

Operating instructions

Gira 2-wire IP converter Host  
Order no.: 1212 00



**Table of contents**

|           |                                                     |           |
|-----------|-----------------------------------------------------|-----------|
| <b>1</b>  | <b>Safety instructions .....</b>                    | <b>3</b>  |
| <b>2</b>  | <b>Intended use .....</b>                           | <b>3</b>  |
| <b>3</b>  | <b>Device components.....</b>                       | <b>4</b>  |
| <b>4</b>  | <b>Product features .....</b>                       | <b>5</b>  |
| <b>5</b>  | <b>Planning the 2-wire system .....</b>             | <b>6</b>  |
| 5.1       | Application examples .....                          | 6         |
| 5.1.1     | Point-to-point connection.....                      | 6         |
| 5.1.2     | Simple installations.....                           | 7         |
| 5.1.3     | Complex installations.....                          | 9         |
| 5.2       | Checking and planning installation .....            | 10        |
| 5.2.1     | System limits .....                                 | 11        |
| <b>6</b>  | <b>Information for qualified electricians .....</b> | <b>13</b> |
| 6.1       | Mounting and electrical connection .....            | 13        |
| 6.2       | Start-up .....                                      | 13        |
| 6.3       | Factory reset.....                                  | 15        |
| 6.4       | Firmware update .....                               | 15        |
| <b>7</b>  | <b>Technical data.....</b>                          | <b>16</b> |
| <b>8</b>  | <b>Troubleshooting .....</b>                        | <b>17</b> |
| <b>9</b>  | <b>Accessories .....</b>                            | <b>17</b> |
| <b>10</b> | <b>Warranty .....</b>                               | <b>18</b> |

## 1 Safety instructions



Electrical devices may only be mounted and connected by a qualified electrician.

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Serious injury, fire or damage to property possible. Read and follow these instructions completely.

Danger of electrical shock. Before working on the device or load, disconnect the power supply. In doing so, take all circuit breakers supplying dangerous voltage to the device or load into account.

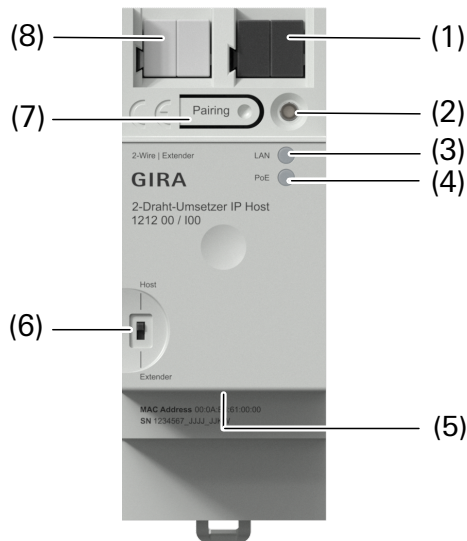
Risk of fire. Use only permissible lines and terminals that comply with current technical standards.

Risk of fire. Do not connect any external voltages to the 2-wire terminal.

## 2 Intended use

- Host for the installation of IP door communication with existing 2-wire lines
- Can be used as an additional power supply in extender mode
- Operation with at least one Gira 2-wire IP converter Client
- Connection to an IEEE 802.3at or IEEE 802.3bt compatible PoE switch or PoE injector
- Mounting on top-hat rail with the 2-wire connection terminal facing upwards, see Device components

### 3 Device components



- (1) Extender connection terminal
- (2) 2-wire status LED
- (3) LAN status LED
- (4) PoE status LED
- (5) RJ45 jack
- (6) Host/Extender slide switch
- (7) Pairing button
- (8) 2-wire connection terminal

The **2-wire status LED** indicates the device status:

- Green, flashing slowly: not paired, factory default state
- Green, steady: paired with Client, in operation
- Green, flashing quickly: pairing mode active
- Red light for approx. 3 s: pairing failed
- Red, flashing: connection to all Clients lost

Briefly press the pairing button (7) to activate an indicator that has gone out.

The **LAN status LED** continuously indicates the status of data transmission via LAN:

- Green, flashing: data transmission active
- Red, steady: overcurrent protection has tripped, no power supply on the 2-wire line, reduce number of devices or remove short circuit

The **PoE status LED** continuously indicates the available power from the PoE power supply:

- Green: IEEE 802.3bt
- Off: IEEE 802.3at
- Red: IEEE 802.3af

## **4 Product features**

- Simple retrofitting of IP-based devices in existing buildings using existing 2-wire lines.
- Communication and power supply via existing 2-wire lines.
- No additional power supply required. The Host is supplied with PoE power via the Ethernet cable.
- Management of up to 15 Clients. Depending on the topology, additional Hosts in Extender mode may be required.
- Transmission range up to 100 m (Host to Client).
- Firmware update to update security functions via automatic update process. Requirement: Existing internet connection and DHCP server in the device network.

## 5 Planning the 2-wire system

### 5.1 Application examples

The application examples show various installation scenarios indicating how an IP door communication system installation can be implemented using existing 2-wire lines. A Host and at least one Client are required to operate these installations.

#### 5.1.1 Point-to-point connection

The simplest installation is point-to-point connection between a Host and a Client.

The following rules apply:

- One Client is required per end device in the 2-wire system
- On the Host, the slide switch must be set to **Host**

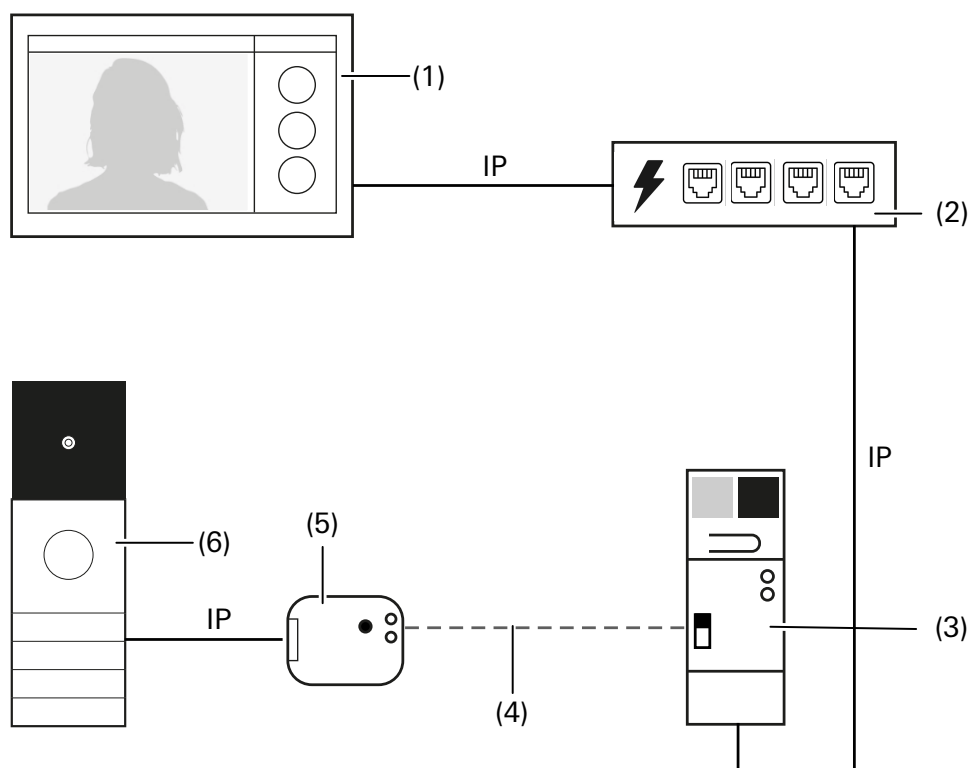


Image 1: Example point-to-point connection with one Host and one Client

- (1) IP video home station
- (2) PoE switch
- (3) Gira 2-wire IP converter Host, slide switch set to **Host**
- (4) 2-wire line
- (5) Gira 2-wire IP converter Client
- (6) IP door station

### 5.1.2 Simple installations

An example simple installation could consist of one Host and four Clients.

The following rules apply:

- One Client is required per end device in the 2-wire system
- On the Host, the slide switch must be set to **Host**

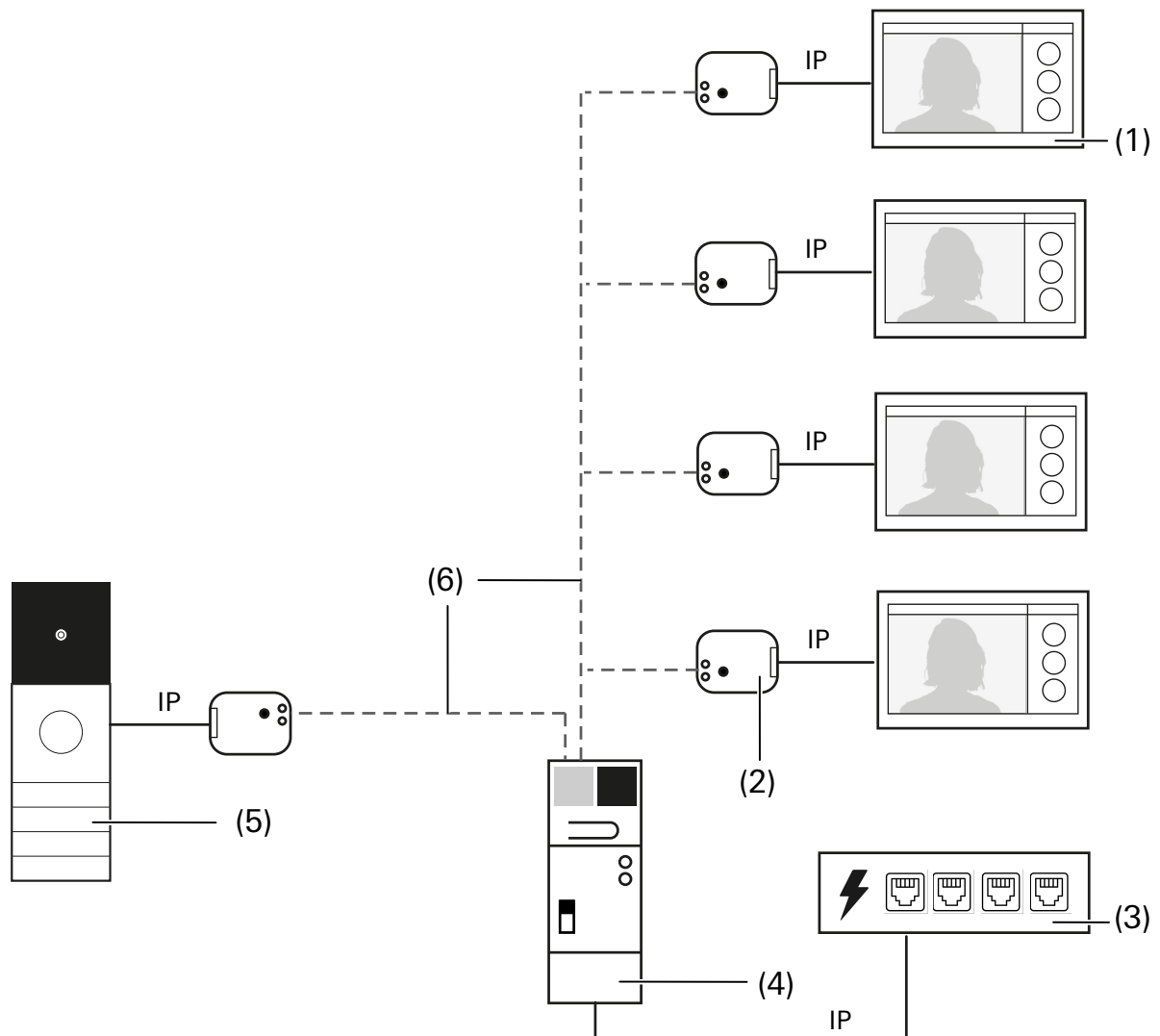


Image 2: Example bus topology

- (1) IP video home station
- (2) Gira 2-wire IP converter Client
- (3) PoE switch
- (4) Gira 2-wire IP converter Host, slide switch set to **Host**
- (5) IP door station
- (6) 2-wire lines

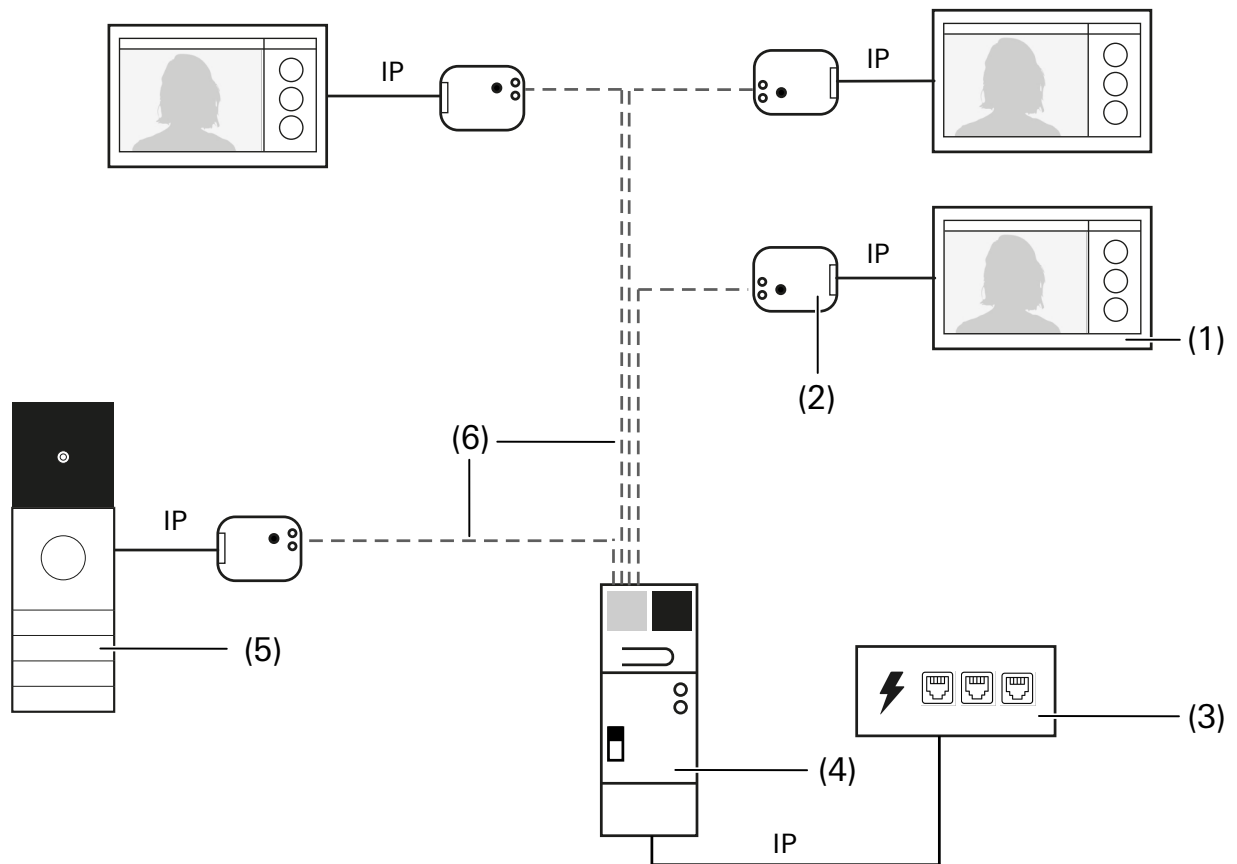


Image 3: Example star topology

- (1) IP video home station
- (2) Gira 2-wire IP converter Client
- (3) PoE switch
- (4) Gira 2-wire IP converter Host, slide switch set to **Host**
- (5) IP door station
- (6) 2-wire lines



### 5.1.3 Complex installations

Complex installations may consist of up to 5 Hosts and 15 Clients.

The following rules apply:

- One Client is required per end device in the 2-wire system
- On the first Host, the slide switch (4a) must be set to **Host**
- On all other Hosts, the slide switch (4b) must be set to **Extender**
- All hosts are connected to each other via the **Extender** connection terminal (7)

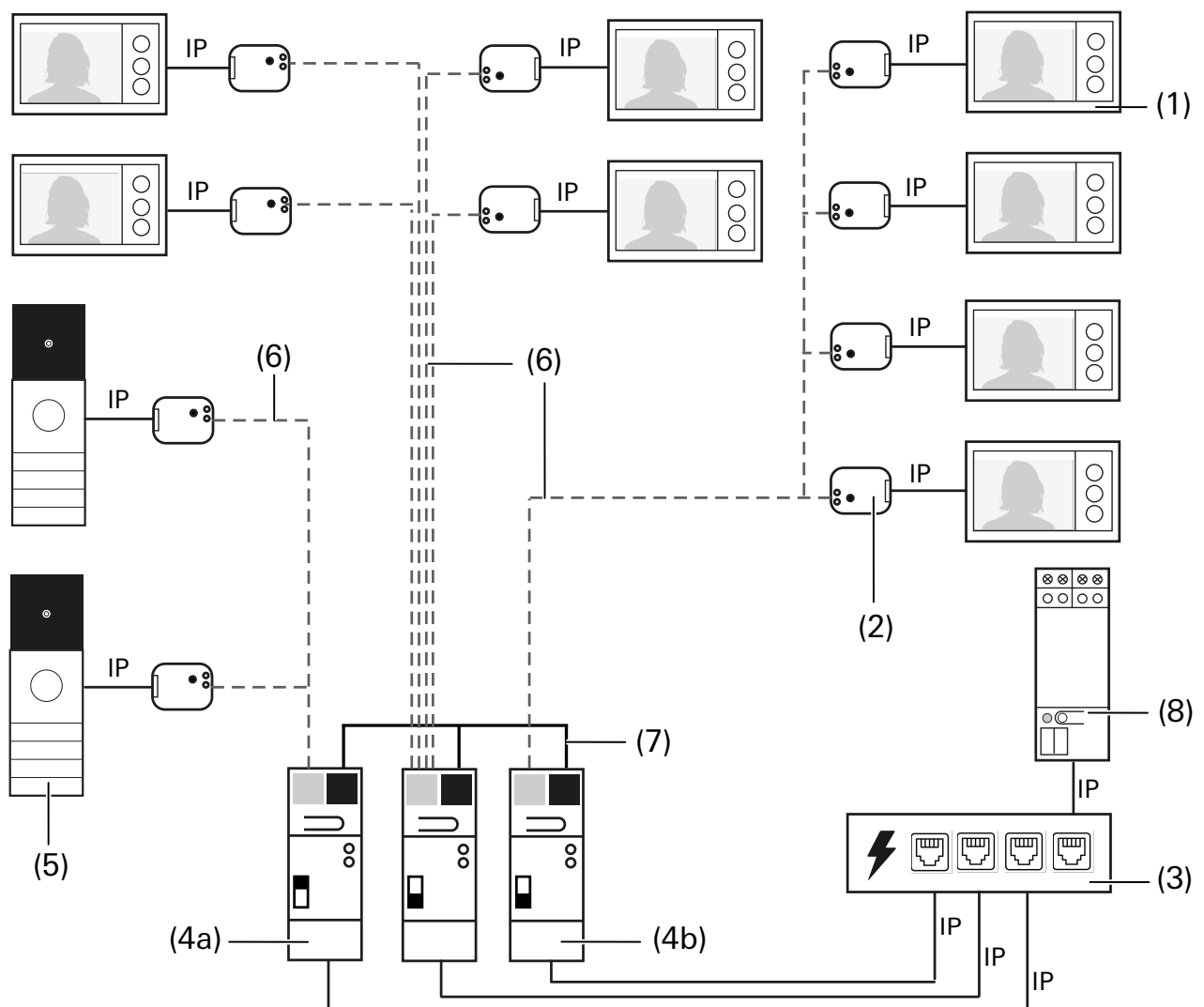


Image 4: Example complex installation

- (1) IP video home station
- (2) Gira 2-wire IP converter Client
- (3) PoE switch
- (4a) Gira 2-wire IP converter Host, slide switch set to **Host**
- (4b) Gira 2-wire IP converter Host, slide switch set to **Extender**
- (5) IP door station
- (6) 2-wire lines

- (7) Extender wire bridge
- (8) IP switching actuator

## 5.2 Checking and planning installation

- A maximum of 15 end devices can be operated on one Host.
- Define end devices. Options include IP door stations, IP home stations and IP cameras.
- Determine cable lengths to end devices.
- Determine the line topology for the relevant connections.
- If necessary, split the lines so that none of the wire pairs is overloaded and the system limits are observed (see table: System limits).
- Check power of PoE source.
- All unused lines must be removed from the 2-wire system.
- Existing components must be completely removed from the existing 2-wire system.
- In the case of multi-core cables with wires that are not arranged as twisted pairs (e.g. YR), adjacent wires should be used for optimum transmission.
- When using multi-core cables (e.g. Y(ST)Y 4x2x0.6), a line segment must always use wires arranged as twisted pairs. All wire pairs in a line may be used if they are managed by a Host.
- When installing multiple Hosts with the slide switch set to **Host**, interference may limit the maximum data rate to be achieved. Parallel routing of the 2-wire lines is permitted for a maximum length of 1 m at a distance of 10 cm.

### 5.2.1 System limits

A point system is used to calculate the system limits. The maximum number of end devices per line segment depends on the length of the line segment and the conductor diameter used. A line segment length is defined as the length between the Host and the device that is furthest away in the line segment.

The following must be taken into account when planning:

- End devices with a total score no greater than 60 may be connected to a Host, regardless of the mode
- A Host is not considered to be an end device regardless of the mode
- The line segment length must be shortened by the length of the Ethernet cable between the Host and the PoE switch or power injector

Procedure:

1. Determine the conductor diameter.
2. Determine the line segment length.
3. Calculate the number of end devices per line segment using the tables, see Figure 5.

| End device                               | Score |
|------------------------------------------|-------|
| IP door station, PoE device IEEE 802.3af | 15    |
| IP video home station                    | 10    |

Table 1: Score of the permitted end devices

| Line segment length | Max. score for conductor diameter 0.6 mm | Max. score for conductor diameter 0.8 mm |
|---------------------|------------------------------------------|------------------------------------------|
| 50 m                | 60                                       | 60                                       |
| 75 m                | 45                                       | 60                                       |
| 100 m               | 35                                       | 55                                       |

Table 2: Maximum score per line segment

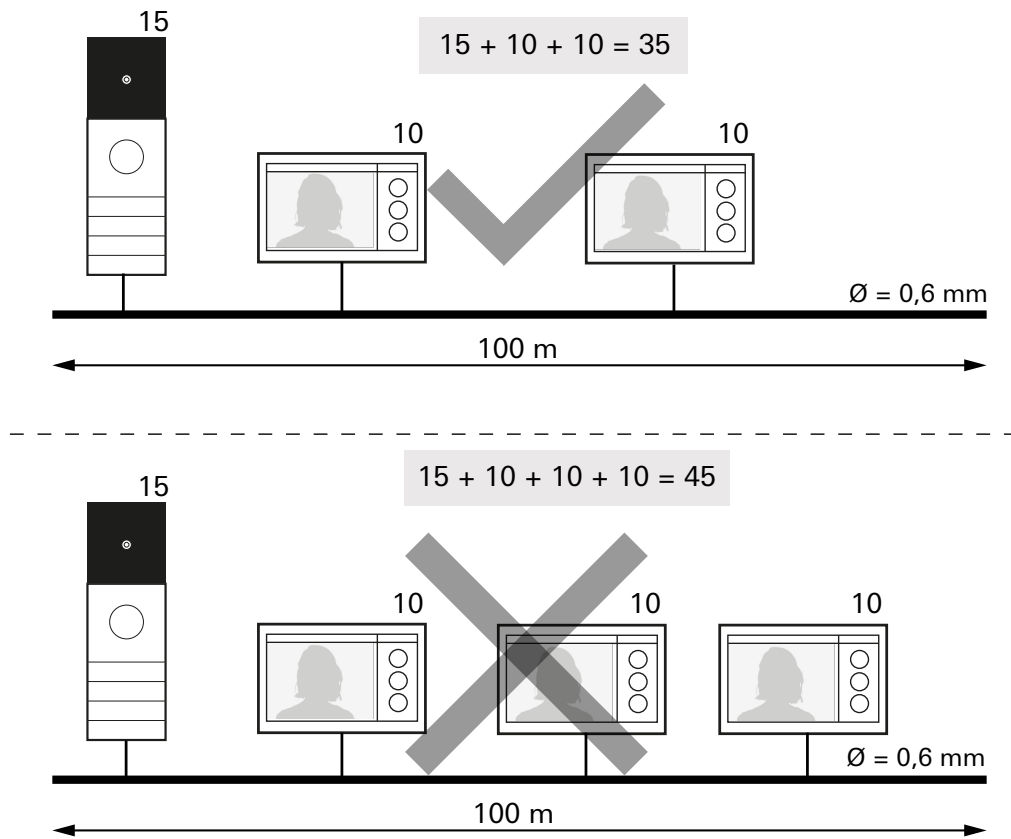


Image 5: Calculation of system limits (example)

## 6 Information for qualified electricians



### Electrical shock when live parts are touched.

Electrical shocks can be fatal.

Before working on the device, disconnect it and cover any live parts in the vicinity.

### 6.1 Mounting and electrical connection

All cabling must be checked for inadequate terminals and lines and, if necessary, replaced with suitable terminals and lines. Devices from third-party systems must be removed.

When routing the 2-wire lines, the following must be taken into account:

- The distance to power lines must be at least 10 cm
- Routing parallel to Ethernet cables (Cat 6 or higher) is permitted
- Parallel routing with Gira analogue door communication is permitted
- The routing of several 2-wire lines on one Host is permitted

#### Mounting the device

1. Mount the device on the top-hat rail. When doing so, align the device with the 2-wire connection terminal facing upwards.

#### Connecting the device

2-wire connections must not be short-circuited.

1. Strip 6 mm of insulation from the 2-wire line and connect it to the 2-wire connection terminal (8) of the Host.
2. Connect the shielded network cable to the RJ45 jack (5).

### 6.2 Start-up

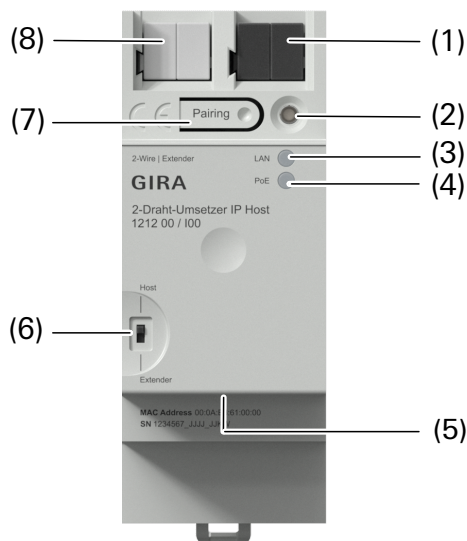


Image 6: Device components

## Pairing devices

The Host and the Clients must be paired with each other. A maximum of 15 Clients can be paired to 1 Host in a 2-wire system.

The pairing mode must first be initiated on the Host, which requires the sliding switch (6) to be in the **Host** position.

1. Press the pairing button (7) on the Host for approx. 3 s.
  - ✓ The 2-wire status LED (2) initially goes out and briefly lights up green.
2. Release the pairing button immediately.
  - ✓ The 2-wire status LED indicates the pairing process by flashing green quickly. The Host is in pairing mode for 10 minutes.
3. Press the pairing button on the Client for approx. 3 s.
  - ✓ The 2-wire status LED initially goes out and briefly lights up green.
4. Release the pairing button immediately.
  - ✓ The 2-wire status LED indicates the pairing process by flashing green quickly.
  - ✓ If the pairing is successful, the 2-wire status LED on both devices lights up green continuously.

The Host returns to pairing mode for 10 minutes and flashes green quickly. During this time, additional Clients can be paired with the Host.

The Client is ready for immediate operation, even if the Host is still in pairing mode.

Note: If the slide switch was accidentally set to **Extender** when the device was started, all Clients paired in the device are deleted.

## Using the device as a power supply

For more complex installations, additional Hosts can be used in Extender mode as a power source. Using this setting, they can act as power supply units and have no logic function. The slide switch (6) must be in the **Extender** position when the PoE supply is switched on.

If the slide switch was accidentally set to **Host** when the device was started, the device must be restarted with the correct setting. No further action is necessary.

Note: Pairing a Client and Host always takes place via the Host with the slide switch set to **Host**.

## 6.3 Factory reset

A factory reset can only be performed on a Host if the slide switch is set to **Host**. A factory reset is not possible in Extender mode.

1. Disconnect the Host from the power supply.
2. Restore the power supply to the Host.
3. Wait approx. 3 s until the device has started.  
The factory reset must be triggered within 30 s.
4. Press and hold the pairing button for at least 10 s.
5. The 2-wire status LED (2) changes its status several times and lights up green for approx. 3 s.
6. Release the pairing button.
  - ✓ The 2-wire status LED (2) briefly lights up red. The factory reset starts.
  - ✓ The device restarts automatically. The 2-wire status LED flashes green slowly (status: not paired).

To delete the pairing data before disposal, a factory reset must be performed.

## 6.4 Firmware update

The device is equipped with factory firmware. To keep the 2-wire converter up to date and safe, Gira provides the latest firmware updates free of charge via an automatic update process. The automatic update requires an existing internet connection and a DHCP server in the device network. The availability of a new firmware update is automatically checked every day between midnight and 4 am (UTC +1). A brief interruption in the connection may occur while an update is being performed.

**7 Technical data**

|                                   |                                |
|-----------------------------------|--------------------------------|
| Rated voltage                     | 52 V                           |
| <b>Power consumption:</b>         |                                |
| 2-wire system (IEEE 802.3at PoE)  | Max. 30 W                      |
| 2-wire system (IEEE 802.3bt PoE)  | Max. 90 W                      |
| Clampable conductor diameter      | Single-wire:<br>0.6–0.8 mm     |
| LAN interface                     | RJ45 jack                      |
| Transmission rate (2-wire system) | 100 Mbit/s                     |
| DRA                               | 2 MW                           |
| <b>Cable lengths:</b>             |                                |
| Between Host and Client           | Max. 100 m                     |
| Between IP network and Host       | Max. 20 m                      |
| <b>Ambient conditions:</b>        |                                |
| Ambient temperature               | 0 to +55°C                     |
| Storage/transport temperature     | -25 to +70°C                   |
| Relative humidity                 | 10 to 95%<br>(no condensation) |



## 8 Troubleshooting

### **I cannot find my building installation in any of the examples shown, where can I find further help?**

Gira Customer Service will be happy to answer any questions you may have about planning a Gira door communication system. Please contact your Gira sales partner for more information.

### **The pairing button and the 2-wire status LED on a Host in Extender mode are not working.**

When in Extender mode, a Host acts exclusively as a power supply unit with an Ethernet connection. In this mode, the 2-wire status LED and the pairing button do not work; configuration takes place exclusively on the Host. Any previously saved system-specific data has been removed from the device.

If the slide switch was accidentally set to **Extender** when the Host was started, any pairing information in the device is deleted. The devices must be paired again via the **Host** setting.

### **The PoE status LED does not indicate the expected status.**

Often, PoE switches and PoE injectors do not adhere exactly to the standard. Therefore, some PoE switches and PoE injectors may be assigned to the next lower class.

### **Is the Gira 2-wire converter also suitable for third-party systems?**

The Gira 2-wire converter has been specifically optimised and tested for the Gira door communication system. In other systems, the 2-wire converter can only be used in a direct connection from a Host to a Client. The option to connect a Host in Extender mode or use multiple Hosts or Clients is not provided for third-party systems.

### **The Gira 2-wire converters installed in my system are not displayed (or are displayed only temporarily) in my router's device overview.**

The technical set-up for displaying network devices differs depending on the manufacturer of the router. Therefore, Gira cannot guarantee reliable display. If necessary, contact the manufacturer of the router.

### **My system is not receiving power at the PoE switch, or the PoE status LED on the Host is showing an unexpected status.**

The 2-wire system establishes a galvanic connection from the Host to the Client. Therefore, only unshielded network cables can be connected to the Client output.

The 2-wire cabling and/or the end device on the Client has a galvanic and/or capacitive connection to the earth potential. A sensitive PoE switch or PoE injector may cause such behaviour.

## 9 Accessories

Gira 2-wire IP converter Client

Order no.: 1213 00

## **10 Warranty**

The warranty is provided by the retailer in accordance with the statutory requirements.

Please hand over or send faulty devices postage paid and with a description of the problem to your sales representative (retailer/installation company/electronics retailer),

who will forward the devices to the Gira Service Centre.

### **Gira**

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