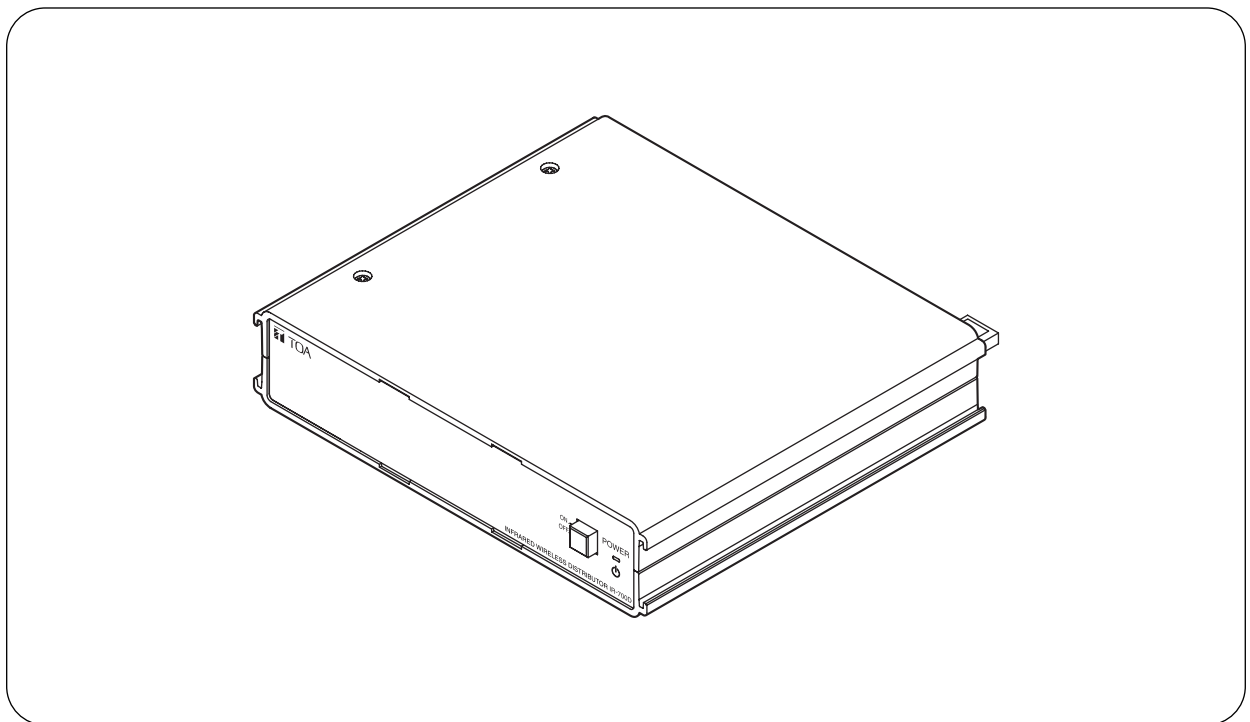




OPERATING INSTRUCTIONS

INFRARED WIRELESS DISTRIBUTOR

IR-700D



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

TOA Corporation

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FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.
Any modifications made to this device that are not approved by TOA Corporation may void the authority granted the user by the FCC to operate this equipment.

1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.



WARNING

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



CAUTION

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



WARNING

When Installing the Unit

- 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.
- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.

When the Unit is in Use

- Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest TOA dealer. Make no further attempt to operate the unit in this condition as this may cause 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
 - If the power supply cord is damaged (exposure of the core, disconnection, etc.)
 - If it is malfunctioning (no tone sounds.)
- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to qualified service personnel.
- 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 touch a power supply plug during thunder and lightning, as this may result in electric shock.



CAUTION

When Installing the Unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.
- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.
- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.
- 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.
- Refer all installation work to the dealer from where the unit was purchased. Installation requires extensive technical knowledge and experience. Improper installation may result in personal injury or electric shock.

When the Unit is in Use

- Use the AC adapter supplied with the unit. Note that the use of other adapter may cause a fire.
- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.
- Switch off the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.

2. GENERAL DESCRIPTION

The IR-700D is a receiver distributor used in the TOA's infrared wireless microphone system.

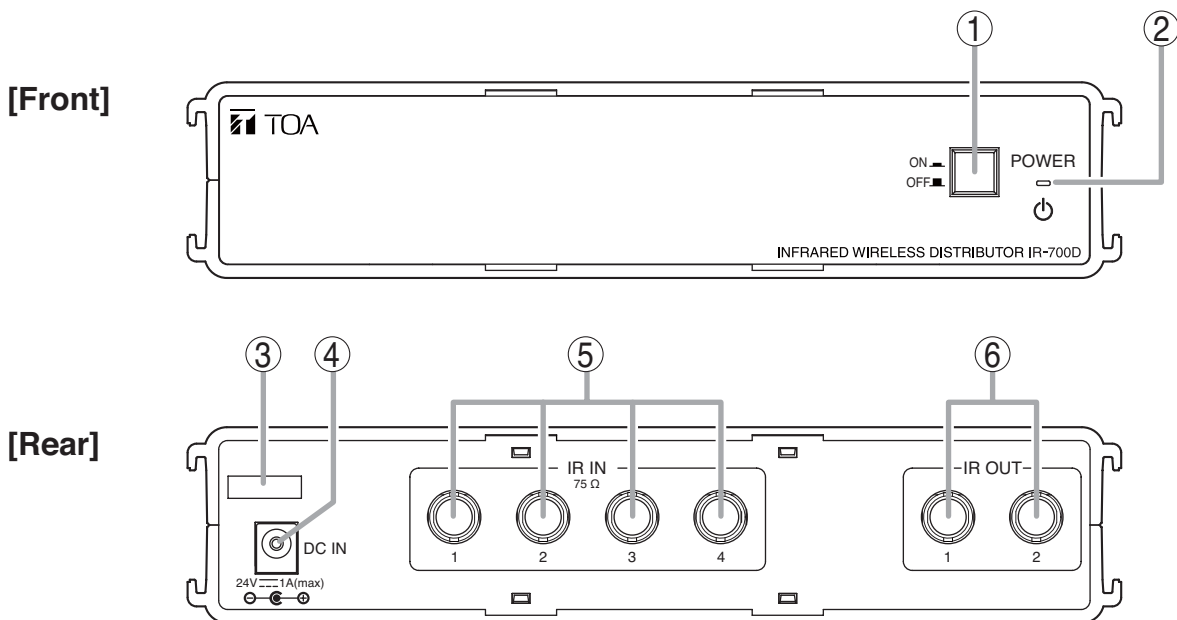
It employs 4 receiver mixing inputs and 2 distribution outputs.

By using the IR-700D in conjunction with the IR-702T Infrared Wireless Tuner, up to 16 infrared wireless receivers can be connected to the IR-702T.

3. HANDLING PRECAUTIONS

- Install the IR-702T as far as possible from fluorescent lights, digital equipment, PCs and other devices that generate high-frequency noise.
- When cleaning, be sure to first switch off the tuner's power, then wipe with a dry cloth. If the tuner is extremely dirty, use a cloth moistened in a neutral detergent. Do not use benzene, thinner, alcohol and chemically-processed towels, as they can cause damage to the tuner's components and parts.

4. NOMENCLATURE AND FUNCTIONS



1. Power switch

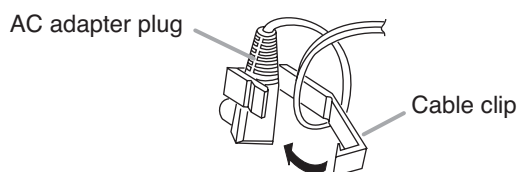
Press this switch to turn on the power.
To turn off the power, press this switch again.

2. Power indicator

Lights when the power is switched on.

3. Cable Clip

Run the AC adapter cable through this clip to prevent its plug from being removed.



4. DC inlet [DC IN]

Connect the supplied AC adapter.

5. Receiver mixing input terminals [IR IN]

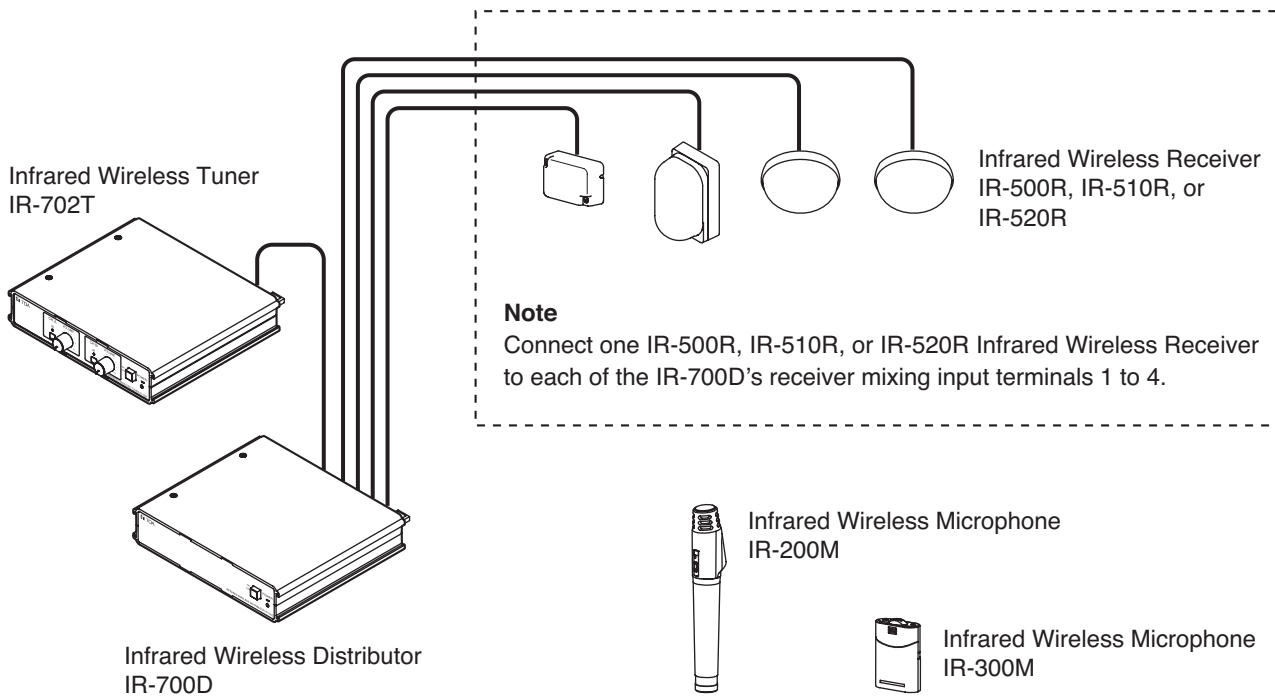
Connect the infrared wireless receiver or the distributor.

Up to 8 infrared wireless receivers can be connected with the use of the optional YW-1022 (2-Branch Distributor) or the YW-1024 (4-Branch Distributor).

6. Distribution output terminals [IR OUT]

Connect the IR-702T Infrared Wireless Tuner.

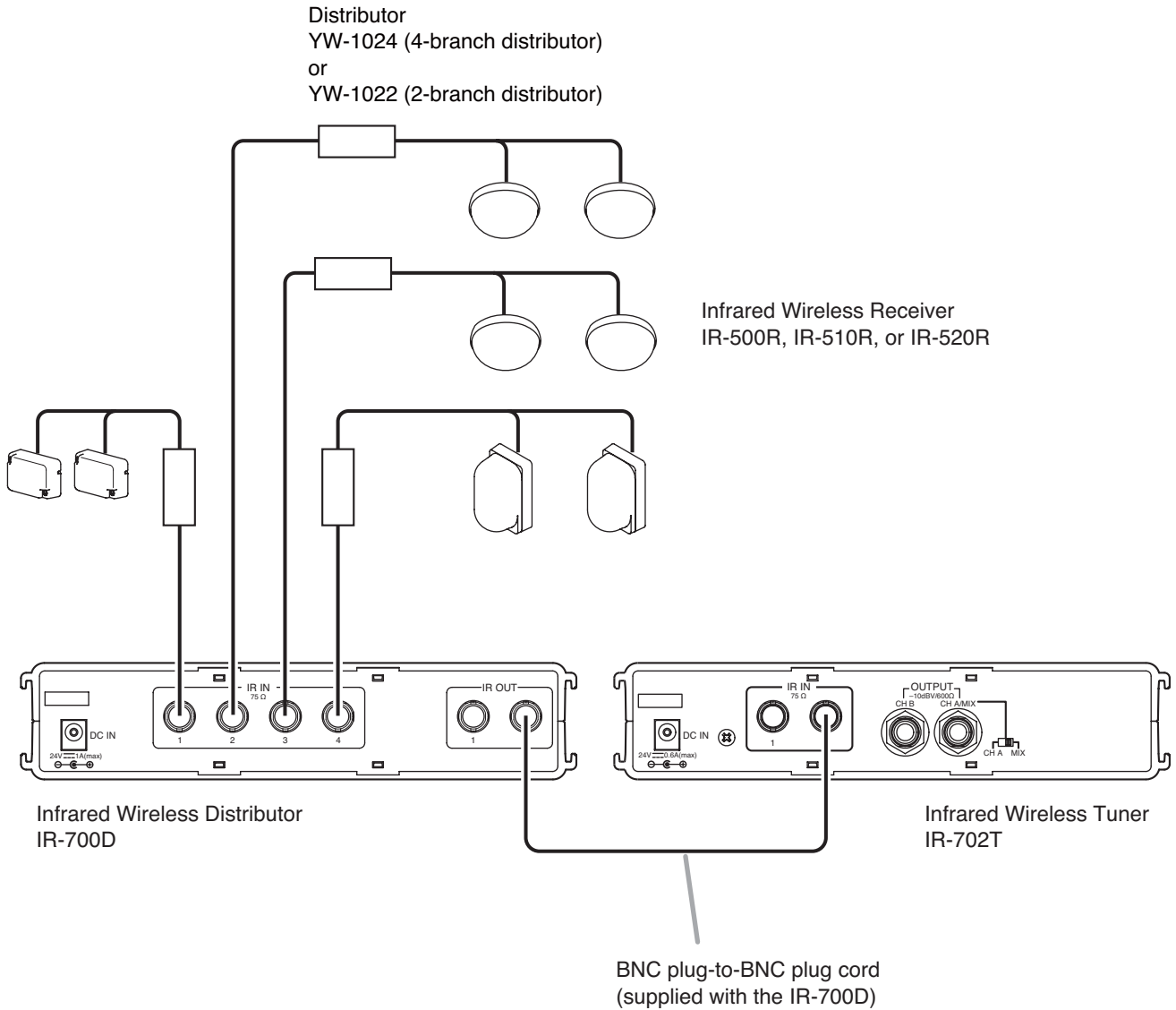
5. SYSTEM CONFIGURATION EXAMPLE



6. CONNECTION EXAMPLE

Combining the IR-700D with the IR-702T tuner allows the number of the infrared wireless receivers connected to the IR-702T to be increased.

The connection example shown below is a system having 5 or more receivers to be connected to the IR-702T tuner.

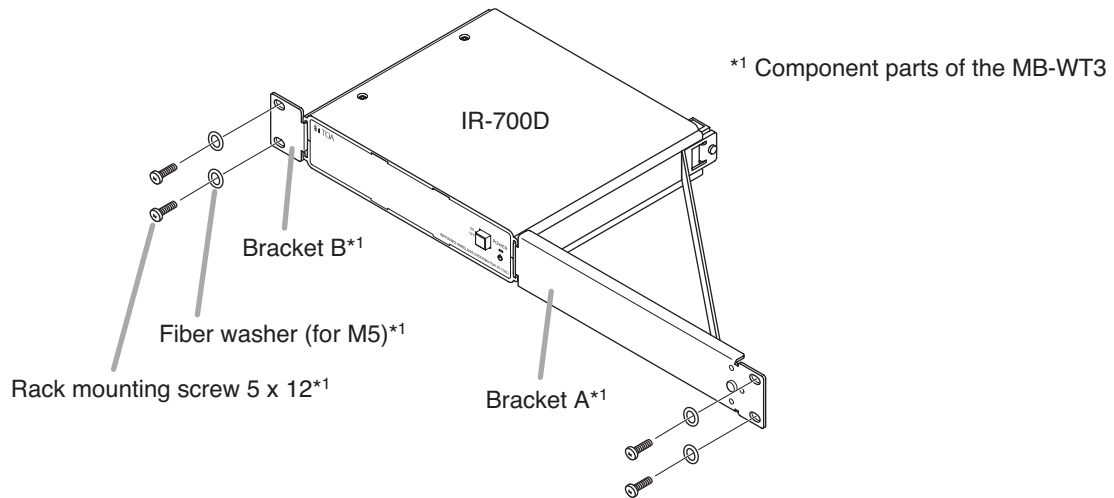


7. INSTALLATION

7.1. Mounting a Single Unit in an Equipment Rack

Use the optional MB-WT3 Mounting Bracket to mount a single IR-700D unit.

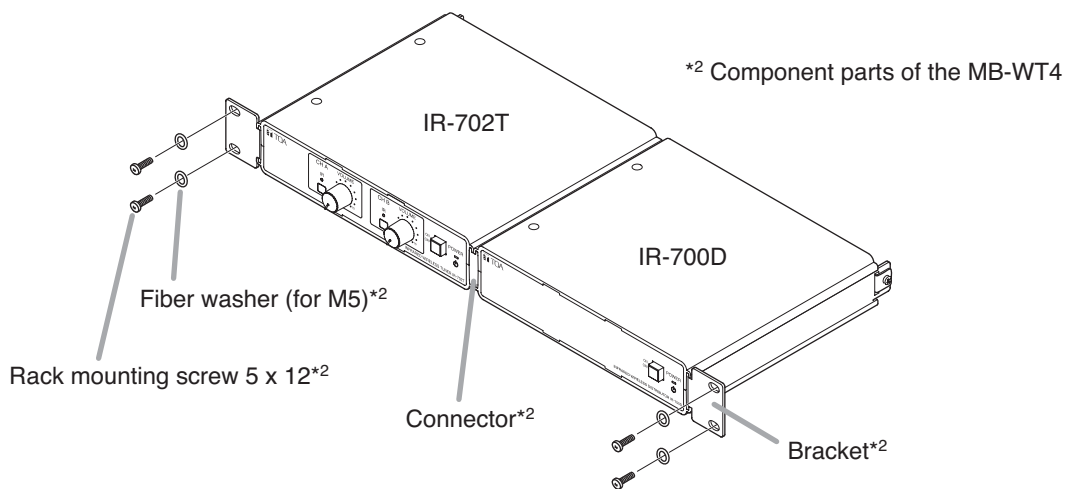
Note: For the mounting bracket installation, refer to the instruction manual attached to the MB-WT3.



7.2. Mounting in Conjunction with the IR-702T in an Equipment Rack

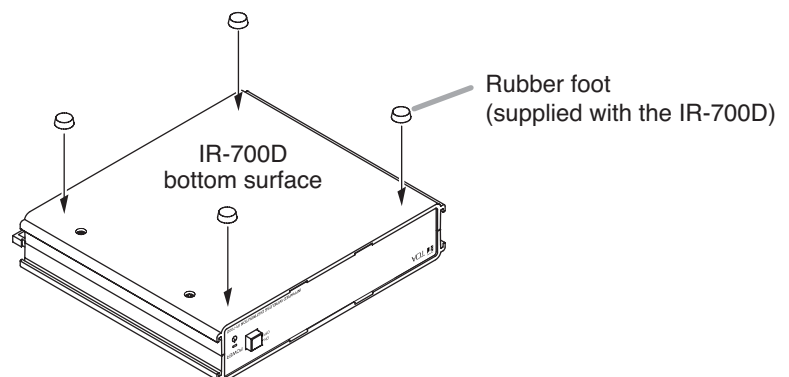
Use the optional MB-WT4 Rack Mounting Bracket.

Note: For the MB-WT4 installation, refer to the instruction manual attached to the MB-WT4.



7.3. Mounting on a Desk

When installing the unit on a desk, secure 4 supplied rubber feet to the unit's bottom.



8. WIRING TO INFRARED WIRELESS RECEIVER

8.1. Wiring Precautions

When multiple infrared wireless receivers have received an infrared signal from the infrared wireless microphone, the reception level increases if the signals input to each receiver are in phase with each other. However, the reception level could decrease if the signals are out of phase.

- To match signal phases, make each corresponding cable the following length:

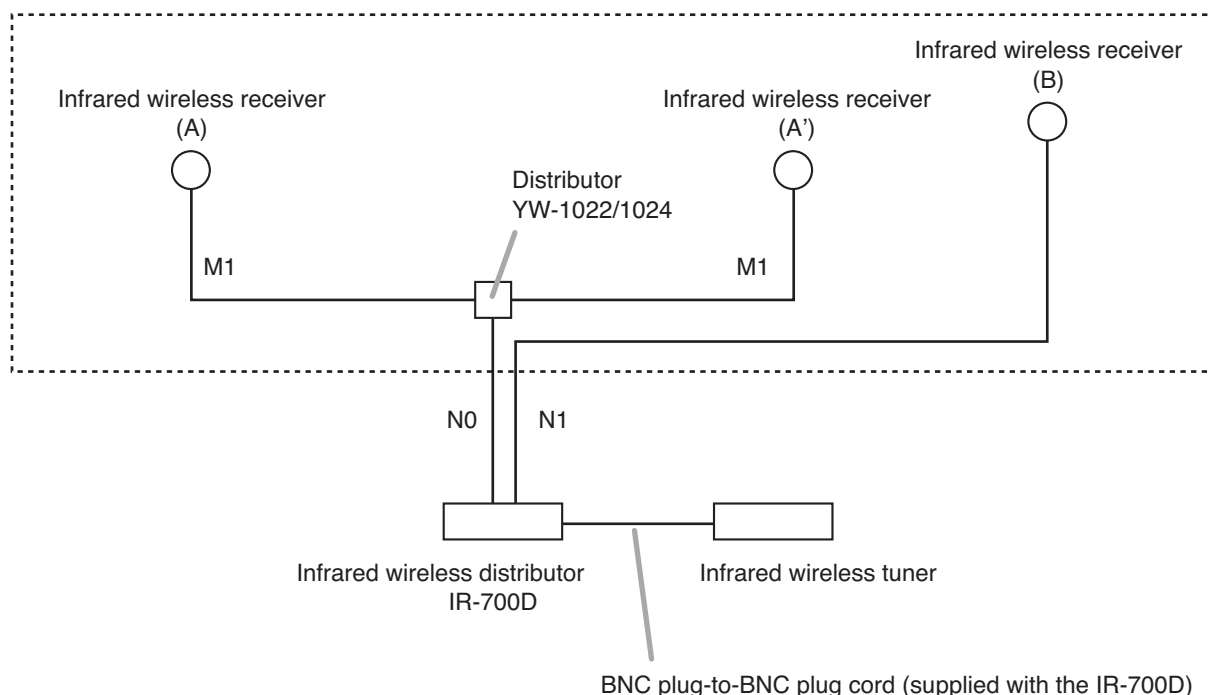
Cable length from each infrared wireless receiver to the IR-700D : $M1 + N0 = N1$

where M1, N0, and N1 are:

M1: Length between Infrared wireless receiver (A or A') and YW-1022/1024 Distributor

N0: Length between YW-1022/1024 Distributor and IR-700D

N1: Length between Infrared wireless receiver (B) and IR-700D



- The maximum cable length between each Infrared Wireless Receiver and IR-700D differs depending on the type of coaxial cable to be used.
Take care not to exceed the maximum cable length. (Refer to p. 10 "Supplementary Remarks.")

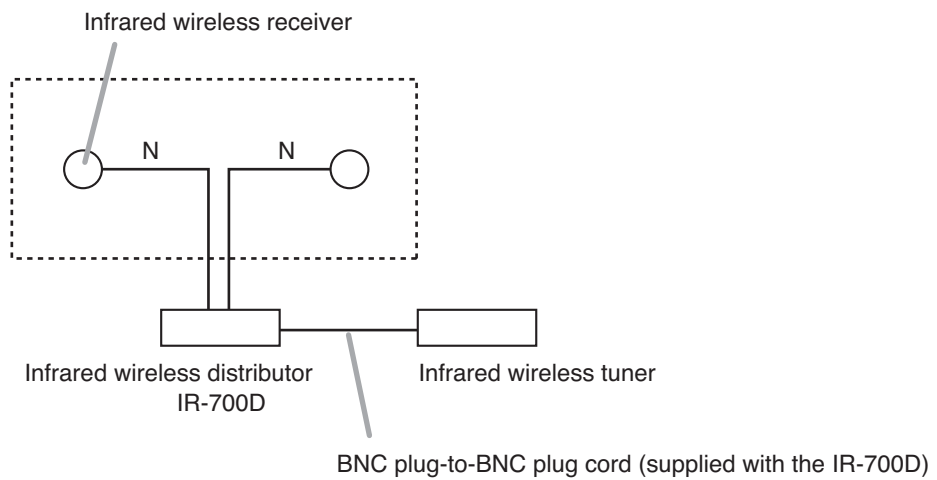
8.2. When Using the Distributor YW-1022/1024

- The YW-1022 is a 2-branch distributor and the YW-1024 is a 4-branch distributor.
- Some idle YW-1024 distribution terminals may result, depending on wiring, however this presents no problem.
- Avoid connecting 2 or more distributors in series. Connecting them in series increases high-frequency signal loss, potentially resulting in system malfunctions.
- Even if a system includes infrared wireless receivers connected to the tuner via a distributor and those directly connected to the tuner, this presents no problem.

8.3. Wiring Examples

[Example 1]

When installing multiple infrared wireless receivers in the same location, make all "N" distances (cable length between receiver and IR-700D) equal.

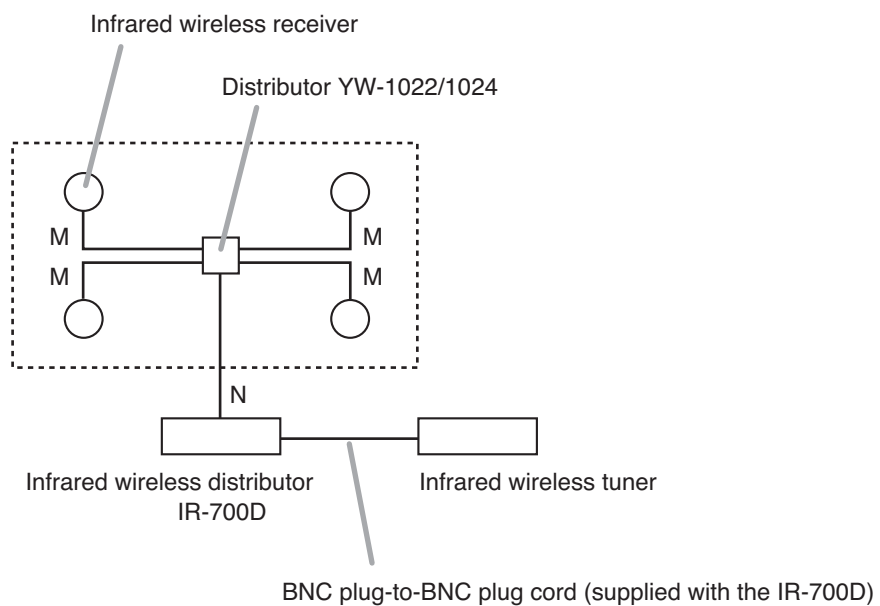


[Example 2]

When installing both the infrared wireless receiver and distributor in the same location, make all "M" distances (cable length between receiver and distributor YW-1022/1024) equal.

Notes

- To facilitate unification of coaxial cable lengths, it is recommended that wiring from the IR-700D to the distributor YW-1022/1024 should be performed using a single cable.
- The use of coaxial cables cut to an even length that is slightly longer than required easily makes all "M" distances of wiring in the ceiling identical.



9. SUPPLEMENTARY REMARKS

(How to find a maximum cable length from IR-700D to receiver)

Cable distance values here are provided merely as a guide, since such values differ depending on the structure of buildings and environmental conditions of the infrared wireless receiver.

9.1. Wiring Design Confirmation

Maximum permissible loss on cable routing must be taken into consideration when calculating wiring between infrared wireless receivers and the tuner. The cable routing loss is caused by distribution loss and cable attenuation, and the sum of both must not exceed 12 dB.

The loss value for each is as follows:

- (1) Loss of the YW-1022 (2-branch distributor): 4.5 dB
- (2) Loss of the YW-1024 (4-branch distributor): 8.5 dB
- (3) Attenuation for 100 m (109.36 yd) of coaxial cable: As shown in the table below.

Note: The IR-700D causes no distribution loss.

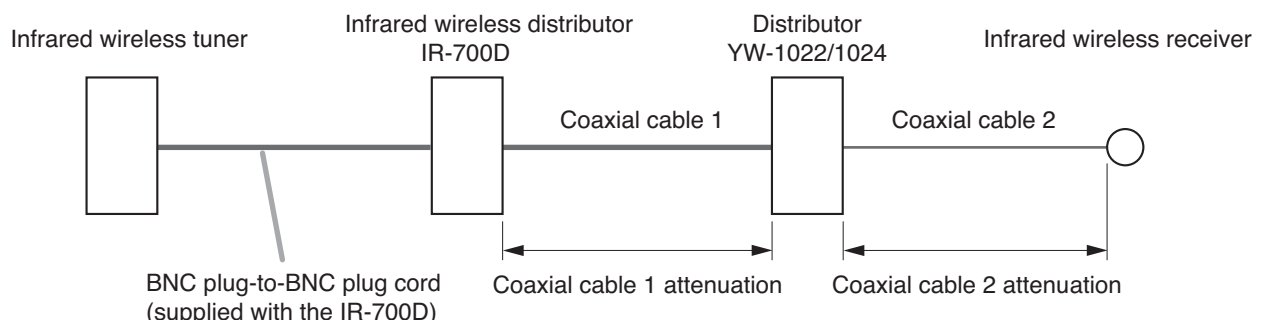
RG-59/U	3.3 dB
RG-6/U	2.7 dB
RG-11/U	2.0 dB

Total attenuation for the connection example illustrated below is as follows:

Cable attenuation = (length/100) x attenuation per 100 m

Total attenuation = Cable 1 attenuation + Cable 2 attenuation + YW-1022/1024 distributor's attenuation

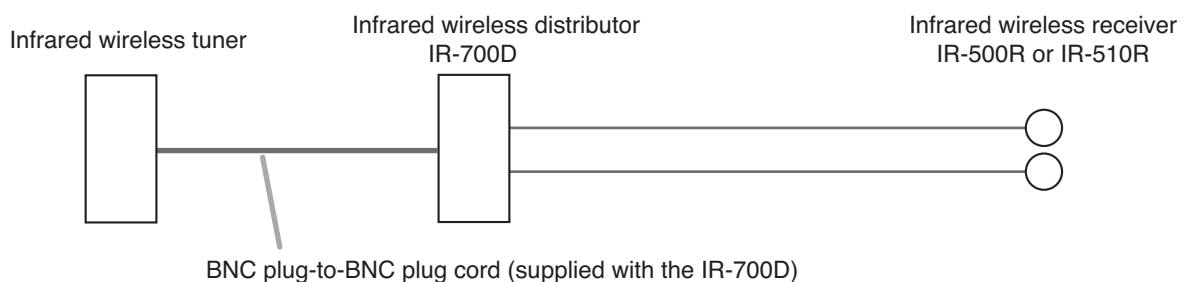
If this total attenuation does not exceed 12 dB, then there should be no problem.



9.2. Design Examples

[Example 1]

When connecting 2 infrared wireless receivers to a single tuner using 2 coaxial cables



Because no distribution loss is caused by the IR-700D, only the coaxial cable loss determines the maximum cable distance.

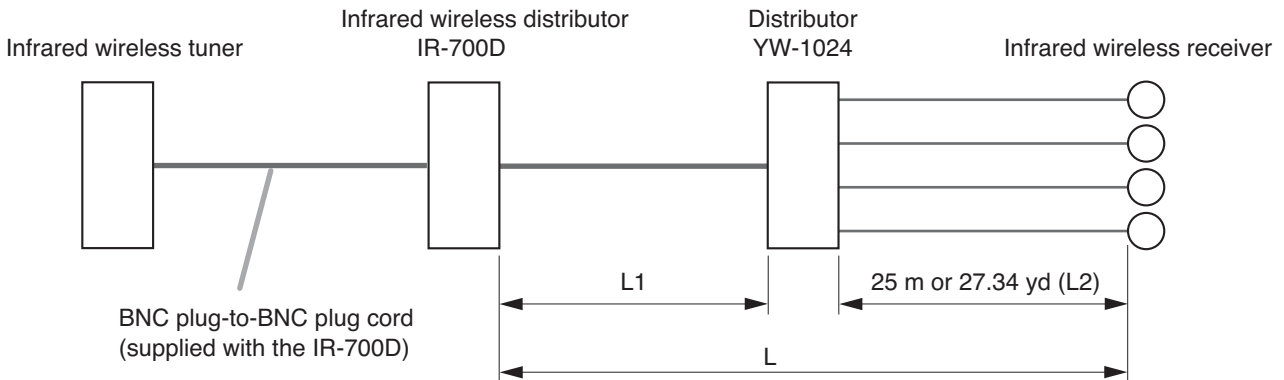
The table at right shows the relationship of coaxial cable type to maximum cable distance.

RG-59/U	606 m (662.73 yd)
RG-6/U	740 m (809.27 yd)
RG-11/U	1000 m (1093.61 yd)

[Example 2]

When connecting 4 infrared wireless receivers to a single tuner using a single coaxial cable

Precondition: Cable distance (L2) from the distributor YW-1024 to the receiver is assumed to be 25 m (27.34 yd).



Assuming that the RG-59/U coaxial cable is used in wiring between the YW-1024 and the receiver, the attenuation of this distance is:

$$\text{Attenuation} = 3.3 \text{ dB} \times (25 \text{ m} / 100 \text{ m}) = 0.825 \text{ dB.}$$

Since loss of 8.5 dB results from the YW-1024, the maximum permissible loss from the IR-700D to the YW-1024 stands at 2.675 dB (12 dB – 0.825 dB – 8.5 dB).

If the RG-6/U coaxial cable is used in wiring from the IR-700D to the YW-1024, given the wiring distance between the two is L1,

$$\begin{aligned} L1 &= (\text{coaxial cable attenuation} / \text{coaxial cable attenuation per 100 m}) \\ &= (2.5 \text{ dB} / 2.7 \text{ dB}) \times 100 \text{ m} \\ &= 92 \text{ m (100.61 yd)} \end{aligned}$$

Maximum cable length (wiring distance from the IR-700D to the infrared wireless receiver) can be found from the following equation:

$$\begin{aligned} L &= L1 + 25 \text{ m} \\ &= 92 \text{ m} + 25 \text{ m} \\ &= 117 \text{ m (127.95 yd)} \end{aligned}$$

Similarly, the maximum cable length (wiring distance from the IR-700D to the receiver) calculated relative to the type of coaxial cable used between the IR-700D and the YW-1024 is as shown in the table below:

RG-59/U	348 m (380.58 yd)
RG-6/U	414 m (452.76 yd)
RG-11/U	542 m (592.74 yd)

10. SPECIFICATIONS

Power Source	AC mains, 50/60 Hz (supplied from the included AC adapter)
Power Consumption	25 W or less
Input/Output	4 mixing inputs, 2 distribution outputs
Band-Pass Frequency	3.0 – 6.0 MHz
Gain	0 dB (± 3 dB)
Infrared Receiver Input	75 Ω , BNC jack x 4 (Infrared wireless receiver's power source: 24 V DC, 800 mA max. in total of 4 terminals)
Distribution Output	75 Ω , BNC jack
Operating Temperature	-10 to +50 °C (+14 to +122 °F)
Operating Humidity	30 to 85% RH
Finish	Case: ABS resin, black
Dimensions	210 (w) x 44 (h) x 200.9 (d) mm (8.27" x 1.73" x 7.91")
Weight	640 g or 1.41 lb (unit itself)

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

• Accessories

AC adapter*	1
BNC plug-to-BNC plug cord (50 cm or 1.64 ft)	1
Rubber foot	4

• Optional products

Rack mounting bracket: MB-WT3
 Rack mounting bracket: MB-WT4

* Not supplied with the IR-702T KR. For the usable power supply cord and AC adapter, contact your nearest TOA dealer.

Traceability Information for Europe (EMC directive 2004/108/EC)

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 7-2-1, Minatojima Nakamachi, Chuo-ku, Kobe, Hyogo,
 Japan

Authorized representative:
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 Suederstrasse 282, 20537 Hamburg,
 Germany

