



IP Audio Interface

PRS-1AIP1



BOSCH

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1 Important Safety Instructions

The following important safety instructions are applicable to the PRS-1AIP1 IP Audio Interface apparatus.

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Only clean the apparatus with a dry cloth.
- Do not block any ventilation openings.
- Always install the apparatus according to Bosch installation instructions.
- Do not install the apparatus near any heat sources, for example: radiators, heat registers, stoves or other apparatus (including amplifiers) that generate heat.
- Protect the power supply cord from damage. For example: being walked on, pinched near the plug or from stress at the point where the power supply cord exits from the apparatus.
- Only use the apparatus with attachments and accessories supplied or recommended by Bosch.
- This apparatus should only be serviced by qualified service personnel.
- If the apparatus has been damaged, servicing will be required. This includes damage caused by: liquid spillage or objects falling into the apparatus and/or the apparatus being exposed to rain or moisture. The apparatus must also be serviced if it does not function normally, it has been dropped and/or if there is damage to the power supply cord and plug.
- To prevent a risk of electrical shock, do not attempt to service the apparatus yourself. Opening or removing the apparatus covers may expose you to dangerous voltages or other hazards.

2 Short information

2.1 Purpose

The purpose of this manual is to provide information required for installing, configuring, operating and maintaining the PRS-1AIP1 IP Audio Interface.

2.2 Digital document

This manual is also available as a digital document in the Adobe Portable Document Format (PDF).

2.3 Intended audience

This manual is intended for installers and users of a PRS-1AIP1 IP Audio Interface.

2.4 Related documentation

Plena Voice Alarm System Operating Manual and Praesideo Public Address and Emergency Sound System Installation and User Instruction manual.

2.5 Alerts and notice signs

The following alerts and notices are used in this manual. The alert type is closely related to the effect that may be caused if it is not observed.



Caution!

The equipment or the property can be damaged, or persons can be lightly injured if the alert is not observed.

In this manual a 'notice' is used to provide tips, or to give some extra information:



Notice!

Alert containing additional information. Usually, not observing a 'notice' does not result in damage to the equipment or personal injuries.

2.6 Conversion tables

In this manual, SI units are used to express lengths, masses, temperatures, etc. These can be converted to non-metric units using the following information.

Non-metric unit	SI unit	SI unit	Non-metric unit
1 in =	25.4 mm	1 mm =	0.03937 in
1 in =	2.54 cm	1 cm =	0.3937 in
1 ft =	0.3048 m	1 m =	3.281 ft
1 mi =	1.609 km	1 km =	0.622 mi

Non-metric unit	SI unit	SI unit	Non-metric unit
1 lb =	0.4536 kg	1 kg =	2.2046 lb

Non-metric unit	SI unit	SI unit	Non-metric unit
1 psi =	68.95 hPa	1 hPa (= 1 mbar) =	0.0145 psi

2.7 Disclaimers

2.7.1 Bosch Security Systems B.V.

Although every effort has been made to ensure the information and data contained in these manual is correct, no rights can be derived from the contents.

Bosch Security Systems B.V. disclaim all warranties with regard to the information provided in these instructions.

In no event shall Bosch Security Systems B.V. be liable for any special, indirect or consequential damages whatsoever resulting from loss of use, data or profits, whether in action of contract, negligence or other tortuous action, arising out of or in connection with the use of the information provided in these Installation and User Instructions.

3 System overview

3.1 Application

The PRS-1AIP1 IP Audio Interface is a universal, Internet Protocol based audio device supporting VoIP and Audio over IP applications. It is used for bridging audio and contact closures over long distance LAN and WAN networks. It extends and interfaces to e.g. Praesideo and non network based traditional public address systems, like Plena, without the need for a PC during operation.

The device has analog audio line inputs and line outputs for easy interfacing, it has optional pilot tone supervision and generation for emergency sound purposes. One audio input can be switched to microphone sensitivity with built-in microphone supervision.

Control inputs and outputs can be used to set up an audio connection to start a remote call, but also to pass remote fault events to e.g. a system controller. Also, the control inputs offer cable and connection supervision, and can activate (remote) control outputs.

3.2 Key product features

Some key product features are:

- Digital audio transmission between public address systems on remote locations
- Designed to comply to international standards for emergency sound systems
- Supervised control inputs and control outputs
- A single unit can act as transmitter, receiver or both
- Installation and configuration via standard web browser
- Support for re-broadcasting to extend the system size
- Built-in configurable audio delay

3.3 Package content

The package contains:

- PRS-1AIP1 IP Audio Interface
- CD with software and Installation and User Instructions
- Power supply for universal input voltage
- Screw block terminals (4 x 8 pin, 6 x 3 pin)
- Label stickers for screw block terminals

3.4 Product view

3.4.1 Front view

Shows the controls and indicators on the front panel.

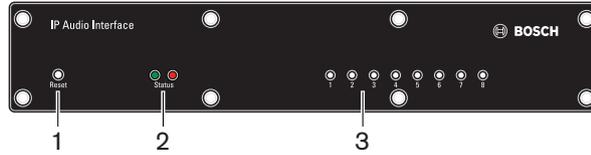


Figure 3.1: Front view

1	Reset button	<ul style="list-style-type: none"> - Press this recessed button briefly (1..3 seconds) to reset and start-up the device - If you press it until the red LED (2) flashes (between 5 and 10 seconds) the device will be reset to factory defaults, and configuration settings will be lost. The network settings will not be lost
2	Green and red status LEDs	<p>The status LEDs show the device status. The following modes exist:</p> <p>Normal operation (power ON and no Errors)</p> <ul style="list-style-type: none"> - Green: ON - Red: OFF <p>Searching IP address</p> <ul style="list-style-type: none"> - Green flashes five times, pauses four times, repeating - Red flashes continuously <p>No application software loaded/Reset status</p> <ul style="list-style-type: none"> - Green: ON - Red: flashes <p>Error detection</p> <ul style="list-style-type: none"> - Red: ON - Green flashes five times: corrupt application loaded or IP address conflict - Green flashes three times: network hardware could not be initialized or a corrupt MAC address
3	Green LEDs (1..8) for control input status	<p>The status LEDs correspond to the control inputs with the same number.</p> <ul style="list-style-type: none"> - All ON: searching for IP address or all inputs activated - All OFF: IP address found and network connection established and all inputs deactivated - One or more ON: one or more inputs activated - One or more slow flashing: open input circuit(s), while supervision is enabled - One or more fast flashing: shorted input circuit(s), while supervision is enabled

3.4.2

Rear view

Shows the connections on the rear panel.

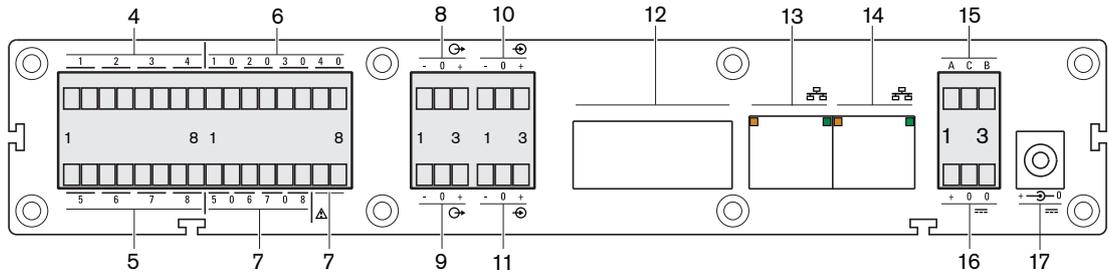


Figure 3.2: Rear view

4	Control Outputs 1..4	Default: open contacts (voltage free relay contact). <ul style="list-style-type: none"> - 1-2: CO1 - 3-4: CO2 - 5-6: CO3 - 7-8: CO4
5	Control Outputs 5..8	Default: open contacts (voltage free relay contact). <ul style="list-style-type: none"> - 1-2: CO5 - 3-4: CO6 - 5-6: CO7 - 7-8: CO8
6	Control Inputs 1..4	Default: open contacts (non isolated, 0 is connected to ground). <ul style="list-style-type: none"> - 1-2: CI1 - 3-4: CI2 - 5-6: CI3 - 7-8: CI4
7	Control Inputs 5..8 and Fault Relay out	Default: open contacts (non isolated, shared 0 is connected to ground, internal pull-up current source). <ul style="list-style-type: none"> - 1-2: CI5 - 3-4: CI6 - 5-6: CI7 - 7-8: CI8 <p>Fault Relay out Default (no fault): open contacts (voltage free relay contact). <ul style="list-style-type: none"> - 7-8: Fault contact </p>
8	Audio Output 2	Balanced, line level with pilot tone generation. <ul style="list-style-type: none"> - 1: - - 2: ground - 3: +

9	Audio Output 1	Balanced, line level. <ul style="list-style-type: none"> - 1: - - 2: ground - 3: +
10	Audio Input 2	Balanced, line level with pilot tone detection. <ul style="list-style-type: none"> - 1: - - 2: ground - 3: +
11	Audio Input 1	Balanced, microphone/line level, microphone supervision. <ul style="list-style-type: none"> - 1: - - 2: ground - 3: +
12	RS 232 serial port	D-Sub, 9-pole male.
13	Ethernet 1	RJ45 for network connection 10/100 Mbps with status indicators. <ul style="list-style-type: none"> - Green ON: network connection established - Green OFF: no network connection - Yellow ON/flashing: data communication - Yellow OFF: no data communication
14	Ethernet 2 (back-up connection for redundancy)	RJ45 for network connection 10/100 Mbps with indicators as for Ethernet 1.
15	RS 485 bus	<ul style="list-style-type: none"> - 1: A (TxD-/RxD-) - 2: C (reference). Connected via a 100 ohm resistor to the ground, which is connected to the negative input terminal of the power supply - 3: B (TxD+/RxD+)
16	Back-up power supply input	With battery under-voltage detection. <ul style="list-style-type: none"> - 1: + - 2, 3: ground
17	Mains power supply input	With mains power failure detection. <ul style="list-style-type: none"> - Centre: + - Ring: ground

4 Installation

The following installation sections guide you through the hardware and network installation process. Refer to the connection and indicator details in *Product view*, page 9. The button, indicator and connector numbers are indicated as (x).

4.1 Mechanical installation

The IP Audio Interface device can be either built-in a 19"-frame using a 19"-mounting frame or shelf (not included) or used stand alone.

4.2 Network (step 1)

Plug a standard (straight) network cable into the network port (13) of the IP Audio Interface and the other end into a switch of your network. Use a crossover network cable for a direct connection to your PC.

4.3 Audio Outputs (step 2)

Connect the Audio Output 1 (9) and/or 2 (8) to the amplifier or mixer input(s). Audio Output 2 also generates a pilot tone.

When powered up for the first time, the device will announce its IP address in English. Connect an amplifier with loudspeaker or headphone to the device in order to hear the announcement. Keep a pen and paper ready to write down the IP address.

4.4 Power supply (step 3)

Connect the power supply to the power supply input connector (17). Optionally connect the back-up power supply to the power supply input connector (16).The device will start-up and the eight green Control I/O LEDs (3) go ON and the green and red status LEDs (2) flash alternating.

Note that the device will be powered from the voltage source with the highest voltage. Make sure that a battery back-up power supply has a lower voltage than the main power supply to avoid that the battery is drained during normal operation.

4.5 IP address (step 4)

The IP Audio Interface will search for a DHCP (Dynamic Host Configuration Protocol) server to get an IP (Internet Protocol) address. As soon as a valid and free IP address is found, it will be announced via the Audio Outputs 1 and 2 (9 and 8). Write down the IP address. Example: 192.168.0.12 (Voice: one nine two...).

The eight green Control I/O LEDs (3) and red status LED (2) go OFF and the green status LED (2) switches ON.

The IP Audio Interface is now ready for configuration, but it is recommended to set a static IP address, *Connect to web browser*, page 16.

4.5.1 No DHCP server is found

If no DHCP server is found then the built-in IPzator function will search the network for a free IP address. This can take up to 5 minutes.

If the IP address is not announced, check:

- If the green LED on the network port used (13 or 14) is ON. When OFF, check your network cabling.
- The green status LED (2). When OFF, check the power supply cabling.

If the device still fails, revert to the factory default settings by pressing the reset button (1) between 5 and 10 seconds while it is powered and repeat the previous steps 1 up to 4.

4.6 Audio Inputs 1/2

Connect the Audio Inputs 1 and 2 (11 and 10).

Both balanced Audio Input 1 and 2 are independent from each other, but will always be routed together. Audio Input 1 is selectable between microphone and line level. If set to microphone sensitivity, it can also do microphone presence supervision.

Audio Input 2 is a line level input. It can detect a 20 kHz pilot-tone which is generated by the connected audio source to supervise the connection.

4.7 Control Inputs

Connect the Control Inputs 1..8 (6 and 7) that are needed.

The Control Inputs 1..8 can be supervised (if configured). Two 10 kohm resistors have to be added to each Control Input to enable supervision. The resistors should be mounted close to the switch to make it possible for the device to supervise the cable between the switch and the input connector. The input detects a 10 kohm resistance if the switch is closed and a 20 kohm resistance if the switch is open. This way shorted and open circuits are detected as a fault situation. In case supervision is disabled for a Control Input, the resistors can be omitted and the switch can be wired directly to the input connector.

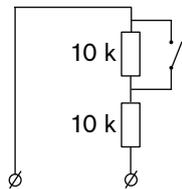


Figure 4.1: Supervised Control Input contacts



Caution!

Do not connect a voltage or current source to the Control Input contacts.

4.8 Control Outputs

Connect the Control Outputs 1..8 (4 and 5) that are needed as described in *Product view*, page 9.

5 Connection options

This section illustrates how the IP Audio Interface can be used. A data stream can be sent and received by the IP Audio Interface. Different connection methods can be used depending on how the device is configured.

5.1 Unicast (point to point)

Unicast means: a **single** data stream to a **single** predefined receiver device (Partner) in a LAN or WAN. A typical partner IP address: 192.168.100.50

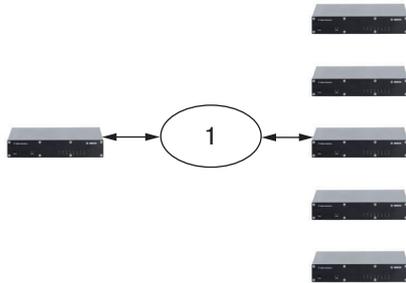


Figure 5.1: Unicast example (1=LAN/WAN)

5.2 Multiple Unicast

Multiple Unicast means **multiple** data streams to **multiple** receiver devices (Partners) in a LAN or WAN. Typical partner IP addresses: 192.168.100.50, 192.168.100.51, 192.168.100.52, etc.

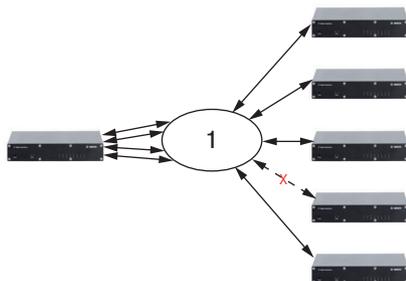


Figure 5.2: Multiple Unicast example (1=LAN/WAN)

5.3 Broadcast

Broadcast means: a **single** data stream to **all** receiver devices (Partners) in a LAN. A typical partner IP address: 192.168.100.255 configured in the transmitter as Partner address. Then all partners with addresses starting with 192.168.100 receive this stream. Typically, routers in a WAN do not support Broadcast mode.

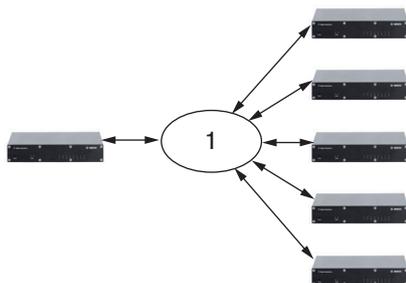


Figure 5.3: Broadcast example (1=LAN/WAN)

5.4 Multicast

Multicast means: predefined receiver devices (Partners) each receive a **single** data stream in a LAN or WAN. Typical partner IP addresses between: 224.0.0.1 to 239.255.255.255.

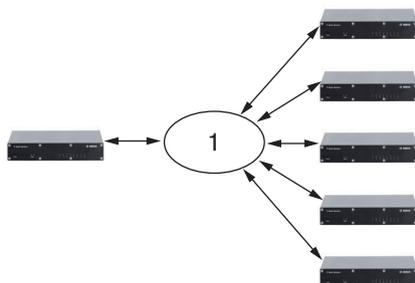


Figure 5.4: Multicasting example (1=LAN/WAN)

5.5 Re-broadcast

Re-broadcast means: a local device receives a data stream from a remote device and resends it to other devices (Partners) in a LAN or WAN.

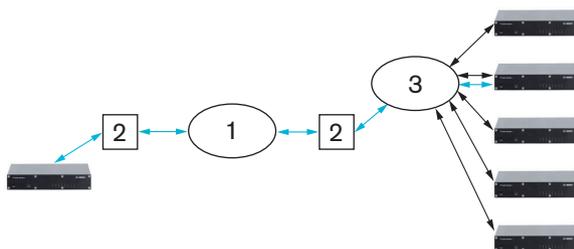


Figure 5.5: Re-broadcasting (1=Internet, 2=Router, 3=LAN/WAN)

6 Configuration

The IP Audio Interface uses dynamic HTML web pages for configuration and status information monitoring. Configuration parameters are stored in the IP Audio Interface via the web browser.



Caution!

Your configuration parameters will be lost if the device is reset to factory default settings, see *Front view, page 9*.

6.1 Connect to web browser

Open a web browser on a PC that is connected to the same network as the IP Audio Interface.

IP address.

Enter the announced IP address of the IP Audio Interface in the web browser address (URL) box, see *IP address (step 4), page 12*.

The built-in web server generates the STATUS page in the web browser by default. If not, repeat the installation process. The status screen is updated dynamically. The current implementation of this feature does not support all web browsers, for example, Google Chrome.

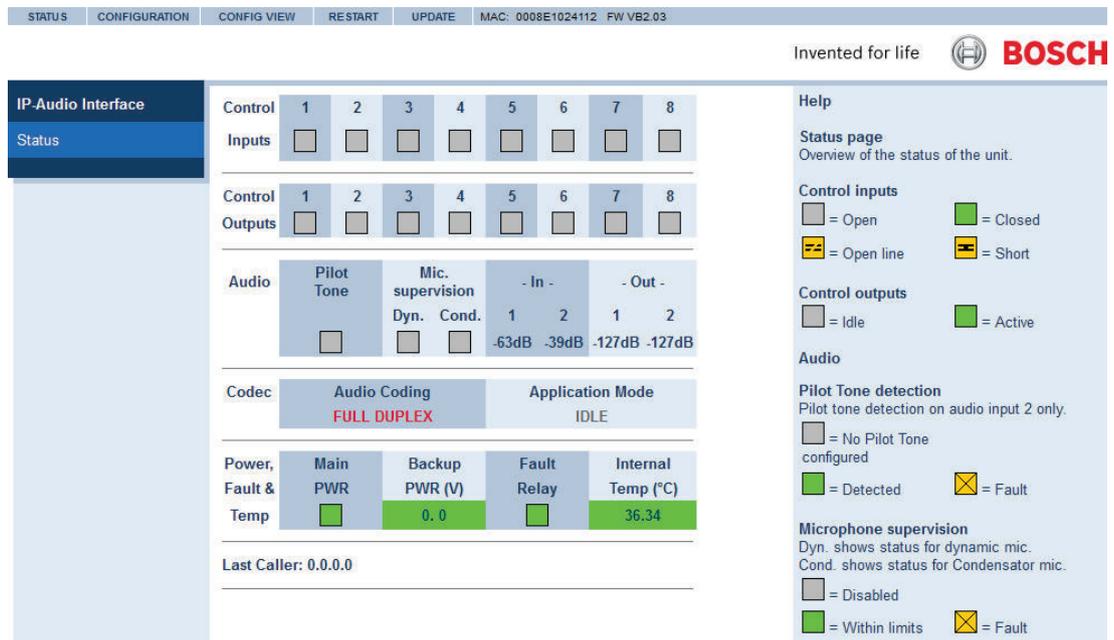


Figure 6.1: Status screen example

6.2 Configuration page

Click CONFIGURATION on top of the page. The Network menu on the left side is opened as a default. Here you can set the parameters for the:

Network (default page)

- Streaming
- Partner Table
- Outgoing Route Table
- Control

Audio Settings

Supervision

Control I/O mapping

- Control Input Mapping Table
- Control Output Mapping Table

Serial

SNMP

Security

Default Settings

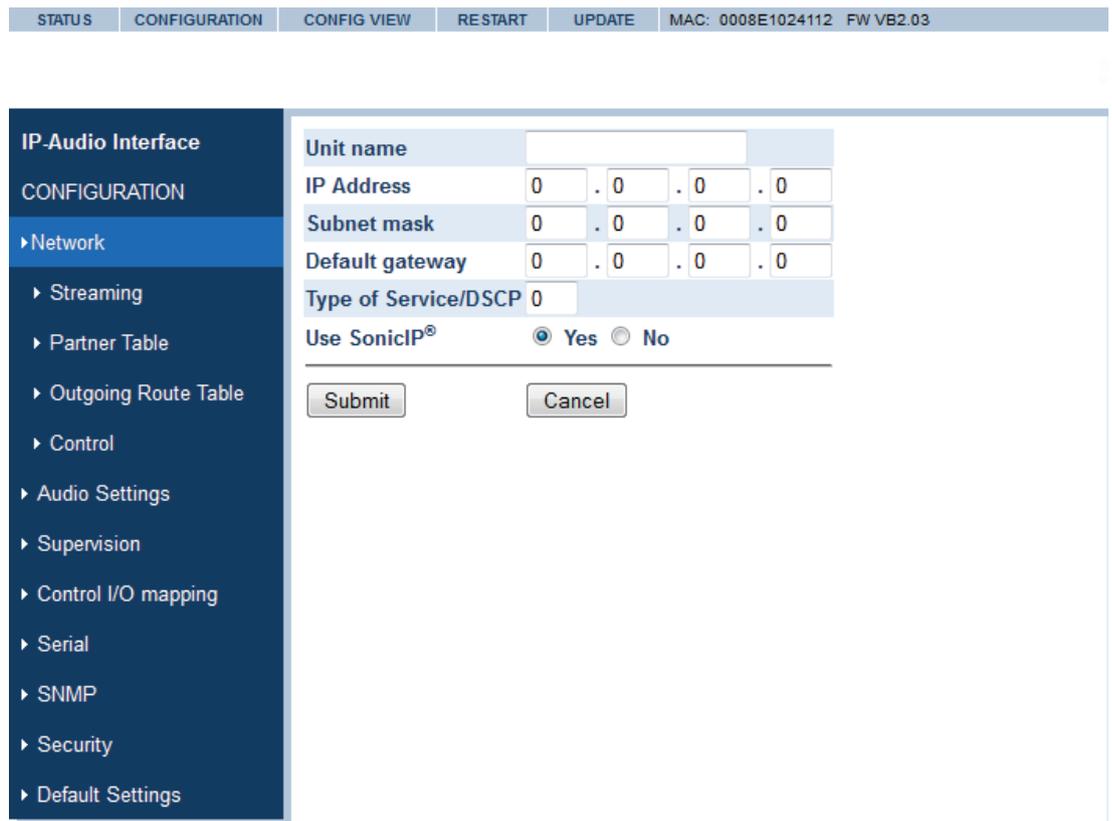


Figure 6.2: Configuration (Network) screen example

6.2.1

Network

Unit name

Default: clear

Enter a name for the device. This name will be displayed in the title of the web browser application page.

IP address

Default: 0.0.0.0

You can enter the 4 values of the announced IP address to create a static IP address, or ask your system administrator for a valid IP address and enter it here. Or you can enter e.g. 192.168.0.12 for an internal LAN.

Subnet mask

Default: 0.0.0.0

You can also enter the 4 values of the desired static IP address, or enter 255.255.255.0 for a C class network (standard).

Default gateway

Default: 0.0.0.0 (no gateway)

You can also enter the 4 values of the desired Gateway IP address, or 192.168.0.1 for a Gateway in a LAN.



Notice!

The Gateway has to be set only when connecting to other devices over a WAN through a router.

Type of Service / DSCP

Default value: 0 Differentiated Service Code Point (DSCP) is used for audio streaming. This supersedes the IP4 Type of Service (ToS) value and uses the same byte. Valid values are 0 - 63. Check for DSCP services available in your network to set this value. The recommended DSCP for voice traffic is the value 46 for Expedited Forwarding (EF).

Use SonicIP

Default: Yes

The device will announce its IP address over the Audio Outputs 1 and 2. If you select NO, then the device will not announce its IP address. This way start up is faster.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.2

Streaming

Audio is transmitted using RTP over UDP. This requires no special configuration other than defining the UDP ports to be used for the communication.

The screenshot shows the configuration interface for the IP-Audio Interface. On the left is a dark blue sidebar menu with the following items: CONFIGURATION, Network, Streaming (highlighted in blue), Partner Table, Outgoing Route Table, Control, Audio Settings, Supervision, Control I/O mapping, Serial, SNMP, Security, and Default Settings. The main content area is white and contains the following settings:

- UDP Receiver Port: 3030
- UDP Tx Source Port: 0
- Back channel: On Off
- Back channel period: 0 x 100 milliseconds

At the bottom of the settings area are two buttons: Submit and Cancel.

Figure 6.3: Steaming screen (default UDP settings)

UDP Receiver Port

Default: 3030

You can also select 0 if the port is disabled or enter a different number for receiving an RTP/UDP stream, between 0 (disabled) and 65535.

UDP Tx Source Port

Default: 0

This setting is only used with a custom software application. The default number 0 causes a random port to be used. Enter a specific source port number when sending an RTP/UDP stream. Enter a value between 0 and 65535.

Back channel

Default: ON

The Backward Signal Data (Back) channel may be turned ON or OFF. Set to ON if audio or control data should be send back to the transmitter device.

Back channel period

Default: 0 x 100 milliseconds

The Back channel period determines the rate at which control data is sent back to the audio transmitter within the range 100 ms to 4 s. The audio transmitter will then update the control output at a rate between 300 ms and 12 s.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.3

Partner Table

The *Partner Table* is used to set the route parameters of up to 16 remote IP Audio Interface devices (Partners).

Ptnr	Pri	CI	Blk Inc	Spr Ply	Re	Sup	IP address	Port
Un-known		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
1	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
2	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
3	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
4	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
5	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
6	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
7	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
8	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
9	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
10	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
11	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
12	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
13	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
14	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
15	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030
16	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.0 .0 .0 .0	: 3030

Submit Cancel

Figure 6.4: Partner Table screen (default)

Ptnr (Partner)

The first row, *Un-known*, is to configure the behavior of the receiving device for unknown partners, i.e. partners that are not identified by their IP address. Then the table continues with 16 partner entries. A multicast group must always be known, so multicast addresses are always compared with entries in the table. Unknown partners cannot have a priority assigned and cannot be activated by a Control Input.

Pri (Priority)

In this column enter the Priority of the incoming audio streams from partners (0 - 255). The stream with the highest priority (highest number) is accepted. Existing streams with a lower priority are overridden, even if selected by a Control Input. Full duplex connections are considered to be permanent one-to-one connections for which Priority settings are ignored.

CI (Control Input)

Enter the number of the Control Input (1 - 8) of the receiver that will accept the audio stream from this partner. If the transmitting partner is streaming (always) to this receiver, this selection determines the accepted audio stream unless it is overruled by a higher priority stream. The default 0 means that a stream from this partner is not selected by a Control Input. Full duplex connections are considered to be permanent one-to-one connections for which Control Input selections are ignored.

Blk Inc (Block Incoming)

Default: unchecked

Check the check box to block the incoming data from the respective partner. Priority and Control Input settings are ignored. The option to block individual partners is only available if the unknown partner is already blocked.

Spr Ply (Suppress Play)

Default: unchecked

Check the check box to suppress local playback of audio. This mode is used when re-broadcasting the incoming stream to other devices.

Re brd (Re-broadcast)

Default: Unchecked

Check the check box to allow for re-broadcasting to this IP address.

Sup vse (Supervise)

Check the checkbox to supervise the connection between the receiver and this partner. Even in case no audio stream is present the connection will be polled on a regular basis using an ICMP message type 1 (ping). The replies will be counted and if 3 consecutive pings are not answered the partner device will be assumed to be off-line and the fault relay is activated. Pings may also be lost due to network congestion but if the network connection is so bad that 3 consecutive replies are lost this condition should also be investigated. If all supervised devices come back on line then the fault relay will be cleared.

IP address

Default: 0.0.0.0

You can enter the IP address of the partner device here.

Port

Default: 3030

You can enter the port number of the partner device here, between 0 and 65535.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.4 Outgoing Route Table

The *Outgoing Route Table* is used to set the data stream for up to 16 remote IP Audio Interface devices (Partners).

Partner	Stream	Stream on Control Input								Stream on
	Always	1	2	3	4	5	6	7	8	Pilot Tone
1	<input type="checkbox"/>									
2	<input type="checkbox"/>									
3	<input type="checkbox"/>									
4	<input type="checkbox"/>									
5	<input type="checkbox"/>									
6	<input type="checkbox"/>									
7	<input type="checkbox"/>									
8	<input type="checkbox"/>									
9	<input type="checkbox"/>									
10	<input type="checkbox"/>									
11	<input type="checkbox"/>									
12	<input type="checkbox"/>									
13	<input type="checkbox"/>									
14	<input type="checkbox"/>									
15	<input type="checkbox"/>									
16	<input type="checkbox"/>									

Figure 6.5: Outgoing Route Table screen (default)

Configure the streaming depending on the following events:

Stream Always

Default: unchecked

Check the check box to automatically stream to the selected partners (1..16) on start-up. Instead of being always on, the stream can be activated on one or more Control Inputs or on detection of an incoming Pilot Tone. Please note that this activation is edge triggered and not level triggered, so streaming starts when one or more Control Inputs become active or when a Pilot-Tone is detected, but the streaming stops as soon as one of them is deactivated.

Stream on Control Input 1-8

Default: unchecked

Check the check box to stream to the selected partner (1..16) on activation of a Control Input (1..8).

Stream on Pilot Tone

Default: unchecked Check the check box to stream to the selected partner (1..16) on detection of a 20 kHz Pilot Tone on Audio Input 2.

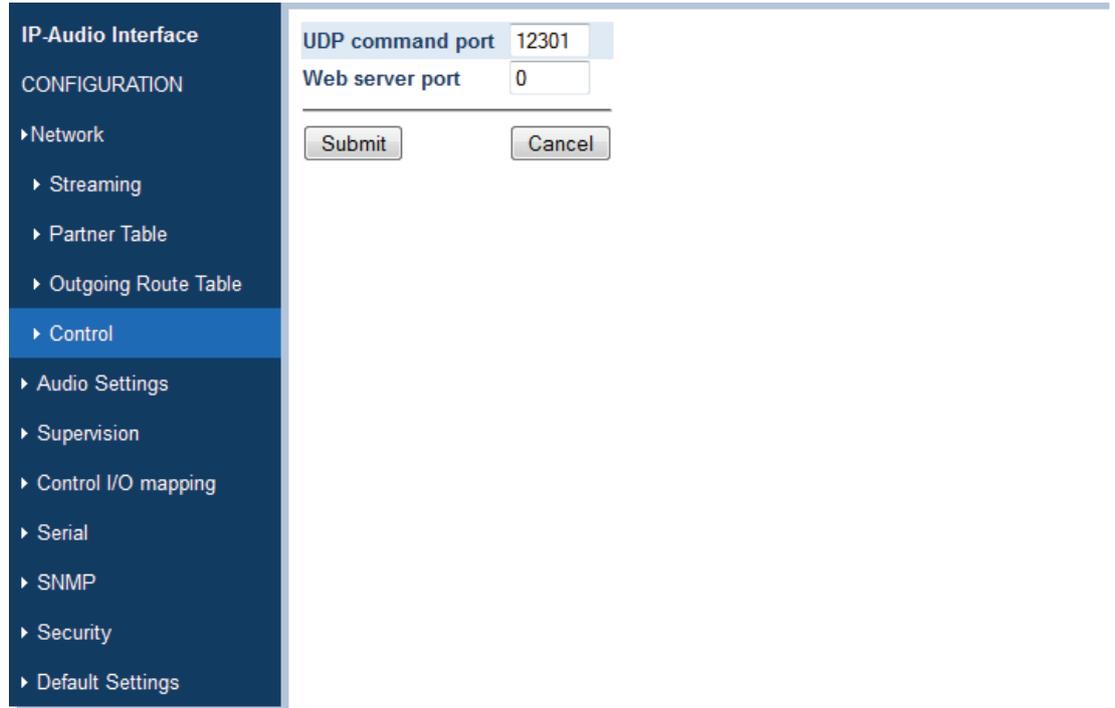
Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.5

Control

The *Control* menu is used to set the port on which the command data stream is received.



The screenshot shows the configuration interface for the IP Audio Interface. On the left is a dark blue sidebar menu with the following items: IP-Audio Interface, CONFIGURATION, Network (with sub-items Streaming, Partner Table, and Outgoing Route Table), Control (highlighted in a lighter blue), Audio Settings, Supervision, Control I/O mapping, Serial, SNMP, Security, and Default Settings. The main content area is white and contains two input fields: 'UDP command port' with the value '12301' and 'Web server port' with the value '0'. Below these fields are two buttons: 'Submit' and 'Cancel'.

Figure 6.6: Control screen (default)

UDP command port

Default: 12301

This sets the port through which the device will receive commands via UDP. To disable this port, set to 0.

Web server port

Default: 0

This sets the port through which the web server of the device can be reached. If set to 0, the default port 80 is used.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.6 Audio Settings

The *Audio Settings* are used to set all available audio input and output parameters.

The screenshot shows the 'Audio Settings' configuration page. On the left is a dark blue sidebar with a menu: 'IP-Audio Interface', 'CONFIGURATION', and several expandable items: 'Network', 'Audio Settings' (highlighted), 'Supervision', 'Control I/O mapping', 'Serial', 'SNMP', 'Security', and 'Default Settings'. The main content area is light blue and contains the following settings:

- Audio input:** Radio buttons for 'In 2, Line' (selected), 'In 1, Microphone', and 'In 1 + In 2, Line'. Under 'In 1, Microphone' are radio buttons for 'Dynamic' (selected), 'Condenser', and a checkbox for 'Supervision'.
- Microphone gain:** A dropdown menu set to '0' dB.
- Line gain:** A dropdown menu set to '0' dB.
- Loop In to Out:** Radio buttons for 'Yes' and 'No' (selected).
- Pilot tone super.:** Radio buttons for 'Yes' and 'No' (selected).
- Audio output:** A section header.
- Output level:** A dropdown menu set to '0' dB.
- Output delay:** A text input field set to '64' mSec.
- Audio format:** A section header.
- Encoding:** A dropdown menu set to 'PCM / 24 kHz (16bit)'.
- MP3 Encoding quality:** A dropdown menu set to '7 Highest'.
- Audio coding:** A dropdown menu set to 'Full Duplex'.

At the bottom of the form are two buttons: 'Submit' and 'Cancel'.

Figure 6.7: Audio Settings screen example

Audio inputs

Default: In 2, Line

For dual channel mode (MPEG encoding only), select input *In 1 + In 2, Line*.

To use a microphone, select *In 1, Microphone*. If a microphone input is selected, you can set the microphone type to *Dynamic* or *Condenser*. The phantom power supply for the microphone is automatically switched on when *Condenser* is selected.

Microphone supervision

Default: unchecked (disabled)

You can check the Supervision check box to enable microphone supervision.

Supervision of dynamic microphones is by measuring its impedance, supervision of a condenser microphone is by measuring its current consumption. When a supervised microphone gets disconnected or becomes defect a fault event is generated. This is visible on the STATUS page, see *Status page*, page 39.

Microphone gain

Default: 0 dB You can adjust the gain of the microphone input (0...22.5 dB) to adapt it to the microphone that is used.

Line gain

Default: 0 dB

You can adjust the gain of the line input (0...22.5 dB) to adapt it to the signal level of the source.

Loop Input to Output

Default: No

You can select Yes to route the Audio Input signal immediately to the local Audio Output. This is typically done for testing. Acoustical feedback (howling) may occur if a microphone and a loudspeaker are connected.

Pilot tone super. (Pilot Tone Supervision)

Default: No

When Pilot tone supervision is enabled, the presence of a 20 kHz pilot tone on audio input 2 is supervised and the result is shown on the status page. That status is also incorporated in the header of any audio stream transmitted. A receiving device can use this information to control its own pilot tone output.

By regenerating the pilot tone at the output of the receiving device, a pilot tone can be “transferred” from the input of the transmitter to the output of the receiver, even though the audio channel itself does not have a 20 kHz audio bandwidth.

Audio Output

- Output level

Default: 0 dB

You can select the output signal level (0...-70 dB) here. Audio Output 2 may have a fixed level 20 kHz pilot-tone signal.

- Output delay

Default: 64 ms

The default 64 ms is a practical minimum value. You can change this audio buffer size setting to adjust the delay before the received audio stream is played. A too low value may cause dropouts in the audio signal depending on the quality of the network connection. Higher delay values can be used with the purpose of acoustically aligning loudspeakers connected to different IP Audio Interfaces, e.g. in tunnel applications.

The maximum delay that can be selected depends on the chosen audio coding format and whether the audio stream is full duplex or not. A more efficient coding scheme, lower sample rate and half duplex mode allows for a longer delay. For G.711 (u-Law or A-Law) at 8 kHz sampling rate and half-duplex, the delay can be set up to approximately 8 s.

- Output level

Default: 0 dB

You can select the output signal level (0...-70 dB) here. Audio Output 2 may have a fixed level 20 kHz pilot-tone signal.

- Output delay

Default: 64 ms

The default 64 ms is a practical minimum value. You can change this audio buffer size setting to adjust the delay before the received audio stream is played. A too low value may cause dropouts in the audio signal depending on the quality of the network connection. Higher delay values can be used with the purpose of acoustically aligning loudspeakers connected to different IP Audio Interfaces, e.g. in tunnel applications.

The maximum delay that can be selected depends on the chosen audio coding format and whether the audio stream is full duplex or not. A more efficient coding scheme, lower sample rate and half duplex mode allows for a longer delay. For G.711 (u-Law or A-Law) at 8 kHz sampling rate and half-duplex, the delay can be set up to approximately 8 s.

Audio format

- Encoding
Default: MPEG1-L2/22.05 kHz
You can select the audio encoding format here.
Options are MPEG1/2-layer 2 and -layer 3 (better known as MP3), G.711 (u-Law, A-Law) or uncompressed PCM at various sample rates.
MPEG1/2-layer 2 and -layer 3 allow for 2-channel audio streaming; in that case select *In1* + *In2*, *Line* as audio input.
G.711 (u-Law and A-Law) and PCM are single channel modes; use either *In2*, *Line* or *In1*, *Microphone* as input.
The bit rate is highest for uncompressed PCM and lowest for MPEG1/2 formats.
- MPEG Encoding Quality
Default: 7 (Highest)
You can select a quality level between 0 (lowest) and 7 (highest) for the encoding quality. This setting is only valid for MPEG1/2-layer 2/3 (MP3). Higher quality settings use a higher bit rate and take up more network bandwidth. Also a higher sample rate for the same quality level increases the bit rate. If the required network bandwidth is not available (continuously) then audio dropouts may occur, especially for low delay settings. The bit rate varies between approximately 30 kbps (quality level 0, sample rate 16 kHz) and 190 kbps (quality level 7, sample rate 48 kHz) for 2-channels.

Audio Coding

Default: Full Duplex

Full Duplex is only available for the G.711 (u-Law, A-Law) and PCM formats. This means the device can simultaneously transmit an audio stream and receive an audio stream. In *Half Duplex* mode the device only receives audio streams or transmits audio streams.

If MPEG1/2 is chosen, the device can only operate as audio stream receiver or as audio stream transmitter, but not simultaneously. This is *Half Duplex* (or Simplex) mode.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.7

Supervision

The IP Audio Interface contains detectors for supervision of various functions of the device. This way internal or external failures, disconnections or short circuits can be detected. Faults are reported via the Fault Relay and can be passed to partner devices.

Supervision Sensor	Threshold Value
Max. internal Temperature	80 °C
Min. Backup PWR Voltage	0 Volt

Supervision Settings	Value
Remote Supervision Period	0 Secs

Supervision Sensor Mapping	
Supervision Sensor	Response
Control Inputs C1-C8	None
Temperature Fault	None
Backup PWR Fault	None
Main PWR Fault	None
Condenser Microphone Fault	None
Dynamic Microphone Fault	None
Pilot Tone	None
Stream Loss	None

Submit Cancel

Figure 6.8: Supervision screen (default)

Max. Internal temperature

Default: 80 °C

Enter the threshold for the *Maximum Internal Temperature*. If the set value is exceeded, a *Temperature Fault* is generated and shown on the Status page, see *Status page, page 39*.

Min. Backup PWR voltage

Default: 0

Enter the value for the *Minimum Backup Power Voltage*.

If the voltage drops below the set value, a fault is generated and shown on the Status page, see *Status page, page 39*.

Remote Supervision Period

Default: 0 seconds

Enter a value in the range 0 – 255 seconds. This is the time between consecutive pings to supervised partners (checked as such in the Partner Table, see *Partner Table, page 20*).

Supervision Sensor Mapping

Default: None

In the *Supervision Sensor Mapping* table you can select what actions should be taken if one of the faults occur that are in the table.

Options are: *None, Local, Remote, Local and Remote.*

- *None* means that no action is taken when this fault occurs, except for indication on the Status page, see *Status page, page 39.*
- *Local* means that the fault is only indicated on the device itself.
- *Remote* means that the fault is sent to and indicated on the partner devices.
- *Local and Remote* means that the fault is indicated on both the device itself and the partner devices.

Faults that can be mapped are:

Control Inputs 1..8 fault. This fault can occur if the connections to one or more of the Control Inputs are interrupted or shorted. Supervision should be enabled to detect this type fault, see *Control Input Mapping Table, page 29.*

Temperature fault. This fault occurs if the set temperature is exceeded, see *Supervision, page 27.*

Backup Power fault. This fault occurs when the backup voltage drops below the set value, see *Supervision, page 27.*

Main Power fault. This fault occurs when the main power supply becomes disconnected.

Condenser Microphone fault. This fault occurs when the connected condenser microphone becomes disconnected or fails. Supervision for the microphone input should be enabled, see *Audio Settings, page 24.*

Dynamic Microphone fault. This fault occurs when the connected dynamic microphone becomes disconnected or fails. Supervision for the microphone input should be enabled, see *Audio Settings, page 24.*

Pilot Tone fault. This fault occurs when no pilot tone is detected at Audio Input 2. Pilot Tone supervision should be enabled, see *Audio Settings, page 24.*

Stream Loss fault. This fault occurs when the incoming data stream is lost, e.g. because the device became disconnected from the switch. A Stream Loss fault can only be Local, as there is no way to inform the partner devices, because of the disconnection.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.8 Control Input Mapping Table

Control Input (CI)	Supervision	Remote Control Output (CO)
CI 1	No	None
CI 2	No	None
CI 3	No	None
CI 4	No	None
CI 5	No	None
CI 6	No	None
CI 7	No	None
CI 8	No	None

Submit Cancel

Figure 6.9: Control Input Mapping Table screen (default)

Defaults: No/None

In the *Control Input Mapping Table* for each of the Control Inputs the Supervision can be enabled and a response defined.

If Supervision is enabled for an input, then two 10 kohm resistors should be connected at the far end, close to the switch or relay that is triggering this input, see *Multiple Unicast*, page 14. If Supervision is not enabled, then the input can be connected directly to a switch or relay, without resistors. The operation of the Control Input is the same, but no unintentional open or short circuits can be detected anymore, as these are interpreted as normal trigger signals.

Each Control Input activation can be used to activate one of the eight Control Outputs of the connected partner devices. Please note that this activation is edge triggered and not level triggered, so multiple Control Inputs can activate the same Control Output, but the Control Output is de-activated as soon as one of Control Inputs is deactivated.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.9 Control Output Mapping Table

Control Output (CO)	Controlled by	Contact Status
CO 1	Not Used	Normally Open
CO 2	Not Used	Normally Open
CO 3	Not Used	Normally Open
CO 4	Not Used	Normally Open
CO 5	Not Used	Normally Open
CO 6	Not Used	Normally Open
CO 7	Not Used	Normally Open
CO 8	Not Used	Normally Open
Pilot Tone	Not Used	

Figure 6.10: Control Output Mapping Table (default)

Defaults: Not Used/Normally Open

In the *Control Output Mapping Table* for each of the Control Outputs the activator (trigger) can be defined and the way the relay contact behaves.

Options for the Control Outputs are *Not Used*, *Permanent*, *Remote*, *Remote & Audio Loss*.

- *Permanent* means that the Control Output contact is always Open or Closed, depending on the Contact Status.
- *Remote* means that the Control Output contact is allowed to be activated by remote actions of partner devices, see *Control Input Mapping Table*, page 29.
- *Remote & Audio Loss* means that the Control Output contact is deactivated when the connection to one of the partner devices is lost.

In Contact Status you can set whether the Control Output is *Normally open* and will make (close) on activation, or *Normally Closed* and will break (open) on activation.

The presence of a Pilot Tone on Audio Output 2 is considered to be special type of Control Output. The Pilot Tone can be permanently or conditionally present or not.



Notice!

When both the main and backup power supplies are lost all contacts will be Open regardless of the settings. The Fault Relay contact will be Closed.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.10 Serial (RS-232/RS-485)

This function is used for end-to-end serial data tunnelling with relatively low speed. This function is typically used for remote control, e.g. Pan/Tilt/Zoom control of a camera.

The screenshot shows the 'IP-Audio Interface' configuration page. The left sidebar contains a menu with the following items: CONFIGURATION, Network, Audio Settings, Supervision, Control I/O mapping, Serial (highlighted), SNMP, Security, and Default Settings. The main content area is titled 'Select Serial Port' and shows 'RS232' selected in a dropdown menu. Below this is the 'RS232 Serial Port' configuration section with the following settings:

RS232 Serial Port	
Baud rate	9600
Data bits	8
Parity	no
Stop bits	1
Handshake	none

At the bottom of the configuration area, there are two buttons: 'Submit' and 'Cancel'.

Figure 6.11: Serial (RS-232) screen default

Select either the RS-232 or the RS-485 port. Select the communication parameters as needed by the application and the connected devices. The serial parameters can be chosen independently at both ends of the communication. When tunneling, only the data is transmitted end to end, the RS-232/RS-485 control signals are only of local significance. The serial input is automatically detected and the device supports both binary and formatted data streams.

All data received from the network in one IP packet will be transmitted in one block without framing, formatting or the addition of extra characters.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.11

SNMP

The IP Audio Interface contains an SNMP agent that can report the device status information to a managing system using a Trap protocol operation.

The PRS-1AIP1 IP SNMP provides fault information via the following branches:

- *The commonly defined and shared “MIB II”:*
iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1)
- *The audio left and right channel states defined under the Barix branch at:*
iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).barix(17491).systems(2).audio(1).states(1)
- *The Bosch specific branch (where the Bosch specific traps are assigned sequentially):*
iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).barix(17491).oem(10).bosch(2)

The Bosch branch is further subdivided to define the supervised faults as data objects:
prs1aip1(1).faults(1)

One trap is defined which shall deliver a 16 bit fault register value as an INTEGER and a fault reason as an enumerated INTEGER. This closely mimics the information found in the Config View.

A formal definition of the required MIB is defined in BARIXOEMBOSCH.MIB which is provided as part of the release package on the CD.

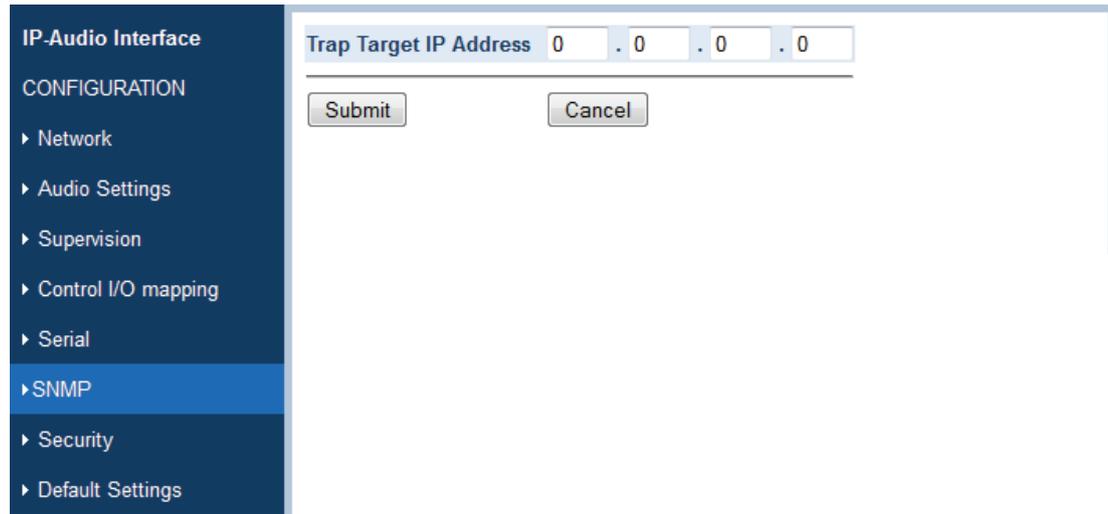


Figure 6.12: SNMP screen (default)

Trap Target IP Address

Default: 0.0.0.0

Enter the IP address of the SNMP trap destination.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

6.2.12

Security

It is recommended to set a password to prevent unauthorized use of the CONFIGURATION, UPDATE, STATUS and RESTART pages.

Level	Password	Status
Configuration / Update	<input type="text"/>	not set
Status Page View	<input type="text"/>	not set
Command / Reboot	<input type="text"/>	not set
SNMP Community RWrite	not protected	
SNMP Community Read	not protected	

Submit Cancel

Figure 6.13: Security screen (default)

When a password is set for access to one or more of the available functions, the user will get a pop up window when accessing this function and has to enter the password into the password field of the pop up window. Additionally, a user name can be entered but this is not necessary.

Configuration/Update password

Default: not set

Enter up to 24 characters to protect the configuration and firmware updates pages of the device. Enter 25 characters to erase the current password. To log out click on the Logout button below the menu bar. On the Configuration and Update page only one user can log in at a time. Other login attempts will be refused.

Status Page View Password

Default: not set

Enter up to 24 characters to protect viewing the devices Status Page. Enter 25 characters to erase the current password. To log out click on the Logout button below the menu bar. On the Status page several users can log in simultaneously.

Command/Reboot Password

Default: not set

Enter up to 24 characters to secure the Reboot page as well as the access to all control and command interfaces (WEB/CGI, Serial, TCP, and UDP). Enter 25 characters to erase the current password. To log out click on the Logout button below the menu bar. On the Reboot page only one user can log in at a time. Other login attempts will be refused.

SNMP Community RWrite

Default: not protected

Select the SNMP access rights for the Read and Write Community. You can select between: *not protected*, *Configuration/Update*, *Status Page View*, *Command/Reboot* and *no write access*.

SNMP Community Read

Default: not protected

Select the SNMP access rights for the Read Community. You can select between: *not protected*, *Configuration/Update*, *Status Page View*, *Command/Reboot* and *no access*.

Note that the Community RWrite setting takes priority. This means that if the Community RWrite is set to *not protected*, Community Read is ignored.

Submit / Cancel button

Submit saves the set values, restarts the device and returns back to the last screen. Cancel restores the last submitted values.

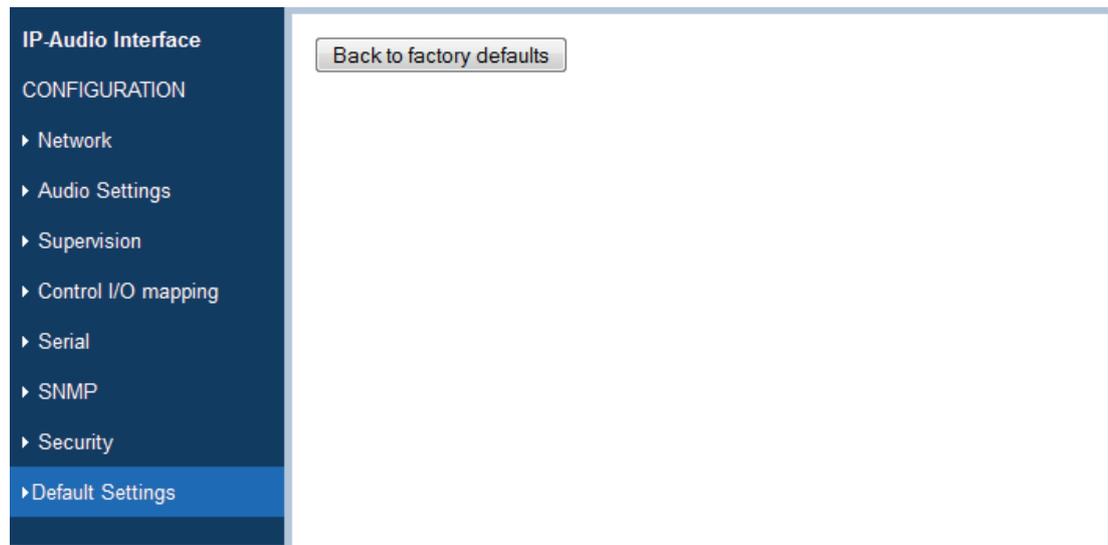
6.2.13**Default settings**

Figure 6.14: Default settings screen

Default settings

Clicking Back to factory defaults button to restore the factory defaults (except Network configuration). During the restart a countdown screen will appear. Then the successful loading of the factory defaults is confirmed.

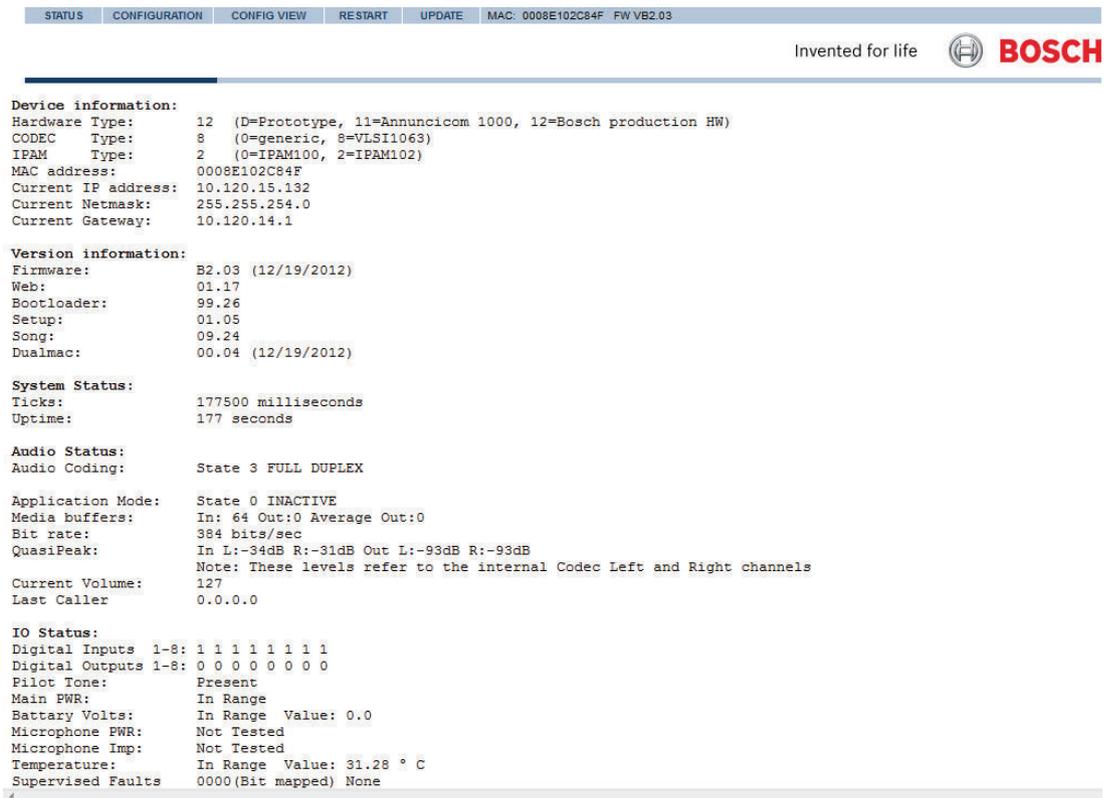
Hard default settings

To revert all settings (including the Network configuration) to factory defaults, the Reset button (1) has to be pressed for about 5..10 seconds while the device is powered.

6.2.14 Configuration view

When clicking CONFIG VIEW in the selection bar at the top of the page, all configuration settings are shown, including hardware and software version information of the device:

- Device Information
- Version Information
- System Status
- Audio Status
- I/O Status
- Network Configuration
- Streaming Configuration
- Control Configuration
- Audio Configuration
- Supervision
- Serial Configuration
- SNMP Configuration
- Security Configuration



```

STATUS CONFIGURATION CONFIG VIEW RESTART UPDATE MAC: 0008E102C84F FW V2.03
Invented for life  BOSCH

Device information:
Hardware Type: 12 (D=Prototype, 11=Annunicom 1000, 12=Bosch production HW)
CODEC Type: 8 (0=generic, 8=VLSI1063)
IPAM Type: 2 (0=IPAM100, 2=IPAM102)
MAC address: 0008E102C84F
Current IP address: 10.120.15.132
Current Netmask: 255.255.254.0
Current Gateway: 10.120.14.1

Version information:
Firmware: B2.03 (12/19/2012)
Web: 01.17
Bootloader: 99.26
Setup: 01.05
Song: 09.24
Dualmac: 00.04 (12/19/2012)

System Status:
Ticks: 177500 milliseconds
Uptime: 177 seconds

Audio Status:
Audio Coding: State 3 FULL DUPLEX

Application Mode: State 0 INACTIVE
Media buffers: In: 64 Out:0 Average Out:0
Bit rate: 384 bits/sec
QuasiPeak: In L:-34dB R:-31dB Out L:-93dB R:-93dB
Note: These levels refer to the internal Codec Left and Right channels
Current Volume: 127
Last Caller 0.0.0.0

IO Status:
Digital Inputs 1-8: 1 1 1 1 1 1 1 1
Digital Outputs 1-8: 0 0 0 0 0 0 0 0
Pilot Tone: Present
Main PWR: In Range
Battery Volts: In Range Value: 0.0
Microphone PWR: Not Tested
Microphone Imp: Not Tested
Temperature: In Range Value: 31.28 ° C
Supervised Faults 0000(Bit mapped) None

```

Figure 6.15: Configuration View example screen

6.2.15

Update

Click UPDATE on top of the web browser page to check and/or update the device firmware and CONFIGURATION pages. The already saved configuration parameters will not change at update.



Figure 6.16: Update example screen

Update kit

Unpack the zip file that contains the update kit and save it to a local drive. The update kit can be found on the supplied CD and/or Bosch Security Systems restricted download web page.

Click UPDATE on top of the page. The update page appears which shows the current device HW/SW version and a link. See “Update example” screen” screen.

Click *Please click here to start the update*. A countdown screen appears and then the next update page. See “Update file selection” screen.



Figure 6.17: Update file selection

Click *Browse* and select the file named *compound.bin* inside the folder *update_rescue*. See “Compound.bin selection” screen. Open this file.

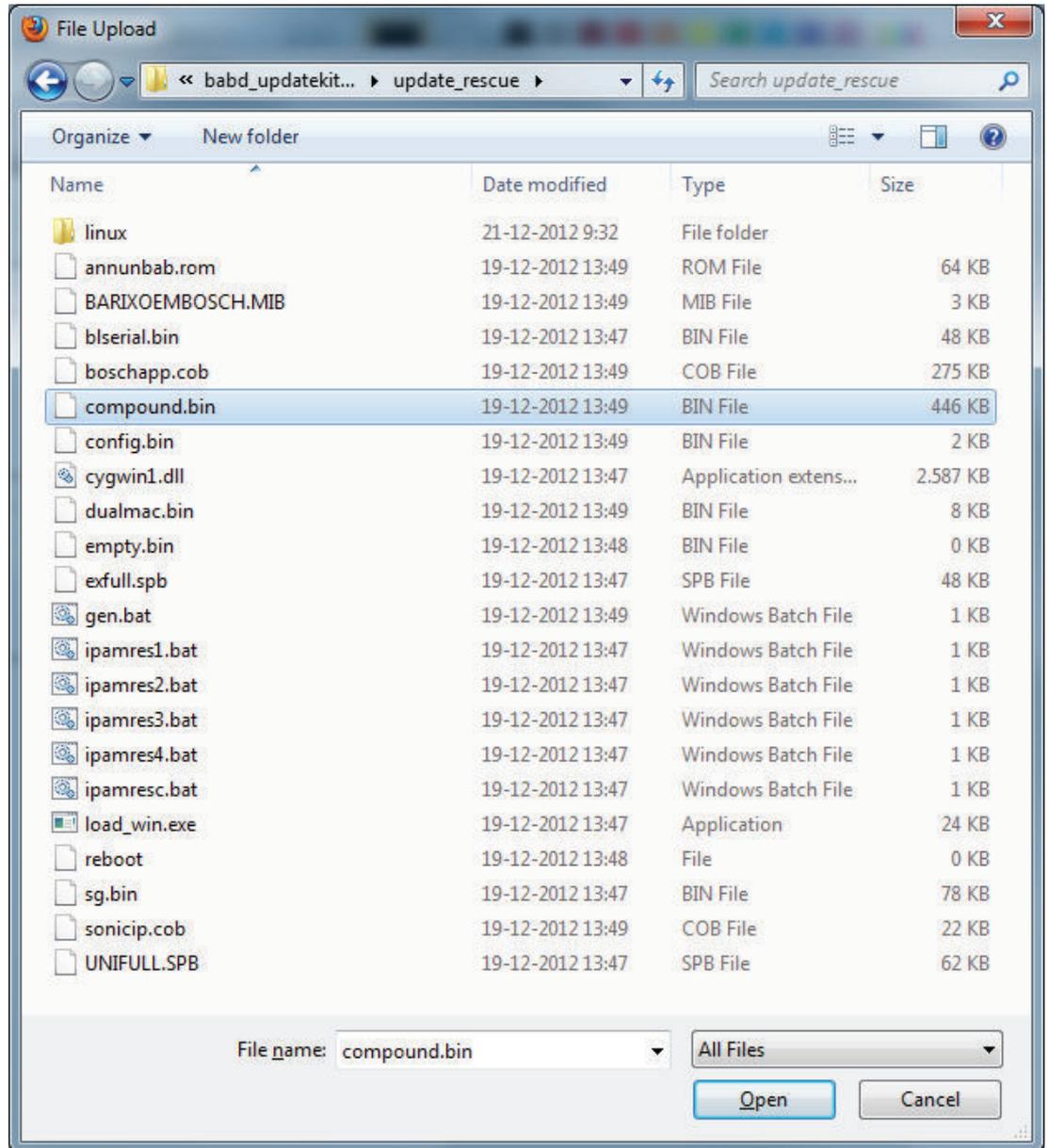


Figure 6.18: Compound.bin selection

Click *Upload*. See “File upload” screen. This process can take a few minutes. When completed, click *Reboot*.



Figure 6.19: File upload

After a successful upload, the following text `... \compound.bin successfully loaded` appears. See “Upload confirmation” screen.

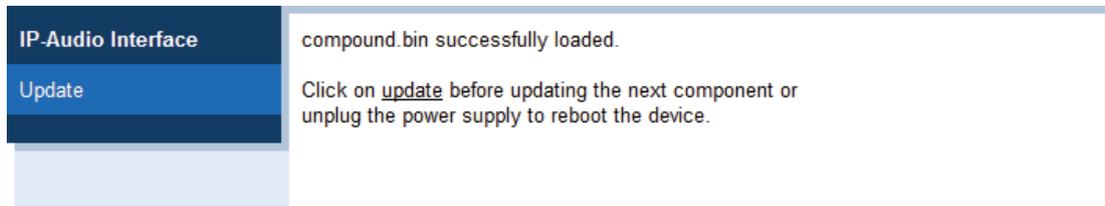


Figure 6.20: Upload confirmation

Then click *Update* and *Reboot*. Finally click *Click here to reload the main page*. The STATUS page appears.

Advanced Update

The link *Advanced Update* should only be used when requested. It allows for partial updates when the target address is known. Within this manual the *Advanced Update* function is not supported.

See also

- *Update*, page 36

7 Operation

7.1 Status page

The built-in web server generates the STATUS page in the web browser by default. Note that the STATUS page refreshes about every three seconds (screen flash).

Click STATUS on top of the page when the page is not visible. Note that Some browsers, for example, Google Chrome, do not support automatic refreshes.

The STATUS page is divided into sections and provides real-time information about:

- Control Inputs (1..8)**
- Control Outputs (1..8)**
- Audio**
- Codec**
- Power, Fault & Temperature**
- Last Caller**

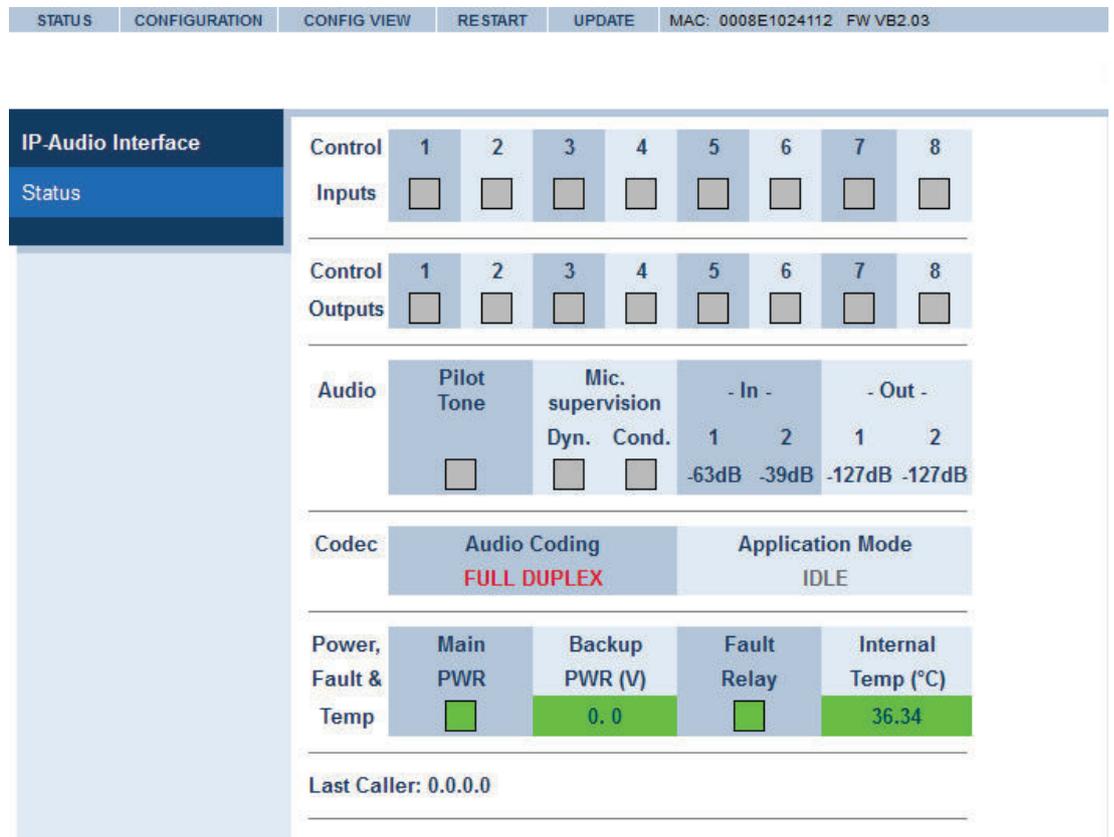


Figure 7.1: Status example screen

7.1.1 Control Inputs (1..8)

Visual indication of the Control Input status.

- Grey box: open contact
- Yellow box: open or shorted line
- Green box: closed contact

7.1.2 Control Outputs (1..8)

Visual indication of the Control Output status.

- Grey box: idle
- Green box: active

7.1.3 Audio

Visual indication of the Audio In/Out status.

Pilot tone (Audio Input 2 only).

- Grey box: no pilot tone configured
- Green box: pilot tone detected
- Yellow box: fault (pilot tone configured but not detected)

Microphone supervision (Audio Input 1 only)

Dyn.: status for dynamic microphone

Cond.: status for condenser microphone

- Grey box: supervision disabled
- Green box: microphone detected
- Yellow box: fault (microphone disconnected or shorted)

Audio In/Out 1 and 2

The audio peak level at Audio In 1/2 and Audio Out 1/2 in dB below maximum level.

7.1.4 Codec

Visual text indication of the data streaming status.

Audio Coding

- ENCODING: audio from an Audio Input is transmitted to the network
- DECODING: audio is received from the network and available on the Audio Output(s)
- FULL DUPLEX: audio from the Audio Input(s) is transmitted to the network and, at the same time, audio is received from the network and available on the Audio Output(s)
- DEVICE ERROR: indicates an error condition which is given in the CONFIG VIEW page

Application Mode

- IDLE: no data stream received or send
- TRANSMIT: data stream is sent to the network
- RECEIVE: data stream is received from the network
- TRANSMIT + RECEIVE: data stream is sent to the network and received from the network
- REBROADCAST: data stream is received from the network and retransmitted to a defined group of receivers (Partners)

7.1.5 Power, Fault & Temperature

Visual indication of the power, fault and temperature status.

Main PWR (values in Volt)

- Green box: main power supply (17) OK
- Yellow box: main power supply (17) fault

Back-up PWR (values in Volt):

- Green box: back-up power supply (16) OK
- Yellow box: back-up power supply (16) fault

Fault Relay

- Green box: no fault detected
- Yellow box: fault detected

Internal Temp. (°C)

- Green box: temperature is below the set limit
- Yellow box: temperature exceeds the set limit

7.1.6

Last Caller

Shows the IP address of the last device that called.

7.1.7

Restart Page

The RESTART button on top of the web browser page is used to restarting the device after configuration or when the device is not working properly.

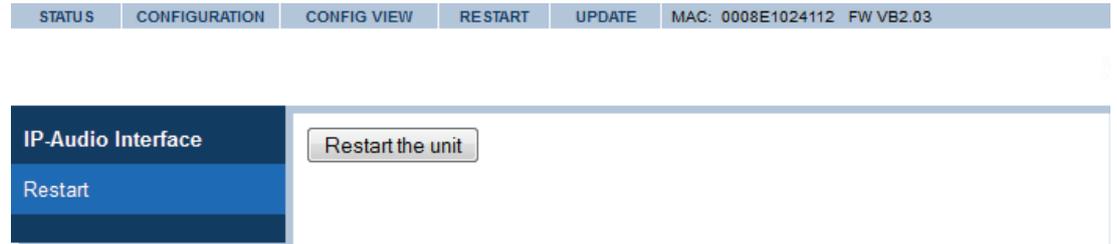


Figure 7.2: Restart screen

Restart the unit

Click RESTART on top of the web browser page. Then click *Restart the unit* to restart the device. During the restart a countdown screen is displayed.

After the successful restart is confirmed, leave the RESTART page by clicking any other menu item at the top of the page.

8 Maintenance

The PRS-1AIP1 is designed to operate over a long period of time. The unit contains no batteries or moving parts that could wear out and is sealed to avoid dust collecting within the unit. This means that there should be no need to open the unit.

- To clean the exterior of the unit, use a soft dry cloth. Do not spray any type of liquid directly onto the unit.
- Periodically check all cable connections for corrosion. Check the screw terminals to ensure connections are securely connected for optimal use of the unit.

9 Technical data

9.1 Electrical

External power supply 1	18 to 56 VDC
External power supply 2	18 to 56 VDC
Power consumption	8 W max
Microphone input (Audio input 1)	
Sensitivity	-48.5 to -26 dBV
Impedance	1360 ohm
Frequency response	100 Hz to 15 kHz
S/N	>60 dB
Supervision detection	Electret: 0.4 – 5 mA Dynamic: 120 – 1300 ohm
Line Inputs (Audio input 1 and 2)	
Sensitivity	-16.5 to +6 dBV
Impedance	22 kohm
Frequency response	20 Hz to 15 kHz
S/N	>70 dB
Pilot tone detection level (Input 2 only)	-30 dBV
Line outputs (Audio output 1 and 2)	
Level	6 dBV max
Pilot tone level (Output 2 only)	-20 dBV (20 kHz)
Audio formats	
MPEG 1-layer 3 (MP3)	32, 44.1 and 48 kHz sample rate
	Encoding up to 192 kbps VBR
	Decoding up to 320 kbps (Stereo)
MPEG 1-layer 2	16, 22.05 and 24 kHz sample rate
G.711	uLaw, aLaw at 8, 24 or 32 kHz sample rate
PCM	16-bit at 8, 24 or 32 kHz sample rate
Control inputs	8 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control / fault outputs	8 x / 1 x

Connectors	Removable screw terminals
Operation	Make contact (SPST, voltage free)
Rating	24 V, 0.5 A
Ethernet 1 and 2	
Connector	Dual RJ45, DTE-pinout
Standard	802.3i / 802.3u
Speed	10 / 100 Mbps, auto-negotiation
Flow	Full / half-duplex, auto-negotiation
Protocol	TCP/IP, UDP, RTP, SIP, IGMP, DHCP, SNMP
RS 232 / RS 485	
Connector RS 232	9-pin Sub-D male, DTE-pinout
Connector RS 485	Removable screw terminals
Pinout	300 to 115.200 Baud
Setting (default)	9600, 8, N, 1

9.2

Mechanical

Dimensions (H x W x D)	216 x 38 x 125 mm(8.5 x 1.5 x 4.92 in) (half 19" wide)
Weight	0.7 kg (1.5 lb)
Mounting	Stand-alone or in 19"-rack with additional frame
Color	Silver with Charcoal

9.3

Environmental conditions

Operating temperature	-5 °C to +50 °C (+23 °F to +122 °F)
Start-up temperature	0 °C to +50 °C (+32 °F to +122 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Humidity	15 to 90 %
Air pressure	600 to 1100 hPa

9.4 EMC and Safety

Electromagnetic compatibility	EN55011:2009 (Limit Class: B) EN50130-4:1995 + A1:1998 + A2:2003
Electrical safety	IEC60065 (CB-scheme)
Approvals	CE marking EN54-16 (0560 - CPD - 10219002/AA/04)

Bosch Security Systems B.V.

Torenallee 49

5617 BA Eindhoven

The Netherlands

www.boschsecurity.com

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