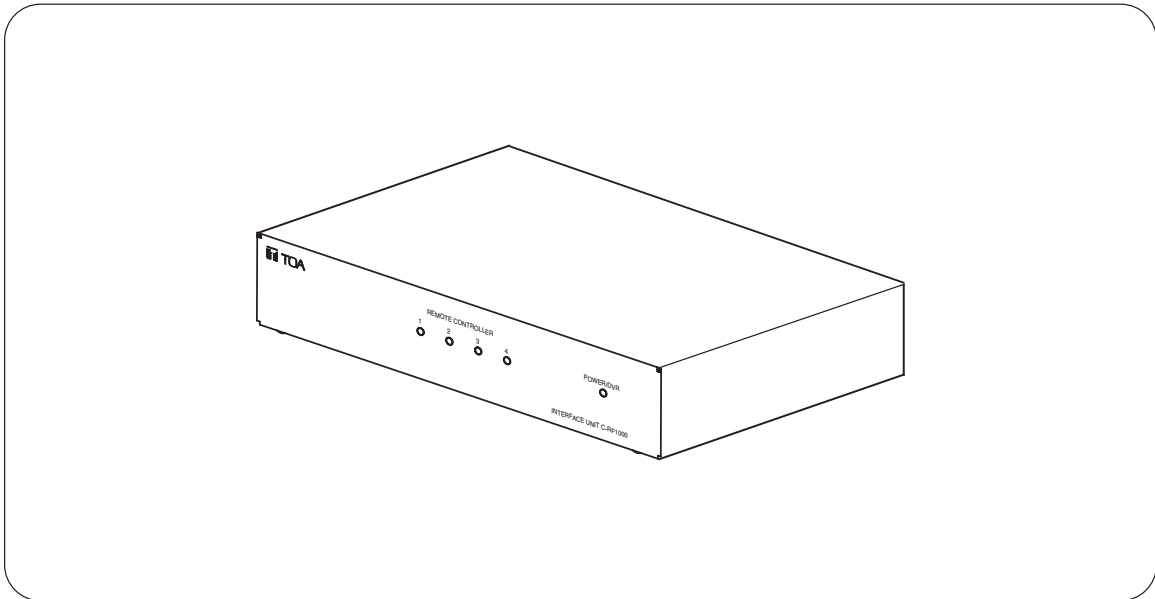


**INTERFACE UNIT**
**C-RF1000**

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Thank you for purchasing TOA's Interface Unit. Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

# 1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Make sure to observe the instructions in this manual as the conventions of safety symbols and messages regarded as very important precautions are included.
- We also recommend you keep this instruction manual handy for future reference.

## Safety Symbol and Message Conventions

- Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.



### **WARNING**

Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.



### **WARNING**

Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

### When Installing the Unit

- This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down and causing personal injury and/or property damage.

### When the Unit is in Use

- If any of the following irregularities occurs, immediately switch off the power, disconnect the power supply plug from the AC outlet and inform the shop from where the unit was purchased. Further using the unit may result in fire or electric shock.
  - If you detect smoke or a strange smell coming from the unit
  - If water or any metallic object gets into the unit
  - If the unit falls, or the unit case breaks
- To prevent a fire or electric shock, never open the unit case nor modify the unit as there are high voltage components inside the unit. Refer all servicing to your nearest TOA dealer.
- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.
- Do not insert nor drop metallic objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.
- Do not touch the control line during thunder and lightning, as this may result in electric shock.
- Avoid using the unit in close proximity to medical equipment, as the electromagnetic field generated by the unit could adversely affect the operation of sensitive medical equipment.



## **CAUTION**

Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

### **When Installing the Unit**

- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.
- Do not connect a network terminal exposed to excessive voltage to the DVR connection terminal, as doing so may result in fire or electric shock.
- Do not connect the DVR Control Output Terminal A (RJ-11) to networks that could be exposed to excessive electrical voltage. Failure to follow this instruction could result in electric shock or fire.

### **When the Unit is in Use**

- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage.
- Clean the unit periodically. Contact your TOA dealer regarding the cleaning. If dust is allowed to accumulate in the unit over a long period of time, a fire may result.

CU version complies with Part 15 of the FCC Rules.

#### **Note**

This equipment 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.

#### **Modifications**

Any modifications made to this device that are not approved by TOA Corporation may void the authority granted to the user by the FCC to operate this equipment.

## **2. GENERAL DESCRIPTION**

The C-RF1000 Interface Unit is used to expand the C-RM1000 Remote Controller when using 2 to 4 Remote Controllers to operate the C-DR091 or C-DR161 Series Digital Video Recorder.

## **3. FEATURES**

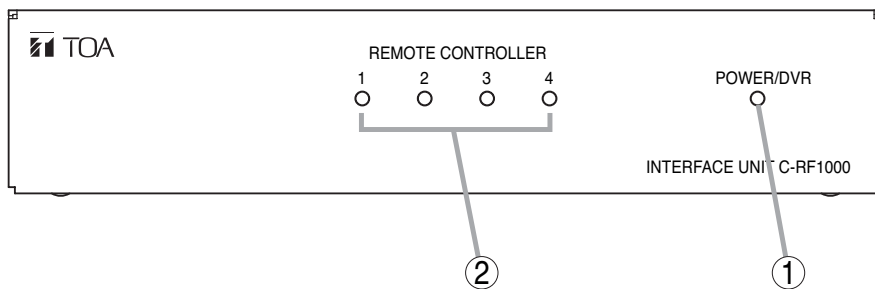
- Up to 4 C-RM1000 Remote Controllers can be connected.
- The Unit's RS-232C port permits control of the Digital Video Recorder. (Multiple Digital Video Recorders can also be connected in cascade and controlled, unlike the Digital Video Recorder's RS-232C port.)

## **4. HANDLING PRECAUTIONS**

- Power is supplied from the Digital Video Recorder if the C-RF1000 is connected to the Digital Video Recorder using the supplied modular cable.
- Do not connect the DVR Control Output Terminal A (RJ-11) to the telephone line.
- When two or more remote controllers are operated simultaneously, operational delay or error may occur. In such cases, operate the remote controller after waiting for a few seconds.

## 5. NOMENCLATURE AND FUNCTIONS

### [ Front panel ]



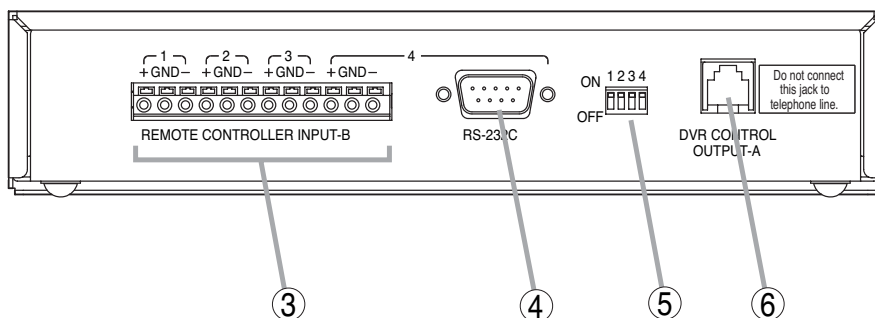
#### (1) Power Indicator [ POWER/DVR ]

Lights when power is supplied from the Digital Video Recorder, and flashes during communications with the Digital Video Recorder.

#### (2) Remote Controller Communications Indicator [ 1 - 4 ]

Flashes when the Remote Controller input terminal receives a signal. Indicator 4 also flashes when the RS-232C port receives a signal.

### [ Rear panel ]



#### (3) Remote Controller Input Terminal B

Used to connect the Remote Controller to the Interface Unit. Remote Controller Input Terminal 4 cannot be used simultaneously with the RS-232C port.

#### (4) RS-232C Port [ RS-232C ]

Connect this port to a PC's RS-232C port to control cascade-connected Digital Video Recorders from the PC. This port cannot be used simultaneously with Remote Controller Input Terminal 4.

#### (5) DIP Switch

Sets the transmission rate of both the Remote Controller input terminal and RS-232C port.

DIP switch	1	2	3	4
Transfer speed			Not used.	
38,400 bps	ON	ON	Factory-preset to ON.	
19,200 bps	ON	OFF		
9,600 bps	OFF	ON		

**Note:** Factory-preset to "38,400 bps."

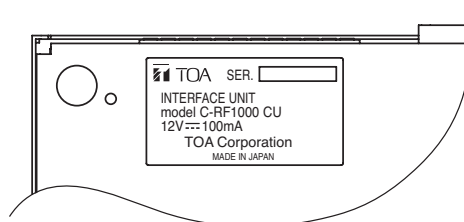
#### (6) DVR Control Output Terminal A (RJ-11)

Outputs signals transmitted from the Remote Controller input terminal or RS-232C port to the Digital Video Recorder. Power is supplied from the Digital Video Recorder when this terminal is connected to the Digital Video Recorder.

#### Note

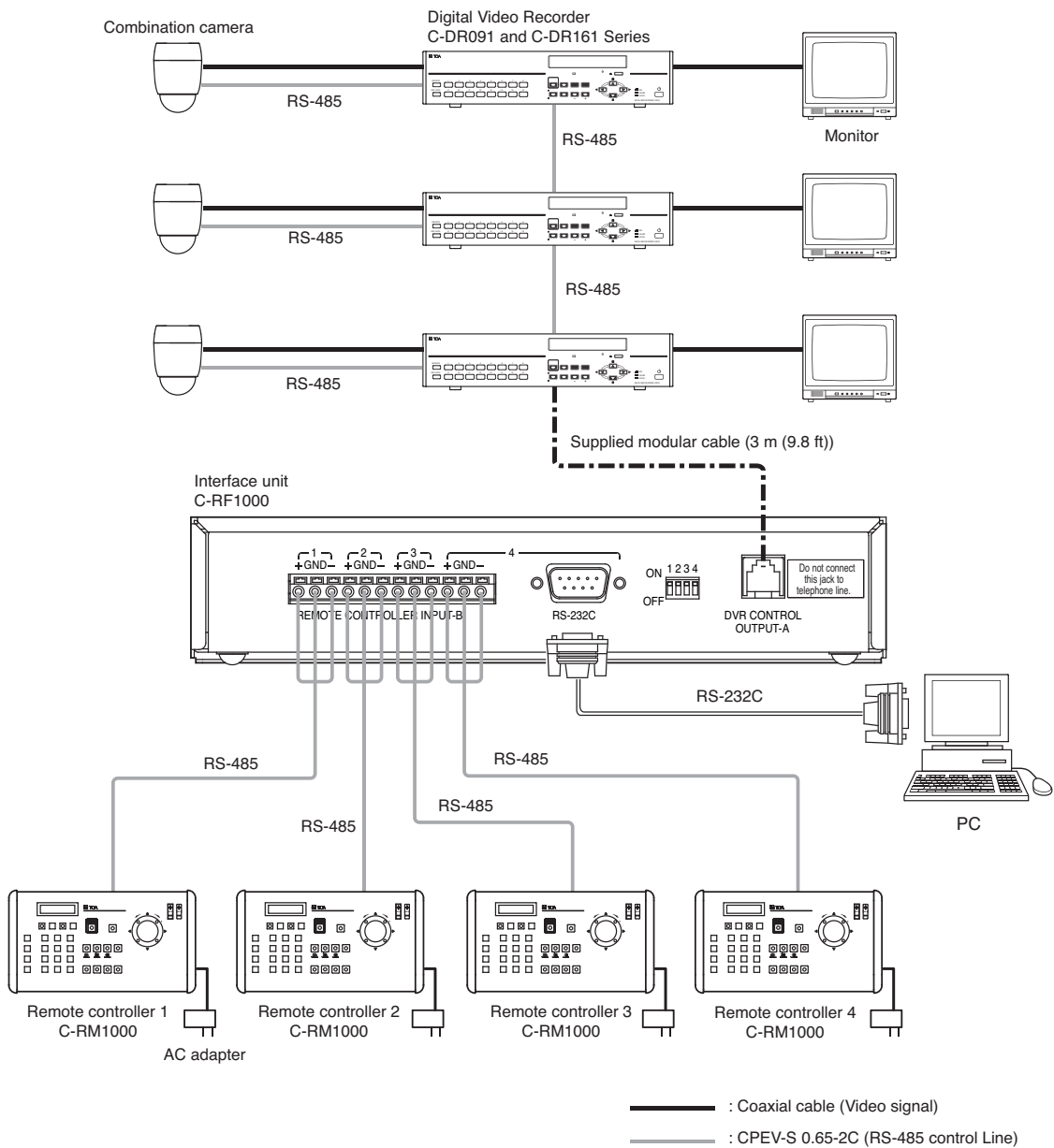
The transmission rate of this terminal is fixed to 38,400 bps regardless of DIP switch settings. Set remote controller's bit rate of the Digital Video Recorder to be connected to 38,400 bps.

### [ Bottom Panel ]



## 6. CONNECTIONS

### 6.1. System Example

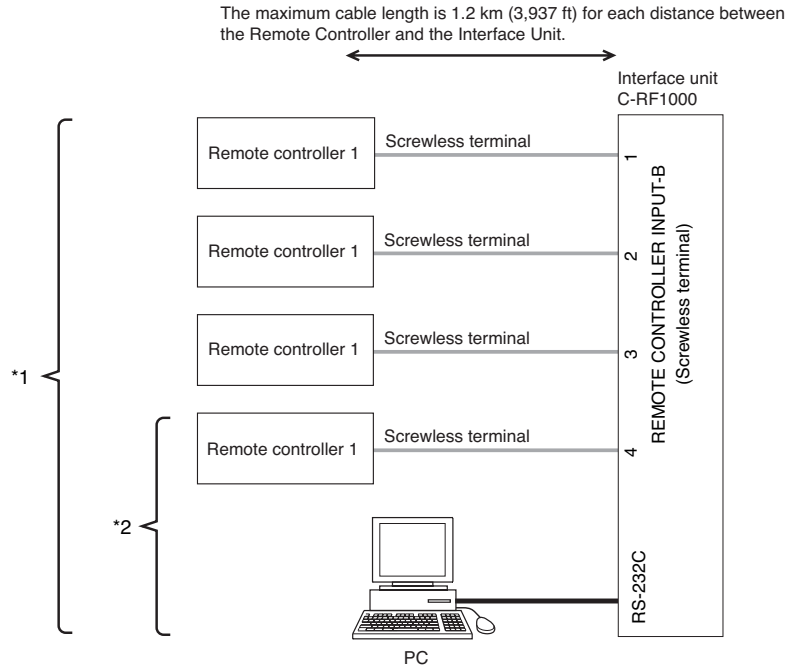


#### Notes

- Use the CPEV-S cable (twisted pair shielded cable) with diameter larger than 0.65 mm (AWG22) for the RS-485 control line. Be sure to connect the shielded cable to the GND terminal.
- When two or more remote controllers are operated simultaneously, operational delay or error may occur. In such cases, operate the remote controller after waiting for a few seconds.
- Remote Controller Input Terminal 4 cannot be used simultaneously with the RS-232C port. Connect either.

## 6.2. ABOUT CONNECTIONS

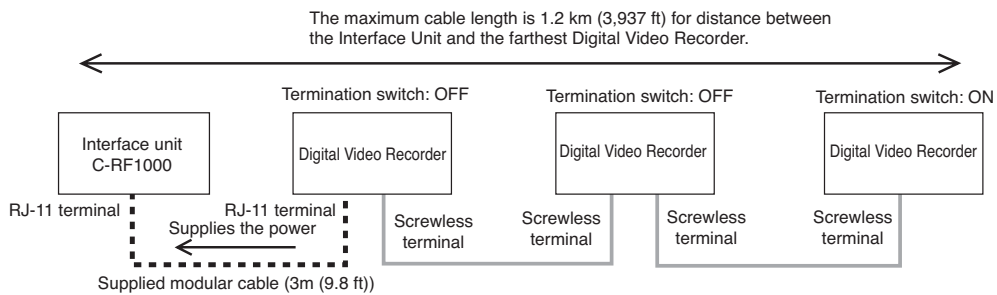
### 6.2.1. When connecting the C-RF1000 to the Remote controller or PC



#### Notes

- \*1. Match the transmission rate of all components connected to the Interface Unit. The Interface Unit's DIP switch settings must also be identical with the Remote Controller's bit rate settings.
- \*2. Remote Controller Input Terminal 4 cannot be used simultaneously with the RS-232C port. Connect either.

### 6.2.2. When connecting the C-RF1000 to the Digital Video Recorder



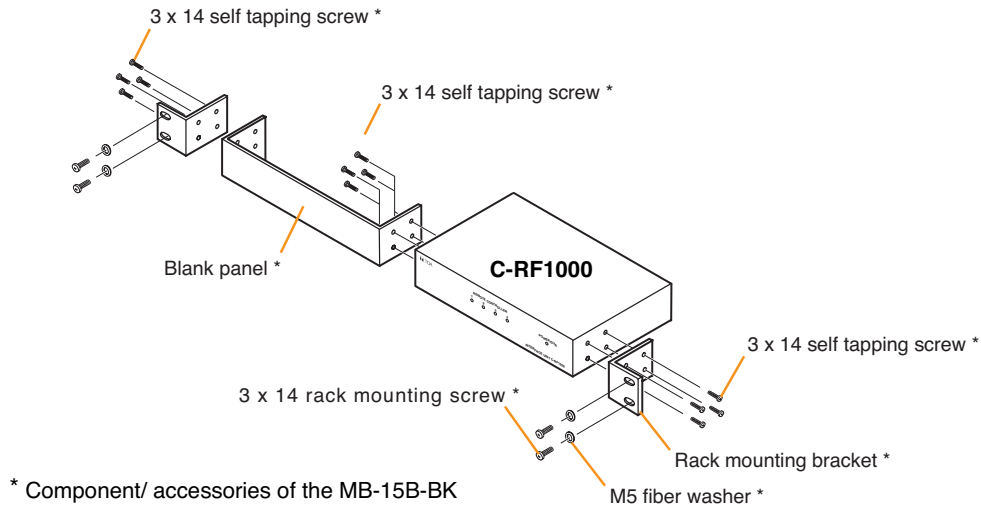
#### Note

The transmission rate between the Interface Unit and the Digital Video Recorder is fixed to 38,400 bps regardless of DIP switch settings. Set remote controller's bit rate of all Digital Video Recorders to 38,400 bps.

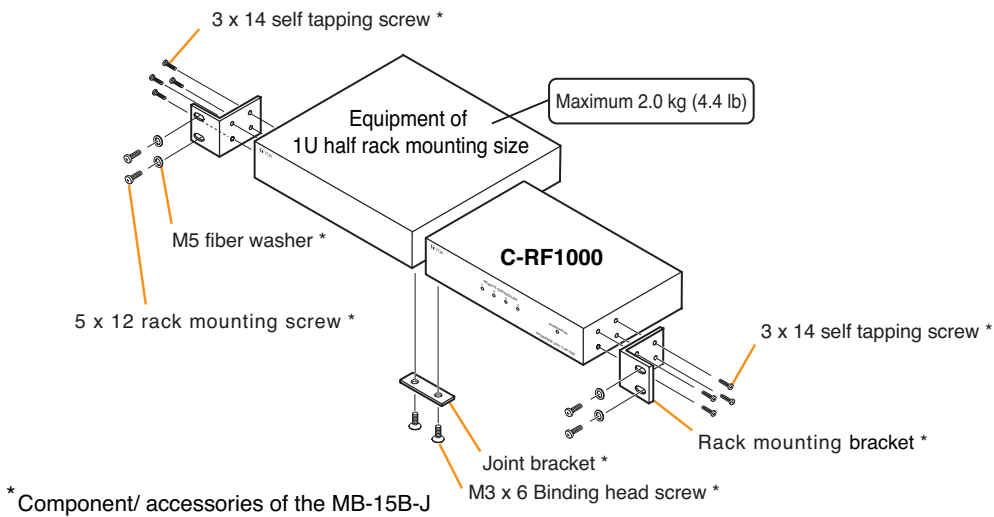
## 7. RACK MOUNTING

Use the optional mounting bracket to mount the unit in an equipment rack.  
When mounting the unit, remove the rubber feet installed on its bottom surface.

### To mount the unit in an equipment rack (Use the optional MB-15B-BK Half Width Blank Panel.)



### To mount the unit in conjunction with other equipment (Use the optional MB-15B-J Joint Bracket.)



- Elevated Operating Ambient Temperature - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (T<sub>mra</sub>).
- Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

## 8. SPECIFICATIONS

Power Source	12 V DC (supplied from the Digital Video Recorder )
Current Consumption	100 mA
Digital Video Recorder Control	RS-485, RJ11 (6P6C) (When the included 3-meter (9.8 ft) modular cable is used)
Remote Control	RS-485, screwless connector (3 pins) x 4 channels
External Control Terminal	RS-232C, D-sub connector (9P, male)
Transfer Speed Setting	38400/ 19200/ 9600 bps (between this unit and the remote controller)
Display	Indicates Power/ DVR control ON status, indication of remote control ON 1 - 4
Number of Remote Controller Connections	Up to 4 (up to 3 remote controllers when the RS-232C terminal is in use.)
Maximum Cable Distance	RS-485 : 1.2 km (3,937 ft) * , RS-232C : 10 m (32.8 ft)
Operating Temperature	0°C to +50°C (32°F to 122°F)
Operating Humidity	Under 90 % RH (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	210 (W) x 44 (H) x 98.8 (D) mm (8.3(W) x 1.7 (H) x 3.9 (D) inch)
Weight	700 g (1.5 lb)
Applicable Model (option)	Digital video recorder : C-DR091/ 161 series Remote controller : C-RM1000

\* Applies to the system where the unit and Digital Video Recorder are connected in a matched pair. Represents the total of connected cable distances if multiple Digital Video Recorders or Interface units are connected in the system.

**Note:** The design and specifications are subject to change without notice for improvement.

### • Accessory

Modular cable (3 m (9.8 ft)) ..... 1

### • Optional products

Rack mounting bracket: MB-15B-BK (Required when mounting a single unit in an equipment rack.)  
MB-15B-J (Required when mounting a single unit with other 1U half-size equipment in an equipment rack.)