet. In the OSI reference model, TCP corresponds to the transport layer and IP corresponds to the network layer. TCP has been a

global standard protocol that is supported by major operating systems, including UNIX, OS/2, and Windows.

TS (Transport Stream)

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

TTL (Time To Live)

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

UDP (User Datagram Protocol)

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

Unicast

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

UTP Cable

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

10BASE-T

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

100BASE-TX

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

Index

1

100BASE-TX 3, 7, 31, 69
10BASE-T 3, 7, 31, 69
12-24VDC 3, 67, 70

A

Alarm LED 6
Alarm LED lamp 59
Analog AUDIO cable 45
Analog VIDEO cable 44
Appearance 65
Appendix 63
AUDIO Adapter cable 46
Audio and video device connections 30
Audio input 3, 7, 68
AUX port 7
AV input status LED 6

B

Basic application examples 5
Basic specifications 67

C

Cable and connector details 44
Cable Specifications 41
CF card 33
CF Card Insertion and Removal 33
CF CARD slot 3, 7
Change of maintenance parts 62
Components 4
Connecting external cables 73
Connection to an RS-232C device 32
Connection to ground 27
Connection to network 31
Connection to power source 28
Cooling method 67
Cooling system 3

D

Data input/output 3
Data interface 70
DC power cord 50
Device settings and operation 38
Dimensions 3, 67
Dust 67

E

Environment specifications 67
External specifications 67

F

FG terminal 7
Function specifications 68

G

Glossary 79
Glossary and Index 77

H

HDMI 3, 7, 30, 71
HDMI cable 47
HD-SDI 7, 30
Help Information 55
Humidity 3, 67

I

Index 82
Installation and Connection 9
Installation conditions 3, 11, 67, 73
Installation preparations 43
IP address 40, 58

L

LAN cable 49
LAN interface 69
LAN port 7

M

Main features 3
Maintenance mode switch 7
Maintenance space 61

N

Network 3

O

Operation Instructions 35
Option LED 6

P

Part names 6
Power 67, 70
Power button 6
Power consumption 3, 67
Power inlet connector 6
Power LED 6
Power ON/OFF 37
Power supply 3
Power supply system connections 27
Powering off 37
Powering on 37
Preparation for installation work 73
Preparations 1
Preparations for On-site Turn-up 74

R

RS-232C 7, 32
RS-232C cable 48
RS-232C interface 70
RS-232C port 7

S

Scope of installation work 73
SDI VIDEO cable 44
SD-SDI 30
Setup operations 38
Special Use of Cancel Key 40
Status LED 6

T

Temperature 3, 67
Troubleshooting 53

U

Unpacking and device check 73
UTP cable 31

V

Video input 3, 7, 68

W

Web browser recommended 38
Weight 3, 67

CE Conformity Information

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

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

IP-920E/DC
Hardware User's Guide

Edition 9 Jun 2018

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