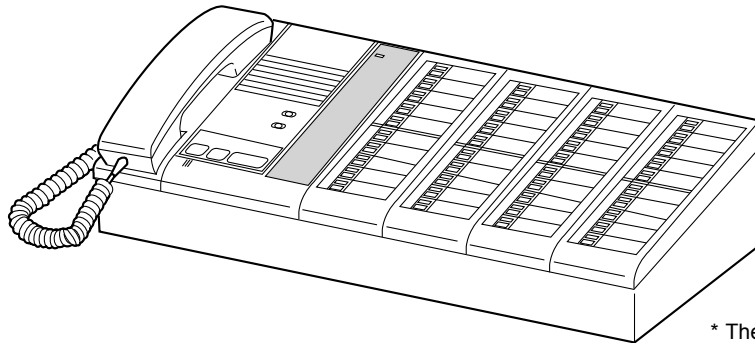# AIPHONE

NIM system

INSTALLATION MANUAL

* The illustration shows the Master station, 40-call (NIM-40B).

Thank you for selecting Aiphone for your communication needs. Please read this manual carefully before installation, and keep it in a safe place for future reference.

Please note that images and illustrations depicted in this manual may differ from the actual product.

Contents

Introduction

- The NIM system is a communication system designed for applications in facilities such as hospitals, office buildings, factories, schools, and prisons. Various types of equipment enable you to configure a system that meets your needs for not only general purpose internal communications, but also for calling and communication in health care or various commercial applications. This system also allows you to check the call history by connecting a PC installed with the specified application software.
- The NIM system is telecommunication equipment, not to be used as Medical Equipment.

Precautions

⊘ Prohibited   ⊗ Do not dismantle unit   ⊗ Keep unit away from water   ❶ Be sure to follow the instruction

⚠ WARNING

Negligence could result in death or serious injury.

⊗ 1. Do not dismantle or alter the unit. Fire or electric shock could result.

⊗ 2. Keep the unit away from water or any other liquid. Fire or electric shock could result.

⊗ 3. High voltage is present internally. Do not open the case. Electric shock could result.

❶ 4. For power supply, use Aiphone power supply model specified for use with system. If non-specified product is used, fire or malfunction could result.

⊘ 5. Do not connect any non-specified power source to the +, - terminals. Also, do not install two power supplies in parallel to a single input. Fire or damage to the unit could result.

⊘ 6. Do not connect any terminal on the unit to an AC power line. Fire or electric shock could result.

⊘ 7. Keep AC cord from being marred or crushed. If the AC cord is damaged, fire or electric shock could result.

⊗ 8. Do not plug or unplug unit with wet hands. Electric shock could result.

⊘ 9. Insert AC plug completely and securely into AC outlet. Otherwise, fire or electric shock could result.

❶ 10. Periodically check for and remove dust on the power plug. If dust is left, it could cause the power plug to heat up, resulting in fire.

⊘ 11. Do not put any metal or flammable material into the unit through the openings. Fire, electric shock, or unit trouble could result.

⚠ CAUTION

Negligence could result in injury to people or damage to property.

⊘ 1. Do not install or make any wire terminations while power supply is plugged in. It can cause electrical shock or damage to the unit.

❶ 2. When mounting the unit on a wall, install the unit in a convenient location, but not where it could be jarred or bumped. Injury could result.

❶ 3. Before turning on power, make sure wires are not crossed or shorted. If not, fire or electric shock could result.

⊘ 4. Do not place or install the unit in the locations subject to frequent vibration or impact. If the unit falls, injury to people or damage to the unit could result.

⊘ 5. Do not put anything on the unit or cover the unit with cloth, etc. Fire or unit trouble could result.

⊘ 6. Do not install the unit in any of the following locations. Fire, electric shock, or unit trouble could result.
   * Places under direct sunlight or near heating equipment that varies in temperature.
   * Places subject to dust, oil, chemicals, hydrogen sulfide (hot spring).
   * Places subject to moisture and humidity extremes, such as bathrooms, cellars, greenhouses, etc.
   * Places where the temperature is quite low, such as inside a refrigerated area or in front of an air conditioner.
   * Places subject to steam or smoke (near heating or cooking surfaces).
   * Where noise generating devices such as dimmer switches or inverter electrical appliances are closeby.
   * Locations subject to frequent vibration or impact.
   * Locations subject to extremely powerful electric fields.

❶ 7. Be sure to perform a call test or check the chime volume with the handset on the hook. If you operate the hook switch with the handset on your ear, a sudden call etc. may cause damage to your ear.

❶ 8. The unit must be installed and wired by a qualified technician.

GENERAL PRECAUTIONS

1. Keep the unit more than 1 m (3.3') away from radio or TV sets.
2. Keep the intercom wires more than 30cm (12") away from AC 100-240V wiring. AC induced noise and/or unit malfunction could result.
3. Comply with all third party manufacturing specifications that will be used with this system.
4. If it is used close to a cellular phone, the unit may malfunction.
5. The unit can be damaged if dropped. Handle with care.
6. The unit will not work during power failure.
7. In areas where broadcasting station antennas are close by, the intercom system may be affected by radio frequency interference.
8. All the units, except for Sub station, flush mount (NI-JA), are designed for indoor use only. Do not use at outdoor locations.
9. Environmental sound around the unit may hinder clear communication, but this is not a malfunction.
10. Using a mobile phone or professional-use radio equipment such as walkie-talkie close to the system may cause a malfunction.

NOTICES

- We will under no conditions be liable for damage that occurs due to the inability to communicate due to malfunctions, problems, or operational errors in this product.
- We will under no conditions be liable for any damages or losses resulting from this product's contents or specifications.
- This manual was created by Aiphone Co., Ltd., all rights reserved. Copying a part of or this entire manual without prior permission from Aiphone Co., Ltd. is strictly forbidden.
- Please note that images and illustrations depicted in this manual may differ from the actual ones.
- Please note that product specifications may be changed for the sake of improvement without prior notice.
- This system is not intended for life support or crime prevention. It is just a supplementary means of conveying information. Aiphone will under no conditions be liable for loss of life or property which occurs while the system is being operated.

System requirements for PC

Your PC must meet the following system requirements to use the NI-SOFT.
Also refer to the instruction manual supplied with your PC.

OS (English ver. only)	Windows 7 Home Premium/Professional/Ultimate (Service Pack 1, 32/64bit) Windows 8.1/Pro (32/64bit), Windows 10 Home/Pro (32/64bit)
Processor	2.7 GHz or higher
System memory (RAM)	2 GB RAM or higher
Hard disk	Total 100 MB or higher (*1)
Run-time	Microsoft® .NET Framework 4.5 (*2)
Display	1024 (W) x 768 (H) or higher, 16-bit or more
Serial port	RS-232C, D-sub 9-pin
Fonts	Arial

(*1): If the software is to be installed onto a drive other than C: drive, both the C: drive and the installation drive each require 50 MB or more of memory.

(*2): If the specified Run-time is not installed on the PC, it will be installed automatically when installing the NI-SOFT.
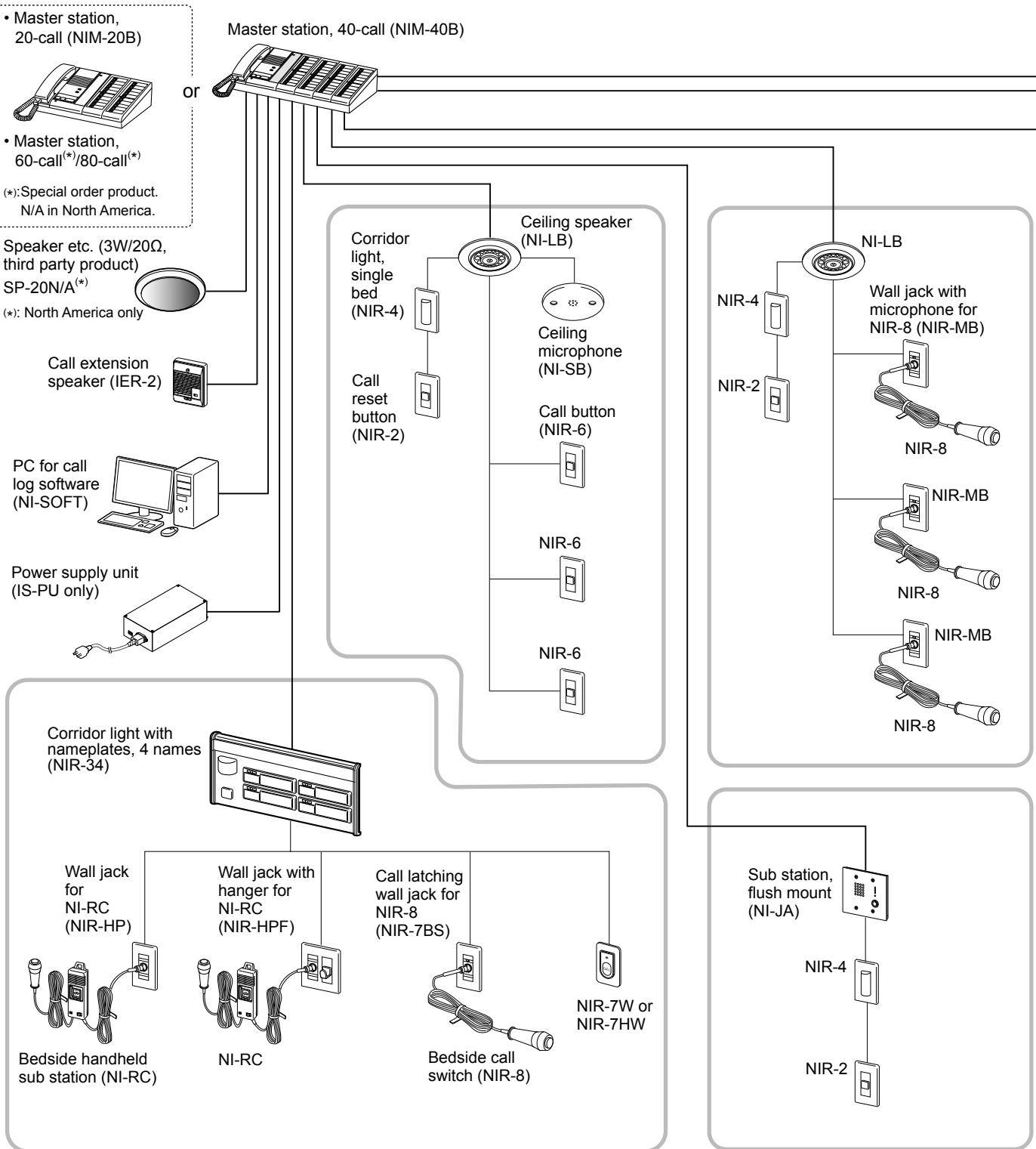
⚠ · The NI-SOFT may not run, or may not operate correctly (such as freezes occurring) on a PC with specifications below the necessary requirements.
· We recommend using a PC and CD-ROM/DVD-ROM drive that exceed the basic system requirements.
· The PC should be operable 24 hours a day.
· Refer to the NI-SOFT operation manual included in the CD-ROM of the NI-SOFT for the setting method of the NI-SOFT.

Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
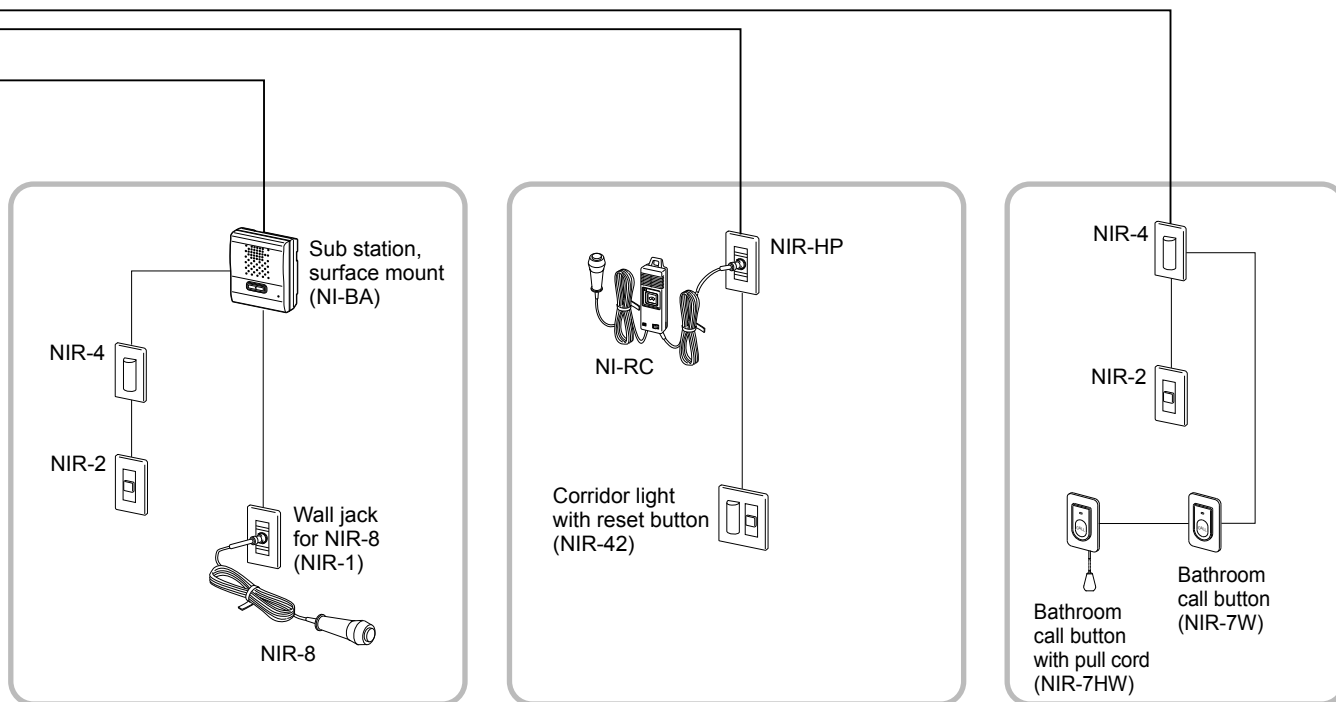
System configuration

The following is a system configuration example. You can select needed equipment to configure a system to meet your application needs.

Master station, 40-call (NIM-40B)

• Master station, 20-call (NIM-20B)

or

• Master station, 60-call(*)/80-call(*)

(∗):Special order product. N/A in North America.

Speaker etc. (3W/20Ω, third party product) SP-20N/A(*)

(∗): North America only

Call extension speaker (IER-2)

PC for call log software (NI-SOFT)

Power supply unit (IS-PU only)

Corridor light, single bed (NIR-4)

Ceiling speaker (NI-LB)

Ceiling microphone (NI-SB)

Call reset button (NIR-2)

Call button (NIR-6)

NIR-6

NIR-6

NI-LB

NIR-4

NIR-2

Wall jack with microphone for NIR-8 (NIR-MB)

NIR-8

NIR-MB

NIR-8

NIR-MB

NIR-8

Corridor light with nameplates, 4 names (NIR-34)

Wall jack for NI-RC (NIR-HP)

Wall jack with hanger for NI-RC (NIR-HPF)

Call latching wall jack for NIR-8 (NIR-7BS)

NIR-7W or NIR-7HW

Bedside handheld sub station (NI-RC)

NI-RC

Bedside call switch (NIR-8)

Sub station, flush mount (NI-JA)

NIR-4

NIR-2

NOTE: The above example may differ from actual product.

Sub station, surface mount (NI-BA)

NIR-4

NIR-2

Wall jack for NIR-8 (NIR-1)

NIR-8

NIR-HP

NI-RC

Corridor light with reset button (NIR-42)

NIR-4

NIR-2

Bathroom call button with pull cord (NIR-7HW)

Bathroom call button (NIR-7W)

■ Maximum number of stations in a single system

The maximum number of sub stations differs depending on the master station model.

Master station		Sub station (Qty)	Personal computer (Qty)
Model	Qty		
NIM-20B	1	20	1
NIM-40B	1	40	1
Master station, 60-call [*]	1	60	1
Master station, 80-call [*]	1	80	1

(*): Special order product.
　　N/A in North America.

■ Communication methods

The following two methods are available on the master station.

Method	Communication style	Description
Using handset	Voice-actuated communication	The communication mode is VOX, half duplex. When speaking into the handset, voice is transmitted to the other station. When listening, the voice from the remote station is heard through the handset.
Hands-free	Push-to-talk	To speak, press and hold the TALK button. To listen, release the TALK button.

Package contents and dimensions

Verify that the following parts are included for each product package.

* Dimensions are shown in millimeters (inches).

Master station

■ **Master station, 20-call (NIM-20B)**

■ **Master station, 40-call (NIM-40B)**

* **Master station, 60-call**(*) or **Master station, 80-call**(*) is also available.
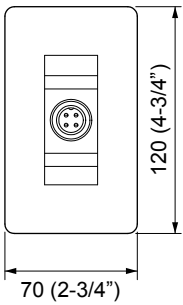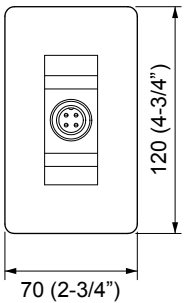
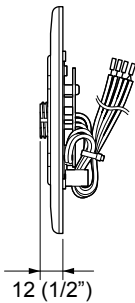(*): Special order product.
N/A in North America.

Main unit		
NIM-20B (Front)	**NIM-40B** (Front)	(Side)
230 (9-1/16") / 330 (13")	230 (9-1/16") / 480 (18-7/8")	140 (5-1/2")

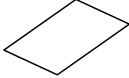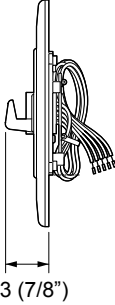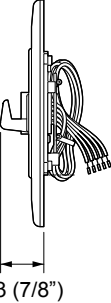| Room number plate	Nameplate	Installation manual/ Operation manual	Chinese RoHS paper
NIM-20B: 2pcs. **NIM-40B**: 4pcs. **Master station, 60-call**: 6pcs. **Master station, 80-call**: 8pcs.	**NIM-20B**: 22pcs. **NIM-40B**: 44pcs. **Master station, 60-call**: 66pcs. **Master station, 80-call**: 88pcs.		

Sub station, call button, wall jack

■ **Bedside handheld sub station (NI-RC)**

Main unit	Hanging bracket
(Front) 56 (2-3/16") / (Side) 28 (1-1/8") / ø36 (1-7/16") / 95 (3-3/4") / 171.5 (6-3/4") / Cord: Approx. 1.4m (4.6') / Cord: Approx. 1.5m (5')	(Front) / (Side) / 81 (3-3/16") / 19 (3/4") / Approx. 30 (1-3/16")
	Chinese RoHS paper

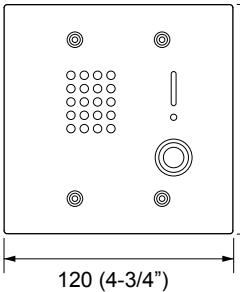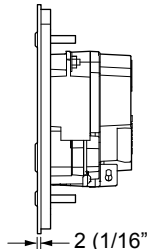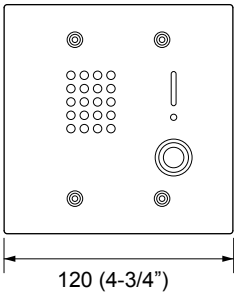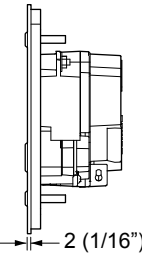■ **Wall jack for NI-RC (NIR-HP)**

Main unit	Screw (x2)
(Front) (Side) 120 (4-3/4") 70 (2-3/4") 12 (1/2")	
	Chinese RoHS paper
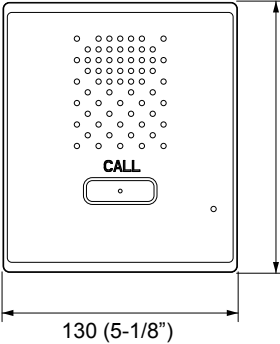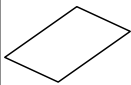
■ **Wall jack with hanger for NI-RC (NIR-HPF)**

Main unit	Screw (x4)
(Front) (Side) 120 (4-3/4") 116 (4-9/16") 23 (7/8")	
	Chinese RoHS paper
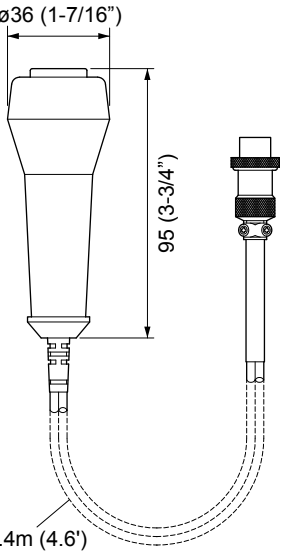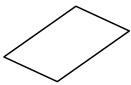
■ **Sub station, flush mount (NI-JA)**

Main unit	Screw (x4)
(Front) (Side) 120 (4-3/4") 120 (4-3/4") 2 (1/16")	
	Hexagonal wrench
	Chinese RoHS paper
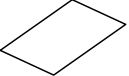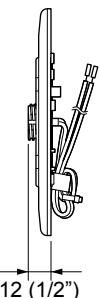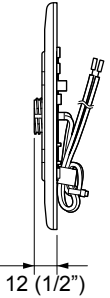
■ **Sub station, surface mount (NI-BA)**

Main unit	Screw (x2)	Wood screw (x2)
(Front) (Side) CALL 150 (5-7/8") 130 (5-1/8") 33 (1-5/16")		
	Mounting bracket	
	Chinese RoHS paper	**Rubber foot (x4)**
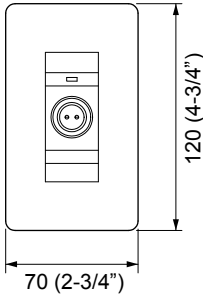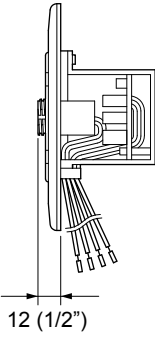
■ **Bedside call switch (NIR-8)**

Main unit	Chinese RoHS paper
ø36 (1-7/16") 95 (3-3/4") Cord: Approx.1.4m (4.6')	
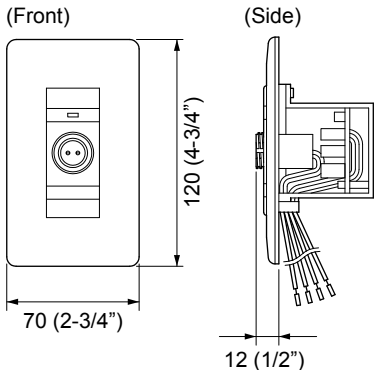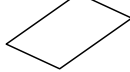
■ **Wall jack for NIR-8 (NIR-1)**

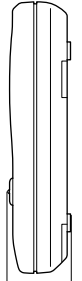| Main unit	Screw (x2)
(Front) (Side) 120 (4-3/4") 70 (2-3/4") 12 (1/2")	
	Chinese RoHS paper
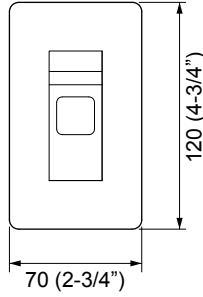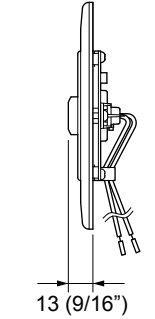
■ **Wall jack with microphone for NIR-8 (NIR-MB)**

Main unit	Screw (x2)
(Front) (Side) 120 (4-3/4") 70 (2-3/4") 12 (1/2")	Chinese RoHS paper
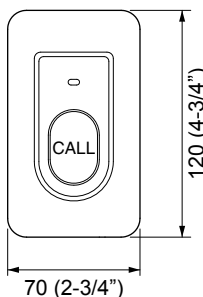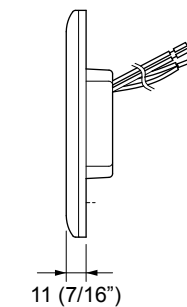
■ **Call latching wall jack for NIR-8 (NIR-7BS)**

Main unit	Screw (x2)
(Front) (Side) 120 (4-3/4") 70 (2-3/4") 12 (1/2")	Chinese RoHS paper
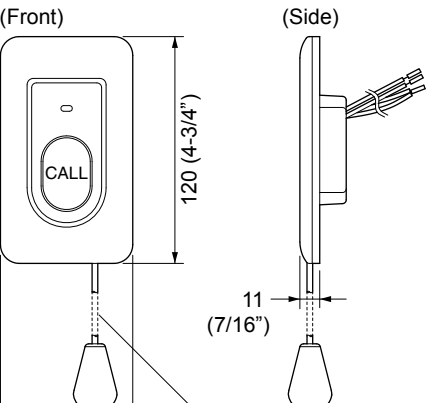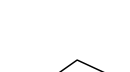
■ **Call button (NIR-6)**

Main unit	Screw (x2)
(Front) (Side) 120 (4-3/4") 70 (2-3/4") 13 (9/16")	Chinese RoHS paper

■ **Bathroom call button (NIR-7W)**

Main unit	Screw (x2)
(Front) (Side) 120 (4-3/4") CALL 70 (2-3/4") 11 (7/16")	Chinese RoHS paper
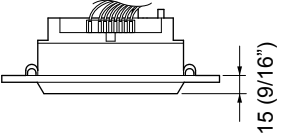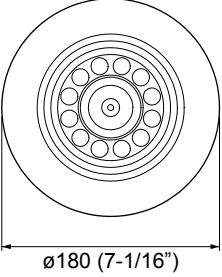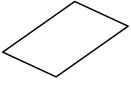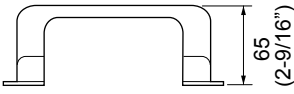
■ **Bathroom call button with pull cord (NIR-7HW)**
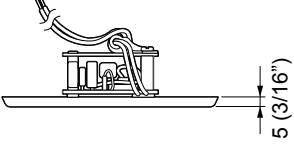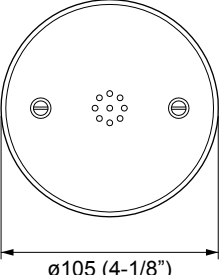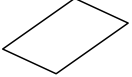
Main unit	Screw (x2)
(Front) (Side) 120 (4-3/4") CALL 11 (7/16") 70 (2-3/4") Pull cord: Approx. 550 (21-5/8")	Chinese RoHS paper

Ceiling speaker, ceiling microphone

■ **Ceiling speaker (NI-LB)**

Main unit		Chinese RoHS paper
(Side)	15 (9/16")	
(Front) ø180 (7-1/16")		
Holder		
(Side) 65 (2-9/16")		
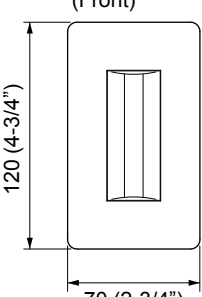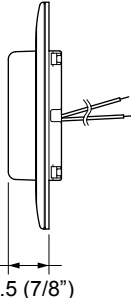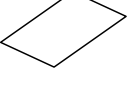
■ **Ceiling microphone (NI-SB)**

Main unit	Wood screw (x2)
(Side) 5 (3/16")	
(Front) ø105 (4-1/8")	**Chinese RoHS paper**
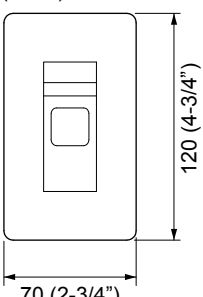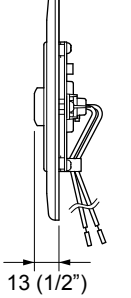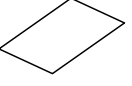
Corridor light, reset button

■ **Corridor light, single bed (NIR-4)**
■ **Corridor light, multiple beds (NIR-4S)**

Main unit	Screw (x2)
(Front) 120 (4-3/4") 70 (2-3/4") (Side) 21.5 (7/8")	
	Chinese RoHS paper

■ **Call reset button (NIR-2)**

Main unit	Screw (x2)
(Front) 120 (4-3/4") 70 (2-3/4") (Side) 13 (1/2")	
	Chinese RoHS paper

■ **Corridor light with reset button (NIR-42)**

Main unit	Screw (x4)
(Front) (Side) 120 (4-3/4") 116 (4-9/16") 27 (1-1/16")	
	Chinese RoHS paper
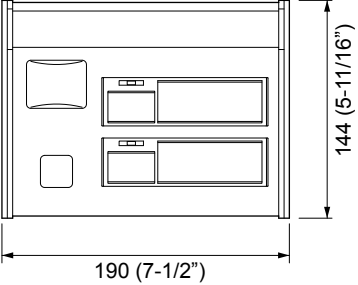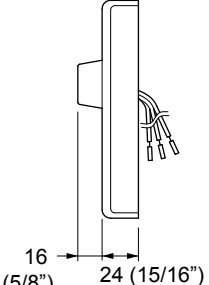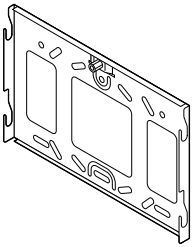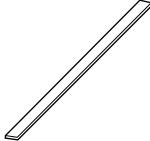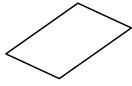
■ **Corridor light with buzzer (NIR-4BZ)**

Main unit	Screw (x4)
(Front) (Side) 120 (4-3/4") 116 (4-9/16") 27 (1-1/16")	
	Chinese RoHS paper
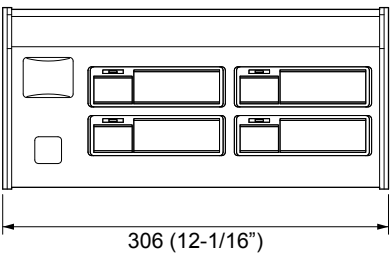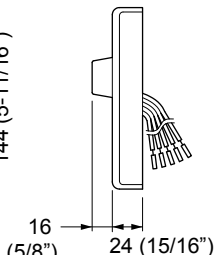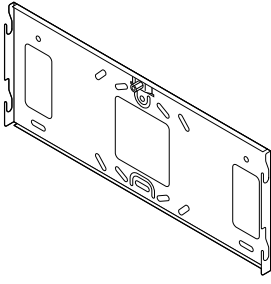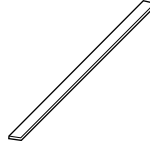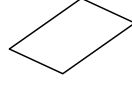
■ **Corridor light with nameplate, 1 name (NIR-31)**

Main unit	Mounting bracket	Room number plate	Nameplate
(Front) (Side) 144 (5-11/16") 190 (7-1/2") 16 (5/8") 24 (15/16")			
	Screw (x4)	**Chinese RoHS paper**	

■ **Corridor light with nameplates, 2 names (NIR-32)**
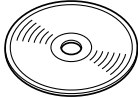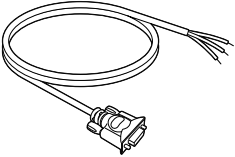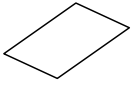
Main unit		Mounting bracket	Room number plate	Nameplate (x2)
(Front) 144 (5-11/16") 190 (7-1/2")	(Side) 16 (5/8") 24 (15/16")			
		Screw (x4)	**Chinese RoHS paper**	

■ **Corridor light with nameplates, 4 names (NIR-34)**

Main unit		Mounting bracket	Room number plate	Nameplate (x4)
(Front) 144 (5-11/16") 306 (12-1/16")	(Side) 16 (5/8") 24 (15/16")			
		Screw (x4)	**Chinese RoHS paper**	

Software

■ **Call log software (NI-SOFT)**

CD-ROM	RS232C cable	Product Key code paper/ Chinese RoHS paper

MOUNTING

This section illustrates the mounting procedures for wall- and ceiling-mount equipment.

■ Ceiling speaker (NI-LB)

3 Put the holder into the hole by tilting it, and then position it as shown.

Holder

1 Make a hole of 150mm (5-7/8") in diameter in the ceiling.

Ø150mm (5-7/8")

Ceiling

2 Disconnect the connector, and then make wire connections with other equipment.

Spring

Hook

4 Hang the loop on the hook at one side.

Connector

5 Connect the connector to the main unit.

Loop

6 Hang the loop on the hook at the other side, and install the main unit so that it is positioned at the center of the hole.

Main unit

■ Ceiling microphone (NI-SB)

1 Cut the ceiling so that the central part of the unit fits in.

2 Make wire connections with the other equipment.

Ceiling

Main unit

Opening dimensions

W: 47mm (1-7/8")

H: 38mm (1-1/2")

D: 40mm (1-9/16")

3 Fasten the unit to the wall with the wood screws.

Wood screw x 2 (included)

Central part

66.7mm (2-11/16")

ø105mm (4-3/16")

NOTE:

・ Make sure to mount the ceiling microphone 50 cm (20") apart from the ceiling speaker to prevent audio feedback.

・ Pay attention to the depth of the unit.

・ Use board anchors or concrete plugs as needed on a concrete wall.

GETTING STARTED

MOUNTING

CONNECTION

SETUP AFTER
INSTALLATION

APPENDIX

■ **Wall jack (NIR-HP, NIR-1, NIR-MB, NIR-7BS)**
Call button (NIR-6)
Corridor light (NIR-4, NIR-4S)
Call reset button (NIR-2)

* The illustration shows the wall jack for NI-RC (NIR-HP).

3 Fasten the unit to the single-gang box with the screws.

Single-gang box

2 Install a single gang box in the wall. Pass the wires through the gang box and make the wire connections with the other equipment.

1 Remove the front cover from the main unit.

Screw x 2 (included)

83.5mm (3-5/16")

Opening dimensions without a gang box
W: 45mm (1-3/4"), H: 72mm (2-13/16"), D: 54mm (2-1/8")

4 Attach the front cover to the main unit.

Main unit

Front cover

D

H

W

Bathroom call button (NIR-7W, NIR-7HW)

* The illustration shows the bathroom call button (NIR-7W).

3 Fasten the unit to the single-gang box with the screws.
 * The screw holes are on the backside of gray rubber.

Single-gang box

2 Install a single gang box in the wall. Pass the wires through the gang box and make the wire connections with the other equipment.

1 Remove the front cover from the main unit.
Insert a flat head screwdriver into the hole on the bottom of the unit, and then pull the flat head screwdriver toward you. The front cover opens.

83.5mm (3-5/16")

Opening dimensions without a gang box
W: 50mm (1-15/16"), H: 70mm (2-3/4"), D: 20mm (13/16")

CALL

Flat head screwdriver

Hole

Screw x 2 (included)

Main unit

Front cover

CALL

4 Attach the front cover to the main unit.

D

H

W

15

■ Sub station, surface mount (NI-BA)

 * When mounting NI-BA on a wall, follow the procedure shown below.

2 Fasten the mounting bracket to the gang box with the screws.

3 Attach the main unit to the mounting bracket.

1 Install a single gang box in the wall. Pass the wires through the gang box and make the wire connections with the other equipment.

83.5mm (3-5/16")

Single-gang box

Main unit

Screw x 2 (included)

Mounting bracket (attached to NI-BA when shipped)
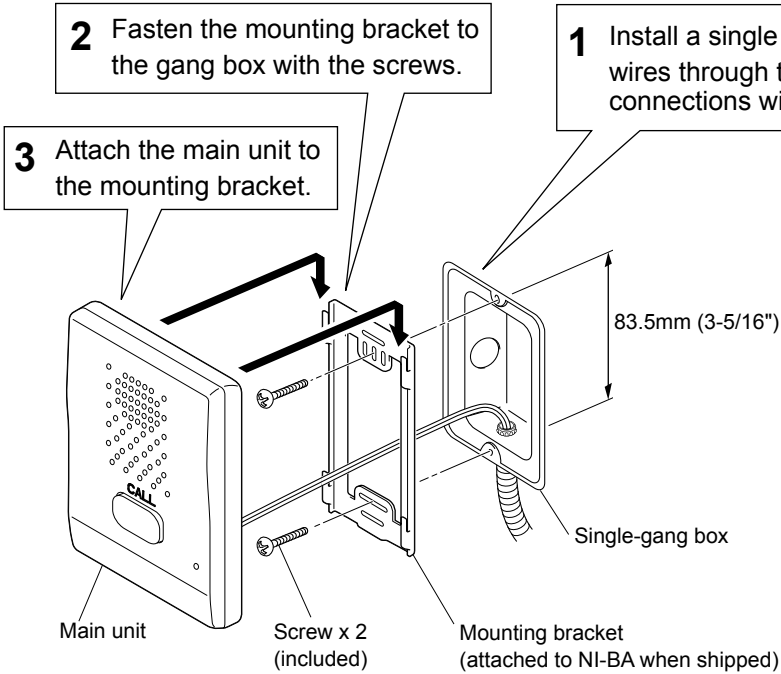
When setting NI-BA on a desk

· Attach the included 4 rubber feet on the back of NI-BA.

· Route the wires through the cable inlet at the upper or lower part of NI-BA.

 * When routing the wires at the upper part, remove the cable inlet plate to allow passage of the wires.

Cable inlet plate

Rubber foot

Cable inlet

Cable inlet

■ Sub station, flush mount (NI-JA)

2-gang box

46 mm (1-13/16")

Special screw x 4 (included)

83.5 mm (3-5/16")

2 Fasten the main unit to the gang box with the special screws.
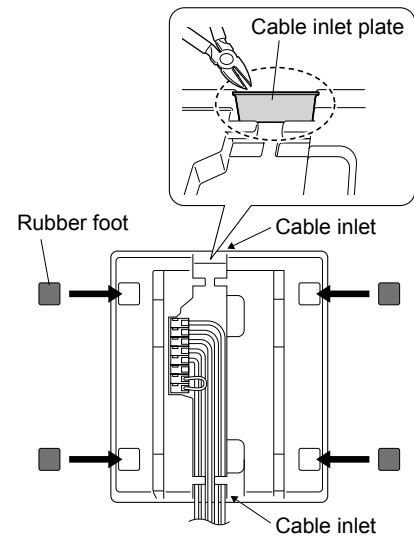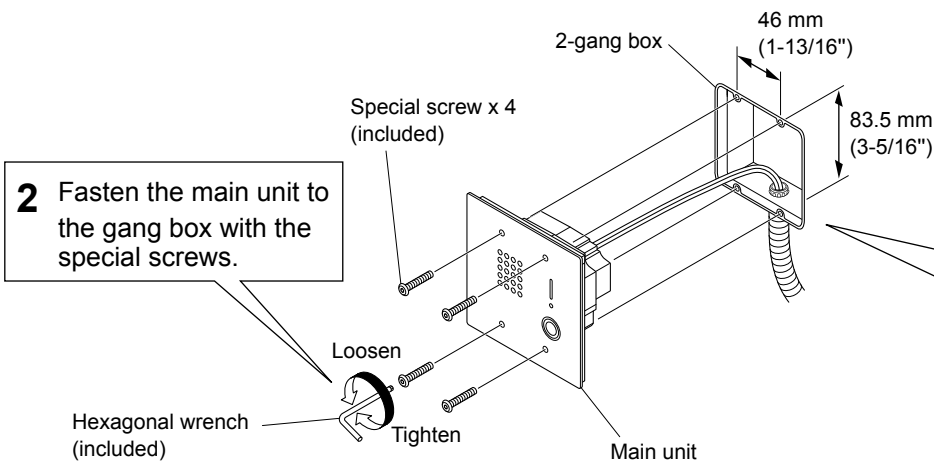
1 Install a 2 gang box in the wall. Pass the wires through the gang box and make the wire connections with the terminal cover open.

 * Be sure to route the wires through inlet.

Loosen

Hexagonal wrench (included)

Tighten

Main unit

Inlet

Terminal cover
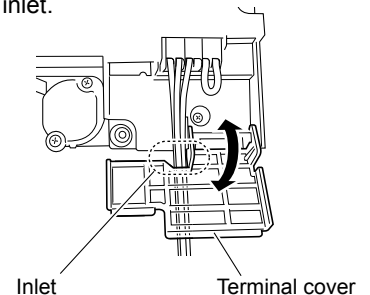
Opening dimensions without a gang box
W: 90mm (3-9/16"), H: 73mm (2-7/8"), D: 54mm (2-1/8")

■ **Wall jack (NIR-HPF)**
   Corridor light (NIR-42, NIR-4BZ)

3 Fasten the unit to the 2-gang box with the screws.

2-gang box

46 mm (1-13/16")

83.5mm (3-5/16")

* The illustration shows the corridor light with reset button (NIR-42).

Screw x 4 (included)

1 Remove the front cover from the main unit.

Main unit

2 Install a 2 gang box in the wall. Pass the wires through the gang box and make the wire connections with the other equipment.

4 Attach the front cover to the main unit.

Front cover

Opening dimensions without a gang box
W: 95mm (3-3/4"), H: 75mm (2-15/16"), D: 54mm (2-1/8")

■ **Corridor light with nameplate (NIR-31, NIR-32, NIR-34)**

   * The illustration shows the corridor light with nameplates, 4 names (NIR-34).

2 Detach the mounting bracket from the main unit by removing the room number plate and the screw.

Room number plate

Screw (attached)

3 Fasten the mounting bracket to the gang box with the screws.

1 Install a gang box in the wall.
   NIR-31, NIR-32: 2-gang box[*]
   NIR-34: 3-gang box[*]

   (*): Recommended

Single, 2- or 3-gang box

Main unit

Mounting bracket (attached to the unit when shipped)

Screw (for gang box) × 4 (included)

6 Mount the main unit on the mounting bracket, and affix the main unit to the bracket with the screw.

7 Attach the room number plate to the main unit

Room number plate

Screw (attached)

Gang box

Wires

String

4 Hang the string of the main unit on a projecting part or a thread on the bracket to suspend the main unit.

5 Make wire connections with other equipment.

Main unit

17

CONNECTION

Connection wiring diagram (outline)

The following is an example of basic wiring diagram.

* The wiring methods differ depending on the equipment used. Refer to page 20 to 29 for details about various wiring methods.

Master station,
40-call (NIM-40B)

········ or ········
• Master station,
  20-call (NIM-20B)
• Master station,
  60-call(*)
• Master station,
  80-call(*)

(*):Special order product.
     N/A in North America.

Call extension
speaker (IER-2)

Speaker etc.
(3W/20Ω,
third party
product)
SP-20N/A(*)

(*): North America
       only

PC

RS232C
cable
(included on
NI-SOFT)

Power supply
unit (IS-PU only)

When using the master
station, 60-call or 80-call,
two power supplies are
needed.
⚠ **Do not connect two
power supplies in
parallel.**

Refer to page 21 for
details about wiring to
a master station.

E (*1)
M
1
2
3
4
5
⋮
10
11
12
⋮
19
20
21
22
⋮
29
30

S1
S1
SK
SK

White TX
Red RX
Black I-G

+ +
− −

E (*1)
M
31
32
33
34
⋮
39
40

Left middle panel

Corridor
light, single
bed
(NIR-4)
Blue / Blue

Call reset
button
(NIR-2)
Blue / Blue

Ceiling speaker
(NI-LB)
Red Yellow Black Blue
Orange/White Orange White Gray
* Connect to
each of the
color-coded
wires.

Wall jack
for NIR-8
(NIR-1)
Blue / Blue

Bedside
call switch
(NIR-8)

Gray
White
Ceiling
microphone
(NI-SB)

(6 wall jacks can be
connected in total.)

Refer to page 22 for details and examples of
using alternative equipment.

Right middle panel

Blue NIR-4
Blue

Blue NIR-2
Blue

NI-LB
Red Yellow Black Blue
Orange/White Orange White Gray
* Connect to
each of the
color-coded
wires.

Wall jack with
microphone
for NIR-8
(NIR-MB)
Blue
Blue
White
Gray

NIR-8

(6 wall jacks can be
connected in total.)

Refer to page 23 for details and examples of
using alternative equipment.

Bottom panel

Red Yellow Black Blue ✕ Green

Wall jack for
NI-RC (NIR-HP)

Bedside handheld sub station (NI-RC)

Red Yellow Black Blue ✕ Green
NIR-HP
NI-RC

Red Yellow Black Blue ✕ Green
NIR-HP
NI-RC

18

(∗1): • The common line E and individual channel lines should be in the same sheath wiring.
 • The remainder wires in the same sheath wiring should be connected to the common line E of the master station for noise prevention.

Sub station, flush mount (NI-JA)

NIR-4

NIR-2

Refer to page 28 for details and examples of using alternative equipment.

Sub station, surface mount (NI-BA)

NIR-4

NIR-2

NIR-1

NIR-8

Refer to page 27 for details and examples of using alternative equipment.
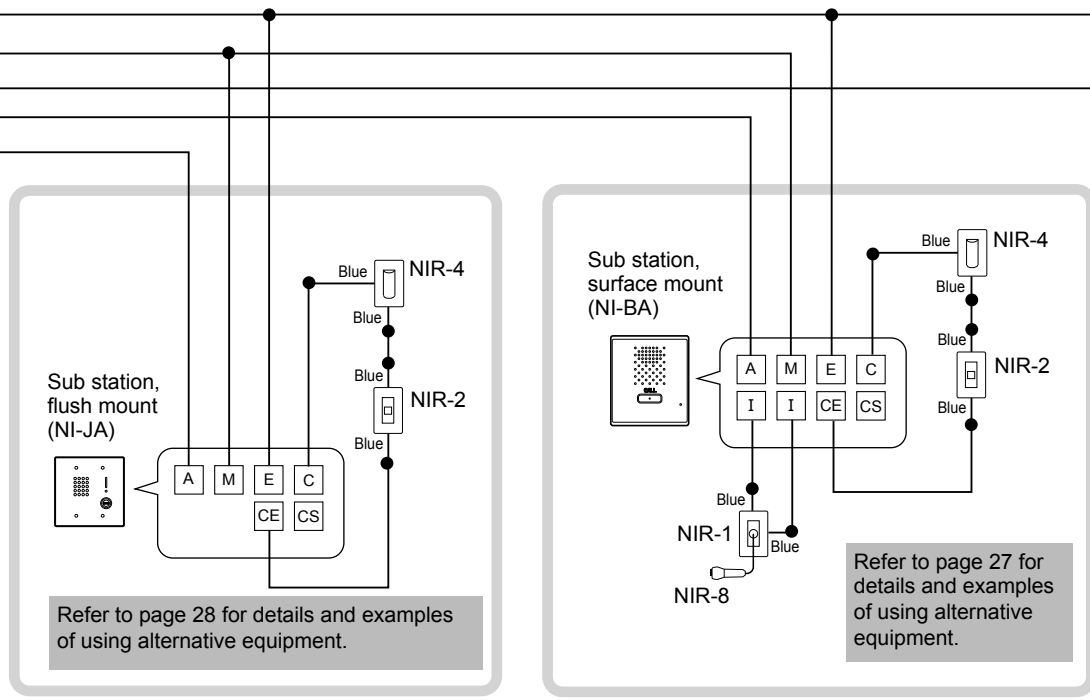
■ Wiring distance

	Wire diameter	Maximum distance
Master station - sub station	Ø0.65mm (22 AWG)	130m (425')
	Ø0.9mm (18 AWG)	200m (650')
Master station - power supply unit	Ø0.9mm (18 AWG)	10m (33')
Master station - call extension speaker (IER-2), speaker etc.	Ø0.9mm (18 AWG)	50m (165')

■ Master station terminal marking

E : Common line (for earth ground)

M : Common line (for microphone)

$1 \cdots 10$, $11 \cdots$: Individual channel line

■ Meanings of symbols

● : Wire-to-wire connection

✕ : The wire should be cut and insulated.

∗ Up to 3 bathroom call buttons can be connected to a single channel line.

NIR-4

NIR-2

Bathroom call button (NIR-7W or NIR-7HW)

Red
Black
Blue
Green

NIR-7W or NIR-7HW

Red
Black
Blue
Green

NIR-7W or NIR-7HW

Red
Black
Blue
Green

Refer to page 26 for details and examples of using alternative equipment.

Refer to page 24-25 for details and examples of using alternative equipment.

Refer to page 29 for details about wiring to the corridor light with nameplate (NIR-34, NIR-32 or NIR-31).

Red
Black
Blue
Green

NIR-7W or NIR-7HW

Yellow
Orange
Red
Brown
Black

Corridor light with nameplates, 4 names (NIR-34)

19

Handling cables

Notes about handling cables

* Cables and connectors are not included with the products.

■ Notes on cables

- Use PE (polyethylene)-insulated PVC jacketed cable.
  Parallel or jacketed conductors, mid-capacitance, non-shielded cable is recommended.
- Never use twisted pair cable or coaxial cable.

■ How to connect or disconnect stranded wires.

- To ensure that the wire won't bend, press the release button while inserting into terminal.

e.g.) **NIM-40B**

Release button

e.g.) **NI-BA**

8mm (3/8")

Release button
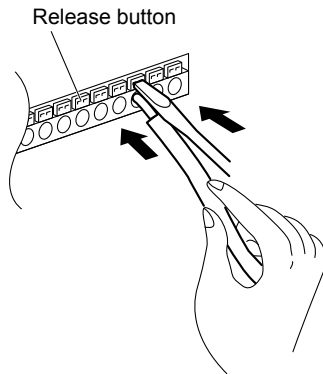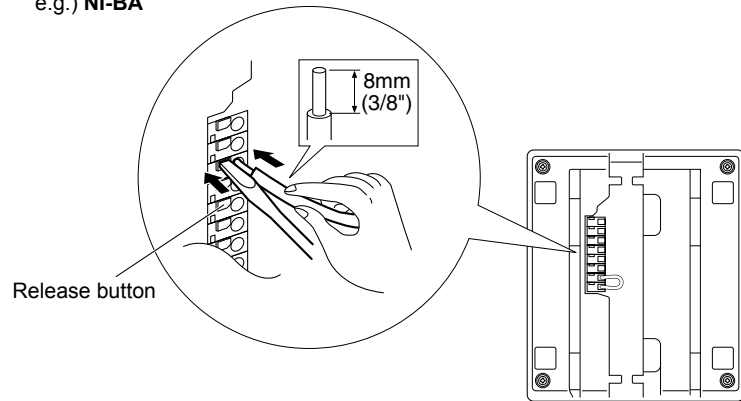
■ Note about wire-to-wire connection.

Make wire-to-wire connections securely as shown below.

Wire nut

From a sub station

Cable

Splice 2 wires with wire nuts, securely protecting from being pulled or crushed.
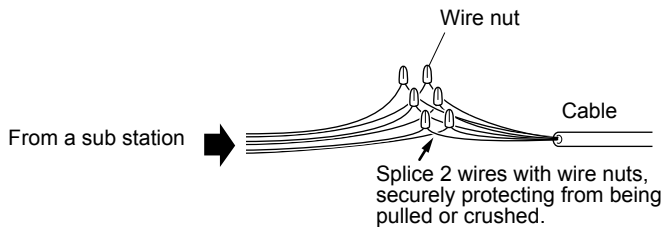
Connection wiring diagram (details)

Connecting to the master station

Procedure

1 Detach the terminal cover by removing the two screws.

Master station rear

Terminal cover

Screw
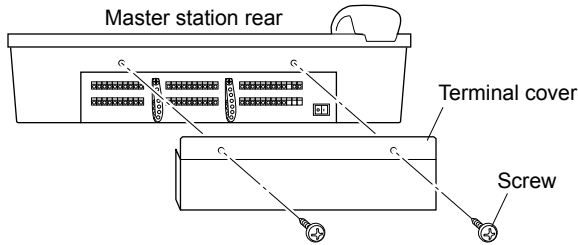
2 Connect the wiring from the sub stations and power supply to the master station by inserting lead wires to the corresponding terminals.
Using the cable tie is recommended for secure installation.

Release button

10mm (7/16")

Cable tie
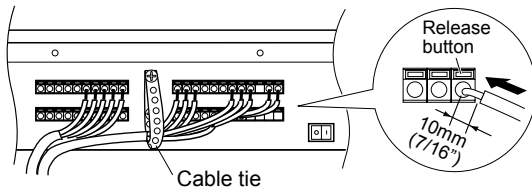
3 After the connections for the whole system have been completed, turn on the power switch.

Press the "I" side.
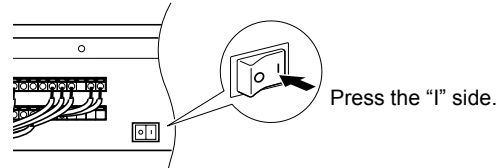
The power indicator on the operation panel lights up.

Lights up green.
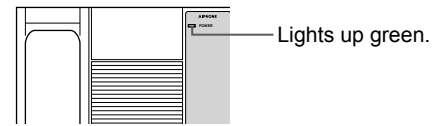
4 Attach the terminal cover with the two screws.

■ **Note about connecting a PC to the master station.**

Use the included RS232C cable for the connection.

PC

* Install NI-SOFT on the PC from the included CD-ROM. Refer to the instruction manual for NI-SOFT for details.

RS232C terminal
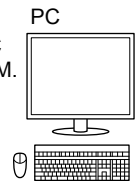
RS232C cable (1m (3.3'))
(provided with NI-SOFT)

TX RX I-G

TX RX I-G

White

Black

Red
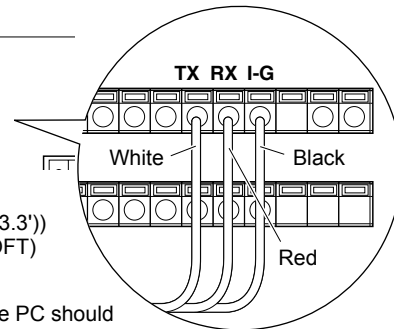
* When extending the RS232C cable, the distance between the master station and the PC should be 15m (50') or less.

⚠ CAUTION

■ **Note about connecting the power supply unit(s) to the master station.**

* When using the **master station, 60-call or 80-call**, two power supply units are needed.

NIM-20B/NIM-40B

DC48V
+ −

Power supply unit
(IS-PU only)
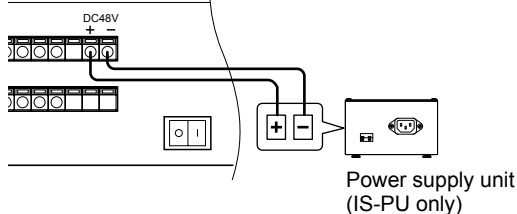
Master station, 60-call/80-call

DC48V
+ −

DC48V
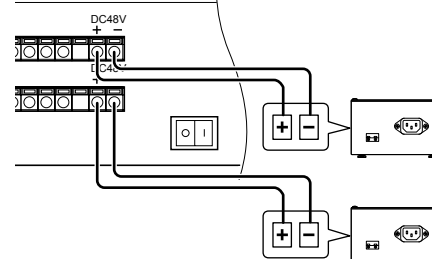
⚠ **Do not connect the two power supply units in parallel.**
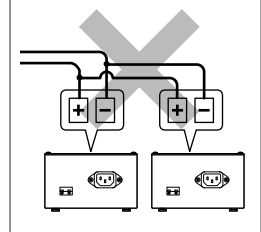
Multiple-user room examples of using the ceiling speaker (NI-LB) and the ceiling microphone (NI-SB)

Master station

Individual channel line ← [M] [E]
[1], [2], [3], etc.

■ **Meanings of symbols**

● : Wire-to-wire connection

✕ : The wire should be cut and insulated.

When using a corridor light and reset button

Corridor light, single bed (NIR-4)

Blue

Blue

or

Corridor light with buzzer (NIR-4BZ)

Black

Blue

or

Corridor light with reset button (NIR-42)

Black

Brown

* Refer to page 29, when using the corridor light with nameplate (NIR-31, NIR-32, NIR-34).

Blue

Call reset button (NIR-2)

Blue

Ceiling speaker (NI-LB)

Red Yellow Black Blue

Orange/White Orange White Gray ✕

Cut the green lead wire and insulate its ends.

Green lead wire

Wall jack for NIR-8 (NIR-1)

Blue

Blue

Gray

White

Ceiling microphone (NI-SB)

Bedside call switch (NIR-8)

Call button (NIR-6)

Blue

Blue

(6 wall jacks or call buttons can be connected in total.)

* When not using a corridor light, do not cut the green lead wire, and insulate the blue lead wire.

Do not cut.

Green lead wire

22

Multiple-user room examples of using the ceiling speaker (NI-LB) and not using the ceiling microphone (NI-SB)

Master station

■ **Meanings of symbols**

● : Wire-to-wire connection

✕ : The wire should be cut and insulated.

Individual channel line
1 , 2 , 3 , etc.

M   E

When using a corridor light and reset button

Corridor light, single bed (NIR-4)

Corridor light with buzzer (NIR-4BZ)

Corridor light with reset button (NIR-42)

Blue

Black

Black

Blue

or

Blue

or

Brown

* Refer to page 29, when using the corridor light with nameplate (NIR-31, NIR-32, NIR-34).

Blue

Call reset button (NIR-2)

Blue

Ceiling speaker (NI-LB)

Red   Yellow   Black   Blue

Orange/White   Orange   White   Gray

Cut the green lead wire and insulate its ends.

Green lead wire

Wall jack with microphone for NIR-8 (NIR-MB)

Blue
Blue
White
Gray

Bedside call switch (NIR-8)

(6 wall jacks with microphone can be connected in total.)

* When not using a corridor light, do not cut the green lead wire, and insulate the blue lead wire.

Do not cut.

Green lead wire

23
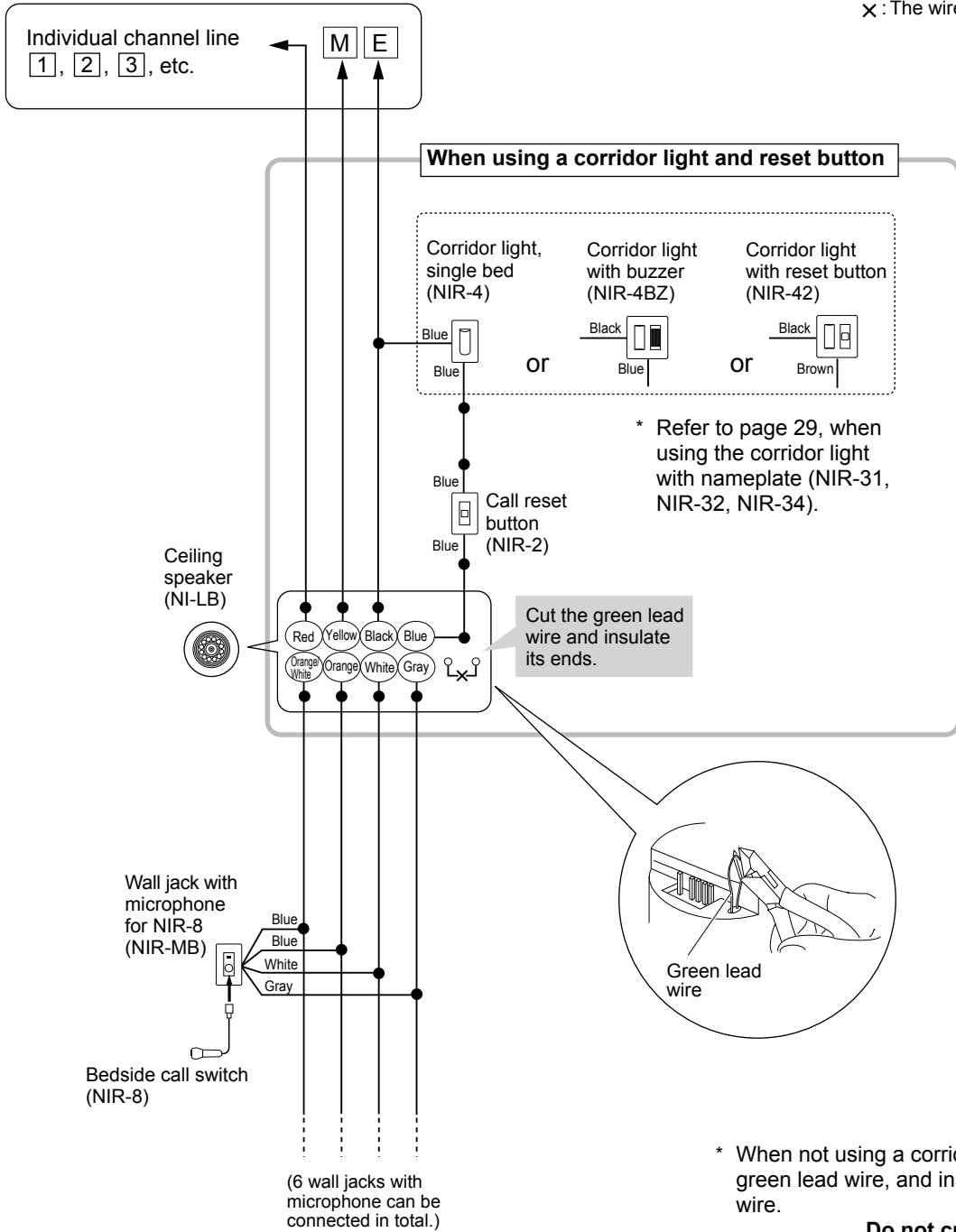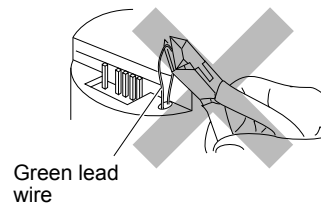
Multiple-user room examples of using the bedside handheld sub stations (NI-RC) etc.

■ **Meanings of symbols**

● : Wire-to-wire connection

✕ : The wire should be cut and insulated.

Master station

E

M

Individual channel line [1], [2], [3], etc.

Red Yellow Black Blue Green ✕ (∗1)

Red Yellow Black Blue Green ✕ (∗1)

Red Black Blue Green ✕ (∗1)

Yellow Orange Red Brown Black

Wall jack for NI-RC (NIR-HP)

Bedside handheld sub station (NI-RC)

Wall jack with hanger for NI-RC (NIR-HPF)

NI-RC

Bathroom call button (NIR-7W or NIR-7HW)

Corridor light with nameplates, 4 names (NIR-34)

* Refer to page 29 for the detailed connection method for the corridor light with nameplate (NIR-34, NIR-32 and NIR-31).

(∗1): **When using a corridor light;**
Cut the connection between the black and green wires to separate them, and insulate the green wire.

Black

Green

When using the corridor light, multiple beds (NIR-4S) and call reset button (NIR-2)

Master station

E

M

Individual channel line [1], [2], [3], etc.

Red Yellow Black Blue Green ✕ (∗1)

Red Yellow Black Blue Green ✕ (∗1)

Red Black Blue Green ✕ (∗1)

Blue

Corridor light, multiple beds (NIR-4S)

Blue

Blue

Call reset button (NIR-2)

Blue

NIR-HP

NI-RC

NIR-HPF

NI-RC

NIR-7W or NIR-7HW

(∗1): **When using a corridor light;**
Cut the connection between the black and green wires to separate them, and insulate the green wire.

Black

Green

24

When using equipment without microphone (no communication is possible)

Master station

E

Individual channel line 1, 2, 3, etc.

(*2)   × (*1)

Red   Orange   Black   Blue   Green

Call latching wall jack for NIR-8 (NIR-7BS)

Bedside call switch (NIR-8)

(*1): **When using a corridor light;** Cut the connection between the black and green wires to separate them, and insulate the green and orange lead wire.

Black

Green

(*2): The orange lead wire should be insulated.

Yellow   Orange   Red   Brown   Black

Corridor light with nameplates, 4 names (NIR-34)

* Refer to page 29 for the detailed connection method for the corridor light with nameplate (NIR-34, NIR-32 and NIR-31).

When not using a corridor light

Master station

E

M

Individual channel line 1, 2, 3, etc.

Red   Yellow   (*3) Black   (*4) Blue   Green

NIR-HP

NI-RC

(*3) Red   Black   (*4) Blue   Green

NIR-7W or NIR-7HW

(*3): **When not using a corridor light;** Do not cut the connection between the black and green wires. Insulate the blue lead wire.

Black

Green

(*4): The blue lead wire should be insulated.

Examples of using the bathroom call buttons (NIR-7W or NIR-7HW)

When using a corridor light and reset button

■ **Meanings of symbols**

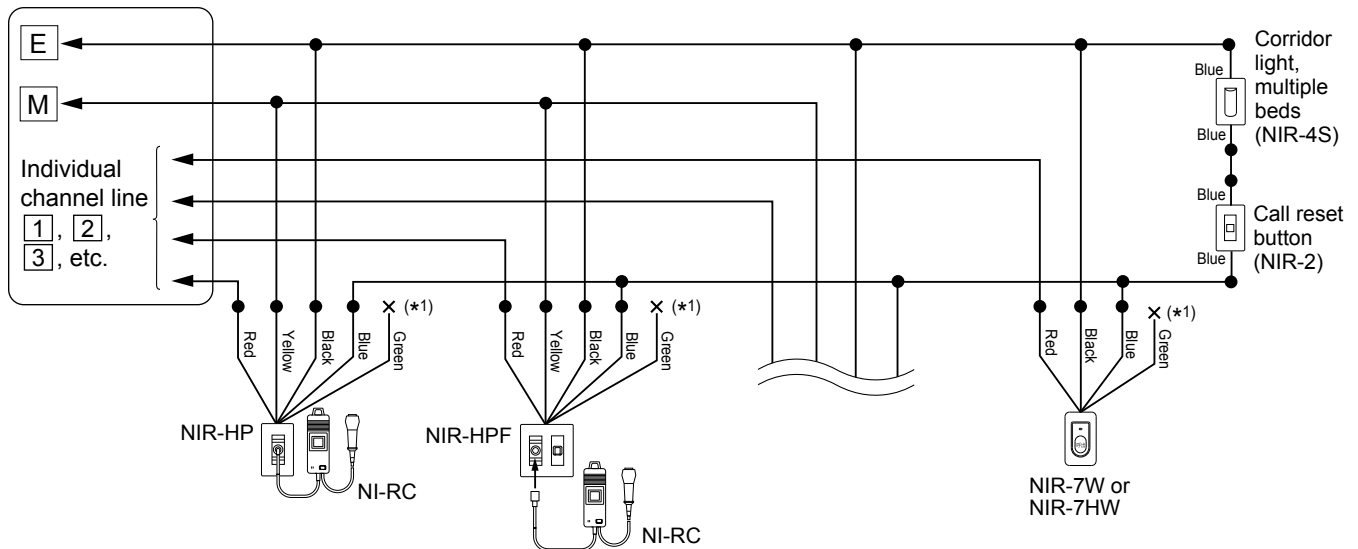● : Wire-to-wire connection

✕ : The wire should be cut and insulated.

Master station

Individual channel line
1, 2, 3, etc.

E

Corridor light,
single bed
(NIR-4)

Blue

Corridor light
with buzzer
(NIR-4BZ)

Black

or

Blue

Corridor light
with reset
button (NIR-42)

Black

or

Brown

* Refer to page 29, when
using the corridor light with
nameplate (NIR-31, NIR-32,
NIR-34).

Blue

Blue

Call reset
button
(NIR-2)

Blue

Bathroom
call button
with pull
cord
(NIR-7HW)

Bathroom
call button
(NIR-7W)

Red
Black
Blue
Green ✕ (∗1)

or

NIR-7HW

NIR-7W

Red
Black
Blue
Green ✕ (∗1)

or

NIR-7HW

NIR-7W

Red
Black
Blue
Green ✕ (∗1)

or

When not using a corridor light

Master station

Individual channel line 1, 2, 3,
etc.

E

NIR-7W

Red
Black
Blue (∗3) (∗2)
Green

(∗1): **When using a corridor
light;**
Cut the connection
between the black and
green wires to separate
them, and insulate the
green wire.

Black

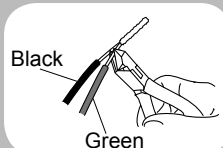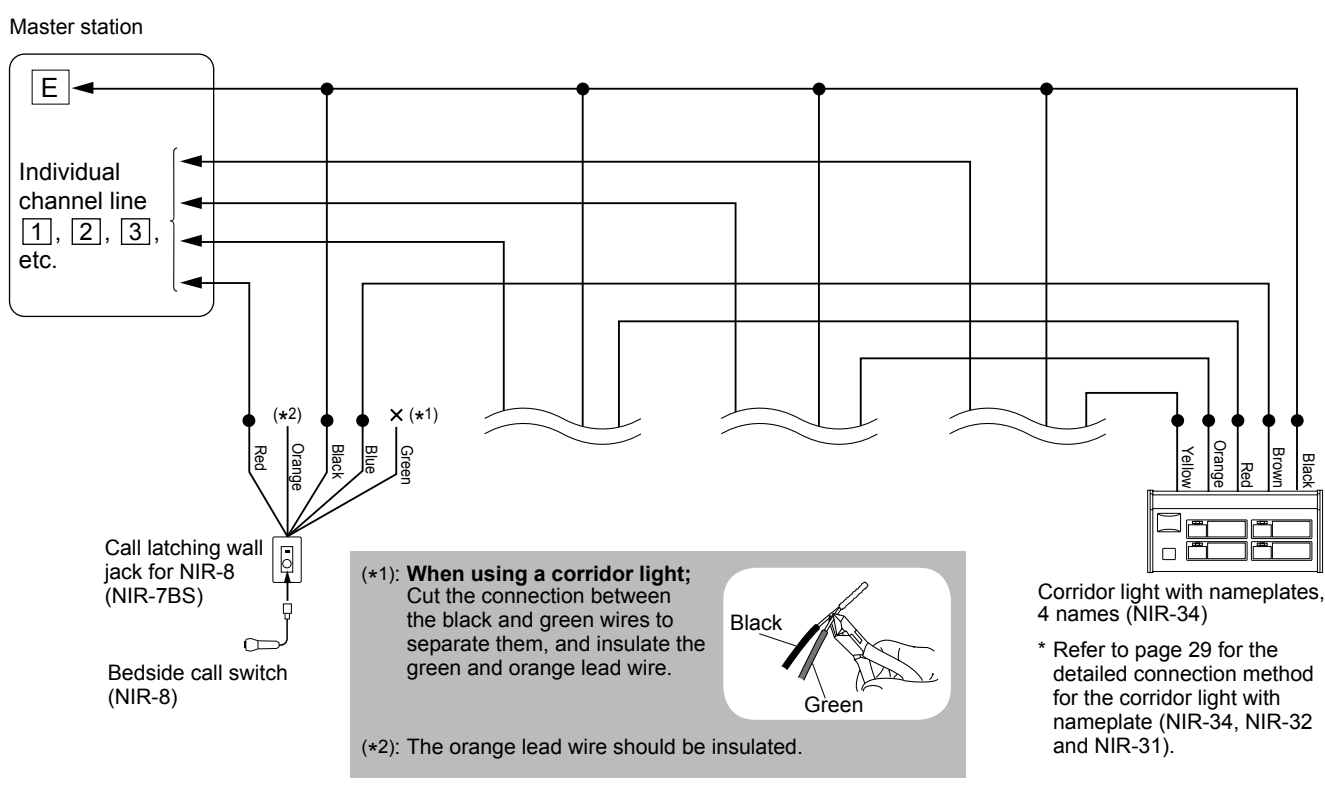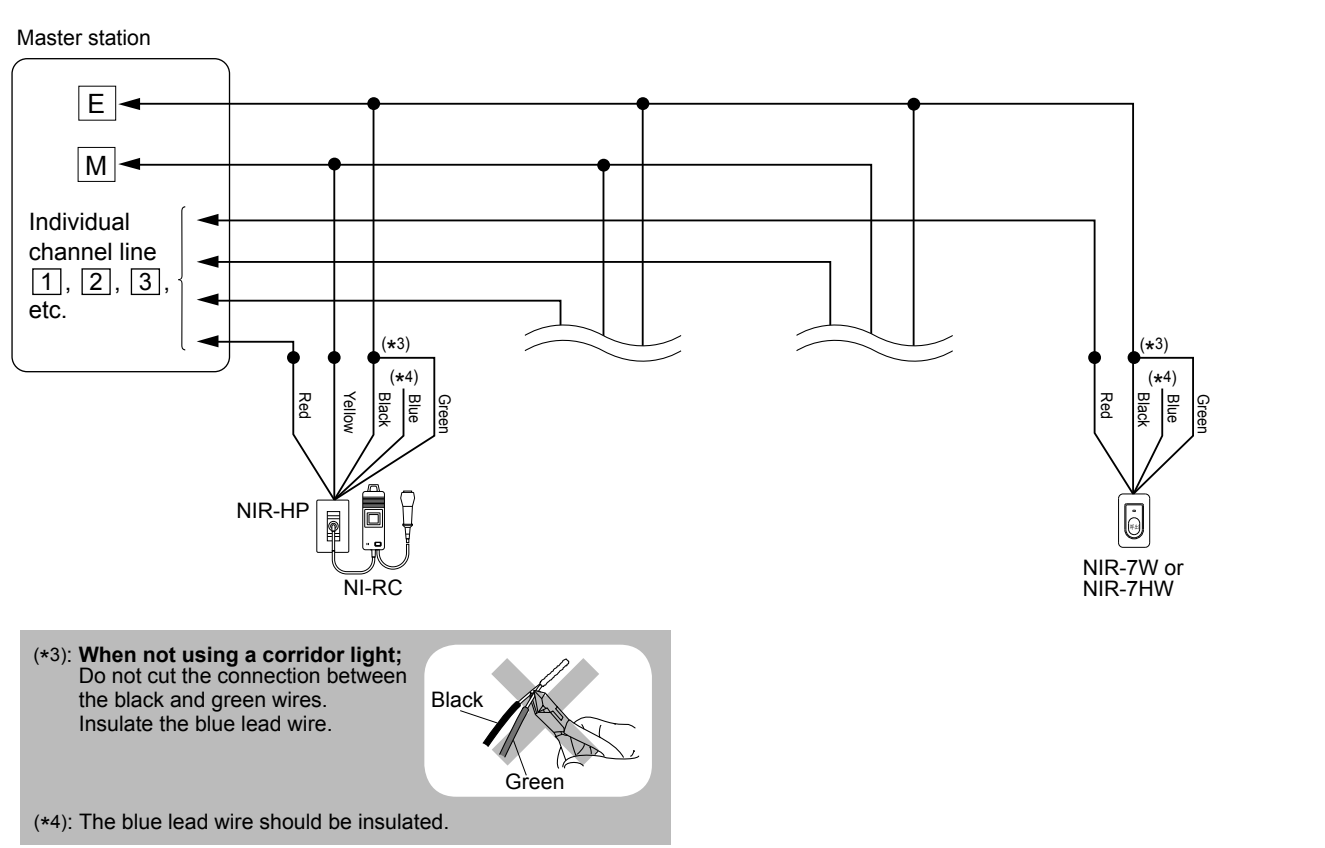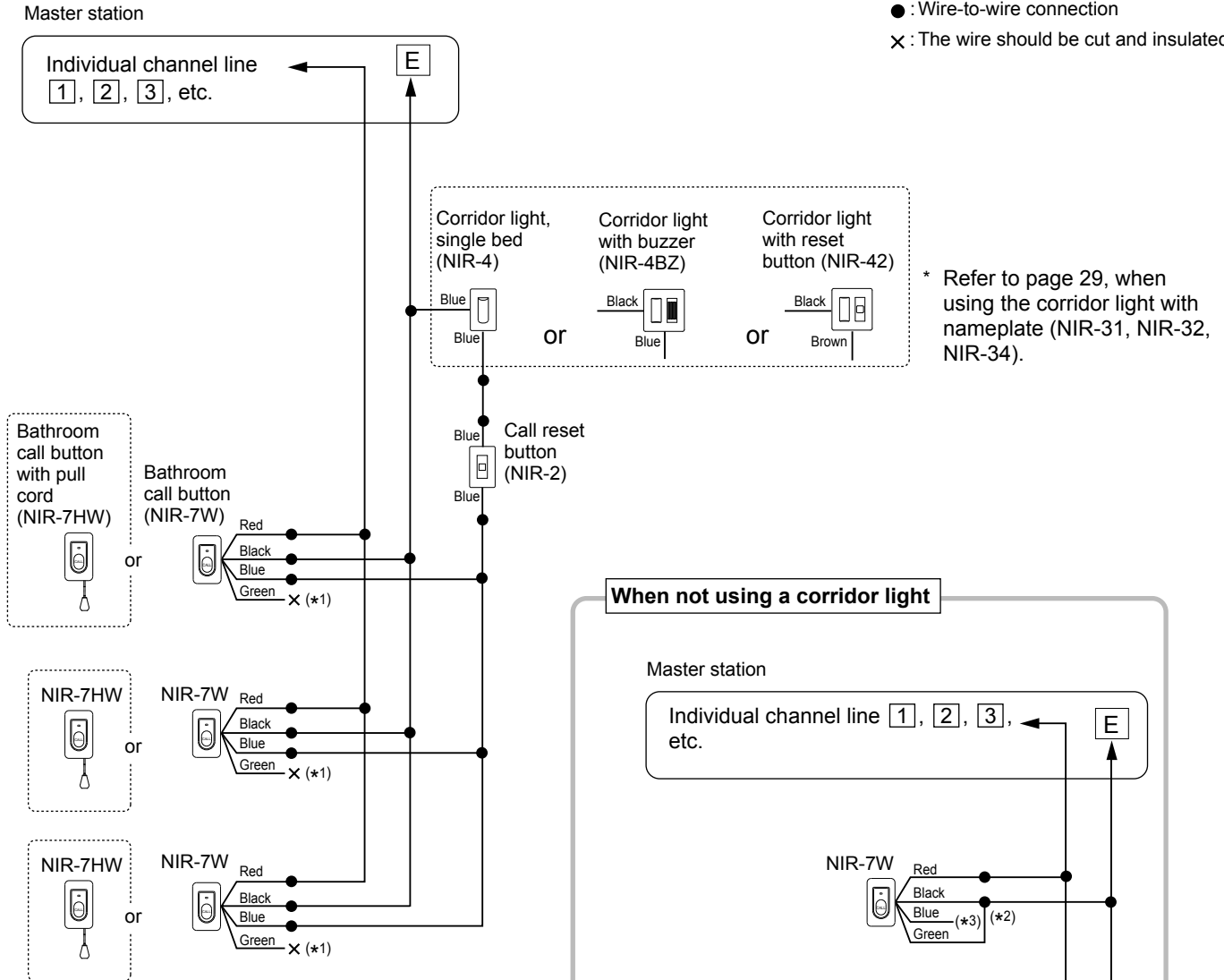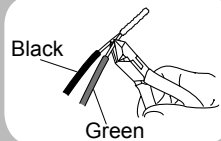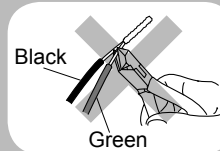Green

(∗2): **When not using
a corridor light;**
Do not cut the
connection
between the black
and green wires.
Insulate the blue
lead wire.

Black

Green

(∗3): The blue lead wire
should be insulated.

NIR-7W

Red
Black
Blue (∗3) (∗2)
Green

NIR-7W

Red
Black
Blue (∗3) (∗2)
Green

* Up to 3 bathroom call buttons can be connected to a single
channel line.

26
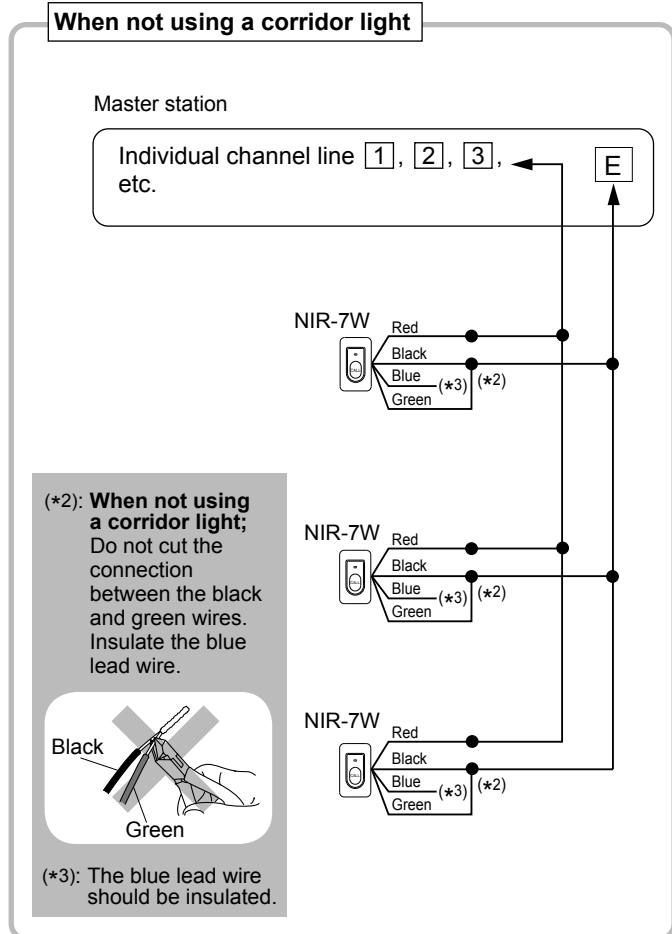
Single room examples of using the surface mount sub station (NI-BA)

When using a corridor light and reset button

■ **Meanings of symbols**
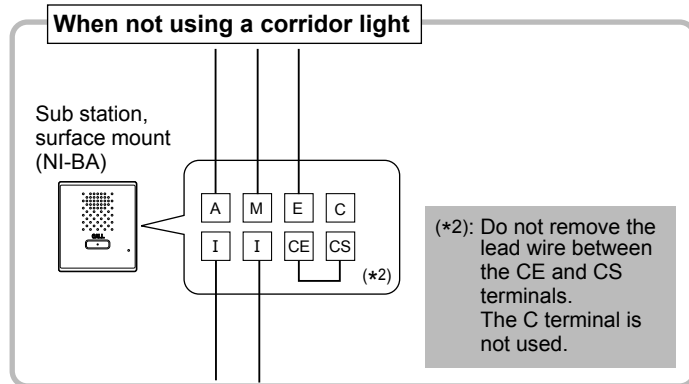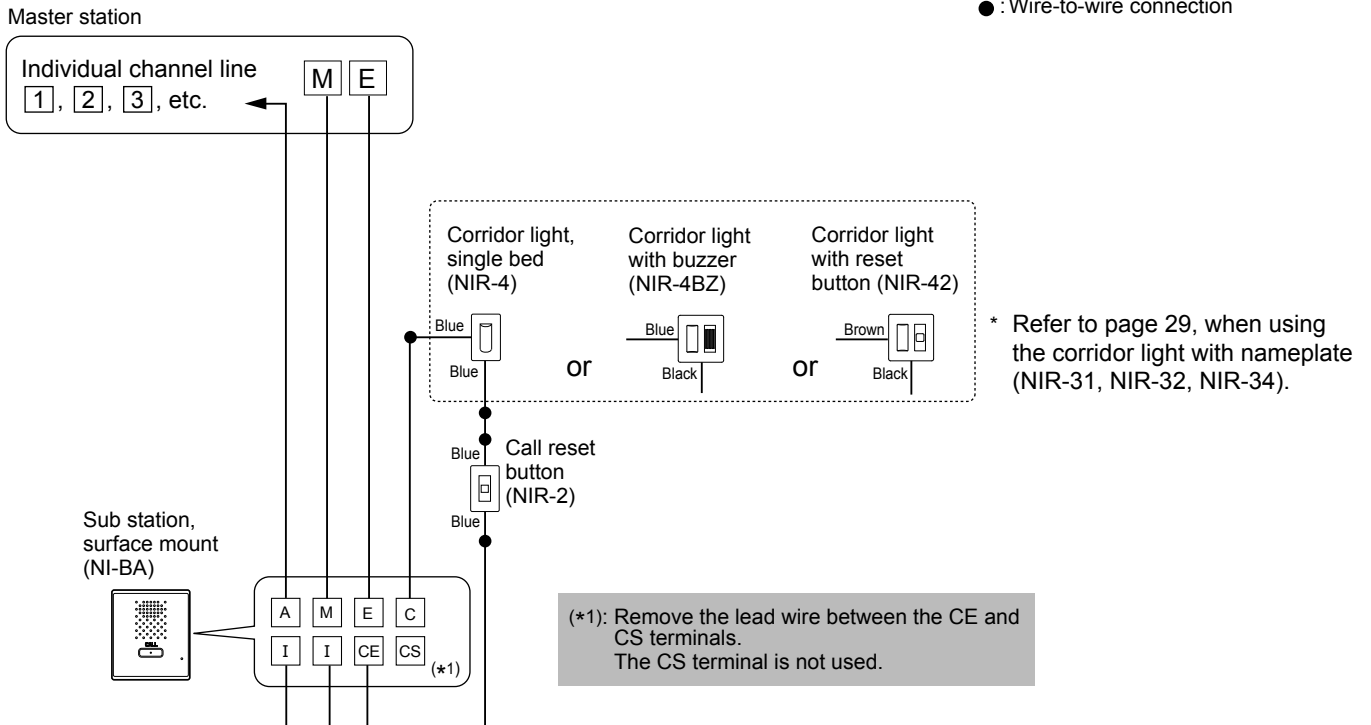
● : Wire-to-wire connection

Master station

Individual channel line
1 , 2 , 3 , etc. M E

Corridor light, single bed (NIR-4)
Blue
Blue

or

Corridor light with buzzer (NIR-4BZ)
Blue
Black

or

Corridor light with reset button (NIR-42)
Brown
Black

* Refer to page 29, when using the corridor light with nameplate (NIR-31, NIR-32, NIR-34).

Blue Call reset button (NIR-2)
Blue

Sub station, surface mount (NI-BA)

A M E C
I I CE CS (*1)

(*1): Remove the lead wire between the CE and CS terminals.
The CS terminal is not used.

Blue
Wall jack for NIR-8 (NIR-1)
Blue

Call button (NIR-6) or

Bedside call switch (NIR-8)

When not using a corridor light

Sub station, surface mount (NI-BA)

A M E C
I I CE CS (*2)

(*2): Do not remove the lead wire between the CE and CS terminals.
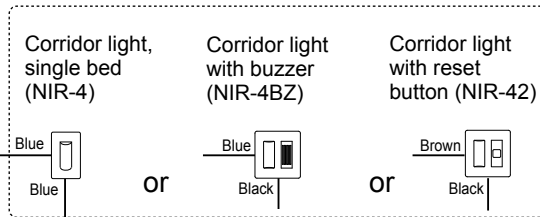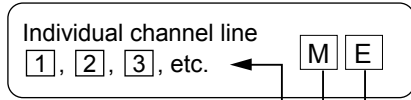The C terminal is not used.

27

Examples of using the flush mount sub station (NI-JA)

When using a corridor light and reset button

■ **Meanings of symbols**

● : Wire-to-wire connection

Master station

Individual channel line
1 , 2 , 3 , etc.   M E

Corridor light, single bed (NIR-4)   Blue / Blue   or   Corridor light with buzzer (NIR-4BZ)   Blue / Black   or   Corridor light with reset button (NIR-42)   Brown / Black

*   Refer to page 29, when using the corridor light with nameplate (NIR-31, NIR-32, NIR-34).

Blue

Call reset button (NIR-2)
Blue

Sub station, flush mount (NI-JA)

A M E C
CE CS
(∗1)
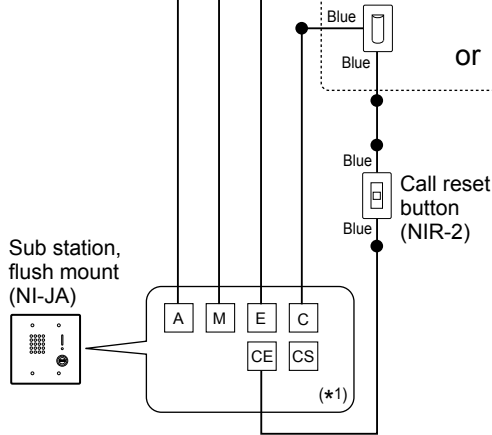
(∗1): Remove the lead wire between the CE and CS terminals.
The CS terminal is not used.

When not using a corridor light
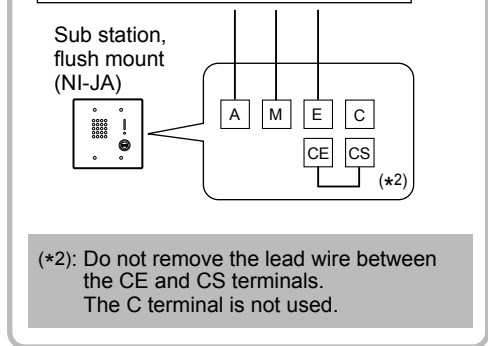
Sub station, flush mount (NI-JA)

A M E C
CE CS
(∗2)

(∗2): Do not remove the lead wire between the CE and CS terminals.
The C terminal is not used.

28

Notes about connecting to a corridor light with nameplate (NIR-31, NIR-32, NIR-34)

The individual user displays and the corresponding lead wire colors are as follows.
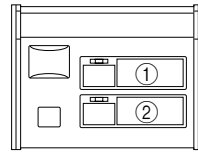When the call button of a sub station connected to one of the color-coded lead wires of the corridor light is pressed, the corresponding number of the call indicator lights.
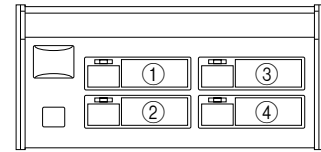
NIR-31

Call indicator
Individual user display
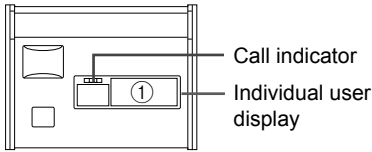
Individual user display	Color of lead wire
①	Brown

NIR-32

Individual user display	Color of lead wire
①	Brown
②	Red

NIR-34

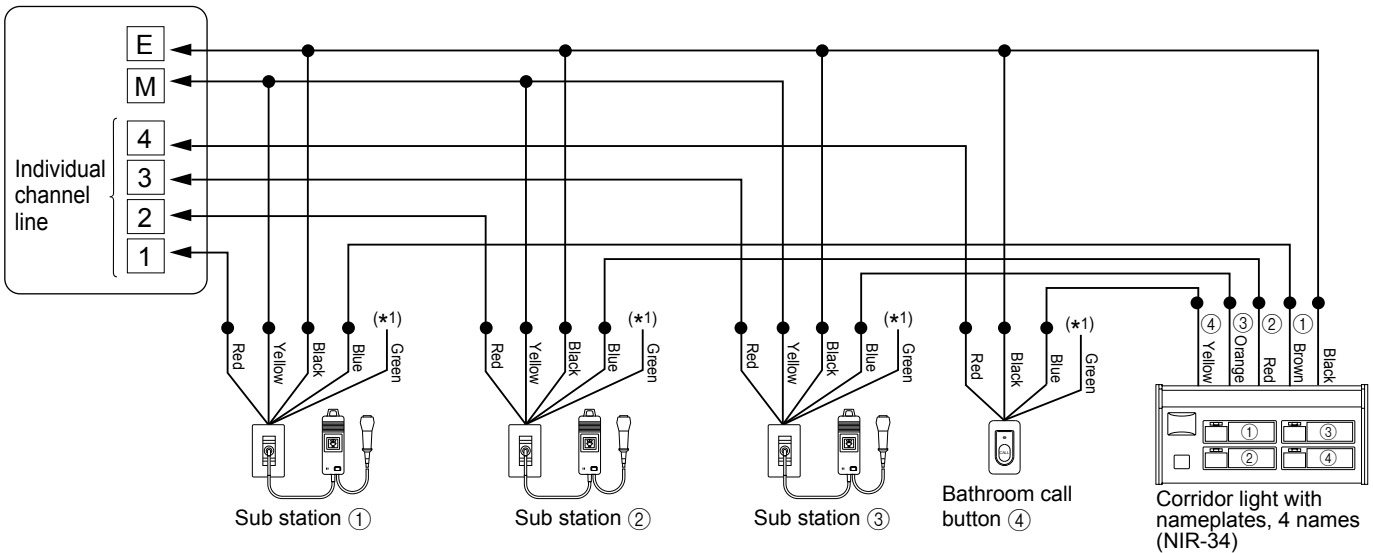| Individual user display	Color of lead wire
①	Brown
②	Red
③	Orange
④	Yellow

e.g.
When the call button of the sub station connected to the red lead wire is pressed, the call indicator of display ② lights.
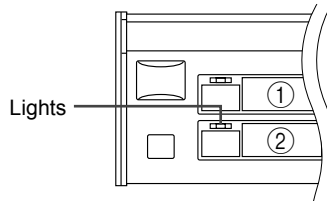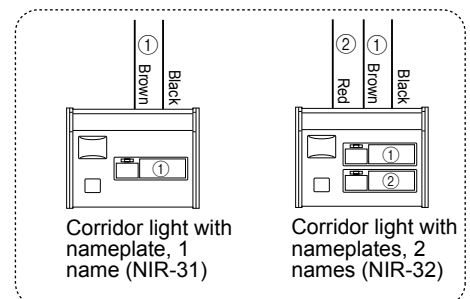
Lights

Wiring example

Master station

E
M

Individual channel line

4
3
2
1

(∗1)
Red Yellow Black Blue Green

Sub station ①

Red Yellow Black Blue Green (∗1)

Sub station ②

Red Yellow Black Blue Green (∗1)

Sub station ③

Red Black Blue Green (∗1)

Bathroom call button ④

④ ③ ② ①
Yellow Orange Red Brown Black

Corridor light with nameplates, 4 names (NIR-34)

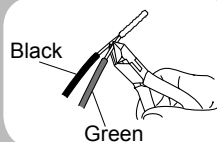■ **Meanings of symbols**

● : Wire-to-wire connection

(∗1): **When using a corridor light;**
Cut the connection between the black and green wires to separate them, and insulate the green wire.

Black

Green

①
Brown Black

Corridor light with nameplate, 1 name (NIR-31)

② ①
Red Brown Black

Corridor light with nameplates, 2 names (NIR-32)

SETUP AFTER INSTALLATION

Adjusting volume and ringtone settings

For these changes, use the switches and control knobs under the switch cover by removing the cover.

Switch cover

Remove

Reset button

ON

1 2 3 4 5 6 7 8
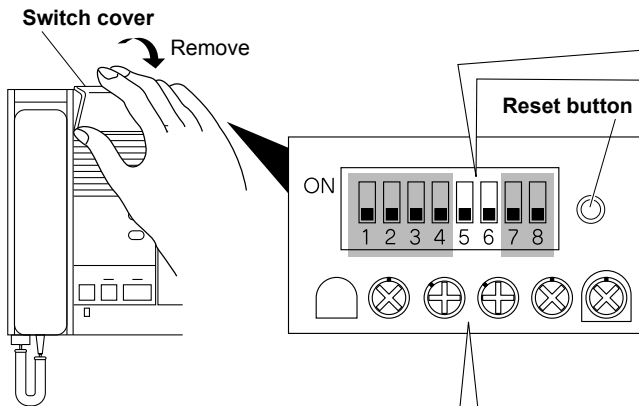
Changing the sound type of ringtone

You can change the sound type of ringtone between **melody** and **chime**.

ON: Melody
OFF: Chime

5

To select **melody**, put switch 5 in UP position.

To select **chime**, put switch 5 in DOWN position.

Activating/deactivating the automatic volume gain of ringtone

When this function is active, the volume of ringtone increases automatically to the maximum level (low→mid→high) in a 90-second interval.

ON: Disable
OFF: Enable

6

To **disable**, put switch 6 in UP position.
To **enable**, put switch 6 in DOWN position.

* ▢ : Do not change these switches. They have been preset in the optimum positions.

NOTE: After modifying the settings, press the reset button to apply new settings.

Adjusting volume

To adjust:
Turn the control knob clockwise to increase and counterclockwise to decrease the volume.

Decrease   Increase

TALK:
This adjusts the volume of audio (sent from the master station) heard at the sub stations.

PRETONE:
This adjusts the volume of notice sound heard at the sub stations.

ALL CALL:
This adjusts the volume of all station paging heard at the sub stations.
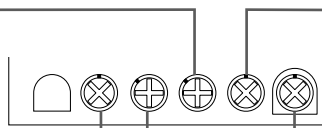
RECEIVE:
This adjusts the master receive volume. As the basis of this level, you can adjust the receiving volume with the RECEIVE VOL. tab on the master station operation panel.

RING TONE:
This adjusts the master volume of ringtone. As the basis of this level, you can adjust the ringtone volume with the RING TONE VOL. tab on the master station operation panel.

APPENDIX

Troubleshooting

If the system fails to operate normally, check the following points to determine whether the fault can be corrected by the simple measures suggested. If it cannot be corrected, or if the fault is not listed in the "Symptom" column, disconnect the power cord and contact the system supplier or service center for help.

Symptom	Cause	Solution
The master station will not operate.	The power switch on the back of the master station is in the OFF position.	Turn on the power switch. (→ page 21)
The power of all the equipment is off.		
No ringtone		
No communication with sub station.	Improper wiring connection	Verify the wiring 🔲# to 🔲#, 🔲M to 🔲M, and 🔲E to 🔲E between master and sub stations.
No communication to sub station.	Improper wiring connection	Verify the wiring 🔲# to 🔲#, 🔲M to 🔲M, and 🔲E to 🔲E between master and sub stations.
	An improper device is used for sub station.	Verify a sub station compatible with the NIM system is used.
Call is not held.	Improper wiring connection	Verify connection of lead wires.
One way audio	An improper device is used for sub station.	Verify a sub station compatible with the NIM system is used.

#️⃣ : Individual channel line (#: number)

Ⓜ : Common line (for microphone)

Ⓔ : Common line (for earth ground)

GETTING STARTED

MOUNTING

CONNECTION

SETUP AFTER
INSTALLATION

APPENDIX

Warranty

Aiphone warrants its products to be free from defects of material and workmanship under normal use and service for a period of one year after delivery to the ultimate user and will repair free of charge or replace at no charge, should it become defective upon which examination shall disclose to be defective and under warranty. Aiphone reserves unto itself the sole right to make the final decision whether there is a defect in materials and/or workmanship; and whether or not the product is within the warranty. This warranty shall not apply to any Aiphone product which has been subject to misuse, neglect, accident, power surge, or to use in violation of instructions furnished, nor extended to units which have been repaired or altered outside of the factory. This warranty does not cover batteries or damage caused by batteries used in connection with the unit. This warranty covers bench repairs only, and any repairs must be made at the shop or place designated in writing by Aiphone. This warranty is limited to the standard specifications listed in the operation manual. This warranty does not cover any supplementary function of a third party product that is added by users or suppliers. Please note that any damage or other issues caused by failure of function or interconnection with Aiphone products is also not covered by this warranty. Aiphone will not be responsible for any costs incurred involving on site service calls. Aiphone will not provide compensation for any loss or damage incurred by the breakdown or malfunction of its products during use, or for any consequent inconvenience or losses that may result.

The object area of 🗑 is the EU.

FCC

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IC
CAN ICES-3 (B)/NMB-3(B)

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