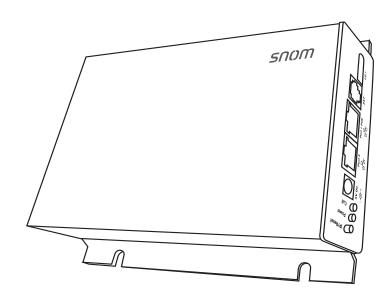
snom



User Manual

PA1+

Public Address System

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Our firmware includes some source code that may be used and modified by anyone and everyone under the GNU Public License (GPL) (see "Appendix 2 — GNU General Public License" on page 27), provided they, in turn, make it available to everyone else with the same licensing agreement. Please go to https://www.snom.com/en/footer/discover-snom/gtc/source-code-gpl-open-source/ for the original GPL license and the source code of components licensed under GPL and used in Snom products.

Important information

Please read the instructions on safety and disposal and on how to set up and use the device before using it and also give them to other users to read or inform those users of their contents. Save this manual and do not give the device to third parties without it.

The nameplate is located at the bottom or rear of the product.

Safety instructions

Follow the instructions in this manual and other applicable documentation of the device.

- **Warning**: The product included (ITE) in this manual is to be connected only to PoE networks without routing to the outside plant.
- The socket outlet for the power adaptor must be near the equipment and easily accessible.
- Mount the device only at heights not exceeding 2m.
- If the device is not supplied with power via an Ethernet cable, use only a power adapter expressly recommended by Snom technology. Other power supplies may damage or destroy the device, affect its behavior, or induce noise.
- Avoid placing the cables where people may trip over them or where they may be exposed to mechanical pressure as this may damage them.
- This device is for indoor use only! NOT FOR OUTDOOR USE!
- Do not install the device in rooms with high humidity (for example, in bathrooms, laundry rooms, damp basements). Do not immerse the device in water and do not spill or pour liquids of any kind onto or into the device.
- Do not install the device in surroundings at risk for explosions (paint shops, for example). Do not use the device if you smell gas or other potentially explosive fumes.
- Do not use the device during thunderstorms. Lightning striking the power grid may cause electric shocks.
- **Do NOT** remove the device's power supply (Ethernet cable when using PoE, power adapter when not using PoE) when the red light is on or blinking; a firmware update is ongoing. Cutting off the device's power during a firmware update (red LED on, green LED off) will damage the firmware and render the PA1+ inoperational. In such cases, it will need to be returned to the vendor for resetting.
- **SELV (Safety Extra Low Voltage) Compliance**. Safety status of input/output connections comply with SELV requirements.

Warning: To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to teledevice-network voltage (TNV) circuits. LAN ports contain SELV circuits, and PSTN ports contain TNV circuits. Some LAN and PSTN ports both use RJ-45 (8P8C) connectors. Use caution when connecting cables.

Standards conformance



This device complies with the essential health, safety, and environmental requirements of all relevant European directives and UK legislation.

The declaration of conformity can be downloaded at https://www.Snom.com/conformity.

Important additional information for the USA

FCC part 15

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.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's expense.

WARNING: Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Unauthorized opening, changing, or modifying the device will cause the warranty to lapse and may also result in the loss of CE conformity and FCC compliance. In case of malfunction contact authorized service personnel, your seller, or Snom .

Disposal of the device



This device is subject to European Directive 2012/19/EU and may not be disposed of with general household garbage. If you do not know where to dispose the device at the end of its lifespan, contact your municipality, local waste management provider, or vendor.

For countries outside the European Union

Disposal of electrical and electronic products in countries outside the European Union should be done in line with local regulations. Please contact local authorities for further information.

Cleaning

To clean the device, use an anti-static cloth. Please avoid cleaning liquids as they might damage the surface or internal electronics of the device.

Product specifications

• Safety: IEC 62368-1

- Connectors:
 - 2 x RJ45 (Ethernet): 1 x LAN/PoE, 1 x PC, camera, etc.
 - 1 x 5V DC coaxial power connector
 - 2 push-on speaker connectors
 - 2 x 3.5 mm headset connectors (mic in/line out) for installation and maintenance purposes only
 - 4 I/O pin ports for controlling connected devices via web interface or DTMF
- Amplifier: Class D, 6.5W (loudspeaker not included)
- Ethernet: 2 x IEEE 802.3, 1 Gigabit switch
- **Power over Ethernet (PoE)**: IEEE 802.3af, Class 3. If PoE is not available, use the separately available power adapter (not included in delivery):



- EU, UK: Mass Power, model NBS12E050200UV, Snom PN 00004570
- U.S.A., Canada: VTPL, model VT07EUS05200

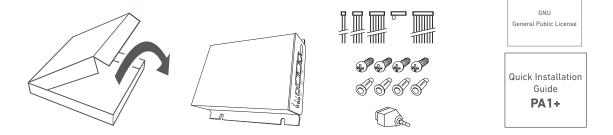
Feature list

- SIP or multicast support
- Remote SW update
- Network/web management
- · Remotely settable speaker volume adjustment
- IP address/reset button
- Call/network activity indicator
- One "Mic-In" and one "Line Out" 3.5 mm connector for headset connection (SPK impedance = 32 Ohm, MIC power supply 3.3V, RL = 2 KOhm, S= -42 dB (+-2dB)). Microphone input must be differential and without grounding.
 - Low impedance connections. The "Line Out" port is for installation and maintainance purposes only, not for the connection of other devices. See "Low impedance connection (ex. 4–32 Ohm)" on page 9 for more information.
 - 600 Ohm connection. The 600 Ohm loudspeaker is connected to the "Line Out" port. See "600 Ohm load connection" on page 10 for more information.
- 4 I/O pins remotely settable
 - via web interface (in administrator mode only) or
 - with DTMF tones (with programmable timer)
- Robust casing design for wall mounting

snom PA1+ User Manual Setting Up

Setting up

Delivery Content



- Base unit
- 2 brackets for wall mounting (pre-assembled)
- 4 screws (Ø 8 mm, length 16 mm) + 4 expansion anchors for wall mounting
- Cable set (5 proprietary Snom cables for connecting periphery devices)
- 1 audio adapter 3-pin screw terminal < > 3.5 mm jack plug
- Quick Start Guide

Wallmounting

Note: The Ethernet cable must not be bent to avoid damage and loss of the network connection. We recommend that you place the PA1+ so that the PoE connector is facing toward the LAN port in your network. We also recommend that you place the PA1+ in a location where you can see the LEDs from your desk or work station.

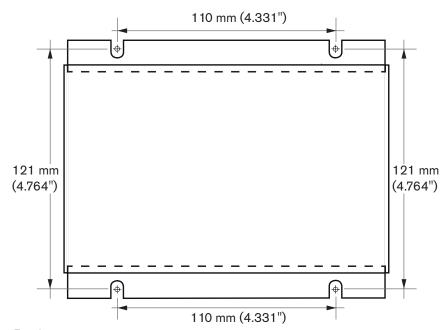


Fig. 1

1. Use the measurements in Fig. 1 to mark the positions of the four holes to be drilled in the wall, or use the template at "Appendix 1 — Drilling template for wallmounting" on page 26.

snom PA1+ User Manual Setting Up

- 2. Drill the holes and insert the expansion anchors in the holes.
- 3. Place the Snom PA1+ on the wall with the cut-outs above the anchors as shown in Fig. 2.

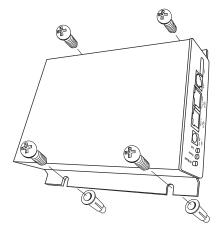
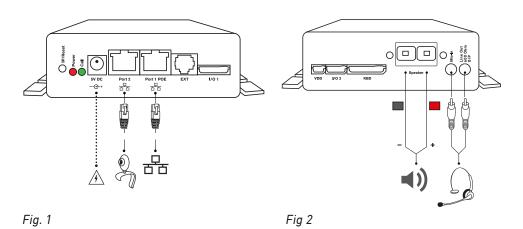


Fig. 2

4. Place the screws in the anchors and tighten them evenly..

Connecting the PA1+

Low impedance connection (ex. 4–32 0hm)



1. Plug the Ethernet cable into the RJ45 connector labelled "Port 1PoE", as shown in Fig. 1. The second RJ45 connector labelled "Port 2" is for daisy-chaining further Ethernet devices without the need for another Ethernet cable.

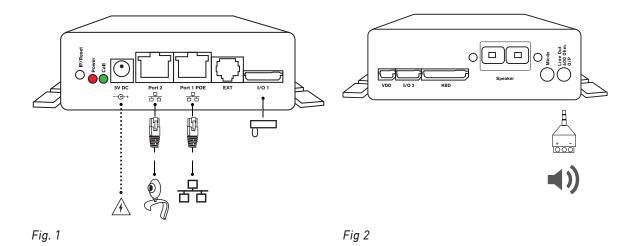
If no PoE available: Connect a Snom-approved 5V 10W power supply to the power connector labelled "5V DC".

2. Connect the loudspeaker wires to the speaker terminals labelled "Speaker", as shown in Fig. 2. Connect the "+" wire with the red terminal, connect the "-" wire with the black terminal.

Note: If you want to use a headset during the setup:

- Connect the headset's microphone plug to the jack labelled "Mic-In".
- Connect the headset's speaker plug to the jack labelled "Line Out".

600 Ohm load connection



1. Plug the Ethernet cable into the RJ45 connector labelled "Port 1PoE", as shown in Fig. 1. The second RJ45 connector labelled "Port 2" is for daisy-chaining further Ethernet devices without the need for another Ethernet cable.

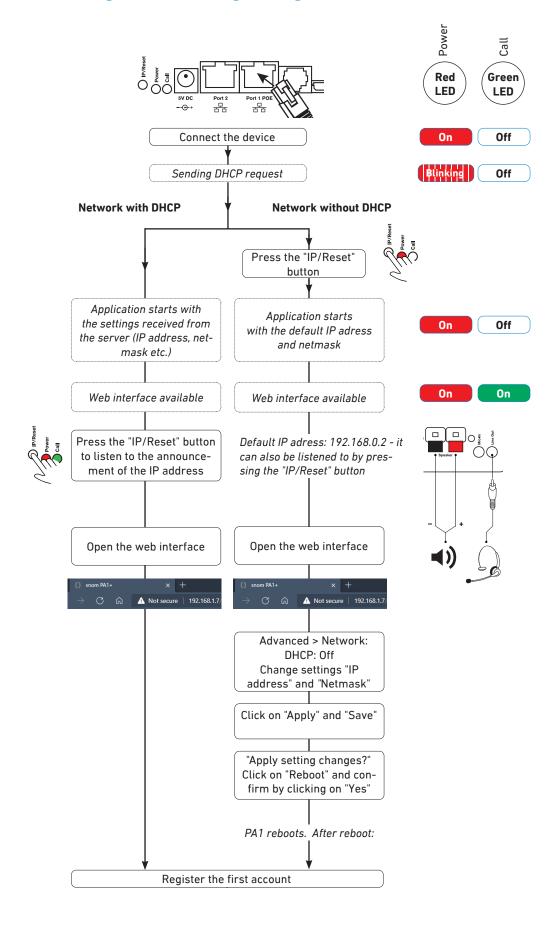
If no PoE available: Connect a Snom-approved 5V 10W power supply to the power connector labelled "5V DC".

- 2. Connect the Snom cable to the "I/O 1" port, as shown in Fig. 1
- 3. Connect the loudspeaker wires to the 3-pin screw terminal/3.5 mm jack plug adapter and plug the adapter into the "Line Out 600 Ohm O/P" port, as shown in Fig. 2.

Note: If you want to use a headset during the setup:

- Connect the headset's microphone plug to the jack labelled "Mic-In".
- Connect the headset's speaker plug to the jack labelled "Line Out".

Initializing and configuring



Initializing

After the PA1+ has been connected to the network via Ethernet cable, the red LED marked "Power" will light up. The PA1+ begins to boot.

Initializing with DHCP

The Snom PA1+ has a built-in DHCP client. When DHCP is available in the network, the PA1+ will initialize automatically.

- 1. The red LED begins to blink. The PA1+ is sending the DHCP request.
- 2. After the PA1+ has received an IP address and other network-related settings (netmask, IP gateway, DNS server, etc.) from the DHCP server, the red LED stops blinking and glows red steadily, indicating that the application is starting up.
- 3. When the PA1+ boot-up process is finished and the web interface is available, the green LED lights up in addition to the red one.
- 4. Briefly press the button labelled "IP/Reset" to listen to the oral announcement of the IP address (in English) over the loudspeaker or headset.
- 5. Open a web browser on a PC connected to the same network as the PA1.
- 6. Type the IP address into the address bar after http:// and press "Enter" to open the PA1's web interface.
- 7. Continue with "Security settings" on page 14.

Initializing without DHCP

If your network does not support DHCP, the Snom PA1+ will boot with the default settings. Please obtain the network IP address and netmask and, if applicable, other required network settings from your network administrator. The default settings are:

IP address: 192.168.0.2 Netmask: 255.255.0.0

- 1. The red LED begins to blink. The PA1+ is sending the DHCP request.
- 2. Press the button labelled "IP/Reset". The red LED continues to blink.

Note: It may take a few minutes before the PA1+ aborts the DHCP request and starts the application with the default settings.

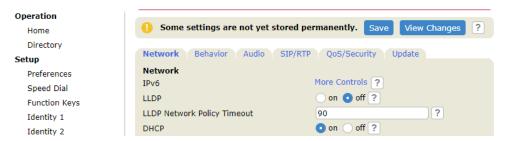
- 3. When the application is starting up with the default network settings, the red LED stops to blink and glows red steadily.
- 4. When the PA1+ boot up process is finished and the web interface is available, the green LED lights up in addition to the red one. You can now change the default settings manually.

Note: Briefly press the button labelled "IP/Reset" to listen to the oral announcement of the default IP address (in English) over the loudspeaker or headset.

- 5. Open a browser on a computer connected to the same network as the PA1+, and type the default IP address in the address bar: http://192.168.0.2. The PA1+ web interface will be loaded into the browser.
- 6. Click **Advanced** in the menu on the left side of the window. The **Advanced** page opens to the **Network** tab.



- 7. In the **Network** section make the following changes:
 - a. "DHCP" setting: Click on Off.
 - b. "IP address" and "Netmask" settings: Replace default values with network values.
 - c. Other settings: Replace if and as required.
- 8. Click the **Apply** button at the bottom of the page. The **Save** button appears at the top of the page.



Note: Any changes you make will not take effect until you click **Apply**. Changes will be lost if you open another page of the web interface or if you close the web interface without first clicking **Apply**.

9. Click the **Save** button to save changes permanently.

Note: Changes that have not been saved will be lost if and when the phone loses power or is disconnected from its power source.

10. Continue with "Security settings" on page 14.

Security settings

When the web interface is opened for the first time upon initialization, you will see the Security page.



When you register the first account, the SIP user name and password will be registered as the HTTP user name and password. If you wish to change them later, you can do so on the PA1+'s web interface > Advanced > QoS Security > HTTP Server.

Note:

- If you do not replace the default administrator password by an individual one, an unauthorized third party could set an administrator password unknown to you. In such a case, you would no longer be able to switch from user mode to administrator mode.
- If you set your own passwords, be sure to write them down and store them in a secure place.

Without the administrator password, you will not be able to switch the web interface from user mode to administrator mode; the settings will be inaccessible.

Without HTTP password you cannot open the web interface.

Continue with "Configuring accounts" on page 15.

Configuring accounts

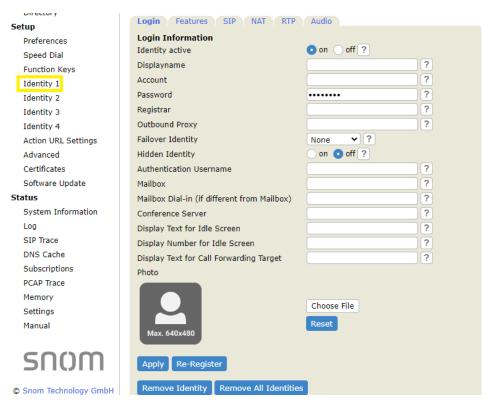
The PA1+ supports up to four accounts (or identities, as they are called on Snom devices) that can be used to make announcements over the loudspeaker connected to the PA1+.

Configuring identities automatically

(recommended) by using the provisioning server. For more details on auto-provisioning Snom devices see https://service.snom.com.

Configuring identities manually

In the menu on the left, click **Identity 1**. The page **Configuration Identity 1** opens with the **Login** tab active.



- 1. Enter the data required by your network in the text fields:
 - Account: Name/phone number.
 - Password: Password for your account, if necessary.
 - Registrar: Registrar address of your PBX software.
- 2. Click Apply or Re-Register. The Save button appears at the top of the page.



3. Click **Save** to save the changes permanently. Changes that have not been saved will be lost if and when the phone loses power or is disconnected from its power source.

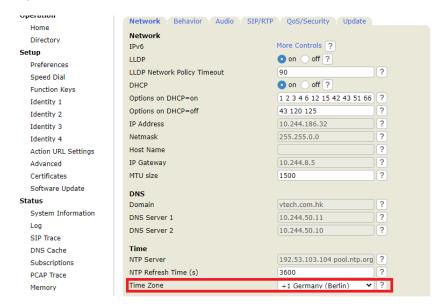
If the registration has been successful, the red **Power** LED will turn off. The green **Call** LED will stay on, indicating that the PA1+ is ready to receive announcements.

Settings

Normally, it is only necessary to set the time zone and the tone scheme. You can adjust the default settings for loudspeaker volume and automatically ending calls as necessary or desired.

Time zone

- 1. Open the web interface.
- Click Advanced in the menu on the left side of the window page. The Advanced Settings page opens to the Network tab.

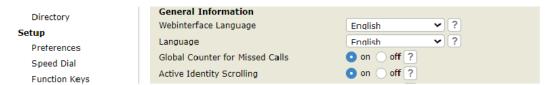


- 3. In the **Time** section select your time zone (i.e., country/city) from the drop-down menu of **Timezone**.
- 4. Click **Apply** at the bottom of the page.
- 5. The **Save** button appears at the top of the page. Click **Save** to save the changes permanently in case of power loss.

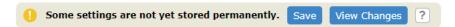


Tone scheme

- 1. Open the web interface.
- 2. Click **Preferences** in the menu on the left side of the window page. The "Preferences" page opens.



- 3. In the General Information section select your country from the drop-down list of Tone Scheme.
- 4. Click **Apply** at the bottom of the page.
- 5. The **Save** button appears at the top of the page. Click **Save** to save the changes permanently in case of power loss.



Automatic termination of calls

This setting determines after how many seconds calls to the PA1+ will be terminated. The default setting is 300 seconds.

- 1. Open the web interface.
- 2. Click **Preferences** in the menu on the left side of the window page. The **Preferences** page opens.
- In the PA1+ Controls section, enter the number of seconds in the text field of Phone ends call after set seconds.



- 4. Click **Apply** at the bottom of the page.
- 5. The **Save** button appears at the top of the page. Click **Save** to save the changes permanently in case of power loss.



Adjusting the volume

- 1. Open the PA1's web interface.
- 2. Click **Preferences** in the menu on the left side of the window page. The **Preferences** page opens. You can change the default setting for the speaker volume in the **PA1+ Controls** section.
- 3. Enter a number between 1 (low) and 15 (high) in the text field of **Speaker Volume**. The default setting is 10.
- 4. Click **Apply** at the bottom of the page.
- 5. The **Save** button appears at the top of the page. Click **Save** to save the changes permanently in case of power loss.



snom PA1+ User Manual Using the PA1+

Using the PA1+

Making announcements

Dial the phone number of the PA1+ and, when your phone shows that you are connected, speak your announcement into its handset/headset/casing microphone. When you are done, terminate the call by hanging up or pressing the \times / \times key.

Turning the loudspeaker on or off

- 1. Open the PA1+'s web interface.
- 2. Click **Preferences** in the menu on the left side of the window page. The **Preferences** page opens.
- 3. In the PA1+ Controls section click on the radio buttons on/off to turn the loudspeaker on or off.



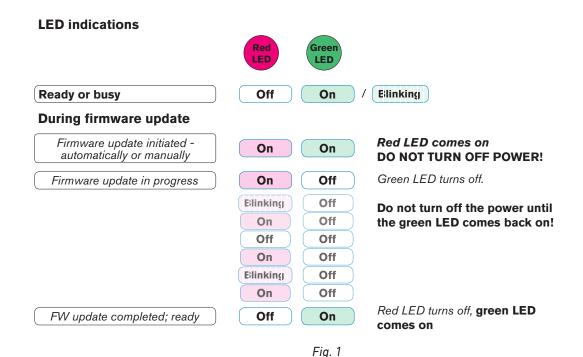
4. Click **Apply** at the bottom of the page. Click **Save** at the top of the page to save the changes permanently in case of power loss.

Software update

Software updates can be done through provisioning from the server whose setting URL is specified on the PA1+'s web interface or by means of a manual update.

CAUTION: Cutting off the device's power during a firmware update (red LED on, green LED off) will damage the firmware and render the PA1+ inoperational. In such a case, the PA1+ will need to be returned to the vendor for a reset (special kit required).

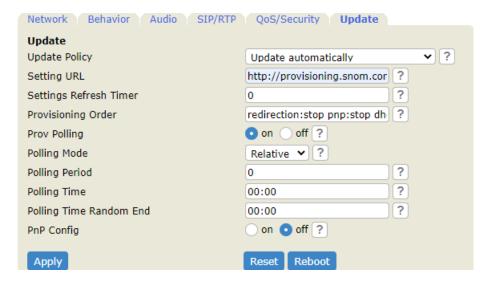
Do NOT remove the device's power supply (Ethernet cable when using PoE, power adapter when not using PoE) when the red light is on or blinking; a firmware update is ongoing.



Provisioning software updates

Provisioning of updates can be done in two ways:

- Fully automatic with the setting **Update automatically**: Whenever a new firmware version is made available, the settings are downloaded from the settings server and the update is started automatically.
- Semi-automatic with the setting **Ask for update**: The settings are downloaded from the settings server automatically, but you are prompted to confirm any available update.
- 1. Open the PA1+'s web interface.
- 2. Click **Advanced** in the menu on the left side of the window page. The **Advanced Settings** page opens.
- 3. Click the **Update** tab.



- 4. Select Update automatically or Ask for update from the list box of Update policy.
- 5. Enter the settings server's URL in the text field of **Setting URL**.
- 6. Click the on radio button of PnP Config.
- 7. Click **Apply** at the bottom of the page. Then click on "Save" at the top of the page to save the changes permanently in case of power loss.

Manual software update

If the current setting is updating through provisioning, whether automatically or semi-automatically, you must first change these settings.

Settings

- 1. Open the web interface.
- Click Advanced in the menu on the left side of the window page. The "Advanced Settings" page opens.
- 3. Click the Update tab.



- 4. Select Never update, do not load settings from the list box of Update policy.
- 5. Click the off radio button of PnP Config.
- 6. Click **Apply** at the bottom of the page. Then click on "Save" at the top of the page to save the changes permanently in case of power loss.
- 7. Click "Reboot" and confirm with "Yes".

Updating manually

- 1. Open the web interface.
- 2. Click on **Software Update** in the menu on the left side of the window page. The page **Manual Software Update** opens.



- 3. Go to https://service.snom.com/display/wiki/Firmware+Update+Center, scroll down to Public Announcement System, and find the latest firmware version for the device.
- 4. Click the page link for the firmware.
- 5. Please read the instructions and release notes before downloading the firmware.
- 6. Right-click the download link in the Firmware files table.
- 7. Paste the link into the text field of **Manual Software Update**.



8. Click Load.

The PA1+ starts the firmware update, indicated by the red LED lighting up and the green LED going out. The firmware update is done when the red LED goes out and the green LED comes back on.

Warning: Never disconnect the power during a firmware update! Cutting off the device's power during a firmware update (red LED on, green LED off) will damage the firmware and render the PA1+ inoperational. The PA1+ will need to be returned to the vendor for resetting (special kit required).

Do NOT remove the device's power supply (Ethernet cable when using PoE, power adapter when not using PoE) while a firmware update is ongoing.

Cutting off the device's power during a firmware update (red LED on, green LED off) will damage the firmware and render the PA1+ inoperational.

In such a case, the PA1+ will need to be returned to the vendor for resetting (special kit required).

Do NOT remove the device's power supply (Ethernet cable when using PoE, power adapter when not using PoE) when the red light is on or blinking; a firmware update is ongoing.

Firmware update initiated - automatically or manually	On	On	Red LED comes on DO NOT TURN OFF POWER!
Firmware update in progress	On	Off	Green LED turns off.
	Blinking	Off	Do not turn off the power until
	On	Off	the green LED comes back on!
	Off	Off	
	On	Off	
	Elinking	Off	
	On	Off	
FW update completed; ready	Off	On	Red LED turns off, green LED comes on

snom PA1+ User Manual Troubleshooting

Troubleshooting

Reboot

- 1. Open the PA1's web interface.
- 2. Click **Advanced** in the menu on the left side of the window page. The "Advanced Settings" page opens.
- 3. Click the **Update** tab.
- 4. Click "Reboot" and confirm with "Yes". The red LED lights up, and the green LED goes out. When the PA1+ has finished rebooting, the red LED goes out, the green LED lights up, and the web interface is available again.

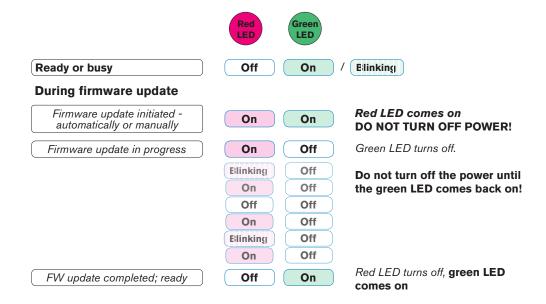
Hard reboot

Disconnect the power, wait for a few seconds, and reconnect.

WARNING: when the red light is on or blinking, a firmware update is ongoing. DO NOT remove the device's power supply (Ethernet cable when using PoE, power adapter when not using PoE).

Never disconnect the power during a firmware update! Cutting off the device's power during a firmware update (red LED on, green LED off) will damage the firmware and render the PA1+ inoperational.

In such a case, the PA1+ will need to be returned to the vendor for resetting (special kit required).



Reset to factory values

Press the "IP/Reset" button to the left of the LEDs.

Warning: All customized settings will be lost! See "Initializing and configuring" on page 11 for information on how to initialize and configure the PA1+ anew.

snom PA1+ User Manual Troubleshooting

Contacting Snom Support

If you are not a Snom partner, please contact your seller or consult our troubleshooting knowledge base at https://service.snom.com/display/wiki/Troubleshooting+How-to first. You may find the answer to your question or problem in one of the topics there.

Submitting a ticket

If you are a Snom partner, log in to the Snom Partner Portal at https://sraps.snom.com/partner and open a ticket.

Submitting system and settings information

System information

- 1. Open the phone's web interface > **System Information** page.
- 2. Copy the text under System Information into the email, if Support has asked you to contact them by email.

Settings information

- 1. Open the phone's web interface > **Settings** page.
- 2. Copy the settings list into the email, if Support has asked you to contact them by email.

Traces

Snom Support may ask you to submit a SIP Trace and/or a PCAP Trace to help them analyze your problem.

Performing a SIP Trace

- 1. Open the Phone Manager and click Maintenance.
- 2. Click **Diagnostic**.
- 3. Click the SIP Trace tab.
- 4. Click **Clear** to clear the page.
- 5. Recreate the error to be documented in the trace.
- 6. Click Copy.
- 7. Submit to Support in whatever form they requested you to use.

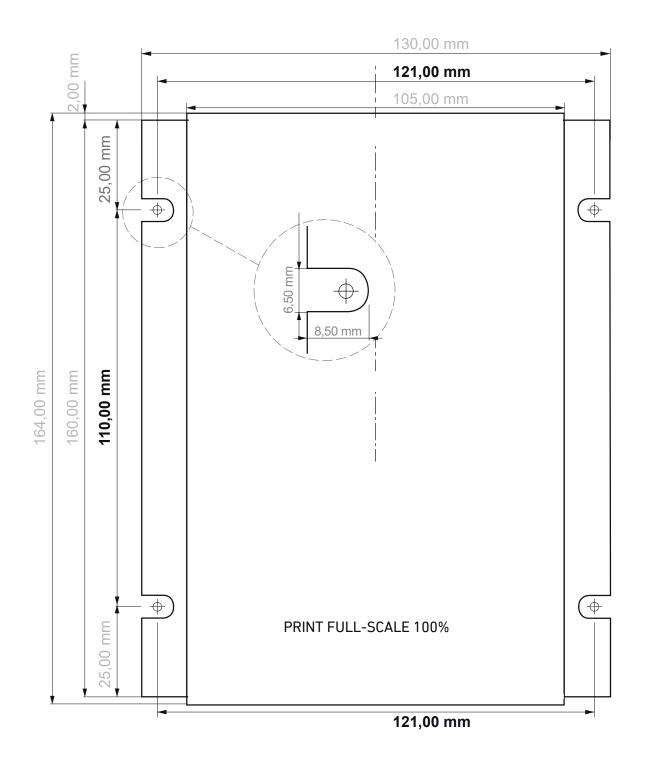
Performing a PCAP Trace

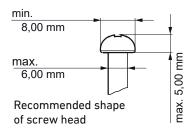
- 1. Open the Phone Manager and click **Maintenance**.
- 2. Click Diagnostic.
- 3. Click the PCAP Trace tab.

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- 4. Click **Start** to start recording network traffic.
- 5. Click **Stop** to end recording
- 6. Click **Save** to save the file to your **Download** folder.
- 7. Submit the file to Support in whatever way they requested you to use.

Appendix 1 — Drilling template for wallmounting







Use screws and expansion anchors suitable for your wall

Appendix 2 — GNU General Public License

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