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

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

**WARNING**
(Negligence could result in death or serious injury.)

1. Do not dismantle or alter the unit. Fire or electric shock could result.
2. Do not connect any power source other than specified to terminals +, - nor install two power supplies in parallel to single input. Fire or damage to the unit could result.
3. Do not connect any terminal on the unit to AC power line. Fire or electric shock could result.
4. For power supply, use Aiphone power supply model or model specified for use with system. If non-specified product is used, fire or malfunction could result.
5. Voltage is applied to parts within the equipment. Do not touch any parts that are not associated with the installation, wiring, or connection. Electric shock could result.
6. If any abnormality (i.e., smoke, unusual smell or unusual noise) is sensed from the unit, or the unit falls or gets broken, unplug the unit or turn off the breaker immediately. Fire or electric shock 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.
2. Before turning on power, make sure wires are not crossed or shorted. Fire or electric shock could result.
3. When mounting the unit on wall, install the unit in a convenient location, but not where it could be jarred or bumped. Injury could result.
4. Do not install the unit in locations subject to frequent vibration or impact. It may fall or tip over, resulting in damage to the unit or personal injury.
5. 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.
6. Do not place your ear close to the speaker during use as it could cause hearing damage.

**Precautions for mounting**

1. Observe the following restrictions for mounting entrance stations.
   - Do not mount the entrance station so that it faces obliquely upward. The rainwater may go inside and it may damage the unit.
   - Do not block the bottom of entrance station by caulking.
2. Do not install the unit in any of the following locations. Fire, electric shock, or unit trouble could result.
   - Places under direct sunlight.
   - Places near heating equipment or a boiler that varies in temperature.
   - Places where dust, oil, chemicals or hydrogen sulfide are present.
   - Places where moisture and humidity extremes are present, 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 with steam or smoke (near heating or cooking surfaces).
   - Places subject to sulfur, such as hot springs.
   - Places near the shore or exposed to the direct sea breeze.
3. Do not install this unit in any of the following locations where lighting or the ambient environment could impact the display on the video monitor due to the characteristics of the door station's camera.
   - Locations where bright as the sky is shown widely behind the caller
   - There is a white wall behind the caller
   - Locations subject to direct sunlight or strong lighting
4. When using a fluorescent light that shines around the camera in the 50Hz area, the screen colors may variously change as color rolling or flickering. Please block off the light or use the inverter fluorescent lamp.
5. For running cables, separate them for audio/video and door release and keep them more than 10cm (3-1/5") away from each other.
6. When using an existing wiring, depending on the type of wiring, it may not operate the system. Please check and change it in advance.
7. Do not use the impact driver for mounting. Damage to the unit could result.

**General Precautions**

1. Keep the intercom wires more than 30cm (12") away from AC 100-240V wiring. AC induced noise and malfunction could result.
2. When installing and using the system, please consider the privacy and portrait rights of users and visitors. Aiphone shall not be held responsible for violation or privacy or other statutory rights. (The protection of privacy and statutory rights is the responsibility of the customer.)
3. Install the units, which will not be operated, in an area that will be accessible for future inspections, repairs, and maintenance.
4. Be sure to install an entrance station vertically. If it is installed horizontally, rainwater may get into the unit causing a malfunction.
5. For maintenance or after-sales service, make sure to provide the setting data to the customer.
6. Do not put an obstacle such as a foliage plant where monitoring is done by a human body detection sensor.

**Notices**

- Do not install the unit close to an electrical appliance or water heater using a dimmer or inverter, a remote controller of floor heating, etc. Failure to do so may generate a noise causing a malfunction of the unit.
- In areas where broadcasting station antennas are close by, intercom system may be affected by radio frequency interference.
- When warm indoor air flows into the unit, dew condensation may be caused by a temperature difference between indoors and outdoors. It is recommended to cover openings on the unit such as cable incoming holes to avoid condensation.
- Using a mobile phone or professional-use radio equipment such as walkie-talkie close to the system may cause a malfunction.
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1 SYSTEM CONFIGURATIONS

1-1 Standard system configuration & capacity

Outline of standard system  * Refer to section 4 “WIRING” for details about wiring and connection.

This system is constructed using 2 wires for audio and 2 wires for video and requires minimal work for installation. A maximum of 6 video trunk lines can be used from the video bus controller and audio signal lines use a distribution point from the bus controller. Audio systems can also be configured.

Residential/tenant trunks 1 to 5 [max. 48 stations (max. 25 per trunk)] *1

Entrance station Audio/video + 10 key type e.g.) GT-DB(V, -VN) + GT-NSB + GT-10K

Guard station GT-MKB-N

Gate station
GTMKB-N

Entrance station (modular type)

Audio/video + direct select e.g.) GT-DB(V, -VN) + GT-SW

Audio + direct select e.g.) GT-DB(V, -VN) + GT-SW

Audio + 10 key e.g.) GT-DB(V, -VN) + GT-NSB + GT-10K

Audio + direct select + 10 key e.g.) GT-DB(V, -VN) + GT-NSB + GT-10K + GT-SW

Entrance station (all-in-one type)

GT-DMB-LVN (Magnetic-loop and VIGIK-linked enabled)

Device | Capacity
--- | ---
Entrance station | Max. 5 (max. 3 per trunk from the DP) *3 *4
Guard station (GT-MKB-N) | Max. 2
Residential/tenant station | Max. 48 (max. 25 per trunk from the DP) *5
Residential/tenant stations in the same residence/tenant | Max. 4 *6
4-way video junction unit (GT-4Z, see section 1-3) | Max. 6 per residential/tenant trunk
Bus control unit (GT-BC) | 1 required
Video bus control unit (GT-VBC [STD]) | Max. 1
Sub residential/tenant station (GT-2H-L, GT-2H) | Max. 3 (connectable to the residential/tenant station GT-2C-L, or GT-2C only)

*3: If GT-DB-V, GT-DB-VN or an external door release button is connected to an entrance station that includes GT-SW, a maximum of 3 entrance stations can be connected to the system.

*4: Make sure that a power supply is shared between GT-BC and GT-VBC.

*5: The maximum is 100 stations with GT-1D only. (GT-1D: Max. 50 stations per trunk)

*6: Max. 4 under the following conditions only:
  - GT-1A or GT-1D × Max. 4
  - GT-1C(L) × 1 + GT-1A or GT-1D × Max. 3
  - GT-1M3(L) × 1 + GT-1A or GT-1D × Max. 3
  - GT-1M3(L) × 2 + GT-1A or GT-1D × Max. 2
  - GT-2C(L) × Max. 4
1-2  Expanded system configuration & capacity

The wiring of the sub trunk line is the same as the standard system.
* Refer to section 4 “WIRING” for details about wiring and connection.

- Audio signal line  
- Video signal line  
- Power supply line  

DP: Distribution Point  
(Not provided by Aiphone except for Europe and North America.)

[Max. 125 stations (max. 25 per trunk)]

- Video bus control unit GT-VBC  
- Bus control unit GT-BC  
- Entrance station GT-MKB-N  
- Guard station GT-MKB-N  
- Device Capacity

<table>
<thead>
<tr>
<th>Device</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrance station</td>
<td>Max. 16 (max. 8 per common trunk 1 &amp; 2) *4</td>
</tr>
<tr>
<td>Guard station (GT-MKB-N)</td>
<td>Max. 4 (max. 2 per common trunk line 1 &amp; 2)</td>
</tr>
<tr>
<td>Residential/tenant station</td>
<td>Max. 500 *5</td>
</tr>
<tr>
<td>Residential/tenant stations per sub trunk line</td>
<td>Max. 125 (max. 25 per trunk)</td>
</tr>
<tr>
<td>Residential/tenant stations in the same residence</td>
<td>(Same as standard system)</td>
</tr>
<tr>
<td>Sub residential/tenant station (GT-2H-L, GT-2H)</td>
<td>(Same as standard system)</td>
</tr>
<tr>
<td>Bus control units per common trunk line (GT-BC)</td>
<td>1 required</td>
</tr>
<tr>
<td>Bus control units per sub trunk line (GT-BC)</td>
<td>1 required</td>
</tr>
</tbody>
</table>

*4: Up to 3 entrance stations can be connected per audio signal line from the DP within common trunk line 1&2. If GT-DB-V or GT-DB-VN is used in an entrance station, the maximum number of entrance stations is 2.
*5: This includes guard stations connected to the entrance stations by the Hand-shaking link setting.
1-3 Residential/tenant station configuration

For wiring from the control units to each residence/tenant, GT-4Z wiring method, loop wiring method, or GT-1Z wiring method is possible.

NOTE: Mixing different wiring methods on the same trunk line is not allowed.

Trunk line 1
- GT-4Z wiring method
- 4-way video junction unit
- GT-4Z

Trunk line 2
- Loop wiring method
- GT-1Z wiring method

Trunk line 3
- GT-1Z wiring method

* Select one of the same wiring methods as trunk lines 1 to 3.

Residential/tenant station configuration

- Video 1-zone divider GT-1Z

To each control unit

- Audio signal line
- Video signal line
Residence/tenant (for GT-2C-L or GT-2C)

- Video door station
  JK-DA, JK-DV, JK-DVF
- Residential/tenant station
  GT-1D, GT-1A, GT-1C7, GT-1C7-L, GT-1M3, GT-1M3-L, GT-2C(-L), GT-2C, GT-2H(-L), GT-2H, GT-2H-L

Power supplies

[When sub residential/tenant stations are connected]
One power supply can be used to power 2 residences/tenants if sub stations are used.

[When sub residential/tenant stations are not connected]
One power supply can be used to power up to 4 residences/tenants if no sub stations are used.

Residence/tenant (for GT-1C7, GT-1C7-L, GT-1M3, and GT-1M3-L)

- Residential/tenant station
  GT-1C7, GT-1C7-L, GT-1M3, GT-1M3-L

Residence/tenant (for GT-1D and GT-1A)

- Residential/tenant station
  GT-1D, GT-1A

- Doorbell
  GT-D

- Residence/tenant

- Power supply line
  PS24
Lift control system configuration (for expanded system only)

- Device Capacity
  - Lift control adaptor: Max. 16 (max. 8 per trunk)

- Diagram:
  - Trunk 1
    - Lift control adaptor 1 to 8 GTW-LC
  - Trunk 2
    - Lift control adaptor 9 to 16 GTW-LC
  - Lift controller (third party product)
  - Lift (third party product)
  - Bus control unit GT-BC
  - To the expanded bus control unit GT-BCXB-N

- Notes:
  - DP: Distribution Point
    (Not provided by Aiphone except for Europe and North America.)
  - PS24: Signal line
  - : Power supply line

- Table:
<table>
<thead>
<tr>
<th>Device</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lift control adaptor</td>
<td>Max. 16 (max. 8 per trunk)</td>
</tr>
</tbody>
</table>
1-5  Wiring distance

Standard system

[Station to peripheral devices]
Residence/tenant (GT-2C(-L) + GT-2H(-L) only)

[GT-4Z to residential/tenant stations] (e.g. GT-1C7)

Residence/tenant (e.g. GT-1C7(-L))

[GT-1Z to residential/tenant stations] (e.g. GT-1C7)

Entrance station
External
door release
button

Door station
Emergency
alarm switch

Doorbell

Monitor/DVR
(third party product)
The GT-VBC can be used as an extension adaptor (2 units per sub trunk line).
To do so, set the setting switch MODE to "EXPAND". Even if two units are used as extension adaptors (MODE: EXPAND), the wiring distance to the farthest residential/tenant station from the GT-VBC (MODE: STANDARD) or GT-VBX is limited to 300 m (980').
The table below shows the maximum wiring distances between devices.

<table>
<thead>
<tr>
<th>Wire diameter</th>
<th>0.65 mm (22 AWG)</th>
<th>0.8 mm (20 AWG)</th>
<th>1.0 mm (18 AWG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.65 mm (22 AWG)</td>
<td>3 m (10')</td>
<td>5 m (16')</td>
<td>5 m (16')</td>
</tr>
<tr>
<td>0.8 mm (20 AWG)</td>
<td>150 m (490')</td>
<td>300 m (980')</td>
<td>300 m (980')</td>
</tr>
<tr>
<td>1.0 mm (18 AWG)</td>
<td>150 m (490')</td>
<td>300 m (980')</td>
<td>300 m (980')</td>
</tr>
<tr>
<td><strong>DP</strong> *2 - farthest residential/tenant station (includes system with GT-4Z or GT-1Z)</td>
<td>100 m (330')</td>
<td>150 m (490')</td>
<td>150 m (490')</td>
</tr>
<tr>
<td>GT-VBC - farthest residential/tenant station (includes system with GT4Z or GT-1Z) *4</td>
<td>100 m (330')</td>
<td>150 m (490')</td>
<td>150 m (490')</td>
</tr>
<tr>
<td>GT-BC - power supply *3</td>
<td>3 m (10')</td>
<td>5 m (16')</td>
<td>5 m (16')</td>
</tr>
<tr>
<td>GT-VBC - power supply *3</td>
<td>3 m (10')</td>
<td>5 m (16')</td>
<td>5 m (16')</td>
</tr>
<tr>
<td>GT-VBC - farthest GT-MKB-N</td>
<td>150 m (490')</td>
<td>300 m (980')</td>
<td>300 m (980')</td>
</tr>
<tr>
<td>GT-BCXB-N - farthest GTW-LC</td>
<td>150 m (490')</td>
<td>300 m (980')</td>
<td>300 m (980')</td>
</tr>
<tr>
<td>Entrance station - power supply *3</td>
<td>10 m (33')</td>
<td>15 m (49')</td>
<td>15 m (49')</td>
</tr>
<tr>
<td>GT-MKB-N - power supply *3</td>
<td>100 m (330')</td>
<td>150 m (490')</td>
<td>150 m (490')</td>
</tr>
<tr>
<td>GT-MKB-N - JO-DV</td>
<td>30 m (100')</td>
<td>50 m (165')</td>
<td>50 m (165')</td>
</tr>
<tr>
<td>GT-VBC - power supply *3</td>
<td>3 m (10')</td>
<td>5 m (16')</td>
<td>5 m (16')</td>
</tr>
<tr>
<td>GT-BCXB-N - farthest GT-BC</td>
<td>150 m (490')</td>
<td>300 m (980')</td>
<td>300 m (980')</td>
</tr>
</tbody>
</table>

*1: The wiring distances from a door station to a GT-2C-L or GT-2C are not included in the total wiring distance.
*2: DP = Distribution Point (Not provided by Aiphone except for Europe and North America.)
*3: When powering two or more devices with one power supply, separate the cables near the power supply.
*4: The wiring distance between GT-VBX or GT-VBC (STANDARD) to the farthest residential/tenant station by using GT-VBC (EXPAND) is 300 m (980') regardless of the wiring method.
*5: A shielded wire is required.
## COMPONENTS

### 2-1 Entrance station (modular type)

<table>
<thead>
<tr>
<th>Panel</th>
<th>Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio panel GT-DBP</td>
<td>Audio module GT-DB-VN (VIGIK and NFC capable)</td>
</tr>
<tr>
<td>Camera module panel GT-VP</td>
<td>Camera module GT-VB</td>
</tr>
<tr>
<td>1-call button panel GF-1P</td>
<td>Call switch module GT-SW</td>
</tr>
<tr>
<td>3-call button panel GF-3P</td>
<td>Name card</td>
</tr>
<tr>
<td>Name scrolling module panel GT-NSP-L</td>
<td>Name scrolling module GT-NSB</td>
</tr>
<tr>
<td>10 key module panel GF-10KP</td>
<td>10 key module GT-10K</td>
</tr>
<tr>
<td>Access control keypad module with panel GT-AC</td>
<td>Installation &amp; operation manual</td>
</tr>
<tr>
<td>Address module panel GF-AP</td>
<td>Address module GT-AD</td>
</tr>
<tr>
<td>Blank panel GF-BP</td>
<td>Address card</td>
</tr>
<tr>
<td></td>
<td>Address cover</td>
</tr>
</tbody>
</table>

* All the above products except GT-DB-V include the Chinese RoHS paper.*
## Mounting parts

<table>
<thead>
<tr>
<th>Mounting Parts</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-module front frame</td>
<td><img src="image1" alt="4-module front frame" /></td>
</tr>
<tr>
<td>3-module front frame</td>
<td><img src="image2" alt="3-module front frame" /></td>
</tr>
<tr>
<td>2-module front frame</td>
<td><img src="image3" alt="2-module front frame" /></td>
</tr>
<tr>
<td>Rain hood</td>
<td><img src="image4" alt="Rain hood" /></td>
</tr>
<tr>
<td>Hooded surface-mount box</td>
<td><img src="image5" alt="Hooded surface-mount box" /></td>
</tr>
<tr>
<td>Surface-mount box</td>
<td><img src="image6" alt="Surface-mount box" /></td>
</tr>
</tbody>
</table>

* A number appears in place of n.

### Combination examples

#### Audio only, Direct select type (8 stations)

- `GT-DB(-V, -VN) + GT-DBP`
- `GT-SW + GF-4P`

#### Audio/video, Direct select type (8 stations)

- `GT-VB + GT-VP`
- `GT-DB(-V, -VN) + GT-DBP`
- `GT-SW + GF-4P`

#### Audio only, Name scrolling & 10 key type

- `GT-DB(-V, -VN) + GT-DBP`
- `GT-10K + GF-10KP`
- `GT-NSB + GT-NSP-L`

#### Audio/video, Name scrolling & 10 key type

- `GT-VB + GT-VP`
- `GT-DB(-V, -VN) + GT-DBP`
- `GT-10K + GF-10KP`
- `GT-NSB + GT-NSP-L`

#### Audio/video, Name scrolling & direct select type (4 stations)

- `GT-VB + GT-VP`
- `GT-DB(-V, -VN) + GT-DBP`
- `GT-SW + GF-4P`
- `GT-NSB + GT-NSP-L`
2-2 Entrance station (all-in-one type)

All-in-one entrance station
GT-DMB-LVN
(VIGIK and NFC capable)
* GT-4B back box sold separately.

All-in-one entrance station
GT-DMB-N
(NFC capable)
* GF-3B back box sold separately.

USB cable
A-Micro B type (1 m)

Option connector
(7-pin)

Special screwdriver

Screws

* All the above products except GT-DMB-LVN include the Chinese RoHS paper.

2-3 Bus control unit etc.

Bus control unit
GT-BC

Special screwdriver

Video bus control unit
GT-VBC

4-way video junction unit
GT-4Z

Video 1-zone divider
GT-1Z

* English, French installation manual (this manual)
* English, French quick start guide
* Caution sheet (for user)

Expanded bus control unit
GT-BCXB-N
(NFC capable)

USB cable
A-Micro B type (1 m)

* A mounting bracket "DIN rail" included.

Expanded video bus control unit
GT-VBX

* A mounting bracket "DIN rail" included.

External signaling relay
GT-RY

Wood mounting screws

* All the above products include the Chinese RoHS paper.
<table>
<thead>
<tr>
<th>Product</th>
<th>Wood mounting screws</th>
<th>Screws</th>
<th>Option connector (12-pin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential/tenant station</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GT-2C-L (hearing aid-compatible)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GT-2C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GT-1C7-L (hearing aid-compatible)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GT-1M3-L (hearing aid-compatible)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub residential/tenant station</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GT-2H-L (hearing aid-compatible)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GT-2H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential/tenant station</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GT-1C7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GT-1M3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GT-1A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optional handset for GT-2C(-L), GT-2H(-L)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* All the above products include the Chinese RoHS paper.
2-5 Door station
* For JK-DA, JK-DV and JK-DVF, refer to the instruction manual included with the product for details.

[For GT-2C-L, GT-2C]

| Door station  
| GT-D          |
| Wood mounting screws |
| Screws         |

* A mounting bracket is attached to the product.

[For GT-MKB-N]

| Video door station  
| JO-DV             |
| Special screwdriver |
| Transparent nameplate |

* A mounting bracket is attached to the product.

2-6 Guard station

| Guard station  
| GT-MKB-N        |
| Screws          |
| Cable tie       |
| Option Connector (12-pin) |
| Insulating plate |
| USB cable A-Micro B type (1 m) |
| Desk stand      |

* A mounting bracket is attached to the product.

2-7 Lift control adaptor

| Lift control adaptor  
| GTW-LC            |
| * A mounting bracket “DIN rail” included. |

* All the above products include the Chinese RoHS paper.
3 MOUNTING

3-1 Mounting locations

- For video entrance stations and video door stations, the picture quality of the residential/tenant station monitor is affected by the external light surrounding the built-in camera. Do not install these stations in the types of locations shown below.
  - Locations exposed to direct sunlight
  - Locations under street lights or door lights
  - Other locations exposed to strong light

- Controls are located on the right side of the GT-2C-L/GT-2C, GT-2H-L/GT-2H, GT-1C7-L/GT-1C7 and GT-1M3-L/GT-1M3.
  Allow open space of 5 cm (2”).
- At least 15 cm (6”) of vertical open space from the center of the mounting bracket is needed for mounting the station.
- Entrance stations (all-in-one type) include a sensor. Do not place objects such as plants or trees in places monitored by the sensor.
  Also, placing the unit in bright sunlit areas may prevent the sensor from working properly.

- Controls are located on the right side of the GT-2C-L/GT-2C, GT-2H-L/GT-2H, GT-1C7-L/GT-1C7 and GT-1M3-L/GT-1M3.
  Allow open space of 5 cm (2”).
- At least 15 cm (6”) of vertical open space from the center of the mounting bracket is needed for mounting the station.
- Entrance stations (all-in-one type) include a sensor. Do not place objects such as plants or trees in places monitored by the sensor.
  Also, placing the unit in bright sunlit areas may prevent the sensor from working properly.

3-2 Cable

- Use PE (polyethylene)-insulated PVC jacket cable. Parallel or jacketed 2-conductor, mid-capacitance non-shielded cable is recommended.
- Never use individual conductors, twisted pair cable or coaxial cable.

To connect low voltage wires, either crimp them with a crimp sleeve or solder them, and then insulate by covering with insulating tape.

[Crimping with a crimp sleeve]

1. Line up solid and stranded conductors, and crimp them.

   Crimp sleeve

   Solid conductor
   Stranded conductor

2. Overlap more than half of the width and twist them at least twice.

   Insulating tape

[Soldering]

1. Twist the stranded conductor around the solid conductor at least three times.

   Solid conductor
   Stranded conductor

2. Bend the tip and solder it. Make sure no lead wire sticks out.

   Soldering
   Insulating tape

3. Overlap more than half of the width and twist them at least twice.

   Insulating tape

NOTES:
- If the lead wire with a connector is short, extend it using an interconnecting cable.
- Connectors have polarity, so pay attention and connect properly. If connected incorrectly, the device won’t work.

Keep the number of connections as low as possible when wiring.

After connecting wires, make sure to check for breaking or insufficient connection. Especially when connecting a wire in the middle of wiring, either crimp it with a crimp sleeve or solder it, and then insulate it by covering with an insulating tape. Just twisting wires may cause poor connection, or the surface of the wires may get oxidized to cause a loose connection, leading to malfunctioning or failure.
3-3 Mounting positions and image view area

⚠️ When using the camera module, if the rain hood is attached a portion of it will show up in the camera display.

NOTE: Follow the applicable laws and regulations for mounting location.

Wide view

**Vertical**

<table>
<thead>
<tr>
<th>Mounting position 1500 mm (5’)</th>
<th>Mounting position 1300 mm (4’ 3&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 2100 mm (6’ 11”)</td>
<td>Approx. 1900 mm (6’ 3”)</td>
</tr>
<tr>
<td>Approx. 1200 mm (3’ 11”)</td>
<td>Approx. 1200 mm (3’ 11”)</td>
</tr>
<tr>
<td>Approx. 900 mm (3”)</td>
<td>Approx. 700 mm (2’ 3”)</td>
</tr>
<tr>
<td>Camera center</td>
<td>Camera center</td>
</tr>
<tr>
<td>1500 mm (5’)</td>
<td>1300 mm (4’ 3”)</td>
</tr>
<tr>
<td>500 mm (20”)</td>
<td>500 mm (20”)</td>
</tr>
</tbody>
</table>

**Horizontal**

Approx. 170°

An area over a range of approx. 170° in a 500 mm (20”) radius from the camera displays. (The display range is a rough estimation and may change due to the installation environment.)

**Zoom view**

**Vertical** (with mounting position of 1500 mm (5’))

<table>
<thead>
<tr>
<th>&lt;Up&gt;</th>
<th>&lt;Center&gt;</th>
<th>&lt;Down&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 2200 mm (7’ 2”)</td>
<td>Approx. 1800 mm (5’ 10”)</td>
<td>Approx. 900 mm (3’)</td>
</tr>
<tr>
<td>Approx. 700 mm (2’ 3”)</td>
<td>Approx. 1250 mm (4’ 1”)</td>
<td>Approx. 1200 mm (3’ 11”)</td>
</tr>
<tr>
<td>Approx. 1500 mm (5”)</td>
<td>Approx. 550 mm (1’ 9”)</td>
<td>Approx. 500 mm (20”)</td>
</tr>
<tr>
<td>500 mm (20”)</td>
<td>500 mm (20”)</td>
<td>500 mm (20”)</td>
</tr>
<tr>
<td>Camera center</td>
<td>Camera center</td>
<td>Camera center</td>
</tr>
<tr>
<td>1500 mm (5”)</td>
<td>1300 mm (4’ 3”)</td>
<td>500 mm (20”)</td>
</tr>
</tbody>
</table>

**Horizontal**

<table>
<thead>
<tr>
<th>&lt;Left&gt;</th>
<th>&lt;Center&gt;</th>
<th>&lt;Right&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 140° (+1)</td>
<td>Approx. 500 mm (20”)</td>
<td>Approx. 140° (+1)</td>
</tr>
<tr>
<td>Approx. 900 mm (3”)</td>
<td>Approx. 85”</td>
<td>Approx. 500 mm (20”)</td>
</tr>
<tr>
<td>Approx. 500 mm (20”)</td>
<td>Approx. 900 mm (3”)</td>
<td>Approx. 900 mm (3”)</td>
</tr>
</tbody>
</table>

(*1): Zoom view range is approx. 140° at 500mm (20”) distance from the camera.

NOTE: The zoom position can be changed. The default zoom position is center.

Objects appear smaller due to greater distortion in the surrounding sections compared to the central section, but a wider area is displayed. The display range is a rough estimation and may change due to the installation environment.
Make a hole for the cable.

2 Use the joint pipe to assemble the back box.
   • Make sure the back box is mounted level.

Back box assembly dimensions

3 Assemble the modules.
   • For the useable modules, see section 2-1.
   • The GT-SW can have up to 6 modules.
     To connect 7 or more modules or to increase the light intensity,
     please contact supplier (need other parts).

   NOTE: Before mounting modules to the front panel, complete wiring
       and DIP switch settings. (Refer to chapter 4 "Wiring" and
       chapter 5 "Settings").

4 Mount each module panel to the front frame.
   • Mount the panels from behind the front frame.
   • Insert the holders into the slots on both sides.
     (With the GT-4F, mount the module panels so that they catch on
      the tabs from top to bottom.)

5 Mount each module, except the GT-AC, to the mounting bracket.
   • Set the modules in the mounting bracket until they click in place.
   • To mount multiple rows of modules, apply the mounting gauge to
     the mounting bracket.
     While using the mounting gauge to make adjustments, tighten the
     screws.
     (A mounting gauge is included with the GF-2B, GF-3B, and
      GT-4B built-in back boxes.)

Options

Rain hood GT-203H
Hooded surface-mount box GT-203HB
Surface-mount box GF-203BA
Slide down and then open the terminal cover, and connect wires to the terminal block. Insert the wire into the direct terminal. Press the tab to easily insert the wire into the terminal, then release.

From the audio module to the next module, insert the attached connector into the socket. Make sure to run the cable under the terminal cover for protection.

Attach the connection cables between the modules. Mount modules on the back boxes.

Run the connection cable through the joint pipe and connect CN1 of the GT-SW to the next row.

For the GT-SW and GT-AD, remove the resident name/address plate or paper by pressing either the left or right end. (Peel off the plastic film.) Use a permanent pen to write the resident name and address on the transparent plate and mount the plate on the module.

Close the terminal cover. Mount the front frame and tighten with the special screwdriver (included with GT-BC).
3-5 Entrance station (all-in-one type)

GT-DMB-LVN/ GT-DMB-N

1. Slide down and then open the cover, and connect wires to the terminal block.
   Insert the wire into the direct terminal. Press the tab to easily insert the wire into the terminal, then release.

2. Close the cover until it clicks into place.

3. Mount the unit in the flush mount back box.

4. Tighten the locking screws using the special screwdriver.

GT-DMB-LVN

3. GT-4B (4-module back box) (not included)

4. Mounting screws x4 (included)

Special screwdriver

NOTE (GT-DMB-LVN only)
For installing VIGIK or a key cylinder, refer to the instructions included with the product.

GT-DMB-N

3. GF-3B (3-module back box) (not included)

4. Mounting screws x4 (included)

Special screwdriver

110 mm (4-5/16")
400 mm (15-3/4")
44 mm (1-3/4")
295 mm (11-5/8")

Release button
DIN rail mounting

⚠️ The maximum cable length between the GT-BCXB-N and GT-VBX is 40 cm. Therefore, mount them side by side.

1. Mount the unit on the DIN rail and then click the unit into place, or mount the unit directly to a wall.
   - GT-BC, GT-VBC, and GT-4Z do not include the DIN rail. Use the W-DIN11 for mounting these units.
   - GT-BCXB-N, GT-VBX, GT-MCX and GTW-LC are mounted to the included DIN rail.

2. When removing the unit, pull the lock release lever down.

NOTES:
- Keep wiring away from NFC mark, as it may disturb the audio or video signals.
- Be sure to mount the other devices more than 20 cm (7-7/8") away from NFC mark of GT-BCXB-N.

PT-2420DM, PT-2420, PT-2420S
PT-2420UL, PT-2420BF
Refer to the installation manual included with the product.

Wiring
Insert the wire into the terminal. Press the tab to easily insert the wire into the terminal, then release.
**Surface wiring**

* The cable can be routed as surface wiring to the top or bottom of the unit.

Cut a cable inlet on the upper part of the unit to allow passage of the wiring into the unit from above.

If there is a large amount of wiring, strip away the jacket of the cable and insert all wires into the slots in an orderly fashion. Failure to do so could result in pinching that may damage the wiring.

---

**Optional handset**

* When using a gang box, a 3-gang box is recommended.

Connect the station unit joint connector.

1. Press the release button (to insert or remove the wire).
2. Insert the cable into the terminal.
   - To remove the terminal block, slide the terminal block and pull it out.
   - Strip away the jacket of the cable and insert all wires into the slots in an orderly fashion. Failure to do so could result in pinching that may damage the wiring.

---

**Mounting bracket**

- **GT-2C-L/GT-2C GT-2H-L/GT-2H**

- Mounting screws ×4 (included)
- 83.5 mm (3-5/16”)
- ø30mm (1-3/16”)

**Residential/tenant station**

1. Press the release button (to insert or remove the wire).
2. Insert the cable into the terminal.
   - To remove the terminal block, slide the terminal block and pull it out.
   - Strip away the jacket of the cable and insert all wires into the slots in an orderly fashion. Failure to do so could result in pinching that may damage the wiring.

---

**Residential/tenant station**

1. Press the release button (to insert or remove the wire).
2. Insert the cable into the terminal.
   - To remove the terminal block, slide the terminal block and pull it out.
   - Strip away the jacket of the cable and insert all wires into the slots in an orderly fashion. Failure to do so could result in pinching that may damage the wiring.
Back wiring
Cut a small round hole (ø30mm (1-3/16”)) in the wall for routing wires.

GT-1C7-L/GT-1C7

1. Press the release button (to insert or remove the wire).
2. Insert the wire into the terminal.

Surface wiring
The wires can be routed to the top or bottom of the station.
Cut the cable inlet to allow passage of the wiring into the station from above.
If there is a large amount of wiring, strip away the jacket of the wire up to the cable inlet.

NOTES (GT-1C7-L/GT-1C7 only):
• The station has a speaker on the back. When using a gang box for routing the wires, use a single gang box and attach the mounting bracket to the wall as shown above. If a 2- or 3-gang box is used, audio quality may be altered.
• Depending on the material of the wall, volume and quality of sound coming from the speaker may be altered.
1 Mount the mounting bracket on the wall.
   * When using a gang box, a single gang box is recommended.

2 Connect wires to the terminal block.
   * If it is difficult to insert the wire, insert it while pressing the release button.
   * To remove the terminal block, slide the terminal block and pull it out.
   * Strip away the jacket of the wire and insert all wires into the slots in an orderly fashion. Failure to do so could result in pinching that may damage the wiring.
   * For surface wiring, cut out the cable inlet.

   **NOTE:** Be sure to route the wires inside the cable guides. Otherwise, the wires could be damaged when attaching the station to the mounting bracket.

3 Mount the station to the mounting bracket.

---

**GT-1D**

1 Remove the screw, and then remove the case from the chassis.

2 Route the wires through the wire inlet of the chassis, and then connect the wires.

3 Attach the chassis on the wall.
   * Be careful not to pinch the wires between the chassis and the wall.
   * When using a gang box, a single gang box is recommended.

4 Attach the case to the chassis and tighten the screw.

5 Plug in the handset to the jack.

   * The image of the terminals may differ from the actual product.
Door station (for residential/tenant station)

**GT-D**

1. Loosen the screws and remove the mounting frame from the main unit.
2. Mount the mounting frame on the wall.
   * When using a gang box, a single gang box is recommended.
3. After connecting the wiring, mount the main unit to the mounting frame.
   * For surface wiring, insert wiring from the cable inlet (lower part).

**JO-DV (for GT-MKB-N only)**

1. Loosen the special screw with the special screwdriver, and remove the front panel.
2. Insert the transparent nameplate.
   1. Peel off the protective seals on the plate (both sides).
   2. Use a permanent pen to write the resident name on the transparent plate.
      * Be sure to leave 25 mm (1") of white space on the right end to account for insertion.
   3. Insert the filled-in transparent nameplate.
      (indicated with in diagram).
3. Connect wires to the unit.
4. Mount the unit to the mounting surface.
   * Use board anchors or concrete plugs as needed.
5. Replace face plate and tighten special screw with the included special screwdriver.

**JK-DA, JK-DV, JK-DVF (for GT-2C-L, GT-2C only)**

Refer to the installation manual included with the product.
When mounting on a wall

<Back wiring>

1 Mount the mounting bracket to the wall.
   * When using a gang box, a 3-gang box is recommended.
2 Connect the wires to the station.
3 Attach the station to the mounting bracket.

<Surface wiring>

Connect the wires to the station and route them as shown in the figure.

When mounting on the desktop stand

1 Set up the desktop stand.
   * Set up the desktop stand on a level surface so that it is stabilized.
   * Fix the desktop stand in place if needed.
   * The desktop stand can be adjusted to 3 angles.
     Fit the leg in a groove on the base for the desired angle.
2 Attach the mounting bracket and insulation plate to the desktop stand.
3 Connect the wires to the station.
4 Attach the station to the mounting bracket.

NOTE: Keep wiring away from NFC mark, as it may disturb the audio or video signals.

How to connect and remove wires

1. Press the release button (to insert or remove the wire).
2. Insert the wire into the terminal.
The following is an example of a basic wiring diagram for the standard system.

* The wiring methods differ depending on the equipment used. Refer to sections 4-2 to 4-4 for the detailed wiring diagrams of entrance stations, guard stations, and residential/tenant stations.

⚠️ Each pair of wires should be in a separately jacketed cable (audio, video, and power wiring).

⚠️ To prevent shorts, unused cables should be insulated.

NOTES:
- Do not use the unused terminals and ports for other purposes.
- In order to prevent miswiring, label both ends of each cable with the unit and terminal names to which they are to be connected.
- For connecting other manufacturers’ products, refer to the instruction manuals for those products.

Guard station (max. 2)

Guard station 1

Guard station 2

Entrance station (max. 5)

Entrance station 1

Entrance station 2

Entrance station 3

Entrance station 4

Entrance station 5

* Refer to section 4-2 for detailed connection diagrams.

*1: DP (Distribution Point) wiring example
- When using a distribution terminal block, it is not provided by Aiphone except for Europe and North America.
- After making connections, be sure to check that there are no disconnected or loose parts.

*1: DP (Distribution Point) wiring example

"Refer to section 4-3 for detailed connection diagrams."
To use the GT-VBC as an extension adaptor, set the MODE setting switch to [EXPAND].

The wires must be connected to the IN (1) terminals.

* Refer to section 4-4 for detailed connection diagrams.

Up to two GT-VBC can be used as extension adaptors per trunk line.

*2: To use the GT-VBC as an extension adaptor, set the MODE setting switch to [EXPAND].

*3: The wires must be connected to the IN (1) terminals.

(Please note that images and terminal position in this manual may differ from the actual product.)
Guard station

NOTES:
- Refer to section 4-7 for option connector details.
- Refer to section 5-1 for the switch settings.

Guard station 1
GT-MKB-N

Guard station 2
GT-MKB-N

Set SW1 to "B".

Termination setting:
For terminating guard station, set SW1 to "A".

* Connect to the bus control units.
Standard system: section 4-1
Expanded system: section 4-5

(Please note that images and terminal position in this manual may differ from the actual product.)
4-3 Entrance station

Modular type and all-in-one type entrance stations are available. The wiring method differs depending on the type or the combination of modular units, as shown below.

■ Modular type (video and audio)

Modular unit combination example

NOTES:
• Refer to section 4-7 for option connector details.
• Refer to section 5-1 for the switch settings.

(*1): N/C (Normally Closed) [ELB, ELC]
N/O (Normally Open) [ELM, ELC]
Less than AC/DC 24V, 4A (resistive load)

(*2): GT-DB-V and GT-DB-VN only.

(*3): Input specifications

<table>
<thead>
<tr>
<th>Input method</th>
<th>N/O (Normally Open) contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection confirmation time</td>
<td>100 ms or more</td>
</tr>
<tr>
<td>Closed contact resistance</td>
<td>1 kΩ or less</td>
</tr>
<tr>
<td>Open contact resistance</td>
<td>50 kΩ or more</td>
</tr>
<tr>
<td>Terminal short current</td>
<td>10 mA or less</td>
</tr>
<tr>
<td>Open circuit voltage between terminals</td>
<td>3.3 V DC or less</td>
</tr>
</tbody>
</table>

* Connect to the bus control units.

Standard system:
section 4-1
Expanded system:
section 4-5

(Please note that images and terminal position in this manual may differ from the actual product.)
## Modular type (audio only)

NOTE: Refer to section 5-1 for the switch settings.

Modular unit combination example

![Diagram of modular unit combination example]

* Connect to the bus control units. Standard system: section 4-1 
Expanded system: section 4-5

(*1): N/C (Normally Closed) [ELB, ELC] 
N/O (Normally Open) [ELM, ELC] 
Less than AC/DC 24V, 4A (resistive load) 

(*2): GT-DB-V and GT-DB-VN only.

(*3): Input specifications

<table>
<thead>
<tr>
<th>Input method</th>
<th>N/O (Normally Open) contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection confirmation time</td>
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<tr>
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<td>50 kΩ or more</td>
</tr>
<tr>
<td>Terminal short current</td>
<td>10 mA or less</td>
</tr>
<tr>
<td>Open circuit voltage between terminals</td>
<td>3.3 V DC or less</td>
</tr>
</tbody>
</table>

(Please note that images and terminal position in this manual may differ from the actual product.)
All-in-one type

NOTE: Refer to section 5-1 for the switch settings.

*(1): N/C (Normally Closed) [ELB, ELC]
N/O (Normally Open) [ELM, ELC]
Less than AC/DC 24V, 4A (resistive load)

*(2): Input specifications

<table>
<thead>
<tr>
<th>Input method</th>
<th>N/O (Normally Open) contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection confirmation time</td>
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</tr>
<tr>
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<td>10 mA or less</td>
</tr>
<tr>
<td>Open circuit voltage between terminals</td>
<td>3.3 V DC or less</td>
</tr>
</tbody>
</table>

(Please note that images and terminal position in this manual may differ from the actual product.)
Residential/tenant trunk

NOTE: This system allows 3 types of connection methods: "Loop wiring method", "GT-4Z wiring method", and "GT-1Z wiring method". Select the method suitable for the application and usage of the system.

- Loop wiring method

**GT-2C-L/GT-2C, GT-2H-L/GT-2H**

* Refer to section 4-7 for details about the option connector.

Termination setting:
For terminating a residential/tenant station, set SW1 to "A".

Termination setting:
For terminating a sub residential/tenant station, turn 4 on SW2 to ON.

NOTES:
- Refer to section 4-7 for details about wiring to the option connector.
- Refer to section 5-2 for the switch settings.

⚠️ After connecting a residential/tenant station and a door station (or doorbell), power cycle the unit.

- Audio signal line
- Video signal line
- Power supply line

NP: Non-polarized
P: Polarized

Please note that images and terminal position in this manual may differ from the actual product.

(Please note that images and terminal position in this manual may differ from the actual product.)
Loop wiring method

**GT-1C7-L/GT-1C7, GT-1M3-L/GT-1M3**

⚠️ Turn off the GT-BC control unit before connecting wires. Failure to do so could damage the station.

Residential/tenant station

**GT-1C7-L/GT-1C7**

Residential/tenant station

**GT-1M3-L/GT-1M3**

Termination setting:
For terminating a residential/tenant station, set SW1 to "A".

Option contact output

Doctor call

Option button output

**Option**

**SW2**

**SW1**

- **Doctor call**
- **Option button output**
- **Residential/tenant station**
  - **GT-1C7-L/GT-1C7**
- **Residential/tenant station**
  - **GT-1M3-L/GT-1M3**

**Set SW1 to "B".**

Doorbell (*1)
- N/O contact (non-locked type)
- DC 12 V/0.1 A or higher

Emergency alarm switch (*2)
- N/C contact (locked type)
- DC 12 V/0.1 A or higher

Jumper wire between K and KE (*3)
- Jumper wire must remain in place if not using an emergency alarm switch.

**NOTES:**
- Refer to section 4-7 for details about wiring to the option connector.
- Refer to section 5-2 for the ID switch settings.

<table>
<thead>
<tr>
<th>Audio signal line</th>
<th>Video signal line</th>
<th>Power supply line</th>
</tr>
</thead>
</table>

NP: Non-polarized

* Connect to the bus control units.

Standard system: section 4-1
Expanded system: section 4-5

GT-BC
GT-VBC

(Please note that images and terminal position in this manual may differ from the actual product.)
GT-1Z wiring method (using the video 1-zone divider)

* The following diagram is a wiring example using the residential/tenant stations GT-1C7-L/GT-1C7 and GT-1M3-L/GT-1M3.

**Termination setting:**
For terminating a residential/tenant station, set SW1 to "A".

**Note:** Do not connect the GT-1Z to the terminal residential/tenant station.

---

**GT-1Z wiring method (using the video 1-zone divider)**

**GT-1C7-L/GT-1C7**

**GT-1M3-L/GT-1M3**

**SW1**

- B1
- B2
- R1
- R2
- C
- CE
- K
- KE

**Residential/tenant station**

- GT-1C7-L/GT-1C7
- GT-1M3-L/GT-1M3

**Video 1-zone divider GT-1Z**

- YEL B1 LINE
- WHT B2 J-IN
- BLU B1 LINE
- WHT B2 OUT

**Residential/tenant station**

- GT-1C7-L/GT-1C7
- GT-1M3-L/GT-1M3

**NOTE:** Refer to pages 34 and 35 for the wiring details of residential/tenant stations.

---

**NOTE:** Do not connect the GT-1Z to the terminal residential/tenant station.

---

**NOTE:** Refer to pages 34 and 35 for the wiring details of residential/tenant stations.

---

**NOTE:** Connect to the bus control units.

- Standard system: section 4-1
- Expanded system: section 4-5

---

**NP:** Non-polarized

(Please note that images and terminal position in this manual may differ from the actual product.)
**GT-4Z wiring method (using the 4-way video junction unit)**

**GT-2C-L/GT-2C, GT-1C7-L/GT-1C7, GT-1M3-L/GT-1M3**

*The following diagram is a wiring example using the residential/tenant stations GT-1C7-L/GT-1C7 and GT-1M3-L/GT-1M3.

**NOTE:** Refer to pages 34 and 35 for the wiring details of residential/tenant stations.

---

**Termination setting:**
For terminating the 4-way video junction unit, set SW1 to “A”.
1 residential/tenant station can be connected to [LINE OUT]. In this case, set SW1 to “B”.

(Please note that images and terminal position in this manual may differ from the actual product.)
Residential/tenant station (audio only)

GT-1A

IN
R1 R2 R1 R2 C CE K KE
OUT

Doorbell (*1)
(third party product)

Emergency alarm switch (*2)
(GFK-PS available in North America only.)

GT-1A

IN
R1 R2 R1 R2 C CE K KE
OUT

(*1): Doorbell
- N/O contact (non-locked type)
- DC 12 V/0.1 A or higher

(*2): Emergency alarm switch
- N/C contact (locked type)
- DC 12 V/0.1 A or higher

(*3): Jumper wiring between K and KE. Jumper wire must remain in place if not using an emergency alarm switch.

NP: Non-polarized

NOTE: Refer to section 4-7 for details about wiring to the option connector.
NOTES:
- Refer to section 4-7 for details about wiring to the option connector.
- To connect wires, the case must be removed from the chassis. Refer to section 3-7 for how to remove the case.

* Connect to the audio bus control unit.

**Standard system**: section 4-1
**Expanded system**: section 4-5

(No connection is needed to the video bus control unit GT-VBC.)

⚠ Turn off the GT-BC control unit before connecting wires. Failure to do so could damage the station.
⚠ Be careful not to damage the circuit board when connecting wires and mounting the station. Failure to do so could damage the station.

(*): Doorbell
- N/O contact (non-locked type)
- DC 12 V/0.1 A or higher

(*2): Emergency alarm switch
- N/C contact (locked type)
- DC 12 V/0.1 A or higher

(*3): When using an emergency alarm switch, remove the jumper wire from the JP1 connectors. Otherwise, leave the jumper wire connected.

(*) When using Doctor call, remove the jumper wire from the JP4 connectors. Otherwise, leave the jumper wire connected.

(*4): Only one emergency alarm switch and one doorbell can be connected to the same station. Each station uses its own option connector for external devices used for that tenant.

(*5): When making a connection to the CN4 connector, remove the protective cap.
Use two separately jacketed 2 conductor cables for the audio and video connections.

To prevent shorts, unused cables should be insulated.

Do not connect 2 or more GT-BC units on the same trunk line.

Guard station
* Refer to section 4-2 for detailed connection diagrams.

Entrance station
* Refer to section 4-3 for detailed connection diagrams.

Common trunk line 2
* Use the same method for connecting each common trunk line.
The following is an example of basic wiring diagram for the expanded system.

* The wiring methods differ depending on the equipment used. Refer to section 4-2 to 4-4 for detailed wiring diagrams of entrance stations, guard stations and residential/tenant trunks.

---

**Sub trunk line 2-A**

To **GT-BCXB-N**

**Residential/tenant trunk**

* Refer to section 4-4 for detailed connection diagrams.

**Residential/tenant trunk 6**

**Residential/tenant trunk 5**

**Residential/tenant trunk 4**

**Residential/tenant trunk 3**

**Residential/tenant trunk 2**

**Residential/tenant trunk 1**

**Video bus control unit GT-VBC**

**Expanding video bus control unit GT-VBX**

**Common trunk line 2**

To **GT-VBX**

**Sub trunk line 1-A, 1-B, 2-A**

**GT-WL**

**SW2**

**PS24**

---

**Lift control system**

* Refer to section 4-6 for detailed connection diagrams.

**Expanded bus control unit GT-BCXB-N**

---

**NP:** Non-polarized

---

**Audio signal line**

**Video signal line**

**Power supply line**

---

**GT-VBX**

---

**GT-BCXB-N**

---

**GT-BC**

---

**GT-VBC**

---

**GT-VB**

---

**GT-BCX-N**

---

**GT-TC**

---

**PS24**

---

**PS-2420DM**

**PS-2420S**

**PS-2420UL**

**PS-2420BF**

---

**AC**

---

**DP** (Distribution Point)

(Not provided by Aiphone except for Europe and North America.)

---

**(*1): The wires must be connected to the IN (1) terminals.**

---

**230 V AC 50/60 Hz**

**24 V DC2A**

**100V - 240V 50/60 Hz**

**24V DC 2A**

---

* Refer to section 4-6 for detailed connection diagrams.
Max. 16 adaptors (GTW-LC) can be connected to a system.
*Max. 8 adaptors (GTW-LC) per trunk.

NOTE: Refer to section 5-1 for the ID switch settings.

* Connect to the expanded bus control unit.
GT-BCXB-N. Refer to section 4-5 for detailed connection diagram.

Bus control unit GT-BC

DP: Distribution Point
(Not provided by Aiphone except for Europe and North America.)

NP: Non-polarized

Audio signal line
Power supply line
4-7 Option connector

⚠️ To prevent shorts, be sure to cut unused lead wires and insulate the ends.
⚠️ Installation setting is necessary for the GT-2C-L/GT-2C. Refer to the GT SYSTEM Setting manual to perform the settings.

12-pin option connector

1. Emergency alarm
2. Call notification
3. Option contact output
4. Security/Utility input 1
5. Security/Utility input 2

4-pin option connector

1. Video out
2. Video out notification

Option connector

1. Emergency alarm (JP1 must be cut to use.)
2. Call notification
3. Option contact output
4. Security/Utility input 1
5. Security/Utility input 2
7. Doctor call (automatic entry)

Option connector

1. Video out
2. Video out notification
3. Emergency call notification
4. Call notification
5. Doorbell
6. Option contact output

Option connector

1. Doctor call (automatic entry)
2. Call notification
3. Option contact output

Option connector

1. Video out
2. Video out notification
3. Emergency call notification
4. Call notification
5. Doorbell
6. Option contact output

Option connector

1. Doctor call (automatic entry)
2. Call notification
3. Option contact output
1 Emergency alarm
An emergency alarm switch can be connected.

<table>
<thead>
<tr>
<th>GT-2C-L/GT-2C, GT-1C7-L/GT-1C7, GT-1M3-L/GT-1M3, GT-1A, GT-1D</th>
<th>N/C contact (locked type)</th>
<th>DC 12 V/0.1 A or higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT-2C-L/GT-2C</td>
<td>N/O contact (non-locked type)</td>
<td>DC 12 V/0.1 A or higher</td>
</tr>
</tbody>
</table>

2 Call notification/Emergency call notification
Using the external signaling relay GT-RY allows for an external buzzer to be linked during calling.

3 Option contact output
External units such as lights or elevators can be operated with the option button.
Contact spec.: Maximum load AC/DC 24 V, 1 A
Minimum load DC 5 V, 0.1 A

4 Security/Utility inputs 1 to 3

<table>
<thead>
<tr>
<th>Input method</th>
<th>Contact resistance</th>
<th>Terminal short current</th>
<th>Voltage between terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O (Normally Open) or N/C (Normally Closed) contact</td>
<td>N/O: 1 kΩ or less</td>
<td>1 mA or less</td>
<td>DC 3.3 V or less (when open between terminals)</td>
</tr>
<tr>
<td>External sensor input (start signal only detection method)</td>
<td>N/C: 50 kΩ or more</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detection confirmation time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 msec or more</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5 Video out
Video can be output to DVR’s, etc.
NTSC, 1 Vp-p/75 Ω
Wiring distance: 3 m
NOTE: The screen playing recorded pictures is not output.

6 Video out notification
External monitors can be activated via the external signaling relay GT-RY.
GT-RY contact spec.: AC/DC 24 V, 0.5 A

7 Doctor call (automatic entry)
This makes it possible to use the doctor call (automatic entry) function at residential/tenant stations.

To enable the doctor call:

<table>
<thead>
<tr>
<th>GT-1C7-L/GT-1C7, GT-1M3-L/GT-1M3, GT-1A</th>
<th>Short the DC terminal.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT-1D</td>
<td>Cut (open) the jumper JP4.</td>
</tr>
</tbody>
</table>

8 Doorbell
A doorbell can be connected to a residential/tenant station.

N/O contact (non-locked type)
DC 12 V/0.1 A or higher

NOTE: One doorbell per residential/tenant station. Do not connect two or more doorbells to a residential/tenant station.
The settings of each unit can be configured manually by setting the switches, as described below.
* It is recommended to discuss the installation and setting method with the person responsible for installation in advance.

### 5-1 Switch settings

#### Entrance station (modular type)

**Audio module (GT-DB, GT-DB-V, GT-DB-VN)**

1. **VR1 dial (inside the cover)**
   - **Function**: Sets the door release duration time.
   - **Default**: M (Momentary)
   - Setting range: M (Momentary)/0.5-20 seconds

2. **SW2**
   - **No.**: 2 to 4
   - **Function**: Sets the ID of this entrance station.
   - **Default**: 2: OFF
   - **Position of switch 2 to 4**
   - | No. | Value |
   - |-----|-------|
   - | 2   | 3     |
   - | 3   | 4     |
   - **(ID 1)**

3. **SW3**
   - **No.**: 2 to 4
   - **Function**: Sets the language for audio guidance by the combination of the switch 2 to 4 settings.
   - **Default**: 2: OFF
   - **ID number**
   - | No. | Value |
   - |-----|-------|
   - | 2   | 3     |
   - | 3   | 4     |
   - **(No guidance)**

4. **5**
   - **Function**: Sets the ability of this entrance station to be monitored by the guard station or residential/tenant station.
   - **Default**: OFF
   - **ON**: Allowed
   - **OFF**: Not allowed

5. **6**
   - **Function**: This setting is needed only in France. Set the transmission method for VIGIK.
   - **Default**: OFF
   - **ON**: HEXACT® version
   - **OFF**: AIPHONE version

6. **8**
   - **Function**: Resets the passcode for installer or administrator when this unit is initialized by setting this switch to ON.
   - **Default**: OFF
### Camera module (GT-VB)

#### SW1

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
<th>Default</th>
</tr>
</thead>
</table>
| 1   | Sets the night illumination.  
ON: Always off  
OFF: Turns on/off automatically | OFF |
| 2   | Sets whether surveillance camera or light is attached.  
ON: Surveillance camera  
OFF: Light control | OFF |
| 3 to 4 | Sets the display mode at the beginning of a call.  
Zoom Wide  
Positions of switch 3 and 4  
Zoom (3 seconds) ➞ Wide  
Wide (3 seconds) ➞ Zoom | 3: OFF  
4: OFF (Zoom) |

#### Entrance station (all-in-one type)

**GT-DMB-LVN, GT-DMB-N**

#### SW1

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
<th>Default</th>
</tr>
</thead>
</table>
| 1   | Sets this entrance station as used for either a multi building system or single building system.  
ON: Multi building system  
OFF: Single building system | OFF |
| 2 to 4 | Sets the ID of this entrance station.  
* (9) - (16): GT-BCXB-N Common trunk line 2  
2 (10)  
3 (11)  
4 (12)  
5 (13)  
6 (14)  
7 (15)  
8 (16)  
ID number  
Positions of switch 2 to 4 | 2: OFF  
3: OFF  
4: OFF (ID 1) |
| 7   | Sets the event that triggers LCD.  
Sensor detection Operation of this unit | OFF (Sensor detection) |
| 8   | Resets the passcode for the installer or administrator when this unit is initialized by setting this switch to ON in 2 seconds. | OFF |
**Guard station**

**GT-MKB-N**

**DIP switches**

1. **SW1**

<table>
<thead>
<tr>
<th>Function</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>For terminating a guard station, set SW1 to &quot;A&quot;. When not terminating, set to &quot;B&quot;.</td>
<td>A</td>
</tr>
</tbody>
</table>

2. **SW2**

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sets this unit as used for either a multi building system or single building system. ON: Multi building system OFF: Single building system</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>Sets the ID of this unit. * (3), (4): GT-BCXB-N Common trunk line 2 ON: ID 2 (4) OFF: ID 1 (3)</td>
<td>OFF (ID 1)</td>
</tr>
<tr>
<td>3</td>
<td>Resets the passcode for installer or administrator when this unit is initialized by setting this switch to ON in 2 seconds.</td>
<td>OFF</td>
</tr>
</tbody>
</table>

**Expanded bus control unit**

**GT-BCXB-N**

**Power switch**

Set the switch to ON when using this unit.

**SW2**

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sets this unit as used for either a multi building system or single building system. ON: Multi building system OFF: Single building system</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>Sets this unit as to be used for either a tenant section or main section. ON: Main section OFF: Tenant section</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>Resets the passcode for installer or administrator when this unit is initialized by setting this switch to ON in 2 seconds.</td>
<td>OFF</td>
</tr>
</tbody>
</table>

**Lift control adaptor**

**GTW-LC**

**ID switch**

Set the lift control ID number of this unit by the combination of the switch 1 to 4 settings as shown below.
5-2 Switch settings (for residential/tenant stations only)

2 SW2
Residential/tenant stations must be linked to entrance/guard stations for enabling calling and communication. All video residential/tenant stations can have “UNIT Link-ID” set by using SW2.

Function
The DIP switches of SW2 must be used when setting UNIT Link-IDs by using the “Manual Setting” method.
If using the “Automatic Setting” method, do not change the default setting “0000 0000”.

- Automatic setting:
  Set the DIP switches to “0000 0000”. The UNIT Link-ID is set automatically.
  * For GT-1D and GT-1A, UNIT Link-ID is always set automatically.

- Manual setting:
  Set the UNIT Link-ID by using the DIP switches.
  Decide the UNIT Link-IDs in advance, and coordinate with the system installer for SW2 DIP switch settings.

NOTE:
If there is mixture of video and audio residential/tenant stations in the site, only Automatic setting should be used.

How to set "UNIT Link-ID"
There are two methods for link setting.

By Hand-shaking
The entrance/guard stations must be put into programming mode and communication must be established one-by-one with each resident station. Either “Automatic setting” or “Manual setting” is available.

By GT Setup Tool
Every residential/tenant station must be set with a unique residence UNIT Link-ID, as shown below. Link establishment is performed with the GT setup tool. Only the “Manual setting” for UNIT Link-IDs is available. The DIP switches on SW2 must be set in advance.

Setting method
1 Change the decimal notation ID to binary to set the residence ID.
   • 1 indicates (ON) and 0 indicates (OFF).
   • For binary notation, refer to the DIP switch & ID list for residential/tenant stations(*1) in the setup tool and perform settings as shown below.

<table>
<thead>
<tr>
<th>Decimal notation</th>
<th>Binary notation</th>
<th>DIP switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0000 0001</td>
<td>✔️✖️✖️✖️✖️✖️</td>
</tr>
<tr>
<td>2</td>
<td>0000 0010</td>
<td>✔️✖️✖️✖️✖️✖️</td>
</tr>
<tr>
<td>3</td>
<td>0000 0011</td>
<td>✔️✖️✖️✖️✖️✖️</td>
</tr>
<tr>
<td>4</td>
<td>0000 0100</td>
<td>✔️✖️✖️✖️✖️✖️</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✔️✖️✖️✖️✖️✖️</td>
</tr>
<tr>
<td>48</td>
<td>0011 0000</td>
<td>✔️✖️✖️✖️✖️✖️</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✔️✖️✖️✖️✖️✖️</td>
</tr>
<tr>
<td>250</td>
<td>1111 1010</td>
<td>✔️✖️✖️✖️✖️✖️</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✔️✖️✖️✖️✖️✖️</td>
</tr>
</tbody>
</table>

2 Create a correlation table with the setup tool between the ID set for residences/tenants and the residential/tenant station names and upload this to the entrance station or guard station.
* For information on how to use the setup tool, see the GT SYSTEM Setting Manual and Aiphone GT Setup Tool for Windows on the Aiphone website.

Saving programmed data and resident information data to your PC is recommended.

• In addition, set up the system for the entrance station(s), guard station(s), and residential/tenant stations. (Refer to the GT SYSTEM Setting Manual.)

(*1): The DIP switch & ID list for residential/tenant station is available from the Aiphone website.

Aiphone website: http://www.aiphone.net/

NOTE: Refer to the GT SYSTEM Setting Manual for configuring the system setup.
6  CHECK FOR INSTALLATION

When checking operation after system installation shows a malfunction in spite of no error in equipment terminal connections, check for the following "grounding point" and "ground fault" in wiring.

Tools required: Analog tester

NOTES:
- A digital tester cannot make a precise reading.
- A megohmmeter cannot be used.

6-1  Finding a proper "grounding point" for power supply

1  Set the tester for 250V AC or more.

2  Find the "hot" side of the AC outlet to be connected with a power plug.
   2-1. Put one tester rod to the point that seems to be a grounding point.
   2-2. Touch the other tester rod contact to one of the AC outlet slots to find the side where the tester needle swings.
   The side where the tester needle swings is the "hot" side.

3  Find the proper grounding point.
   3-1. With one tester rod put on the "hot" side, put the other to the point that seems to be a grounding point.
       * If the needle swings to the power supply value for your country, it will be considered a proper grounding point.
         If the needle does not reach the power supply value, it will not be considered a proper point.
   3-2. Find the grounding point by repeating this step until the needle points to the proper value.

4  Connect the power supply ground terminal [ʃ] with the grounding point found in step 3.
What is “ground fault”? “Ground fault” means the state where internal copper wire is touching a metal part (ground) in the building because the coating on the wiring of the intercom system is peeled off. This may cause the equipment to malfunction. Being in the ground fault state, the whole system will be damaged seriously by a “power surge.”

**Inspection conditions:**

- Check that the power supply is grounded properly as described in [6-1](#).
- Before starting inspection, make sure all control units (GT-BC, GT-VBC, GT-BCXB, GT-VBX), entrance station, and guard station are turned on. (Only when the equipment is installed)

**Inspection procedure:**

1. Set the tester for around 50V DC.
2. Put one tester rod to the power supply ground terminal [①]. If the power supply is not nearby, find a grounding point referring to [6-1](#).
3. With one tester rod put on the power supply ground terminal, put the other to the following terminals to be inspected.

   ![Power supply ground terminal or grounding point](e.g. GT-1C7)

<table>
<thead>
<tr>
<th>Product name</th>
<th>Terminal to be inspected</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT-BC</td>
<td>All [R1] and [R2]</td>
</tr>
<tr>
<td>GT-BCXB-N</td>
<td>All [R1] and [R2]</td>
</tr>
<tr>
<td>GT-VBC</td>
<td>All [A1], [A2], [B1] and [B2]</td>
</tr>
<tr>
<td>GT-VBX</td>
<td>All [A1], [A2], [B1] and [B2]</td>
</tr>
<tr>
<td>GT-MCX</td>
<td>[R1], [R2], [A1], [A2], [B1], [B2]</td>
</tr>
<tr>
<td>GT-VB</td>
<td>[A1], [A2]</td>
</tr>
<tr>
<td>GT-DB(-V,-VN)</td>
<td>[R1], [R2]</td>
</tr>
<tr>
<td>GT-DMB(-V,-LVN)</td>
<td>[R1], [R2], [A1], [A2]</td>
</tr>
<tr>
<td>GT-MKB-N</td>
<td>[R1], [R2], [A1], [A2], [B1], [B2]</td>
</tr>
</tbody>
</table>

4. If the tester needle does not swing in step 3, it will be judged "no ground fault.".

   * If the tester needle swings, there is a ground fault in wiring between the power supply and the inspected point. (The same is true in the case where the needle swings reversely.)

**Solution:**

Divide the wiring into sections or trunk lines, identify the ground fault point, and remove the cause.

**Table:**

<table>
<thead>
<tr>
<th>Product name</th>
<th>Terminal to be inspected</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT-2C(-L)</td>
<td>All [R1], [R2], [B1] and [B2]</td>
</tr>
<tr>
<td>GT-1C7(-L)</td>
<td>All [R1] and [R2]</td>
</tr>
<tr>
<td>GT-1M3(-L)</td>
<td>All [R1], [R2], [B1] and [B2]</td>
</tr>
<tr>
<td>GT-1A, GT-1D</td>
<td>All [R1] and [R2]</td>
</tr>
<tr>
<td>GT-4Z</td>
<td>All [R1], [R2], [B1] and [B2]</td>
</tr>
<tr>
<td>GT-1Z</td>
<td>All [B1] and [B2]</td>
</tr>
<tr>
<td>GTW-LC</td>
<td>[R1], [R2]</td>
</tr>
<tr>
<td>JO-DV</td>
<td>[A1], [A2]</td>
</tr>
<tr>
<td>DP (Distribution Point)</td>
<td>(Each line)</td>
</tr>
</tbody>
</table>
REGULATIONS

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.

INDUSTRY CANADA

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

WEEE

The object area of 🇪🇺 is the EU.
WARRANTY

Aiphone warrants its products to be free from defects of material and workmanship under normal use and service for a period of 2 years 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.

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